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FOREWORD

Brian Nolan

As local organiser of the 2004 International Role and Reference Grammar Conference it gives me great pleasure to introduce you to the RRG2004 Book of Proceedings.

The 2004 International Role and Reference Grammar Conference, was held July 21-25, 2004 Dublin, Ireland at the Institute of Technology Blanchardstown, to the north of Dublin city. The conference on '*Linguistic theory and practice: description, implementation and processing*' welcomed papers on the themes of:

- The lexicon and lexical decomposition in RRG.
- The RRG approach to morphology
- RRG and neurocognitive models of language processing
- Computational approaches to RRG
- Celtic Linguistics
- Diachronic syntax

We have collected here 24 papers from the event and these are testament to the breadth and quality of research presently being undertaken within the Role and Reference Grammar framework internationally. The papers, and indeed their authors, are from all corners of the globe. The annual RRG conference, which is in a different location each year, is important in that it is fundamental to embedding the RRG framework within the greater research culture of linguistics and of providing quality academic papers within the wider academic community.

On behalf of the conference organising committee, I hope that you enjoy the papers and find them to be of value to you in your research.

Thank you for a wonderful conference!

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AN RRG APPROACH TO SPANISH CLITICS ¹

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Spanish object clitics can be treated as pronominal arguments or as agreement markers. In the first case, one has to account for the function of the independent NP in the cases of “doubling”, and in the second for the possibility that there may not be an independent NP in the syntactic structure functioning as the argument with which they may agree. Their ambiguous nature can be captured by construction-specific approaches, such as Bresnan and Mchombo’s (1987) and Van Valin and LaPolla’s (1997). However, these approaches generate different representations of the same forms depending on the construction in which they occur, and miss a potential generalization in terms of the PSA hierarchy. Therefore I propose that object clitics, alongside subject-verb agreement, may be better accounted for as the morpho-phonological realizations of an Agreement Index Node, which would allow the same syntactic representation for “doubling” and “non-doubling” constructions.

Further, I suggest that the PSA hierarchy is relevant for capturing the likelihood that that a lexical PSA and the dative and accusative arguments will be syntactically expressed across different dialects, and the Argentinean and Mexican Spanish preference for coding the plural of the dative argument into a position that otherwise encodes the number features of the accusative. With regards to the expression of the independent NPs, I argue that it is governed by the activation levels of discourse referents, whereas its position depends on the possible focus types of Spanish three-place verb constructions.

Spanish is a dependent-marking language with, arguably, certain head-marking properties, exemplified by the fact that, as Lenz put it, “el verbo encierra en sí todo el régimen de la oración” (1920:54-55); that is, the verb stem, plus its subject agreement marker and the object pronominal clitics can constitute a sentence on its own. In that regard, the example in (1) illustrates a sentence in which the verb’s arguments occur as independent NPs, whereas (2) shows how the arguments can be also exclusively coded by bound forms.

- (1) Juan (*)le compró el regalo a María.
Juan DAT.3sing. bought-3sing. the present to María
‘Juan bought the present for María’
- (2) Se lo compró.
DAT.3sing. ACC.3sing. bought-3sing.
‘He bought it for her’

¹ This paper is based on the M.A. project I developed under the direction of Dr. Robert Van Valin at the University at Buffalo, SUNY. I would like to express my gratitude to Robert Van Valin, Dan Everett and Lilián Guerrero-Valenzuela for their generosity, constant support, and inspiring ideas. A complete version of the M.A. thesis is available on RRG website: <http://wings.buffalo.edu/soc-sci/linguistics/research/rrg.html>

Whereas the “subject” agreement on the verb-ending is clearly an affix, the status of pronominal clitics is more controversial. The traditional account has been to assimilate them to other pronominal forms, and therefore to assign them the same argument status that the corresponding strong pronouns or lexical NP would fulfill. For instance, in the preceding examples the function of “direct object” would be thought to be represented, respectively, by “el regalo” in (1) and by “lo” in (2).

The problem for this approach is that there are cases in which both the clitic and the independent NP co-occur in the same sentence, as illustrated in (1) for the dative and in (3) below for the accusative arguments:

- (3) (Lo) vio a Juan.
ACC.3sing. saw.3sing. to Juan.
'He saw Juan'

When the dative argument is a non-macrorole direct core argument of the verb, dative “doubling” is obligatory in Argentinean Spanish and widespread among other varieties. On the contrary, accusative “doubling” is more restricted: accusative clitic is obligatory for all dialects when the accusative NP is realized by a strong pronoun, as in (4) below; optional when the accusative NP is a lexical phrase (as in (3) above), and ungrammatical when this lexical phrase is unspecific, as in (5). Further, examples of accusative “doubling” such as (3) occur only in Argentinean Spanish.

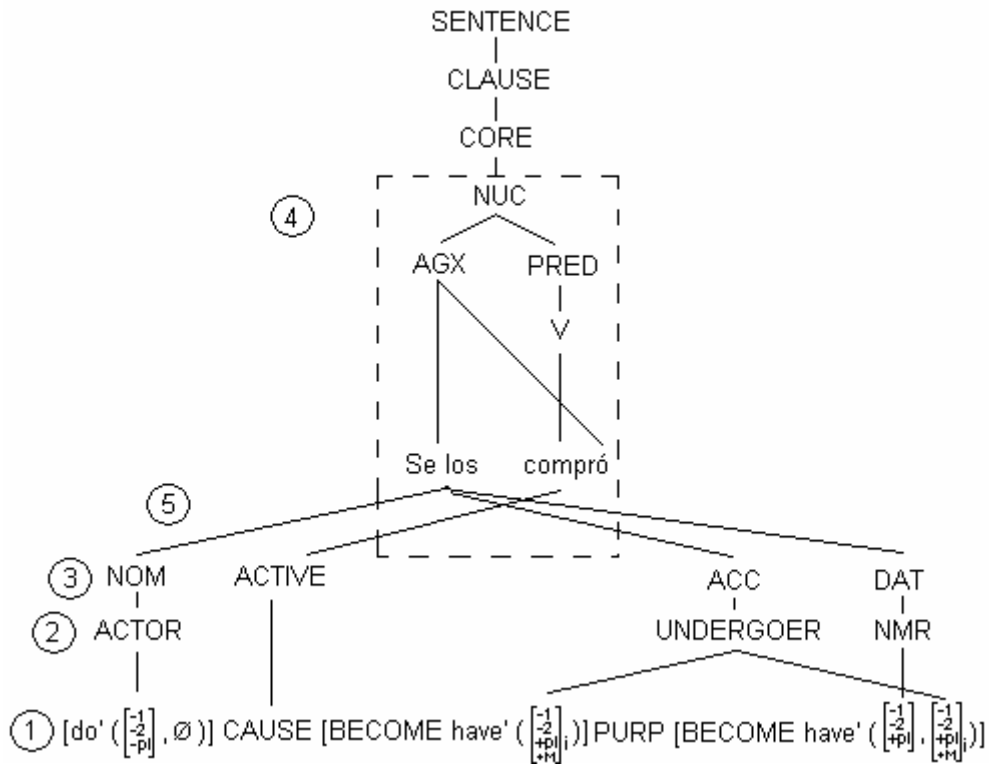
- (4) (*Lo) vio a él
ACC.3sing. saw.3sing. to he
'He saw him'
- (5) (*Lo) compró un regalo.
ACC.3sing. bought.3sing. a present
'He bought a present'.

Within the generative tradition, there have been two basic proposals in order to account for the cases of “doubling”: One is to posit that the clitics “absorb” either case or thematic role, thus licensing the potential co-occurrence of the independent NP (Rivas, 1977; Jaeggli, 1981), and the other is to treat clitics as agreement markers (on a par with “subject-verb agreement”), with the argument position either occupied by the independent NP or by a phonologically empty category, such as “pro” (Franco, 2000). If, on the other hand, one wants to avoid “abstract” syntax, this ambiguous nature of Spanish clitics (as similar cases in other “double-marking” type languages) may be accounted for in a construction-specific basis, which is the alternative favored, for instance, in Bresnan and Mchombo’s (1987) analysis of Chicheŵa’s verbal affixes. They claim that these elements may mark either grammatical or anaphoric agreement. In the first case, the NP bears an argument relation to the verb, whereas in the second it is the affix, as an incorporated pronoun, which functions as the verb’s argument, with the correferential NP marked as topic. In a similar vein, Van Valin and LaPolla (1997:331-2) also suggest that in “double-marking” type languages the independent NP counts as the core argument if present, with the bound markers on the verb functioning as the arguments otherwise.

The challenge posed by these constructions is whether it is possible to avoid resorting to phonologically null categories and abstract levels of representation and, at the same time, give a unified account of the elements involved. The idea I would like to advance is that, regardless of whether the clitics co-occur with independent NPs or not, they are realized via the information coded in an Agreement Index node (AGX), dependent of the NUCLEUS, which receives the agreement specifications of all core argument positions present in the Logical Structure (including the ones from the PSA). I suggest a modification of the Completeness Constraint so that the agreement features spelled out by the AGX are able to satisfy it, and a Spanish-specific step in the Linking Algorithms that links these agreement specifications in Logical Structure and the AGX in the Syntactic Template.

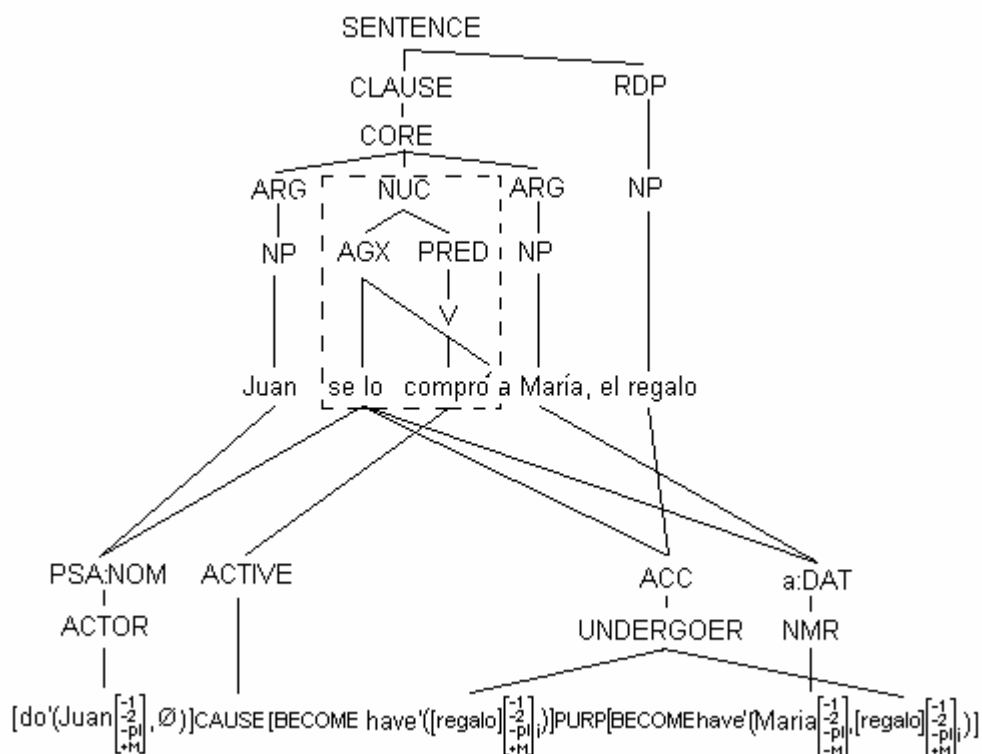
Specifically, following Everett's proposal (personal communication), and in accordance with a "realizational" view of morphology (Stump, 2001), I suggest that, in cliticized constructions, the arguments positions in the Logical Structure include a bundle of agreement features assigned to the AGX node and further interpreted by a morpho-phonological rule that spells out their correct realization. Let us remember that "realizational" views presuppose that it is the word's association with a set of morphosyntactic properties what "licences" the attachment of the corresponding affixes. In our case, the PSA agreement depends on a rule that interprets the information coded by the features marked for nominative, and spells them out in the verb-ending. Undergoer agreement (the "accusative clitic") depends on the features marked for accusative, and non-macrorole agreement (the "dative clitic"), on the ones marked for dative. For instance, the presence of the feature bundle '3 person', 'masculine' and 'plural' in an argument position marked for accusative case in the Logical Structure licenses a realization rule that generates "los" in the first position before the verb's stem. A feature bundle coding '3 person', 'plural' in an argument position marked for dative yield "les" (or "se" if accusative features are also present), in the preceding verbal slot, and so on.

An example of a fully pronominalized sentence illustrating the role of the AGX is presented in (7), '(S/he) bought them for them':



Regarding the morphosyntactic coding of the arguments in this example, since the actor is represented exclusively by feature bundles, there is no lexical PSA. The actor receives nominative case, the undergoer receives accusative case, and the non-macrorole receives dative. The syntactic template, according to this proposal, will crucially involve the AGX node alongside the PRED as a constituent of the NUCLEUS. The verb is linked to the V node, and the feature bundles to the AGX. That is, the AGX receives the features NOM, 3 person, singular from the actor; ACC, 3 person, masculine, plural from the undergoer; and DAT, 3 person, plural from the non-macrorole.

A similar schema would be used for the cases of “doubling”. An example is presented in (8), ‘Juan bought it for Maria, the present’:



As it is apparent, one of the factors affecting whether the arguments occur as lexical NPs, strong pronouns, or “clitics” depends on pragmatic constraints, such as whether they are topical or focal. In this respect, the cases of “doubling” present an interesting challenge, since it isn’t clear whether the relevant element, in terms of focus structure, is the clitic (typically used to code topical elements) or the independent NP (typically used to code focal elements). In fact, the approaches to “clitic doubling” based on information structure present contradictory results, which from our point of view are generated precisely by this ambivalence (cf. Colantoni, 2002; Weissenrieder, 1995). I will propose below a way of independently capturing these facts in terms of differences in activation levels of the discourse referents. Before going into that, we must note that due to pragmatic constraints in focus types, in a three-place verb construction the only non-actor argument allowed in the core is the non-macrorole. Therefore the ACC phrase, if occurs, has to occupy a core-external position. In this case, it is the RDP, since there is a pause separating the ACC phrase from the rest of the clause, and the resumptive accusative clitic is obligatory. The linking is similar to the one described for (7). One difference is that in this case the LS consists of both the features bundles and the lexical items that will appear in the syntactic structure.

The outcome of incorporating the AGX is a syntactic representation in which the clitics may co-occur with the independent NPs, linked in the same way as in a fully pronominalized sentence: there is no need to posit abstract levels of representation nor to vary the interpretation of the bound forms depending on the construction in which they occur.

Another advantage of this approach to “object clitics” is that it allows us to account for another “idiosyncrasy” of Argentinean Spanish. It is a well known morphosyntactic phenomenon of Spanish that in the context of clitic clusters the dative clitic ‘le/les’ takes the invariable form ‘se’. However, much less attention has been given to the

“innovative” tendency to index the number of the dative argument, if plural, into the “accusative clitic”, as in (9):

- (9) Juan les compró el departamentoy a sus hijosz
 ‘Juan bought the apartment for his sons.’
 → Juan SEz LOSy compró.

The most widespread interpretation of this phenomenon is to consider it an “error” ascribed to “popular speech”. Alonso and Henríquez Ureña (1951) include a reference to it in the section “Error Correction” of their grammar; Kany (1945:141) labels it a “syntactic error”; and Flórez (1977:141) states that it is “apenas pasable en el habla familiar” (barely acceptable in informal style).

In a sense, the very profusion of grammarians recognizing this “marginal error” suggests that the phenomenon may be more widespread they may want to recognize. This is in fact what the extensive corpora gathered during the 70’s throughout major Latin American and Spanish cities seems to suggest. These corpora of spontaneous oral speech were collected following precise pre-established norms that render them quite homogeneous, and were aimed to reflect the production of cultured speakers². The table in (10) represents the occurrence of the innovative vs. orthodox cliticization in different dialects (from De Mello, 1992):

“SE LOS” VS. “SE LO” WITH SINGULAR DIRECT OBJECT REFERENT				
CITY	SE LOS		SE LO	
BOGOTA	6	(75%)	2	(25%)
BUENOS AIRES	10	(67%)	5	(33%)
CARACAS	6	(25%)	18	(75%)
HAVANA	4	(57%)	3	(43%)
LA PAZ	0	(0%)	0	(0%)
LIMA	0	(0%)	2	(100%)
MADRID	0	(0%)	6	(100%)
MEXICO CITY	13	(76%)	4	(24%)
SAN JUAN	0	(0%)	6	(100%)
SANTIAGO	9	(53%)	8	(47%)
SEVILLA	0	(0%)	2	(100%)
TOTAL	48	(46%)	56	(54%)

This table shows that, despite the total number of fully pronominalized three-place predicates is small, the innovative cliticization represents the most common use in several dialects of American Spanish. The scarce studies that mention this phenomenon assume that it occurs as a way of solving the ambiguity generated by the lack of number inflection in the suppletive form of the dative clitic.

One must note however that the “ambiguity solving” hypothesis is flawed in that these constructions do not resolve the potential for ambiguity in the interpretation of the

² The corpora to which I am referring are the result of the “Proyecto de estudio combinado de la norma lingüística culta de las principales ciudades de Iberoamérica y de la Península Ibérica”, whose objective was to collect a corpus of spoken Spanish to serve as the basis for language study (cf. De Mello, 1992).

referential meaning. If “se lo” leaves the hearer to infer from the context the number of the dative, “se los” leaves the hearer to infer which participant (whether the accusative or the dative) is referred to by the plural morpheme.

Another challenge for the “ambiguity solving” analysis derives from the fact that, as it is also noted by Company (1998:536), it is often the case that the dative NP to which se is referring occurs in the same sentence or in the sentence immediately preceding the clitic cluster; or that its referents are the hearers themselves, all contexts which render the number clarification “unnecessary”. This can be illustrated with an example taken from the interviews that constitute the corpus of “El Habla Culta de la Ciudad de Buenos Aires” (HCBA, Barrenechea 1987; interview 11):

- (11) Es la anécdota más pintoresca que yo tengo porque jamás me pasó una cosa así en mi vida. Tengo muchas, ¿no?, pero esa me parece que es más divertida para contárselas a ustedes.

It is the most colorful anecdote that I have, because it never happened to me a thing like this in my life. I have a lot, you see?, but that one it seems to me that it is funnier to tell you all about.

In this example “se” refers to the hearers (“you all”), and “las” to the (singular) anecdote. The plural morpheme attached to the accusative clitic is, thus, coding the plurality of the dative argument.

I would like to suggest that this “innovative” marking is consistent with the animacy principle proposed by Van Valin and LaPolla (1997), and goes in accordance with the pattern of co-occurrence of clitics and NPs in the “innovative” dialects. In RRG, case marking and agreement rules make crucial reference to macroroles and direct core argument status (Van Valin, in press:18). In our case, we see that the emergence of the bound forms in the verb and the morphological information they code also makes reference this principles. In other words, for these dialects the presence of a non-macrorole direct core argument seems to determine both the obligatory agreement of the verb with this second-highest argument and the emergence of its plural features in the clitic cluster.

The realizational approach suggested before allows us to capture this “innovative” marking in terms of the rules realized by the AGX. My proposal is that the rules “read” the information linked to the AGX in a fixed sequence: first the features from the actor, then the ones from the undergoer, and finally the ones from the non-macrorole: NOM : person : number > ACC : person : gender : number > DAT : person : number. If the ACC information does not fill the plural slot (i.e. if it is marked “-plural”) the plural features from the DAT may be spelled out in this available position, yielding the sequence “se lo/a-s” preferred by “innovative” speakers.

Another issue that we need to address is whether we can advance an independent motivation for the occurrence of the clitics and/or the independent NPs. As mentioned before, there is a pragmatic constraint in terms of focus types that prevents the undergoer to be focal in three-place verbs constructions. However, focus types alone cannot account for the patterns of potential “doubling” of the PSA and non-macrorole. The presence of the PSA in its canonical preverbal position (unless receiving

contrastive focal accent) expresses a topical element and, therefore, if one is constrained exclusively to the distinction between topic and focus in sentence structure, it is difficult to account for the fact that the topical element is nevertheless not so topical as to be omitted, which would be the expected result in a pro-drop language such as Spanish. Likewise, a distinction merely in terms of sentential focus structure cannot explain why, in two-place verbs constructions, accusative strong pronouns must be doubled by the accusative clitic, whereas this “doubling” is optional if the accusative phrase is expressed by a lexical item. Focus structure alone also fails to explain why is it that when the accusative clitic “doubles” a lexical phrase, such phrase is necessarily interpreted as presupposed, despite falling within the domain of the neutral focal accent in the syntactic structure (cf. 3 above).

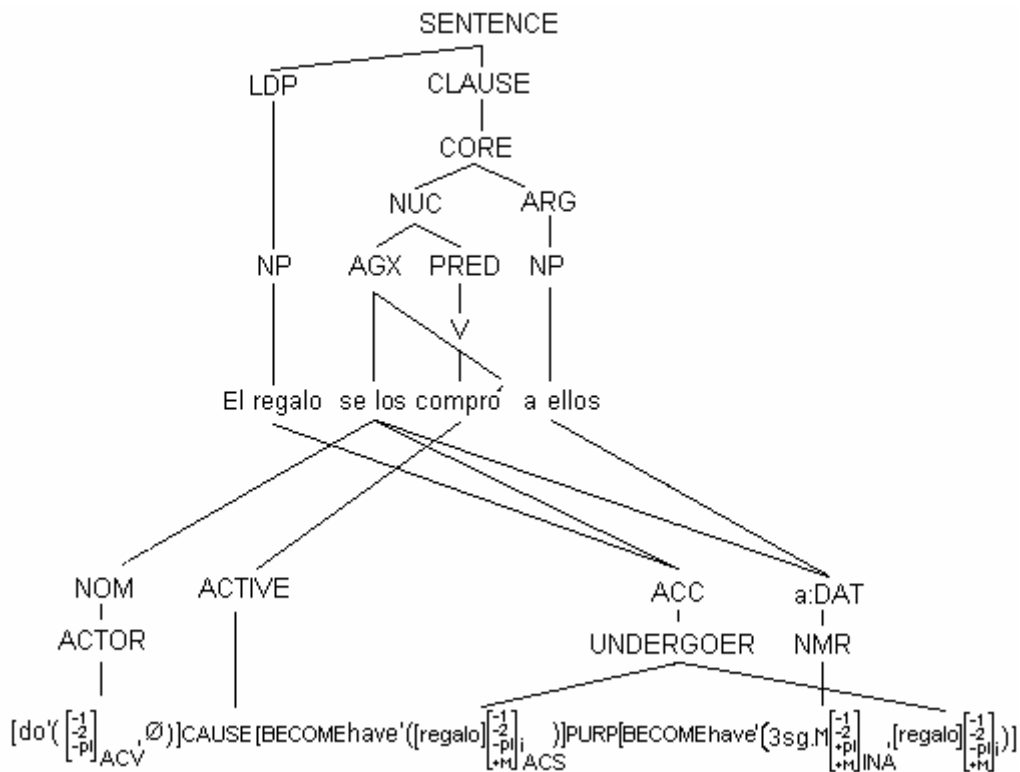
In order to explain these phenomena, I would like to suggest that the relevant distinctions seem to be in terms of the distribution of activation levels in discourse representation, which is orthogonal to focus structure. RRG incorporates the discourse referents’ activation levels as part of the information expressed in each of the argument positions in the LS. Following studies by Prince (1981b) and Chafe (1987), Van Valin proposes that there are, at least, five categories: active, i.e. actively under consideration in the discourse by means of direct mention; accessible, i.e. not actively under consideration but readily recognized by the addressee due either to knowledge of the world or occurrence in the immediate environment of the speech situation; inactive, i.e. previously mentioned but not actively under consideration and not assumed by the speaker to be recognized by the addressee; brand new anchored, i.e. not previously mentioned but related to something already mentioned or accessible; and brand new unanchored, i.e. not previously mentioned or related to anything previously mentioned (in press:70).

A detailed study of actual corpora is needed to examine how these categories interact with the representation of the referents in the syntactic structure in the kind of constructions we are analyzing. We may advance, however, the prediction that the argument positions will be expressed in the syntactic structure exclusively by means of verb agreement when the referents are active. In the case of the actor and NMR, verb agreement will co-occur with a pronominal phrase if their argument positions are accessible, and with lexical phrases if inactive or brand new. With regards to the undergoer, if it is accessible the agreement on the verb will co-occur with a co-indexed strong pronoun, whereas if it is inactive it will co-occur with a lexical NP. Finally, if the argument is brand new, it will be represented in the syntax by the lexical phrase exclusively.

The table in (12) summarizes the possible cases, representing whether the AGX will spell out the agreement features of each of the arguments and whether there will be lexical or pronominal phrases co-occurring with them under each condition. Highlighted, the possible instances of “direct object doubling”, predicted in this model by the activation levels of the referents:

	ACTOR		UNDERGOER		NMR	
	AGX	NP	AGX	NP	AGX	NP
Active	Yes	No	Yes	No	Yes	No
Accessible	Yes	Pronom. Phrase	Yes	Pronom. Phrase	Yes	Pronom. Phrase
Inactive	Yes	Lexical Phrase	Yes	Lexical Phrase	Yes	Lexical Phrase
Brand-new anchored	Yes	Lexical Phrase	No	Lexical Phrase	Yes	Lexical Phrase
Brand-new unanchored	Yes	Lexical Phrase	No	Lexical Phrase	Yes	Lexical Phrase

An illustration of the result of the semantics to syntax linking including this information (and therefore motivating how the arguments will be realized) is shown in (13), ‘The present (s/he) bought it for them’. In this example the actor argument is active, and therefore represented exclusively by the features bundle realized by the AGX. The undergoer argument is inactive, and accordingly represented both by the features bundle occupying the corresponding argument position and by a lexical item that occurs in the syntax in the LDP. The non-macrorole argument is accessible, and therefore the features bundle linked to the AGX co-occur with the pronominal information realized in the syntactic structure by the strong pronoun, which receives neutral focal accent.



To summarize, I have addressed some of the challenges raised by clitic constructions in Spanish, paying particular attention to the ones that involved third-person clitic clusters. I focused in the Spanish spoken in Argentina, which presents two features that distinguish it from other dialectal varieties. One of them is the co-occurrence of the accusative clitic and the independent accusative NP in two-place verb constructions (i.e. cases of “direct object doubling”). The other consists on what has been described as the marking of plurality into the accusative clitic, regardless of whether it is the accusative or the dative referent in the clause or discourse representation which serves as the plural antecedent.

I suggested that the model of Role and Reference Grammar can explain both the formal and functional aspects of cliticized constructions without resorting to empty categories or abstract levels of representation. I advanced the idea of treating Spanish clitics as a result of a “realizational” rule that spells out the morphosyntactic properties associated with the verb, and suggested that the occurrence of independent NPs depends on the activation level of the arguments, with its position determined by focus structure.

As I mentioned, the cross-dialectal extension of “subject” and “object” agreement coding on the verb with co-occurring independent NPs seems to follow the same ranking principles than RRG’s PSA hierarchy. Spanish finite verbs always trigger verb agreement with the highest-ranking argument. In turn, verb agreement with the second-highest argument (a co-occurring non-macrorole direct core argument) is widespread across many Spanish dialectal varieties, although not obligatory. Finally, verb agreement with the lowest-ranking argument (a co-occurring lexical undergoer in two-place verb constructions) is limited to the Argentinean dialect and, further, to inactive referents. Likewise, the same ordering seems to be responsible for the preference for marking the plurality of the second highest ranking argument (the dative), overriding the singular features of the lower-ranking one (the accusative), thus yielding the occurrence of the “innovative” number coding mentioned before.

Again, a detailed study of spontaneous texts needs to be carried out to further support these ideas, and many of their details needs to be refined. However, I hope that the present proposal may open a possible way for treating these “loose threads” that clitics seem to represent in Spanish grammar within a more homogeneous fabric.

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UNEXPRESSED ARGUMENTS: *SI*-CONSTRUCTIONS IN ITALIAN

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Building upon Van Valin and LaPolla (1997), I develop a unified account of Italian *si*-constructions (clitic reflexives, middles, impersonals, and passives). I propose that *si*-constructions are characterised by the suppression of the highest-ranking argument, and that the morpheme *si* is not an argument, but rather a marker of argument suppression. I further develop a typology of unexpressed arguments, and I advance some proposals on their representation in Logical Structure and syntax.

1. Introduction*

The aim of this paper is to propose a unified account of Italian *si*-constructions (clitic reflexives, impersonals, passives, and middles) adopting the theory of linguistic analysis which is called Role and Reference Grammar (henceforth RRG) and is expounded in Van Valin/LaPolla (1997, henceforth VVLP). I first provide a synopsis of the work which has so far been conducted in RRG on clitic reflexives (Centineo 1995, VVLP) (§ 2). Then I propose a unified analysis of Italian clitic reflexives (§ 3, 5), *si*-impersonals and passives (§ 4), and middles (§ 6). My account of Italian *si*-constructions constitutes the basis of some observations on the notion of unexpressed argument (§ 7). The conclusions are drawn together in 8.

2. The existing RRG analyses of clitic reflexives in Italian

Building upon work by Centineo (1995), VVLP (409-418) have developed a causative analysis of Italian intransitive reflexives (1) and benefactive reflexives (2):

- 1) Francesca *si* è vista allo specchio (intransitive)
Frances REFL be.3SG see.PP.FSG at.the mirror
'Frances has seen herself in the mirror'
- 2) Francesca *si* è comprata una casa (benefactive)
Frances REFL be.3SG buy.PP.FSG a house
'Frances has bought herself a house'

* This is the first paper which I have written after the birth of my son Paolo Evan. I dedicate it to him. I am grateful to Robert Van Valin Jr., for valuable comments on a previous version of the paper, and to Valeria Belloro, Daniel Everett, Virve-Anneli Vihman, and Björn Wiemer for helpful discussion of reflexive and impersonal constructions, as well as of Romance clitics. All shortcomings are, of course, mine. The contents of the paper are part of my work in progress on split intransitivity in Italian (Bentley in preparation), and a number of the issues discussed are so far unsolved. The abbreviations used in the paper are as follows: F = feminine; IMP = impersonal; M = masculine; MI = middle; NEG = negation; OCL = object clitic; PL = plural; PP = past participle; REFL = reflexive; SCL = subject clitic; SG = singular; U = undergoer.

In essence, VVLP's view of the Italian reflexive structures exemplified in (1) and (2) is that they amount to causative constructions comparable to the one illustrated in (3):

- 3) La finestra si è chiusa (causative)
 The window REFL be.3SG close.PP.FSG
 'The window has closed'

Evidence for a unified analysis of causatives and intransitive ~ benefactive reflexives comes from their compatibility with manner adverbials (cf. also Cennamo 1995: 97) (4), and their interpretation under causative *fare* 'make' and perceptual *vedere* 'see' (5):

- 4a) La finestra si chiude facilmente / con una spinta
 The window REFL close.3SG easily with a push
 'The window closes easily / with a push'

- 4b) Francesca si taglia facilmente
 Frances REFL cut.3SG easily
 'Frances cuts herself easily'

- 5a) Ha visto / fatto chiudere la finestra
 Have.3SG see.PP make.PP close the window
 'S/he has seen the window close / the window being closed'
 'S/he has closed the window / made someone close the window'

- 5b) Ha visto / fatto tagliare Francesca
 Have.3SG see.PP make.PP cut Frances
 'S/he has seen Frances cut herself / somebody cut Frances'
 'She has made Frances cut herself / somebody cut Frances'

Since manner adverbs co-occur with activity predicates, encoding states of affairs produced by an intentional or unintentional effector, the compatibility of the structures under investigation with manner adverbials suggests that there is an unexpressed, possibly causal, activity in their semantic representation (or Logical Structure, henceforth LS). The double interpretation under causative *fare* 'make' and perceptual *vedere* 'see' supports this hypothesis. In fact, as is clear from the English translations of the examples in (5a-b), both kinds of structure allow the predicate in the infinitive to be part of a causative LS with an external unspecified causer. This causer need not coincide with the overt causer of *fare*.

Given that Romance clitic reflexives have been equated to unaccusatives (Grimshaw 1990, Labelle 1992, Marantz 1984),³ that is, in RRG terms, intransitive states,

³ Recently, Reinhart and Siloni (2004) have argued against the unaccusative analysis of clitic reflexives in the light of evidence from *en/ne*-cliticisation in French and Italian (i)-(iii), and from reduced relatives (iv)-(v): (i) **Il s'en est lavé beaucoup dans ces douches publiques* 'There are many who washed in these public showers'; (ii) *Il s'en est cassé beaucoup dans ce lave-vaisselle* 'There are many that broke in this washing machine'; (iii) **Se ne sono vestiti tre* 'Three (of them) washed themselves'; (iv) **L'uomo lavatosi ieri...* 'The man who washed himself yesterday'; (v) *Il bicchiere rotti ieri* 'The glass that broke yesterday'... According to Reinhart and Siloni (2004), assuming that *en/ne*-cliticisation and reduced relatives are unaccusative diagnostics, data such as those shown above suggest that reflexive structures are not unaccusative. In my view, the evidence cited by Reinhart/Siloni simply suggests that there are various classes of clitic reflexives (see below). Significantly, similarly to French *en*, Italian *ne*-cliticisation is grammatical with some classes of reflexives: *Se ne sono pentiti tre* 'Three (of them) repented'. I should also add that, in my variety of Italian, (iii) is not entirely ruled out, and (iv) is grammatical.

achievements or accomplishments, it is worth pointing out that the evidence cited in (5a-b) does not hold for unaccusatives:

- 6) Ha visto / fatto affondare la nave / marcire la frutta
 Have.3SG see.PP make.PP sink the ship rot the fruit
 ‘S/he has seen / made the ship sink / the fruit become rotten’
 (not ‘S/he has seen / made someone sink the ship / someone make the fruit become rotten’)

It could be argued that the facts shown in (5a-b) simply depend on the possibility for the non-reflexive counterparts of the predicates in question to take two macrorole arguments, i.e. to be transitive.⁴ If this were the case, the evidence in (5a-b) might not be significant vis-à-vis the supposed presence of an unspecified causer in the LS of clitic reflexives. We shall see below that this is an important consideration, which allows us to distinguish between two classes of reflexives. For the moment, however, I should note that *affondare* ‘sink’ does have a transitive counterpart. However, it does not normally receive the double interpretation seen above with reference to (5a-b). This depends on the fact that transitive *affondare* is lexically causative, and thus the default reading of (6) is one whereby the causer of *affondare* corresponds to the *fare* causative.

There is further evidence in support of the causative analysis of clitic reflexives proposed by VVLP. In particular, in Modern Italian, the reflexive morpheme *si* is incompatible with causative *fare* (7a) (see also (5a-b)), unless the *fare*-causer corresponds to the highest-ranking argument of the clitic reflexive (7b) (cf. Lepschy/Lepschy 1988 and Renzi/Salvi 1991):

- 7a) Giorgio (*si) ha fatto pentir(*si) Francesca
 George REFL have.3SG make.PP repent REFL Frances
 ‘George made Frances repent’
 7b) Lucia non si è fatta fotografare
 Lucy not REFL be.3SG make.PP photograph
 ‘Lucy did not let herself be photographed’

The absence of the reflexive marker *si* in structures like (7a) can be captured by assuming that, in Modern Italian, *fare*-causatives only allow the overt manifestation of one causer (see section 5 with respect to the sense in which the causer of clitic reflexives can be considered to be overt). Incidentally, in an analysis of a corpus of Old Italian texts, Robustelli (1996: 279) has found a small number of attestations of the reflexive morpheme in *fare*-causatives:

- 8) La grande infermitate fece l’anima sobria e ricordarsi di Dio (Old Italian)
 The great illness make.3SG.PST the soul sober and remember.REFL of God
 ‘The great illness made the soul sober and made it remember God’
 (*Bibbia Volgare*, cf. Robustelli 1996: 279, footnote 15)

⁴ In RRG, transitivity is not defined in terms of syntactic valence, but rather in terms of the number of arguments which are assigned a macrorole. Thus, a structure like *The children ate pasta* is syntactically bivalent but intransitive, since the lower LS argument is inherent (not referential) and is not assigned a macrorole. This claim is supported by the ungrammaticality of passivisation (**pasta was eaten by the children*). Contrastingly, the counterpart of this structure with a referential second argument is transitive, as is indicated by the grammaticality of passivisation: *The children ate the cake ~ the cake was eaten by the children*.

The data cited in (8) are not problematic vis-à-vis my suggestion on the significance of the ban of the reflexive morpheme in Modern Italian *fare*-causatives. In fact, I am not claiming that the unexpressed causer is in principle incompatible with *fare*-causatives, but rather that this is the case in Modern Italian. More to the point, the data cited by Robustelli (1996) exhibit features of core cosubordination (VVLP: 448-469), whereas, in Modern Italian, *fare*-causatives are clearly nuclear cosubordinations. A detailed treatment of this point would obviously go beyond the scope of this work, and will not be carried out here.⁵ Suffice it to note that, in Modern Italian *fare*-causatives, a clitic argument of the infinitive must precede *fare* (e.g. *La fa pentire* vs. **Fa la pentire* and **Fa pentirla* ‘S/he makes her repent’). Moreover, *fare* and the infinitive cannot be separated (e.g. **Fa Francesca pentire* vs. *Fa pentire Francesca* ‘S/he makes Frances repent’). These data indicate that the arguments of the second predicate are shared by *fare*, as is the case in nuclear cosubordination. The Old Italian *fare*-causatives, on the other hand, constitute a different type of complex predicate. For instance, in (8), the infinitive *ricordarsi* ‘remember’ is separated from *fare* by another predicate, i.e. *sobria* ‘sober’, as well as an argument which is shared across the whole causative construction, i.e. *l’anima* ‘the soul’. If, as I assume, *fare*-causatives are not nuclear junctures in Old Italian, the *fare*-causer need not be shared by the following predicate, which can have a causer of its own.

French provides further evidence in favour of a causative analysis of clitic reflexives (Labelle 1992: 391). In particular, a number of French clitic reflexives have non-reflexive counterparts (e.g. *(se) noircir* ‘blacken’). The clitic reflexives denote caused processes (*Les murs près de la cheminée se noircissent* ‘The walls near the chimney are becoming black’), whilst the non-reflexive counterparts denote processes which occur as part of the natural course of events (*Après l’extraction du nerf, les dents noircissent* ‘After the extraction of the nerve, the teeth blacken’). Significantly, the causer of the reflexive construction can coincide with the causee (e.g. *Marie vieillit* ‘Mary is becoming old’ vs. *Marie se vieillit* ‘Marie is making herself look older’). Italian has pairs like French *vieillir* ‘get old’ and *se vieillir* ‘make oneself look old’. A causative interpretation is only allowed with the reflexive member of these pairs, even though a non-causative interpretation is also possible for this member: *invecchiare* ‘get old(er)’ vs. *invecchiarsi* ‘make oneself become or look old(er)’ or ‘get old(er)’. I shall claim below that the two interpretations of the reflexive counterpart of these pairs depend on the semantics of causation as it is denoted by reflexives: on the one hand, the caused state of affairs can be perceived as the result of a causal activity pursued by an intentional effector; on the other hand, this causal link may be hardly perceived, due to the suppression in LS of the causer and the causal activity.

In the light of the evidence discussed above, I adhere to VVLP’s causative analysis of clitic reflexives, and I temporarily adopt their LS for the structures exemplified in (1) and (2) (a minor amendment of both LSs will be claimed to be necessary below):

9a) Francesca si è vista allo specchio ‘Frances has seen herself in the mirror’ (cf. (1))

[do´ (Ø, Ø)] CAUSE [BECOME seen´ (Francesca)]

9b) Francesca si è comprata una casa ‘Frances has bought herself a house’ (cf.(2))

[[do´ (Ø, Ø)] CAUSE [BECOME have´ (Ø, casa)]] PURP [have´ (Francesca, casa)]

⁵ For in-depth analysis of Italian *fare*-causatives leading to conclusions which support the above claim, albeit from a different theoretical perspective, see La Fauci and Mirto (2003: 12-43).

On the adopted analysis, both intransitive and benefactive reflexives involve an unexpressed causal LS ([do' (∅, ∅)]) and a caused accomplishment ([BECOME seen' (Francesca)] in (9a) and [BECOME have' (∅, casa)] in (9b)).⁶ In addition, the semantic representation of benefactive reflexives includes a purposive LS (PURP [have' (Francesca, casa)]), which is their distinctive property.

The vast majority of intransitive reflexives pattern with accomplishments. However, in the case of intransitive reflexives which test out as states (e.g. *annoiarsi* 'to get bored'), the second LS in the semantic representation must be represented as a state:

- 10) Francesca si annoia
 Frances REFL bore.3SG
 'Frances gets bored'
 [do' (∅, ∅)] CAUSE [be' (Francesca, [bored'])]

On the proposal put forward by VVLP, intransitive reflexives take only one macrorole, which, following the Actor-Undergoer Hierarchy (VVLP: 146), must be an undergoer. Contrastingly, benefactive reflexives take two macroroles, actor and undergoer, which are assigned to the two arguments in the purposive LS. This contrast is shown in Figures 1 and 2 (see Appendix).⁷

The causative analysis of intransitive and benefactive reflexive is corroborated by the selection of perfective auxiliaries in Sardinian Logudorese. Perfective auxiliary selection follows the same general principle in this language as in Italian. Accordingly, it is a diagnostic of split intransitivity (cf. Perlmutter 1978, Van Valin 1990, and, for an RRG account of perfective auxiliaries in Italian, Centineo 1986). A significant difference between perfective auxiliary selection in the two languages is found in clitic reflexives. In particular, whereas Italian reflexives invariably require 'be', in Sardinian Nuorese, 'be' is required if there is only one specified LS variable, and 'have' if there are two. Thus, intransitive reflexives require 'be' (11a), whilst benefactive reflexives require 'have' (11b):

- 11a) Juane s' est vistu in s'ispreu (Sardinian Nuorese)
 Juane REFL be.3SG see.PP in the mirror
 'John saw himself in the mirror' (Jones 1993: 131)
 11b) Juane s' at fraicadu una bella domo (Sardinian Nuorese)
 Juane REFL have.3SG build.PP a beautiful house
 'John built a beautiful house for himself' (Jones 1993: 131)

In Bentley (in preparation), I explain the mentioned contrast as follows. In Italian, the perfective auxiliary 'be' is selected if the PSA is marked, that is, if it is an undergoer ~ affected actor (in intransitive states, achievements and (active) accomplishments) or it is not the highest-ranking argument.⁸ The latter case concerns, among others, structures with the suppression of the highest-ranking argument, for instance clitic reflexives,

⁶ VVLP's proposal that the caused accomplishment of benefactive reflexives exhibits an unspecified argument (∅) is motivated by the ungrammaticality of passivisation of such structures (**Una casa si è stata comprata da Francesca* 'A house *si* was bought by Frances'). Given that passivisation involves the demotion of the highest-ranking argument (the actor), the ungrammaticality of passivisation of benefactive reflexives is explained by the assumption that a suppressed argument cannot be demoted.

⁷ I explain below the co-indexation in the LSs of Figures 1 and 2.

⁸ For the sake of argument, I am factoring out perfective auxiliary selection in number of complex predicates. Note that the notion of PSA markedness is justified by the default PSA selection principles explained in VVLP (317).

where the causer is left unspecified in LS, or suppressed, on the analysis adopted in this work. The general principle which is at work in Logudorese is the same. Thus, ‘be’ is selected if the PSA is an undergoer or an affected actor. However, in this language, the suppression of the highest-ranking argument is not a sufficient criterion for the selection of ‘be’. Accordingly, if the PSA is an actor, ‘have’ is selected, regardless of whether the highest-ranking argument is suppressed. As a result, in clitic reflexives with two specified arguments, ‘have’ is selected, because the PSA is an actor (see Figure 2).

3. A typology of clitic reflexives

Having introduced VVLP’s account of intransitive and benefactive reflexives, I can now move on to a more detailed analysis of Italian reflexives. I distinguish between ‘monadic’ and ‘non-monadic’ reflexives. Monadic reflexives only have one specified variable in LS (e.g. *albero* ‘tree’ in *L’albero si è abbattuto* ‘The tree has fallen down’), whilst, in Italian, non-monadic reflexives have a maximum of two specified variables in LS (e.g. *Pietro* ‘Peter’ and *capelli* ‘hair’ in *Pietro si è lavato i capelli* ‘Peter has washed his hair’).⁹ Monadic reflexives can be further subdivided into intransitive direct (12a), inherent (12b), and intransitive oblique (12c), whilst non-monadic ones can be possessive (12d) or benefactive (12e):

- 12a) *Maria si è lavata*
 Maria REFL be.3SG wash.PP.FSG
 ‘Mary has washed herself’
- 12b) *Maria si è imbronciata*
 Maria REFL be.3SG become.grumpy.PP.FSG
 ‘Maria has become grumpy’
- 12c) *Maria si è risposta*
 Maria REFL be.3SG reply.PP.FSG
 ‘Mary has replied to herself’
- 12d) *Maria si è lavata/i i denti*
 Maria REFL be.3SG wash.PP.FSG.MPL the teeth.MPL
 ‘Mary has washed her teeth’
- 12e) *Maria si è comprata/-e due penne*
 Maria REFL be.3SG buy.PP.FSG.FPL two pens.FPL
 ‘Maria has bought two pens (for herself)’

The typology illustrated in (12) is based on (i) whether the clitic reflexives have a non-reflexive counterpart (all types except inherent reflexives), and (ii) the LS components of such counterparts. Thus, intransitive direct reflexives have a bivalent transitive counterpart (*Maria ha lavato X* ‘Mary has washed X’); intransitive oblique reflexives have a bivalent intransitive counterpart which includes an oblique argument (*Maria ha risposto a X* ‘Mary has replied to X’); the non-reflexive counterpart of possessive reflexives includes a possessive LS, that is, the LS of the possessee (*Maria ha lavato i denti di X* ‘Mary has washed X’s teeth’), and, finally, the non-reflexive

⁹ Other Romance languages allow three variables, as is shown in the following examples from the dialect of Servigliano (Loporcaro 2004) and from Spanish: (i) *La menèstra ma ssa l’ha magnata ll’atri* (dialect of Servigliano) lit. ‘The soup, somebody else ate it to me’; (ii) *El niño se me ha ensuciado la camiseta* (Spanish) lit. ‘The child has made his shirt dirty to me’.

counterpart of benefactive reflexives includes a purposive LS (*Maria le/gli ha comprato due penne / Maria ha comprato due penne per X* ‘Mary has bought two pens for X’).¹⁰

I claim that the causative analysis which was illustrated above with reference to intransitive and benefactive reflexives holds for the other types, as well. To be sure, inherent and intransitive oblique reflexives do not allow the double interpretation under causative *fare* ‘make’ and perceptual *vedere* ‘see’. This is due to the fact that neither type has a transitive causative counterpart (see **Luca imbroncia Maria, *Luca risponde Maria*). However, the ban on the reflexive morpheme in *fare*-causatives holds for all types of clitic reflexives, and the same can be said of the compatibility with manner adverbials. I exemplify this point with reference to inherent reflexives:

13) (*Si) ha fatto imbronciar(*si) Francesca
REFL have.3SG make.PP become.grumpy.REFL Frances
‘S/he has made Frances become grumpy’

14) Francesca si imbroncia facilmente / con uno scherzo
Frances REFL become.grumpy.3SG easily with a joke
‘Frances becomes grumpy easily / with a joke’

I thus propose that all clitic reflexives involve argument suppression, and that their highest-ranking LS argument is an unspecified causer. The contrast between those which allow the double interpretation under causative *fare* ‘make’ and perceptual *vedere* ‘see’ and those that do not simply amounts to a contrast between verbs which can figure in lexically causative transitive structures, and verbs which cannot.

As is the case with intransitive reflexives, inherent ones can test out as accomplishments or as states, and the two types must be represented differently in LS:

15a) Francesca si è imbronciata velocemente
Frances REFL be.3SG become.grumpy.PP.FSG quickly
‘Frances has quickly become grumpy’
[do’ (Ø, Ø)] CAUSE [BECOME grumpy’ (Francesca)]

15b) Francesca si è ostinata per anni
Frances REFL be.3SG be.obstinate.PP.FSG for years
‘Frances was obstinate for years (...stubbornly continued to be in a certain way for years)’
[do’ (Ø, Ø)] CAUSE [be’ (Francesca, [obstinate’])]

Intransitive oblique reflexives contrast with other monadic reflexives, in that the PSA is not a direct core argument, but rather an oblique one. Compare *Maria si è risposta* ‘Mary replied to herself’ with the corresponding non-clitic reflexive *Maria ha risposto a se stessa* ‘Mary replied to herself’. In Italian, the oblique argument does not normally have macrorole status, nor is it selected as the PSA. Thus, it cannot be selected as the PSA of the passive with ‘be’ plus past participle: **Lucia è stata data un regalo da Pietro* ‘Lucy was given a present by Peter’. Intransitive oblique reflexives are thus marked in terms of macrorole assignment and PSA selection. This markedness is motivated as follows: since the highest-ranking argument is suppressed, the only

¹⁰ Possessive reflexives such as Italian *Mi si è sfasciata la macchina* (lit. ‘The car *si* has broken down to me’) or Spanish *El niño se me ha puesto enfermo* (lit. ‘The child *se* has become ill to me’) could be analysed as possessor raising structures, corresponding in LS with monadic reflexives: *La mia macchina si è sfasciata* ‘My car *si* has broken down’, *Mi niño se ha puesto enfermo* ‘My child *se* has become ill’.

available argument is pressed into service as the undergoer PSA. Note that the undergoer status of this argument has to be marked overtly in LS, since the first position of a two-place state embedded under BECOME is by default a non-macrorole position (VVLP: 376-377) (16a-b). The same analysis holds for indirect reciprocals (17a-b), since these too have a two-place state embedded under BECOME:

- 16a) Maria si è risposta
 Maria REFL be.3SG reply.PP.FSG
 'Mary replied to herself'
- 16b) [**do'** (\emptyset , [**express.**(α).**to.**(β).**in.language.**(γ)] (\emptyset , Maria)] CAUSE [BECOME **aware of'** (Maria, z)], where Maria = β , z = α . [U = Maria]
- 17a) Maria e Lucia si sono risposte
 Mary and Lucy REFL be.3PL reply.PP.FPL
 'Maria and Lucia replied to each other'
- 17b) [**do'** (\emptyset , [**express.**(α).**to.**(β).**in.language.**(γ)] (\emptyset , Maria e Lucia)] CAUSE [BECOME **aware of'** (Maria e Lucia, z)], where Maria e Lucia = β , z = α . [U = Maria e Lucia]

Before I move on to non-monadic reflexives, I should point out that, both in Italian and in a number of Italo-Romance dialects, there are intransitive state and accomplishment predicates which have a reflexive and a non-reflexive counterpart: e.g. Italian *invecchiarsi* 'become older' 'make oneself become or look older', *ringiovanirsi* 'become younger(-looking)' 'make oneself become or look younger', *dimagrirsi* 'lose weight' 'make oneself become or look thinner', *ingrassarsi* 'gain weight' 'make oneself become or look fatter', *partirsi* 'leave', *andarsene* 'go', *fuggirsene* 'escape'; Calabrian and Sicilian *starsi* 'be / behave'. The same applies to some predicates which can take a clausal complement: Sicilian *credirsi* 'believe'; Calabrian *credirsi* 'believe', *timirsi* 'fear', *pensarsi* 'think' (cf. Scerbo (1886)1970: 65). On my analysis, the two members of these pairs differ, in that the reflexive one involves an unspecified causative activity in LS, whilst the non-reflexive one does not.¹¹ In Aktionsart terms, the two members of these pairs pattern alike. In sum, these are causative alternations (18a) which are comparable to the causative alternations treated in Van Valin (2004) (18b):

- 18a) [**do'** (\emptyset , \emptyset)] CAUSE [BECOME **pred'** (x)] / [**pred'** (x (, y))] <-> BECOME **pred'** (x) / **pred'** (x (, y))
- 18b) [**do'** (x, \emptyset)] CAUSE [BECOME/INGR **pred'** (y (, z))] <-> BECOME/INGR **pred'** (y (, z))

It could be objected that the reflexive counterparts of the above pairs do not normally receive a causative interpretation, with the exception of the reflexives which are lexically related to an adjective (e.g., *invecchiarsi* 'become older' 'make oneself become or look older'). The lack of a causative interpretation characterises most reflexives, not simply those which I have just mentioned, and it could be considered to undermine the proposal developed in this study. I suggest, however, that the lack of a causative interpretation is due to the suppression of the causer and the causative activity in LS. As a result of this suppression, the causal link between a causal activity and the

¹¹ In addition, a source location is specified in the LS of Italian *andarsene* 'o go' and *fuggirsene* 'to escape'.

caused state of affairs may be obliterated. On the other hand, we have seen that some reflexives (those related to adjectives) can express the result of a causal activity pursued by an intentional effector, which is co-referent with the undergoer of the construction. Observe in passing that the analytic formation of causatives is known to be very productive crosslinguistically (Comrie 1985: 332), and productivity is precisely what is found with respect to reflexivisation in Modern Italian and, more generally, Italo-Romance.

Let us finally deal with non-monadic reflexives, that is, reflexive constructions with more than one expressed variable in LS. VVLP's (413-415) causative analysis of benefactives reflexives was discussed above. As for possessive reflexives, these are characterised by a relationship of possession between the suppressed causer, which is co-referent with the possessor, and the lowest-ranking argument (the possessee). Accordingly, I propose the following LS for possessive reflexives:

- 19) Maria si è lavata/-i i denti 'Mary has washed her teeth'
 [do' (Ø, Ø)] CAUSE [BECOME washed' (have.as.part' (Maria, denti))]

Given that the possessor is suppressed, the first argument of the LS of the possessed NP is pressed into service as the PSA of the clause, whilst the second argument of the same LS maps to the direct core argument position in syntax. The PSA is the highest-ranking specified argument, that is, an actor (see Figure 3). This analysis is corroborated by evidence from Sardinian Logudorese. Our analysis of Logudorese benefactive reflexives (see (11b)) predicts that possessive reflexives should select the perfective auxiliary 'have' in this language. This prediction is borne out by the data:

- 20) Tonina s' at fertu s'anca (Sardinian Nuorese)
 Tonina REFL have.3SG hurt.PP the leg
 'Tonina has hurt her leg' (Jones 1993: 131)

4. *Si*-impersonals

4.1 *Si*-impersonals proper

So far I have proposed, building upon VVLP, that clitic reflexives have an unspecified causal activity in their semantic representation, and that the argument of this LS is also unspecified or suppressed. The suppression of this argument is marked by the morpheme *si*. Turning now to *si*-impersonals, I propose that these are also characterised by the suppression of the highest-ranking LS argument. Thus, I regard both clitic reflexives and *si*-impersonals as strategies of valence-reduction.¹²

The LS of *si*-impersonals can tentatively be represented as follows (this proposal will be refined in section 7):

- 21) Si legge
 IMP read.3SG
 'One reads'
 do' (Ø, [read' (Ø, Ø)])

¹² Others have argued for a unified account of impersonal and reflexive *si*, for instance, Cinque (1988), Manzini (1986), and Manzini/Savoia (2001) (against Burzio 1986), as well as the work conducted in Relational Grammar. The original contribution that this paper aims to offer is a typology of unexpressed arguments. As regards valence reduction, see Cennamo's (1993) claim that *si*-constructions are characterised by a reduced degree of transitivity.

The unified account which is proposed here for clitic reflexives and *si*-impersonals should not be extended to all kinds of impersonal constructions. In fact, *si*-impersonals differ from other impersonals in some interesting respects. To begin with, the unspecified argument of *si*-impersonals has the feature [+human], as is clearly indicated by the unacceptability of the following examples:¹³

22a) **Si abbaia*
 IMP bark.3SG
 Lit. ‘One barks’

22b) **Si tramonta*
 IMP set.down.3SG
 ‘One sets down’

Blevins (2003) has pointed out that the unspecified argument of impersonals tends to carry a [+human] feature in many languages,¹⁴ and there are other impersonal structures in Italian which share this property. One such case is *bisogna*:

23) *Bisogna andar via*
 Need.3SG go away
 ‘One / we need to go away’

Italian *bisogna* is an impersonal modal which indicates participant-external modality.¹⁵ When it occurs in the kind of complex predicate exemplified in (23), in RRG terms a nuclear cosubordination, *bisogna* requires an unspecified [+human] argument. This argument can be retrievable from discourse, in which case impersonal *bisogna* stands for the first person plural, or, alternatively, it is entirely unrecoverable.

As noted by Cinque (1988: 552-553, note 36), a [+human] argument is also required by those constructions with zero anaphora which are known in the Chomskyan literature as structures with PRO or object pro (Rizzi 1986), depending on whether the unexpressed argument is an object (see the small *pro* in (24b)) or not (see (24a)).¹⁶

24a) *Tacere vuol dire acconsentire*
 Remain.silent want.3SG say consent
 ‘PRO to remain silent means PRO to consent’

24b) *Lavorare stanca*
 Work tire.out
 ‘PRO to work tires *pro* out’

By contrast with *si*-impersonals, *bisogna*, and zero anaphora, other impersonal structures do not have an unspecified [+human] argument. See, for instance, weather

¹³ The obligatoriness of this feature also separates *si*-impersonals from clitic reflexives. I shall return below (cf. § 5) to the differences between impersonal and reflexive *si*.

¹⁴ See also Vihman’s (2004) evidence from Estonian.

¹⁵ For participant-external modality I refer the reader to Van der Auwera/Plungian (1998). *Bisogna* can be found in kinds of syntactic structure other than (23), and, at least in some varieties of Italian, it allows an overt argument (e.g. *Mi bisogna un aiuto* ‘I need help’, lit. To-me needs a help). A detailed treatment of these structures would be beyond the scope of the present work. I refer the reader to Benincà/Poletto (1997) for a diachronic analysis of the problem.

¹⁶ PRO and object *pro* can refer to a discourse antecedent, or anaphorical, if they refer to a discourse antecedent or a discourse participant or, alternatively, be truly generic (see § 7).

verbs (25b), impersonals such as *tocca* lit. ‘touch’ (25b), *accade / succede* ‘it happens’ and *sembra* ‘it seems’:

- 25a) Piove
Rain.3SG
‘It rains’
- 25b) Tocca a te
Touch to you
‘It is your turn’

There is, in fairness, a small number of set phrases, which, at first sight, would seem to constitute exceptions to the requirement that the suppressed argument of *si*-impersonals should be [+human]; in particular, the phrases *si fa buio* ‘it gets dark’, *si fa sera* ‘it becomes evening’, *si fa tardi* ‘it gets late’. As was noted by Cennamo (1995: 98), in such cases, the morpheme *si* plays an aspectual role, that is, the marking of the encoded events as [+telic] (contrast the said phrases with the following ones: *(*si) fa caldo* ‘it is hot’, *(*si) fa freddo* ‘it is cold’). Accordingly, I argue that this use of *si* should not be subsumed under those of impersonal *si*. Rather, I propose that, similarly to weather verbs, these are attransitive structures, i.e. structures with no semantic arguments. The occurrence of aspectual *si* in these set phrases should be specified in the lexicon.

A true exception to the mentioned pattern is *si tratta* ‘it is about’, which is part of an identificational structure with its highest argument left unexpressed (26a). Incidentally, *trattare* ‘deal (with)’ can also figure in *si*-impersonals with an unspecified [+human] argument (26b):

- 26a) Si tratta di una questione delicata
IMP deal.3SG of a matter sensitive
‘It is a sensitive matter’
- 26b) Sinora si è trattato di questioni secondarie
So.far IMP be.3SG deal.PP of matters secondary
‘So far one has dealt with secondary matters’

Another property which distinguishes *si*-impersonals from other impersonals is the marking of split intransitivity on the past participle. Whilst the predominant alignment of Italian is accusative-nominative, as is shown by the syntactically-principled selection of the PSA, non-finite agreement follows a semantic principle, and represents active alignment (La Fauci 1984, 1989):¹⁷

- 27a) Hanno letto
Have.3PL read.PP
‘They have read’
- 27b) Sono scesi
Be.3PL come.down.PP.MPL
‘They have come down’

¹⁷ Other factors come into play in the determination of non-finite agreement in transitive structures. However, such factors are not relevant to our present purposes, and will be omitted from the present discussion.

The same kind of split is observed on the past participle of *si*-impersonals. In particular, the past participle of intransitive states, achievements, and accomplishments is obligatorily plural, whereas the past participles of intransitive activities are singular:

28a) *Si è sprofondati*
IMP be.3SG sink.PP.MPL

‘One has sunk’

28b) *Si è letto*
IMP be.3SG read.PP.MSG

‘One has read’

The predicate of (28a) is an accomplishment (BECOME **sunk**’ (x)), and its past participle is obligatorily plural in *si*-impersonals. By contrast, the predicate of (28b) is an activity (**do**’ (x, [**read**’ (x, y)])), and its past participle is obligatorily singular in *si*-impersonals. The same rule holds for non-verbal predicates, where the plural-vs.-singular marking is not only found on the past participle, but also on the nominal or adjectival predicates themselves:

29a) *Si è (stati) stanchi*
IMP be.3SG be.PP.MPL tired.MPL

‘One is / has been tired’

29b) *Si è (stati) studenti*
IMP be.3SG be.PP.MPL student.MPL

‘One is / has been a student’

The predicates of (29a-b) test out as states (**tired**’ (x) and **be**’ (x, [**student**’])), and they are obligatorily plural in *si*-impersonals. The data in (28)-(29) are captured by the assumption that plural-vs.-singular marking distinguishes between an actor suppressed argument and, on the other hand, an undergoer ~ affected actor suppressed argument. In fact, the argument of the predicates whose past participle is obligatorily plural would normally be assigned the macrorole undergoer or affected actor (see (27b)), whilst the argument of the predicates whose past participle is obligatorily singular would normally be assigned the macrorole actor (see (27a)). Similarly, the adjectival and nominal predicates in (29a-b) would normally take an undergoer.

Like *bisogna*, impersonal *si* can stand for the first person plural:

30) *Qui si mangia alle 12*
Here IMP eat.3SG at.the 12
‘(Here) we eat at 12’

The use of *si* which is exemplified in (30) is typical of the Tuscan regional variety of Italian, and is comparable to the referential use of French impersonal *on* ‘one’. Interestingly, referential *si* is compatible with an overt co-referential first plural pronoun (31), and we shall see below that this fact is significant vis-à-vis the question whether *si* should be considered to be argumental:

31) *Noi si mangia alle 12*
We IMP eat.3SG at.the 12
‘We eat at 12’

Interestingly, when the suppressed argument of *si*-impersonals is referential, the number and gender features of the past participle constitute proper agreement features with the unexpressed argument. In particular, if (i) the predicate is an intransitive state, achievement or accomplishment, and (ii) its unspecified argument would be feminine, this is marked overtly by agreement (32a-b), as is normally the case in intransitive structures (33a-b):

32a) Si è sprofondate
IMP be.3SG sink.PP.FPL
'We (F) has sunk'

32b) Si è (state) stanche
IMP be.3SG been.FPL tired.FPL
'We (F) are / have been tired'

32c) Si è (state) studentesse
IMP be.3SG been.FPL student.FPL
'We (F) are / have been students'

33a) Le navi sono sprofondate
The ships.FPL be.3PL sink.PP.FPL
'The ships have sunk'

33b) Le mie sorelle sono (state) studentesse
The my sisters.FPL be.3PL be.PP.FPL students.FPL
'My sisters are / have been students'

The fact that the past participle of referential *si*-impersonals varies for gender as well as number shows that this is proper agreement, unlike the number features which appear on the past participle of intransitive states, achievements and accomplishments in *si*-impersonal constructions which are not referential.

By way of conclusion of this section, I should mention some facts which were first brought to light by Cinque (1988). Cinque (1988) noted that unaccusative, copular, psych-movement, passive and raising structures rule out a non-referential reading in *si*-constructions with specific time reference. Thus, whereas *si* is non-referential in (34a), which is transitive, and in (34b), which is unergative, it is referential in (34c-d), which are unaccusative and passive, respectively:¹⁸

34a) Oggi, a Beirut, si è ucciso un innocente
Today at Beirut IMP be.3SG kill.PP a innocent
'Today, in Beirut, one killed an innocent person'

34b) Oggi, a Beirut, si è sparato tutta la mattina
Today at Beirut IMP be.3SG shoot.PP all the morning
'Today, in Beirut, one shot all morning'

34c) Oggi, a Beirut, si è nati senza assistenza medica
Today at Beirut IMP be.3SG be.born.PP.MPL without assistance medical
'Today, in Beirut, we were born with no medical assistance'

34d) Oggi, a Beirut, si è stati uccisi inutilmente
Today at Beirut IMP be.3SG be.PP.MPL kill.PP.MPL in.vain
'Today, in Beirut, we have been killed in vain'
(Cinque 1988: 542)

¹⁸ Observe that, on my analysis, it is not *si* that is referential or non-referential, but rather the suppressed argument of the *si*-construction.

Cinque points out that the facts illustrated in (34) depend on the difference between stage-level and individual-level predications (Carlson 1977). More precisely, unaccusative, copular, psych-movement, passive and raising structures receive a stage-level reading when there is specific reference to time.¹⁹ Stage-level predications denote contingent events with specific participants, whence the referentiality of the suppressed argument of (34c-d).

In my view, another set of facts discussed by Cinque (1988) can be ascribed to the greater sensitivity of unaccusative, copular, psych-movement, passive and raising structures to a stage-level, i.e., referential, reading. In particular, Cinque notes that impersonal *si* is ruled out in a number of non-finite perfective domains, unless the predicate is transitive or unergative. This is illustrated by the contrast between (35a-b) and (35c):

- 35a) *Sembra / Ritengo non essersi ancora scoperto il colpevole*
 Seem.3SG Believe.1SG NEG be.IMP yet discover.PP the culprit
 ‘It seems / I believe one not to have yet discovered the culprit’
- 35b) *Sembra / Ritengo non essersi lavorato a sufficienza*
 Seem.3SG Believe.1SG NEG be.IMP work.PP to sufficiency
 ‘It seems / I believe one not to have worked sufficiently’
- 35c) **Sembra / Ritengo non essersi arrivati troppo tardi*
 Seem.3SG Believe.1SG NEG be.IMP arrive.PP.MPL too late
 ‘It seems / I believe one to have arrived too late’
 (Cinque 1988: 524-525)

The aspectual (perfective) value of the structures in (35) promotes a stage-level reading of (35c), which exhibits an unaccusative predicate, but not of (35a) and (35b). As we have seen, the stage-level reading of *si*-constructions is characterised by reference to the first person plural. However, when the PSA of the embedded predication is marked for person, both raising *sembrare* ‘seem’ and *ritenere* ‘believe’ require different syntax.²⁰

- 36a) (Ci) *sembra di essere arrivati in ritardo*
 To.us seem.3SG of be arrive.PP.MPL in lateness
 ‘It seems to us that we have arrived late’
- 36b) *Riteniamo di essere arrivati in ritardo*
 Believe.1PL of be arrive.PP.MPL in lateness
 ‘We believe that we have arrived late’

Accordingly, the structure in (35c) is ruled out. By contrast, (35a) and (35b) are not interpreted as stage-level predications, whence the non-referential reading of *si*, which is compatible with the syntax of (35).

¹⁹ That the structures singled out in Cinque’s analysis of *si*-impersonals (cf. (34c)-(34d)) are more sensitive to a stage-level reading is also evidenced by Bentley’s (2004) analysis of *ne*-cliticisation in Italian.

²⁰ Note that they require different syntax regardless of the nature of the embedded predication: (Ci) *sembra / riteniamo di non aver ancora scoperto il colpevole* ‘It seems to us / We believe that we have not yet discovered the culprit’.

4.2 Modulation in *si*-impersonals

Turning now to the construction which is normally referred to as impersonal passive, what should be pointed out is that, in this case, the suppression of the highest-ranking argument leaves one specified lower argument in LS. This argument normally serves as the controller of finite and non-finite verb agreement:

- 37a) Si è bevuta tanta birra
 IMP be.3SG drink.PP.FSG much beer.FSG
 ‘One has drunk a lot of beer’
- 37b) Si sono preparate tante sorprese
 IMP be.3PL prepare.PP.FPL many surprises.FPL
 ‘One has prepared many surprises’

The difference between the kind of structure exemplified in (37a-b) and the one discussed earlier in section 4.1 hinges on PSA modulation, that is, the choice of an undergoer PSA due to the suppression of the argument which would normally qualify as the default PSA in Italian (the actor). As well as in *si*-constructions, PSA modulation occurs in the passive formed with ‘be’ + past participle:

- 38) Il cane è stato inseguito dal gatto
 The dog be.3SG be.PP chase.PP by.the cat
 ‘The dog has been chased by the cat’

In the ‘be’-passive, PSA modulation goes together with the demotion of the highest-ranking argument, and its optional appearance in an extra-core position as a *da*-adjunct. In RRG this is called argument modulation. On our approach, the *si*-construction exemplified in (37) is passive because it involves PSA modulation. In some varieties of Italian, argument modulation is deemed acceptable in *si*-passives. According to Lepschy/Lepschy (1988: 224-225), it is possible, although very rare:

- 39) Quest’opera si accoglie con entusiasmo da tutti
 This work IMP welcome.3SG with enthusiasm by all
 ‘This work is enthusiastically acclaimed by all’ (Lepschy/Lepschy *ib.*)

Observe further that the suppression of an argument need not result in either PSA or argument modulation, as is the case in (40), a structure which is “admittedly far less common” (Lepschy/Lepschy 1988: 224-225):

- 40) Si è comprato due penne
 IMP be.3SG buy.PP two pens
 ‘One has bought two pens’ (Lepschy/Lepschy *ib.*)

That there is neither PSA nor argument modulation in (40) is shown by the lack of finite verb agreement and the lack of a *da*-adjunct. The absence of PSA modulation is uncommon in the structures with *si* which have a nominal argument, the undergoer, available for PSA selection. Indeed, some native speakers deem (40) to be ungrammatical. If the undergoer is a clitic pronoun, however, PSA modulation is clearly banned, as is shown by the absence of finite verb agreement in (41):

- 41) *Le si compra / Le si è comprate*
 OCL.FPL IMP buy.3SG OCL.FPL IMP be.3SG buy.PP.FPL
 ‘One has bought them’

I take the ban on PSA modulation shown in (41) to depend on the accusative marking of Italian clitics (see the undergoer *le* ‘them’ in (41)).

5. Clitic reflexives revisited

So far I have focused on the relatedness of clitic reflexives and *si*-impersonals/passives, and I have argued that both types of structure involve the suppression of the highest-ranking LS argument. In particular, I have suggested that the suppressed argument is an unexpressed causer, in the case of clitic reflexives, and the argument which would normally classify as the PSA, in the case of *si*-impersonals. It is now time to point out some differences between clitic reflexives and *si*-impersonals. To begin with, it should be noted that, whilst the suppressed argument of *si*-impersonals is normally unrecoverable (see (23)), due allowance being made for (i) the Tuscan use of *si* to refer to the first person plural (see (30)-(32)), and (ii) the stage-level reading of *si*-impersonals (see (34c-d)), the suppressed argument of clitic reflexives is always recoverable, since it is co-referent with the overt PSA. Thus, in monadic reflexives, the suppressed argument is co-referent with the undergoer (see (9a) and Figure 1), and in non-monadic reflexives it is co-referent with the actor (see (9b) and Figure 2). Observe in passing that the reflexive clitic is marked for person, as is shown in (42), whereas impersonal *si* is invariant:

- 42) *Mi lavo, ti lavi, si l'ava, ci laviamo..*
 REFL.1SG wash.1SG REFL.2SG wash.2SG REFL.3SG wash.3SG REFL.1PL wash.1PL
 ‘I wash myself, you wash yourself, s/he washes herself, we wash ourselves, etc.’

The variation of the reflexive clitic according to person substantiates the view that the suppressed argument of clitic reflexives differs from the one of *si*-impersonals, and that it is recoverable and co-referent with the overt PSA.

Manzini/Savoia (2001) have brought to light evidence which might seem to undermine a unified account of *si*-constructions. In particular, in Italian, reflexive *si* precedes direct-object clitics (43a), whereas impersonal *si* follows such clitics (43b):

- 43a) *Se lo compra*
 REFL OCL buy.3SG
 ‘S/he buys it for herself/himself’
 43b) *Lo si compra*
 OCL IMP buy.3SG
 ‘One buys it’

Furthermore, there are dialects in which reflexive ‘*si*’ and impersonal ‘*si*’ systematically figure in different positions. This is the case with the dialects which have *do*-support in interrogatives (Benincà/Poletto 1998, 2004); impersonal ‘*si*’ figures in the position which would normally be occupied by the PSA, whilst reflexive *si* figures in object position and co-occurs with a subject clitic in PSA position:

44a) Fa s dormer be? (Veza d'Oglio)

Do IMP sleep well

'Does one sleep well?' (Manzini/Savoia 2001: 260, cf. Benincà/Poletto 1998, 2004)

44b) Fa- l la'a- s? (Veza d'Oglio)

Do SCL wash REFL

'Does he wash himself?' (Manzini/Savoia 2001: 260, cf. Benincà/Poletto 1998, 2004)

Comparable evidence has been brought to light by Cennamo (1995), who has noted some word- order differences between constructions with impersonal and reflexive *si* in Italian. In particular, structures with impersonal *si* exhibit the sequence *si V N₁* as the unmarked word order, with the *N₁ si V* sequence being highly marked. By contrast, structures with reflexive *si* tend to exhibit the sequence *N₁ si V* as the unmarked word order, regardless of verb classes, with the *si V N₁* sequence being triggered by syntactic factors, like the heaviness of *N₁*, or pragmatic factors, like the focal value of *N₁*.

It is important to note that the rules which govern the position of clitics vary according to the type of clitic under investigation. Contrary to direct object clitics, other clitics occur in the same position with respect to both reflexive and impersonal *si*. For instance, partitive *ne* follows *si* (*Se ne compra* 'S/he buys some for herself/himself', 'One buys some'), whereas locative *ci* precedes *si* (*Ci si vede* 'S/he sees herself/himself in it', 'One sees in it'). The fact that the rules which govern the position of clitics vary according to the type of clitic under investigation suggests that the data in (43) are determined by clitic-serialisation rules of Italian. At the same time, these data are further evidence of some difference between impersonal and reflexive *si*. Let us focus on the co-occurrence of reflexive *si* with a subject clitic in (44b) (dialect of Veza D'Oglio), which differentiates reflexive *si* from impersonal *si* (see (44a)). This contrast can be captured by assuming that impersonals and clitic reflexives involve two different kinds of argument suppression, as is also suggested by the recoverability (reflexives) or lack of recoverability (impersonals) of the suppressed argument, as well as by the person variation of the reflexive clitic. I suggest that the recoverability of the suppressed argument in clitic reflexives should be represented in LS by co-indexing the suppressed argument with its co-referent argument, as is shown in (45a-b):

45a) Francesca si è vista 'Frances has seen herself' (cf. (1))

[do' (Ø, Ø)] CAUSE [BECOME seen' (Francesca_i)]

45b) Francesca si è comprata una casa 'Frances has bought herself a house' (cf. (2))

[[do' (Ø, Ø)] CAUSE [BECOME have' (Ø, casa)]] PURP [have' (Francesca_i, casa)]

With respect to the dialect data from Veza d'Oglio, I propose that the suppressed argument of (44b) is co-referent and co-indexed with the overt argument, which is realised by a subject clitic, whilst the structure in (44a) involves no co-indexation.

In my view, this proposal can and should be extended to all types of monadic and non-monadic reflexives. By contrast with the suppressed argument of clitic reflexives, the one of *si*-impersonals is not co-referent with another LS argument and should exhibit no co-indexation in LS. The obvious exception is the case of impersonal reflexives, where the suppressed causer must be assumed to be co-indexed with the suppressed impersonal argument. For such structures I provisionally propose the LS shown in (46):

- 46a) Ci si vede
 REFL IMP see.3SG
 'One sees oneself'
 [[do' (Ø_i, Ø)] CAUSE [BECOME seen' (Ø_i)]
- 46b) Ci si compra una casa
 REFL IMP buy.3SG a house
 'One buys a house for oneself'
 [[do' (Ø_i, Ø)] CAUSE [BECOME have' (Ø_i, casa)] PURP [have' (Ø_i, casa)]

I shall return to the LS of impersonal reflexives in section 7.

6. *Si*-middles

To complete this study of *si*-constructions, it is necessary to consider middles:

- 47a) Questi libri (si) vendono bene
 These books MI sell.3PL well
 'These books sell well'
- 47b) Questo vetro si rompe facilmente
 This glass MI break.3SG easily
 'This glass breaks easily'

Middles are structures with an unexpressed [+human] argument which predicate properties of individuals rather than contingent states (see (48a)). They are compatible with manner adverbs (see (48b)), but they rule out (i) the perfect (see (48c)), (ii) a referential first-person-plural reading (see (48d)), and (iii) a stage-level interpretation (see both (48c) and (48d)). In fact, examples (48c) and (48d) classify as *si*-passives rather than middles:

- 48a) Questi libri hanno la caratteristica / il vantaggio di vendersi facilmente
 These books have.3PL the characteristic the advantage of sell.MI easily
 'These books have the quality / the advantage of selling easily'
- 48b) Questi libri (si) vendono facilmente
 These books MI sell.3PL easily
 'These books sell easily'
- 48c) Questi libri si sono venduti facilmente
 These books IMP be.3PL sell.PP.MPL easily
 'One has sold these books easily'
- 48d) (Noi) si vende / vendono questi libri facilmente
 We IMP sell.3SG sell.3PL these books easily
 'One sells (we sell) these books easily'

As has been pointed out by Cinque (1988:562, e.g. (91a, i)), *si*-impersonals and *si*-passives do not rule out agentive adverbs (49a), but middles do (49b)

- 49a) Questi appartamenti si vendono volutamente occupati
 These flats IMP sell.3PL deliberately occupied.MPL
 ‘One sells these flats deliberately furnished’
- 49b) Questi libri (si) vendono facilmente / *volutamente
 These books MI sell.3PL easily deliberately
 ‘These books sell easily’

Moreover, the overt argument of middles tends not to be part of the focal information unit of discourse:

- 50) Cosa si vende bene? - *?Si vendono bene QUESTI LIBRI²¹
 What MI sell.3SG well MI sell.3PL well these books
 ‘What sells well? It is these books that sell well’

The structure in (50) is not ungrammatical, but simply infelicitous as a middle construction. Note, incidentally, that the argument of *si*-passives can be focal. Finally, it should be noted that middles do not exhibit intransitive states, accomplishments or achievements, in accordance with their incompatibility with the perfect (see (48c)), with the referential first-person-plural reading (see (48d)), and with a stage-level interpretation (see both (48c) and (48d)).

Although middles provide evidence for an unexpressed argument (in particular, their compatibility with manner adverbs, the restriction to [+human] interpretation, and, by hypothesis, the occurrence of *si*), their properties differ from those of *si*-impersonals and *si*-passives. In particular, their unexpressed argument cannot be referential (see (48a)-(48c)). In addition, they provide no evidence for macrorole assignment, due to their absence from perfective structures (where macrorole assignment is marked on the past participle) and to their rejection of agentive adverbs (which might indicate actor assignment). The unexpressed argument of middles also differs from the one of reflexives, since it is not recoverable by means of co-reference. In the next section, I shall discuss the representation of these differences in LS and syntax. In this context, it is important to point out that the focus-structure features of middles, as well as their incompatibility with intransitive states, accomplishments or achievements, should be specified in a full constructional template for middles, which I leave out here for brevity.²²

Middles normally require *si* in Italian, as has been shown so far, but in some cases *si* can be left out (see (47a)):

- 51) Questa marca di jeans veste grande
 This brand of jeans dress.3SG large
 ‘This brand of jeans has comfortable sizes’

One important question to address is whether a different LS or different syntax should be postulated for middle structures without *si*. The behaviour of Italian middles without *si* compares with the behaviour of those with *si*:

²¹ Small capitals indicate the constituents in the sentence which correspond to the focal elements of information in discourse.

²² For a constructional analysis of Spanish middles, see Feliu (2004).

- 52a) *Questa marca ha vestito grande
 This brand have.3SG dress.PP large
 ‘This brand has had comfortable sizes’
- 52b) Questa marca ha la caratteristica / il vantaggio di vestire grande
 This brand have.3SG the characteristic the advantage of dress large
 ‘These brand has the quality / the advantage of having comfortable sizes’
- 52c) Questa marca veste grande *volutamente
 This brand dress.3PL large deliberately
 ‘This brand has comfortable sizes deliberately’
- 52d) Cosa veste grande? - *?Veste grande QUESTA MARCA
 What dress.3SG large Dress.3SG large this brand
 ‘What has comfortable sizes? It is this brand that has comfortable sizes’

Middles without *si* do not figure in the perfect (see (52a)); they elicit an individual-level reading (see (52b)), rather than a stage-level one; they rule out agentive adverbs (see (52c)); finally, their overt argument tends not to be focal (52d). I therefore suggest that middles without *si* require the same analysis as middles with *si*. This proposal might seem to run counter to my assumption that Italian *si* marks argument suppression. This is not true, however, since *si* does not appear in any construction with no suppressed argument. Rather, we have found evidence that *si* is optional in some constructions with argument suppression (middles). It should be pointed out that middle formation is rather productive in Italian, whilst *si*-less middles are lexically constrained and overall marginal. As is well-known, middles are not morphologically marked in English. Cinque (1988) suggests that the Italian middle construction is syntactic, whereas the English one is lexical. On the RRG analysis, both Italian and English middles are formed on the basis of a fully-fledged constructional template, where all the properties mentioned above must be specified. The unexpressed argument of English middles is not marked by a morpheme like Italian *si*. However, in-depth analysis of English middles goes beyond the scope of the present work, and it will not be conducted here.

7. Unexpressed arguments

The *si*-constructions discussed so far raise some interesting questions regarding the representation of unexpressed arguments in LS and syntax. To begin with, it is necessary to differentiate between referential and non-referential unexpressed arguments. Non-referential unexpressed arguments are found in impersonal constructions and in middle constructions, whilst referential ones are found in clitic reflexives, as well as in the Tuscan type of *si*-impersonals, where *si* stands for the first person plural. Zero anaphora of the kind exemplified in (24a) and (24b) can – but need not – be referential.

Non-referential unexpressed arguments can be further subdivided into three kinds: (i) the unexpressed argument of weather verbs and comparable impersonals (see (27a-b)); (ii) the unexpressed argument of middles, and, finally, (iii) the one of *si*-impersonals. Weather verbs and comparable impersonals do not provide any evidence for an argument. Rather, they are atransitive, that is, they have no argument in LS. In languages like English, which require that the syntactic core should have at least one

argument slot, an expletive argument must appear in syntax.²³ Contrastingly, in null-subject languages, for instance Italian, there is no argument in either LS or syntax.

Following Belloro (2004) and Van Valin (in press), and in line with a realisational approach to morphology, I assume that both inflectional verb endings and clitics are realisations of bundles of agreement features which are specified in LS. Such realisations are linked to an Agreement Index (AGX) node in syntax, which is a dependent of the nucleus, and which receives the agreement specifications of all the core argument positions in LS. Regardless of whether inflection and clitics co-occur with overt arguments (or unbound pronouns), their function is that of agreement markers. In fact, in the absence of overt arguments (pro drop), inflectional verb endings and clitics are co-indexed with referents in discourse representation.

Since weather verbs and comparable impersonals provide no evidence for an argument, they do not involve agreement. Accordingly, I propose that the AGX node is not projected in syntax. Below is an example of the proposed LS for such impersonals:

53) Piove
 Rains
 'It rains'
rain'

Middle structures are compatible with manner adverbs and require that their unexpressed argument should be [+human]. Accordingly, it can be assumed that they involve a suppressed argument. However, middles do not provide evidence for macrorole assignment, since they do not figure in perfective domains, and they rule out agentive adverbs. In this light, I propose that a suppressed argument should be indicated in LS as \emptyset , but it should not be assigned a macrorole or mapped onto syntax. The failure of mapping of this argument onto syntax is in accordance with the RRG assumption that only lexically-specified arguments and / or bundles of agreement features are mapped onto syntax. The AGX node is projected in this case, and it contains the marker of argument suppression *si*, as well as the inflectional verb endings which realise agreement with the overt argument. Following VVLP (417), I take the LS of (47a) to be as follows:

54) **be'** ([**do'** (\emptyset , [**sell'** (\emptyset , libri [-1, -2, -F, -SG])]), [**well'**])

Due to their [-telic] nature, middles are represented as attributive predication, whereby the attributive predicate is realised morphosyntactically as an adverb. Being the argument of an attributive predication, the expressed argument of middles is assigned the macrorole undergoer.

Si-impersonals also provide evidence for argument suppression (recall that their unexpressed argument must be [+human] and that both manner and agentive adverbs are allowed in these constructions). In addition, their suppressed argument is assigned a macrorole (see (28a-b)). In the light of this evidence, I propose that the suppressed argument of *si*-impersonals should be represented with an unfilled variable in LS (X):

²³ See VVLP (324) for a detailed treatment of the language-specific qualification of the syntactic template selection principle in English.

55a) Si è sprofondati
 IMP be.3SG sink.PP.MPL
 ‘One has sunk’
 BECOME **sunk**’ (X)

55b) Si è letto
 IMP be.3SG read.PP
do’ (X, [**read**’ (X, Ø)])

The restriction to [+human] arguments is to be specified in the constructional template of *si*-impersonals. Depending on the LS position of the unfilled variable, this is assigned the macrorole undergoer (see (55a)) or actor (see (55b)). This macrorole, however, is not mapped onto syntax, given that it is lexically unspecified. The AGX node is projected and it links to the marker of argument suppression *si*, as well as to the marker of macrorole assignment (past-participle agreement).

Turning now to referential unexpressed arguments, we have already seen that co-indexation is necessary in the case of clitic reflexives. Accordingly, the proposed LSs are those illustrated in (45a-b), which I repeat hereafter for convenience:

56a) Francesca si è vista ‘Frances has seen herself’ (cf. (45a))
 [**do**’ (Ø_i, Ø)] CAUSE [BECOME **seen**’ (Francesca_i)]

56b) Francesca si è comprata una casa ‘Frances has bought herself a house’ (cf. (45b))
 [[**do**’ (Ø_i, Ø)] CAUSE [BECOME **have**’ (Ø_i, casa)]] PURP [**have**’ (Francesca_i, casa)]

In this case, both the reflexive marker and the verbal inflection (finite and non-finite) spell out proper agreement features (recall that the reflexive marker varies according to person).

The LS of impersonal reflexives (see (46a-b)) must be modified in the light of my analysis of *si*-impersonals (see (55a-b)). In particular, the LS position which would normally be specified in clitic reflexives (or the highest-ranking one that would normally be specified) must, in this case, remain unfilled. In addition, co-indexation is necessary, as is always the case with clitic reflexives.²⁴

57a) Ci si vede
 REFL IMP see.3SG
 ‘One sees oneself’
 [**do**’ (Ø_i, Ø)] CAUSE [BECOME **seen**’ (X_i)]

57b) Ci si compra una casa
 REFL IMP buy.3SG a house
 ‘One buys a house for oneself’
 [[**do**’ (Ø_i, Ø)] CAUSE [BECOME **have**’ (X_i, casa)]] PURP [**have**’ (X_i, casa)]

The use of *si*-impersonals in place of the first person plural (see (30)-(32)) is also referential, as is clearly indicated by gender marking on the past participle (see (32a-c)). This case is comparable to pro drop, albeit not the Italian type of pro drop, given that

²⁴ Van Valin (p.c.) points out that impersonal reflexives like those in (57a-b) would fail the causative paraphrase test, and proposes the following LS for impersonal reflexives: **see**’ (Ø_i, X_i). I propose the LS above for consistency with my analysis of intransitive reflexives (cf. (45a-b)). The problem of the lack of causative interpretation was discussed above (§ 3). As I suggested, this is probably due to the suppression of the causer and the causative activity in LS.

the argument is not represented by finite verb agreement. Rather, first person plural *si*-impersonals resemble the discourse-driven zero anaphora which is found in languages like Chinese, since the argument is recovered with reference to discourse. Accordingly, even though the finite verb inflection is obligatorily in the third person singular, the LS position must be filled by the person and number features which are recovered from discourse, that is, first plural. Thus, the *si*-impersonal structure in (58a) corresponds to the pro drop structure in (58b) and not to the one in (58c):

58a) (Noi) *si mangia*
 We IMP eat.3SG
 ‘We eat’
do’ (1PL, [**eat’** (1PL, Ø)])

58b) *Mangiamo*
 Eat.1PL
 ‘We eat’
do’ (1PL, [**eat’** (1PL, Ø)])

58c) *Mangia*
 Eat.3SG
 ‘S/he eats’
do’ (3SG, [**eat’** (3SG, Ø)])

The possibility for *si* to co-occur with the first person plural pronoun *noi*, which is shown in (58a), indicates that *si* is not an argument. Adopting Belloro’s (2004) proposal on the AGX node, the Completeness Constraint (VVLP: 325) is not violated, since the marker of argument suppression *si*, links to the AGX node, and *noi* links to an argument node.

To recapitulate, middles have a suppressed argument in LS (Ø), but this does not map onto syntax (cf. Figure 4). Impersonals like weather verbs have no argument in LS, no macrorole assignment, and no argument slot in syntax (due allowance being made for languages like English, as was mentioned above) (cf. Figure 5). Non referential *si*-impersonals have an unfilled position in LS (X), which is assigned a macrorole value, but is not linked to a position in syntax (cf. Figure 6). Contrastingly, clitic reflexives have co-indexation in LS, macrorole assignment, and mapping of the expressed argument(s) to the respective argument slot(s) in syntax (cf. Figures 1-3). Finally, the person and number features which are recovered from discourse in referential *si*-impersonals are assigned the appropriate macrorole and are mapped onto an argument slot in syntax (cf. Figure 7). My proposal is sketched in Table 1:

Table 1
A typology of unexpressed arguments

NON-REFERENTIAL			REFERENTIAL	
Weather v.	Middles	<i>Si</i> -imp.	Clitic reflexives	(<i>Noi</i>) <i>si</i>
LS: no argument	LS: Ø	LS: X	LS: Ø _i ...arg _i	LS: 1PL
No macrorole	No macrorole to Ø	Macrorole assigned to X	Macrorole assigned to arg _i	Macrorole assigned to 1PL
Syntax: no slot	Syntax: no arg slot	Syntax: no arg slot	Syntax: mapping of arg _i	Syntax: mapping of 1PL

The marker of argument suppression *si* figures in the AGX node in syntax, as a spell-out of various kinds of argument suppression. We have seen that reflexives *si* is an agreement feature, whilst middle and impersonals *si* is not. I must now return to impersonal passives, that is, *si*-constructions with PSA modulation (see § 4.2). The examples (37a-b) are repeated below for convenience:

- 59a) *Si è bevuta tanta birra*
 IMP be.3SG drink.PP.FSG much beer.FSG
 ‘One has drunk a lot of beer’
- 59b) *Si sono preparate tante sorprese*
 IMP be.3PL prepare.PP.FPL many surprises.FPL
 ‘One has prepared many surprises’

These structures have an unfilled (X) variable or, alternatively, a 1PL variable in LS, depending on whether they are non-referential (i.e., comparable to (55)) or referential (i.e., comparable to (58)). In neither case, however, is the unexpressed argument chosen as PSA. Rather, the overt argument is the PSA of the construction, as is indicated by finite verb agreement. This argument is assigned the macrorole undergoer, witness non-finite verb agreement, and maps onto syntax (cf. Figure 8). The marginal structure with no PSA modulation exemplified in (40) is identical to those exemplified in (59a-b), but for PSA assignment.

To conclude this section, it is necessary to determine the status of zero anaphora (see (24a-b)) with respect to the classes of unexpressed arguments illustrated in Table 1. I mentioned in passing that zero anaphora requires a [+human] unexpressed argument and can – but need not – be referential. Thus, examples (24a-b), which are repeated hereafter as (60a-b), are not referential, whereas (61) is referential:

- 60a) *Tacere vuol dire acconsentire*
 Remain.silent want.3SG say consent
 ‘PRO to remain silent means PRO to consent’
- 60b) *Lavorare stanca*
 Work tire.out
 ‘PRO to work tires *pro* out’
- 61) *Essere arrivati in ritardo non è stato molto gentile*
 Be arrive.PP.MPL in lateness NEG be.3SG be.PP very kind
 ‘PRO having arrived late has not been very kind (of us)’

As pointed out by Cinque (1988), zero anaphora in perfective structures with an unaccusative predicate (see (61)) cannot be truly impersonal or generic. The unexpressed argument is referential, i.e., it is a first person plural argument. The obligatory [+human] feature of the unexpressed argument of zero anaphora, its sensitivity to perfectivity, which triggers a stage-level referential reading, particularly if the predicate is an intransitive state, accomplishment or achievement, and, finally, the agreement on the past participle indicate clearly that zero anaphora should be associated with *si*-impersonals, inasfar as the status of the unexpressed argument is concerned. The relevant columns in Table 1 are thus the third one and the fifth one proceeding from left to right.

In this context, I shall not provide a contrastive analysis of zero anaphora and *si*-impersonals. Suffice it to mention that *si*-impersonals are virtually ruled out from non-finite contexts (with the exceptions seen in (35a) and (35b), which are aspectually marked, though not finite, domains). Contrastingly, zero anaphora does occur in non-finite domains (see (60a-b)-(61)). In addition, the argument of *si*-impersonals qualifies as the default PSA of the corresponding personal constructions (it is either the highest-ranking or the only argument in the clause). Contrastingly, zero anaphora is also open to the lowest-ranking argument (see (60b), where both arguments are Xs in LS). On the basis of these preliminary observations, it would seem that zero anaphora and *si*-impersonals contrast on syntactic grounds. I leave in-depth investigation of the matter to future research.

7. Conclusion

Building upon VVLP, I have developed a causative analysis of clitic reflexives in Italian. I have further proposed that both *si*-constructions are characterised by argument suppression, and that the morpheme *si* is never an argument, but rather a marker of argument suppression. Finally, I have developed a typology of unexpressed arguments, which consists of five kinds. These are represented in LS as follows: nothing, \emptyset , X, \emptyset_i , 1PL.

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Appendix

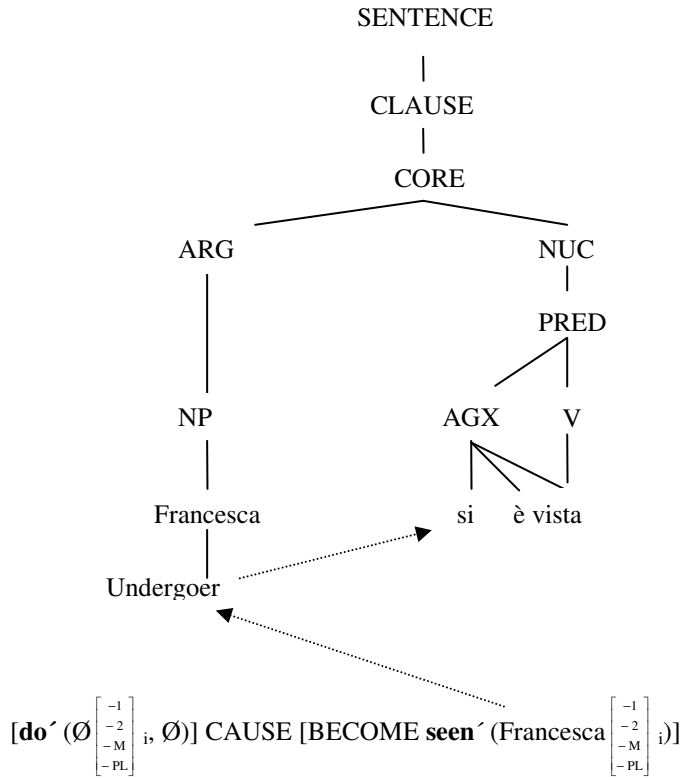


Figure 1: LS-syntax mapping in intransitive reflexives.

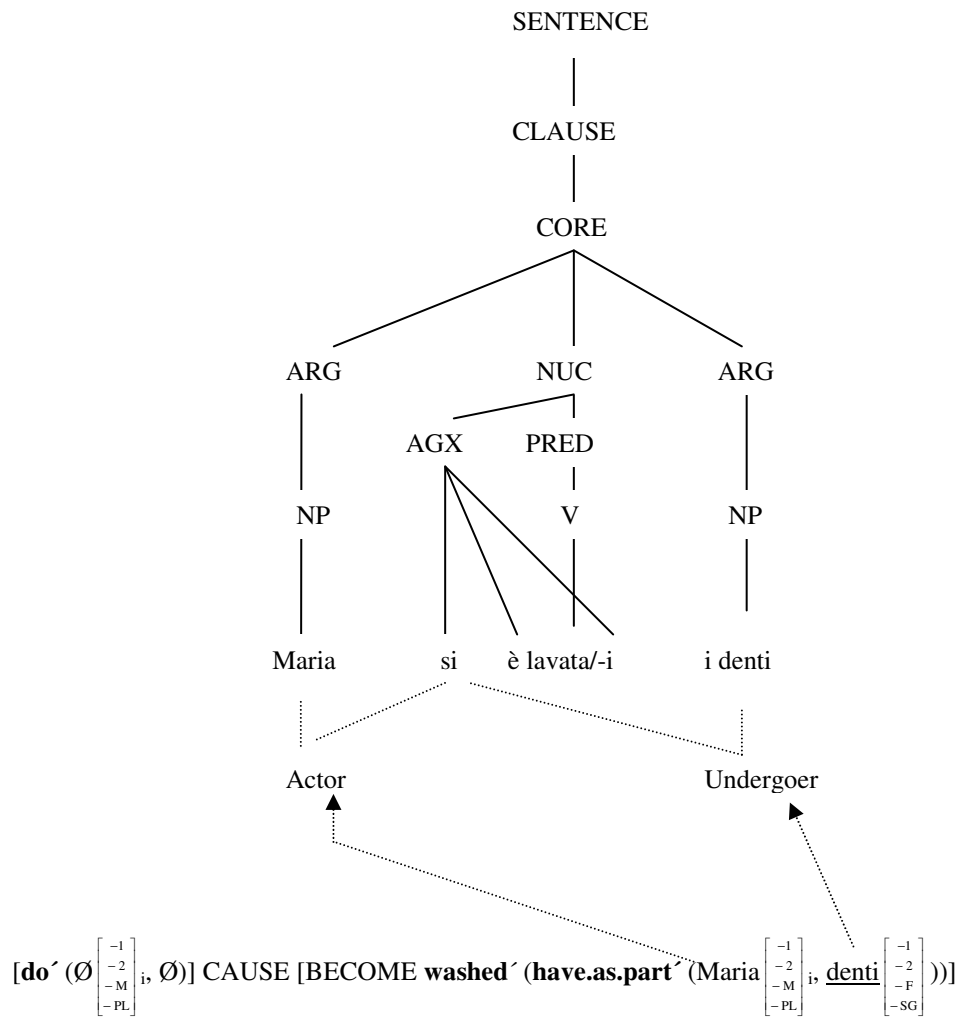


Figure 3: LS-syntax mapping in possessive reflexives

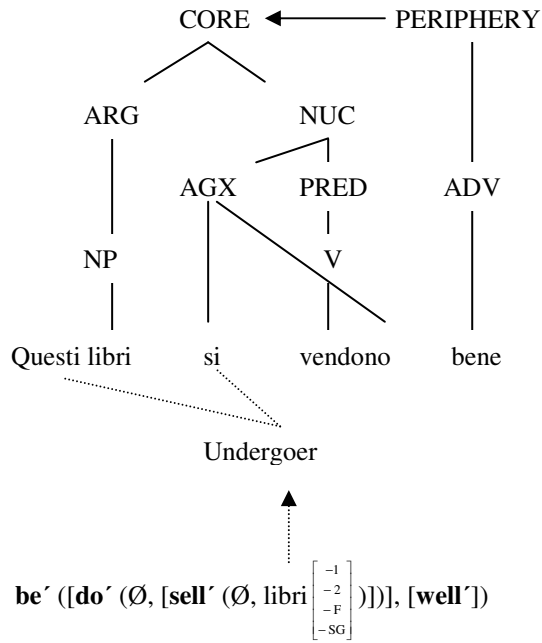


Figure 4: LS-syntax mapping in middles

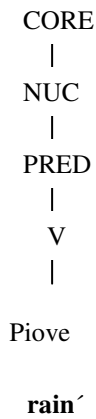


Figure 5: LS-syntax mapping in structures with weather verbs

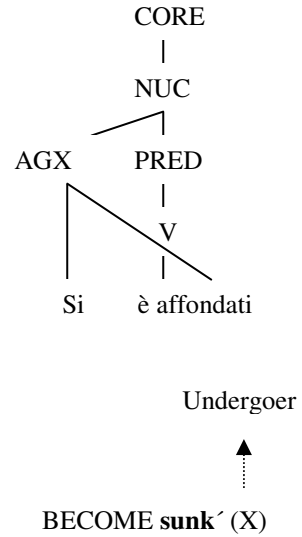


Figure 6: LS-syntax mapping in non-referential *si*-impersonals

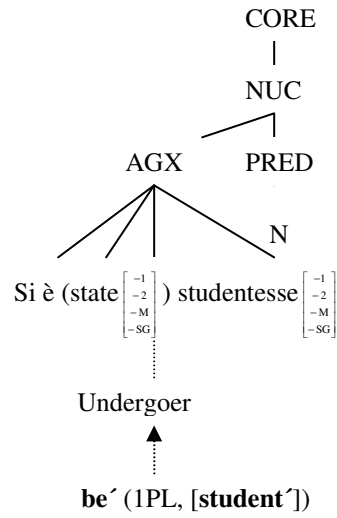


Figure 7: LS-syntax mapping in referential *si*-impersonals

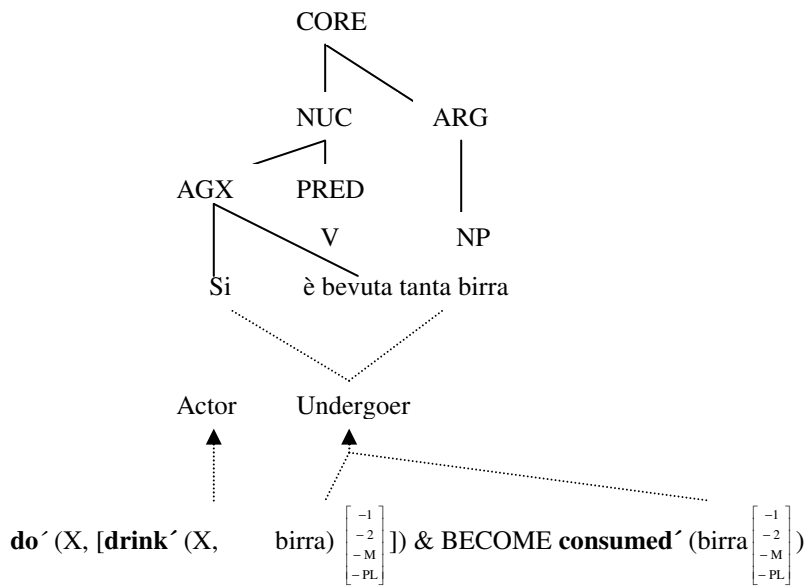


Figure 8: LS-syntax mapping in non-referential *si*-impersonals with PSA modulation

THE GERMAN ‘BEKOMMEN-PASSIVE’ AND RRG

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Abstract

The German bekommen-passive-construction presents an interesting case of grammaticalization-in-progress: It can be shown to be developing towards a passive construction that is used to code the dative argument of a ditransitive active clause as PSA. This will be attested by a discussion of the syntactic and pragmatic functions of the bekommen-passive construction. A comparison of various possible explanations for recipient-as-PSA-selection from a cross-linguistic perspective will lead to the conclusion that the bekommen-passive construction can serve the function of variable-undergoer-selection with ditransitive verbs in German. With regard to these findings, the contribution will try to account for the different steps in the grammaticalization process of the bekommen-passive construction by use of the RRG-framework.

1 **Introductory remarks²⁵**

The construction I am going to deal with in this paper is known by various labels that already bear an interpretation of the linguistic nature that is associated with it by different authors. It might be called ‘*bekommen*-construction’ (Van Valin 2003), but among German grammarians, it is generally referred to it as a kind of ‘passive construction’. They call it ‘*bekommen*-Passiv’, ‘Rezipientenpassiv’ (recipient passive) or Dativpassiv (dative passive) (cf. for example Wegener 1985, Leirbukt 1987, Diewald 1997): Most researchers argue that this construction represents a case of “grammaticalization-in-progress”.

This construction is sometimes described as “substandard”, but it is getting more and more accepted and so it can be found even in newspaper articles, books and on TV news.

²⁵ I would like to thank the participants of the International RRG-conference in Dublin, especially Rolf Kailuweit, Matthias Schlesewsky, Robert D. Van Valin, Virve-Anneli Vihman and Bjoern Wiemer for their helpful comments and criticism on the version presented at the conference. Any remaining errors are my own.

The construction is labelled ‘passive’ because although it is not fully grammaticalized, it is syntactically comparable with the plain passive construction known from many other languages. It reduces the valence of the verb and it demotes the agent of the active clause (argument modulation).

The remarkable thing about this “*bekommen*-Passive”-construction is that it is formed of ditransitive verbs: It allows to put the former indirect object (Dative) into subject position (PSA modulation). The verb *bekommen* meaning ‘to get, to receive’ as a complete verb, is then used in auxiliary function. The verbal phrase in the passive clause is formally marked in that the full verb of the active clause occurs as a past participle in the passive. These features generally posited for voice constructions are all given in the *bekommen*- construction.

The discussion will proceed as follows:

In the next section, various instances of the *bekommen*-construction are introduced. It can be shown that it is on its path towards grammaticalization: It has many features that indicate that it is not fully grammaticalized, but there are also various arguments in favour of an analysis as a passive construction.

Section 3 takes a closer look at the subject referent of the *bekommen*-construction: In a passive-analysis it has to be regarded as recipient. But it can be shown to behave like a PSA in various respects.

As German is generally described as a language that only allows macrorole arguments to become PSA, section 4 examines three different ways to handle the *bekommen*-construction in which the recipient is treated as PSA while there are also an actor and an undergoer in the clause.

Towards the end of that section, the notion of the ongoing grammaticalization process is taken up again. It will be shown that the attested stages of grammaticalization can be captured by an approach based on RRG.

2 The grammatical status of the *bekommen*-construction

The example in 1. c) shows an instance of the construction in question. Examples 1. a) and b) show the active and passive “versions” of the clause. These examples are given in order to illustrate in what way 1.c) can be conceived of as a voice construction:

1.

LS: [**do**' (Eltern,Ø)] CAUSE [BECOME **have**' (ich, Computer)]

a) Active voice:

Meine Eltern habe-n mir diesen Computer geschenkt.
 My.plNOM parents have3plPRES 1sgDAT thisMsgACC computer give.PSTP
 My parents have given me this computer.

b) Passive voice:

Diese-r Computer ist mir von meine-n Eltern geschenkt
 thisMsgNOM computer be.3sgPRES 1sgDAT by my.plDAT parents give.PSTP
 worden.
 become.PSTP
 This computer has been given to me by my parents.

c) ‚*Bekommen*-passive-Voice‘:

Ich habe diese-n Computer von meine-n Eltern
 1sgNOM have.1sgPRES thisMsgACC computer by my.plDAT parents
 geschenkt bekommen.
 give.PSTP get/receive.PSTP
 I have got/received this computer given by my parents.

Note that the three versions of the clause are semantically equivalent and thus can be said to have the same logical structure: The dative argument of the ditransitive active clause in 1. a) is recipient but what is expressed here is not mere reception of an object, but rather the whole event of giving of which the “recipient” argument can be regarded as the “goal” (Diewald 1997), i. e. the point towards which it is carried out. The “*bekommen*-passive-construction” thus can be said to present the action from the perspective of this “goal”.

As has been indicated before, the label ‘passive’ is not uncontroversial with regard to this construction. Especially the auxiliary status of *bekommen* is highly questionable.

The main objections against it are the following:

In the construction which is called *bekommen*-construction or *bekommen*-passive here, *bekommen* can be replaced by the semantically comparable verbs *kriegen* (colloquial ‘get, receive’), which is even more common in everyday speech, and *erhalten* (elaborated ‘get, receive’), which is quite restricted (Diewald 1997):

2.

a) construction with *kriegen*:

Pass auf, gleich krieg-st du eine gescheuer-t.
 WatchIMP out, soon get/receive2sgPRES 2sgNOM oneFsgACC scrub.PSTP
 Watch out, soon you get a clout round the ears.

b) construction with *erhalten*:

Sie erhalt-en die Ticket-s in einer Woche zu-geschickt.
 2NOM (polite) get/receive.3plPRES²⁶ the ticket.PIACC in one week to.send.PSTP
 You get/receive the tickets sent in one week.

In its full verb use, the verb *bekommen* which is a low-transitive two-place verb depicts the event of “receiving” from the perspective of the recipient. So, it doesn’t take an agent argument but rather a recipient argument.

The verbs *kriegen* and *erhalten* are the only semantic alternatives for *bekommen* even in full verb use. So it is possible for them to be used as auxiliaries in the *bekommen*-construction (cf. Diwald 1997). The problem is that the semantic similarity of these three verbs which makes them all suitable for the *bekommen*-passive construction is a reason to reject their auxiliary status. As auxiliaries are grammatical units they shouldn’t have any semantic content. Accordingly, it shouldn’t be possible to replace them by other verbs which are semantically similar.

An additional problem for the “passive-analysis” is the fact that the acceptance of the *bekommen*-construction varies. Although it is quite commonly used, many people judge it as being “stylistically marked” or “substandard” (cf. Eisenberg 1998).

The construction is best with ditransitive verbs and recipient-dative, but some even accept it with intransitive verbs like *applaudieren* (‘applaud’) (cf. Wegener 1985, Leirbukt 1987):

3. ?Er bekommt applaudiert.
 3sgMNOM get/receive.3sg.PRES applaude.PSTP
 He gets/receives applauded.

Note that there is still a notion of recipient here: The subject-referent can be said to be the recipient of the applause.

The *bekommen*-passive construction is ungrammatical in syntactically ditransitive constructions with non-recipient subject arguments, as the following examples show:

²⁶ The 2sg polite form *Sie* can have singular or plural reference. It always has 3pl verb agreement.

4.

a) Active:

Du schuldest mir 100 €.
 2sgNOM owe.2sgPRES 1sg.DAT 100 €.
 You(NOM) owe me(DAT)100 Euro(AKK).

b) “*Bekommen*-Passive”

*Ich bekomme von dir 100 Euro geschuldet.
 1sgNOM get/receive.1sg.PRES by 2sgDAT 100 € owe.PSTP
 I get/receive of you 100 Euro owed.

Note that the plain passive, which is called *werden*-passive in German, is also impossible with this construction, so the ungrammaticality of the *bekommen*-construction may be due to the low-transitivity-verb. Still, this example shows that the *bekommen*-construction is not a purely syntactic phenomenon occurring with all kinds of ditransitive verbs. There seem to be semantic restrictions which involve agentivity and recipient reading (cf. Leirbukt 1987, 1997).

Van Valin (2003) rejects the “passive” interpretation of the ‘*bekommen*-construction’ by raising the objections mentioned above. He analyzes the ‘*bekommen*-construction’ as nuclear juncture with a cosubordinate nexus.

Figure 1 shows his (simplified) semantics-to-syntax linking for the sentence given in 5.

5. Ich bekam einen Hut von meinem Freund
 1sgNOM get/receive.1sgPAST aMsgACC hat by myMsgDAT friend
 geschickt.
 send.PSTP
 I got/received a hat sent by my friend.

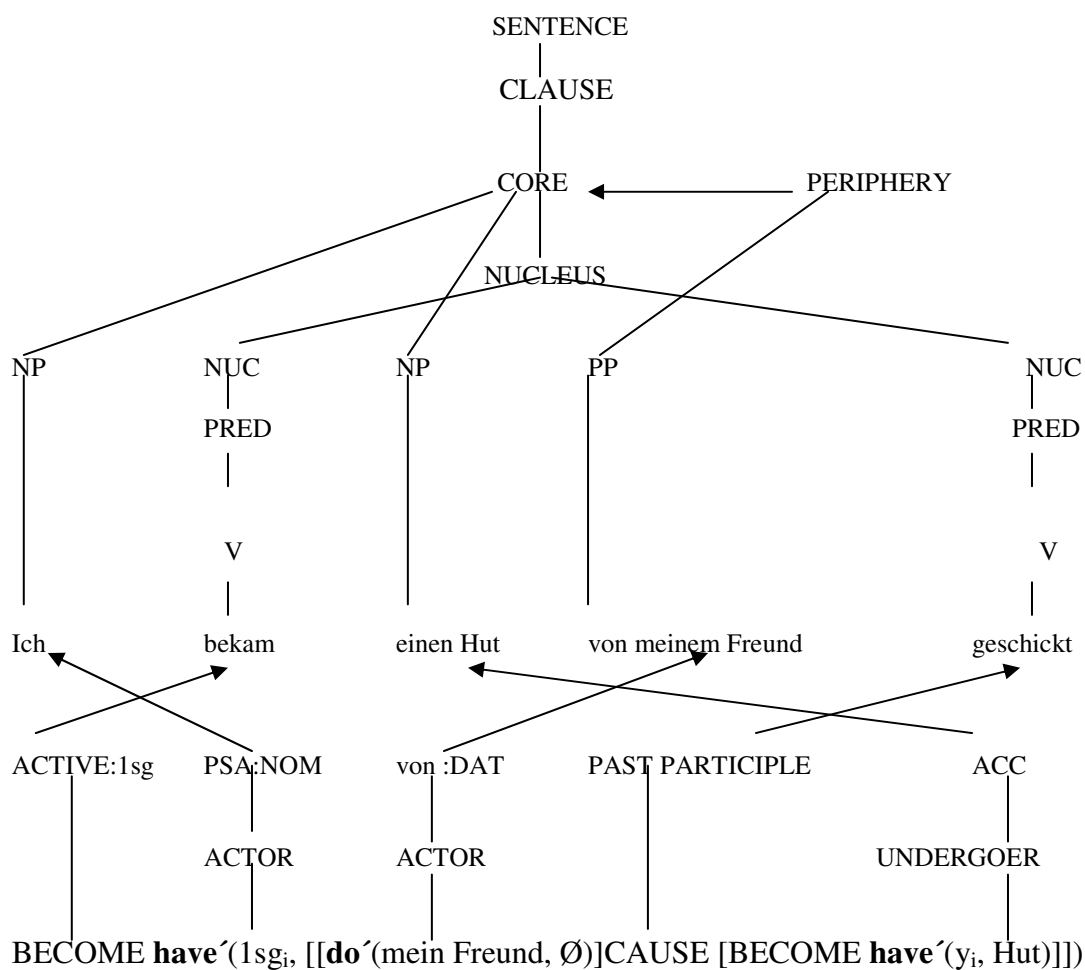


Figure 1: Simplified semantics-to-syntax linking in 5. (according to Van Valin 2003)

According to this analysis, the *bekommen*-construction should be comparable to the French example in 6. a) and the English example in b) (cf. Van Valin & La Polla 1997: 442 f.):

6.

- a) Je ferai manger les gâteaux à Jean
1sg make-3sgFUT eat-INF the.pl cake.PL DAT Jean
I will make John eat the cakes.
- b) Vince wiped the table clean.

If this were the case, then the actor status of the subject referent of the *bekommen*-construction should be as clear as the one of the subject arguments in the examples in 6. For an actor-interpretation of the subject referent, the semantics of the *bekommen*-construction would have to differ from the ditransitive-active-clause-semantics (this is already implied by the postulate that it is not to be regarded as a “passive” construction), but I have hardly any intuitions about what this difference in meaning

should be like. In my opinion, the subject argument of the *bekommen*-construction can only be regarded as being actor if the ‘*bekommen*-construction’ in 5. is paraphrased as follows:

- 5.´ Ich (Actor 1) bekam (NUC 1) einen Hut (Undergoer₁).
 Dieser Hut (Undergoer₁) wurde mir (NMR) von meinem Freund (Actor 2) geschickt (NUC 2).
 I received a hat. This hat was sent to me by my friend.

The problem with this analysis, however, is that the ‘*bekommen*-construction’ can also be found in cases where paraphrases like the ones in 5´. are not possible:

7.

- a) Sie bekam das Haar vom Friseur
 3sgFNOM get/receive.PAST-3sg theNsgACC hair by-the.3sgMDAT hairdres
 geschnitten.
 cut.PSTP
 (She got/received the hair cut by the hairdresser)
 *Sie bekam das Haar. Es wurde vom Friseur geschnitten.
 (She got/received the hair. It was cut by the hairdresser.)
- b) Er bekam von der Polizei den
 3sgMNOM get/receive.PAST-3sg by the.FsgDAT police the.Msg.ACC
 Führerschein entzogen.
 driving licence revoke.PAST
 (He got/received the driving licence revoked by the police.)
 *Er bekam den Führerschein. Er wurde entzogen.
 (He received the driving licence. It was revoked by the police.)
- c) Wir haben gesagt bekommen, dass wir uns hier melden
 1plNOM have.1plPRES say.PSTP receive.PSTP that 1plNOM 1plREFL here register.INF
 sollen.
 shall.1plPRES
 (lit. We have said got/received that we have to register here).
 = We have been told to register here.
 There is no second nominal argument of *bekommen*, thus the construction cannot be paraphrased at all.

So, there are objections against an analysis of the ‘*bekommen*-construction’ as a fully grammaticalized passive construction on the one hand. On the other hand, there are reasons to believe that at least not all of the attested instances of the ‘*bekommen*-construction’ are analyzable as nuclear junctures. Most of the researchers concerned with this construction argue that the construction with *bekommen* + PSTP represents a case of “grammaticalization-in-progress” (cf. for example Diewald 1997, Eisenberg

1998, Robert Van Valin, p.c.). The grammaticalization, i. e. the formation of a “new” passive construction with ‘bekommen’ as auxiliary is said to be based on constructions like the following (cf. Diewald 1997):

8.

Sie bekommt die Bretter vom Schreiner
3sgFNOM get/receive.3sgPRES the.PIACC board.PL by.the.MsgDAT carpenter
schon fertig zugeschnitten.
already ready cut.PSTP
(She gets/receives the boards (which are) already cut by the carpenter).

Note that this construction can be paraphrased as follows:

8'. Sie bekommt die Bretter. Sie sind vom Schreiner schon fertig zugeschnitten.
She (actor) receives the boards (undergoer). They (undergoer) are already cut by
the carpenter (actor).

There is still another possible paraphrase of this construction. As *bekommen* appears in its full-verb use and as German has free word order, 8'' is also a possible interpretation:

8''. Sie bekommt die Bretter vom Schreiner. Sie sind schon fertig zugeschnitten.
She (actor) receives the boards (undergoer) from the carpenter (PP).
They (undergoer) are already cut.

The sentence in 8. thus only allows an interpretation like the one given in 5'; so it can be said to be the basis for the development of the *bekommen*-passive, but it's not the starting point. The sentence in 8. forces a resultative reading of the participle: The boards have been cut before they were received.

Examples like the one in 5. can be the point of departure for the development of the *bekommen*-passive as they are ambiguous with respect to the interpretation of the past participle: With the resultative interpretation, the subject referent is an actor receiving an object which underwent the procedure expressed in the participle before the moment of reception (cf. the paraphrases in 5'). In this case, *bekommen* is still used as a full verb.

For the ‘bekommen’-passive however, the constituent structure is reanalysed: ‘Bekommen’ becomes an auxiliary and forms a complex verbal phrase with the PSTP. In the course of this reanalysis, the resultative meaning of the PSTP is abandoned.

The incidence expressed by the PSTP can no longer be viewed as a (result) state that occurs prior to a ‘bekommen’-event. Instead, ‘bekommen’ and the meaning of the PSTP are to be understood as being temporarily simultaneous (cf. Diewald 1997): This is the second reading of the example given in 5.

Thus, 7.a) is a case in which the full-verb/nuclear juncture-reading is no longer possible: The *bekommen*-passive reading is forced, as there is no implication of the reception of an object. Rather, the subject referent has to be interpreted as being the ‘recipient’ of the whole action. Examples like this have been claimed to represent a further step on the grammaticalization path (Diewald 1997).

The fact that there are many restrictions for the formation of the *bekommen*-passive proves that the grammaticalization process hasn’t come to an end yet. As has been stated above, the *bekommen*-passive is best with ditransitive verbs. Furthermore, the verb *bekommen* has not totally lost its semantics. Those constructions that allow the *bekommen*-passive almost always bear some sense of recipient reading, but the thing received doesn’t have to be the referent of the accusative object. Rather, the subject referent of the *bekommen*-passive is to be understood as “recipient” of something that is expressed in the verb in that the action coded in the verb is carried out with respect to him (compare for example 7.a) (cf. for ex. Leirbukt 1987,1997). So, the *bekommen*-construction can be claimed to be semantically equivalent to the corresponding ditransitive active clause. The consequence is that the subject referent cannot be analyzed as actor because there is already an actor in the logical structure.

The *bekommen*-construction can also be used to code instances of ‘negative reception’ (compare 7.b)).

Diewald (1997: 36) argues that a fully grammaticalized *bekommen*-passive wouldn’t need the accusative position. But at this intermediate stage it is still needed to carry out the transition from a structure with a PSTP that modifies the accusative object of the full verb *bekommen* (nuclear juncture, compare Van Valin 2003, Van Valin & La Polla 1997) to a new structure which has *bekommen* as auxiliary and the former full verb as PSTP.

The question that now arises is what the functions of the *bekommen*-Passive and especially its recipient-subject are and how they are to be described. As will be shown in the following section, the subject of the *bekommen*-passive construction has got all the features of a privileged syntactic argument.

3 The syntactic and pragmatic functions of the *bekommen*-passive

The subject of the *bekommen*-Passive is characterizable as Privileged Syntactic Argument:

Example 9. a) is a slightly modified construction taken from Van Valin & La Polla 1997. It shows that in German, the dative argument cannot be the controller for a zero pivot. As example b) illustrates, the former dative argument can be the controller for a zero pivot if it appears as subject of the *bekommen*-Passive:

9.

a) *Mir_i wurde-n viele Postkarte-n von mein-er Freund-in
 1sg.DAT become.PAST-3pl many postcard-pl by my-FsgDAT friend-FEM
 geschickt und pro_i hab-e sie sofort verloren.
 send.PSTP and have-1sgPRES 3plACC immediately lost.PSTP
 I was sent a lot of postcards by my girlfriend and immediately lost them.

b) Ich_i habe viele Postkarte-n von mein-er Freund-in
 1sg.NOM have-1sgPRES many postcard-pl by my-FsgDAT friend-FEM
 geschickt bekommen und pro_i habe. sie sofort
 send.PSTP get/receive.PSTP and have-1sgPRES 3plACC immediately
 verloren.
 lost.PSTP

The subject of the *bekommen*-Passive can also be the omitted argument of the *want*-construction, as shown in example 10, and it can be the matrix-coded NP in 11.

10. Peter_i will _____i das Buch geschenkt bekommen.
 Peter want3sgPRES theNSgACC book give.PSTP get/receive.INF
 Peter wants to be given the book.

11. Angela_i scheint _____i die Haare geschnitten bekommen zu haben.
 Angela seem3sgPRES thePlACC hair.Pl cut.PSTP get/receive.PSTP to have.INF
 Angela seems to have got/received her hair cut.

The *bekommen*-Passive seems to play an important role in discourse reference tracking, as does the plain passive, too. In 12., the coreferential argument is actor of the intransitive active clause, undergoer of the conjoined passive clause and recipient of the next conjoined *bekommen*-Passive. So, this example from a German news magazine is a nice illustration of how both of the “passive-constructions” can serve to keep track of a referent by assigning it pivot function.

12. Er_i fuhr zu schnell, pro_i wurde von der Polizei
 3sgMNOM drive.PAST-3sg too fast become.PAST-3sg by the.FsgDAT police
 angehalten und pro_i bekam den Führerschein entzogen.
 stop.PSTP and get/receive.PAST-3sg the.MsgACC driving license revoke.PSTP.
 He drove too fast, was stopped by the police and got/received the driving license
 revoked.

So, in German, PSA selection obviously is not restricted to actor and undergoer of transitive and ditransitive verbs: The dative-coded recipient argument of many ditransitive verbs can also become PSA by use of the *bekommen*-passive construction. These findings provide a challenge for the RRG assumptions that there are only two macroroles, actor and undergoer, and that PSA selection in German is restricted to these (compare Van Valin & La Polla 1997). In the following section, three possible ways to deal with this kind of PSA-selection are discussed.

4 Three possible accounts of “recipient-as-PSA-selection”

From a cross-linguistic perspective, there are three possibilities for an analysis of the *bekommen*-passive in RRG-terms. I am going to discuss these in turn:

1. Does the recipient argument of the *bekommen*-passive construction indicate the need for a third macrorole?
2. Is the *bekommen*-passive a case of non-macrorole-PSA-selection?
3. Is the *bekommen*-passive a case of variable undergoer selection?

4.1 Does the recipient argument of the *bekommen*-passive construction indicate the need for a third macrorole?

I will be short on this first possibility. As Van Valin (2004) argues, there are good reasons to reject the concept of a third macrorole.

The most important aspect is that a third macrorole, even if it could be useful to describe this special German construction, would be a qualitatively different concept from the two accepted macroroles. Those seem to be universally valid for the description of morphosyntactic phenomena, while this third macrorole obviously is not: According to Van Valin (2004) there are languages that don't even permit three core arguments.

Furthermore, another macrorole couldn't be justified with regard to syntax: It plays hardly any role for subject selection with intransitive verbs, and in the typology of syntactically accusative, ergative and split-intransitive systems there is no need for a third macrorole.

Another very important aspect is that there is no consistent morphosyntactic treatment of an argument type other than actor and undergoer. Even within a single language it would be very difficult to single out a third macrorole argument on morphosyntactic grounds. And even if this should work out for one language there could hardly be found a comparable concept in a different language.

For an understanding of the nature of the two macroroles, actor and undergoer, it is very important to keep in mind that there are no necessary correlations between macroroles and grammatical relations. For example, in many languages, the ‘direct object’ cannot be equated with the undergoer in certain constructions. Section 4.3 will be concerned with deviations from the direct object-undergoer-correlation.

In conclusion, a notion like “macrorole other than actor and undergoer” wouldn’t actually deserve being called “macrorole”, and accordingly, the actor-undergoer-dichotomy has to be maintained for the description of the *bekommen*-passive-construction. But there is still the possibility for PSA selection to take place among non-macrorole arguments. A case like that is attested for Icelandic (cf. Van Valin & La Polla 1997). This leads us to the second option:

4.2 Is the *bekommen*-passive a case of non-macrorole-PSA-selection?

In RRG-terms, German has been described as a language in which privileged syntactic argument selection is restricted to macrorole arguments only. It has been compared to Icelandic which allows non-macrorole PSA selection:

13. ⊙eim_i lík-ar matur-in-n og *pro*_i borð-a miki-ð
 3plDAT like-3sgPRES food-DEF-MSGNOM and eat-3plPRES much
 They like the food and eat much.

The example from Van Valin & La Polla 1997 shows conjunction reduction with a dative pivot in Icelandic. Note that the dative pivot doesn’t control verb agreement. The verb agrees with the non-pivot nominative.

The difference between the two languages German and Icelandic obviously lies in the nature of the privileged syntactic argument selection principles: In German the selection principle is ‘actor=default’, whereas in Icelandic it is ‘highest ranking direct core argument=default’. So it happens that if there is no actor argument, in Icelandic the next highest ranking argument becomes PSA, even if it is not a macrorole argument (cf. Van Valin & La Polla 1997: 352 ff.).

If German were comparable to Icelandic in this respect, the following German translation of 13. should be grammatical:

14.

- a) *Ihnen_i schmeckt das Essen und pro_i essen viel.
 3plDAT taste.3sgPRES the.sgNOM food and eat.3plPRES much
 They like the food and eat much.

Note that German also has ‘dative subject’ constructions; the clause *Ihnen schmeckt das Essen* is grammatical: Like its Icelandic counterpart, the dative NP does not control verb agreement. The difference is that the German “dative subject” cannot take the pivot function.

As the examples in 9. already show, there is no possibility for a dative coded argument to become PSA unless it appears as the subject of the *bekommen*-passive construction. This can also be shown by 15. of which b) is also taken from Van Valin & La Polla 1997: The dative argument can only be omitted if it appears as the subject of a *bekommen*-passive (cf. c):

15.

- a) Ich_i bin um 8 Uhr aufgestanden und mir_i
 1sgNOM be.1sgPRES at o'clock get.up.PSTP and 1sgDAT
 wurde das Frühstück gebracht.
 become.PAST-3sg the.NsgNOM breakfast bring.PSTP
 I got up at 8 o'clock and breakfast was brought to me.
- b) *Ich_i bin um 8 Uhr aufgestanden und pro_i
 1sgNOM be.1sgPRES at o'clock get.up.PSTP and
 wurde das Frühstück gebracht.
 become.PAST-3sg the.NsgNOM breakfast bring.PSTP
 I got up at 8 o'clock and was brought breakfast.
- c) Ich_i bin um 8 Uhr aufgestanden und pro_i
 1sgNOM be.1sgPRES at o'clock get.up.PSTP and
 bekam das Frühstück gebracht.
 get/receive.PAST-3sg the.NsgNOM breakfast bring.PSTP
 I got up at 8 o'clock and got/received brought breakfast.

One could still insist by saying that other than in Icelandic, in German the *bekommen*-passive construction is needed to realize non-macrorole-PSA-selection and that it otherwise follows the same principles as the dative-pivot construction in Icelandic. But the *bekommen*-passive seems to be possible only if there is some kind of recipient reading involved.

With verbs like *schmecken* (‘taste’), there is no controversy that the *bekommen*-passive is ungrammatical. So, the German translation of the Icelandic sentence in 13. cannot be

rendered grammatical by using the *bekommen*-passive to fulfil the PSA conditions. Compare:

16.

- a) Ihnen schmeckt das Essen.
 3plDAT taste.3sgPRES the.NsgNOM food
- b) *Sie bekommen von dem Essen geschmeckt.
 3plNOM get/receive.PRES-3pl by the.NsgDAT food taste.PSTP

The differences between the Icelandic and the German “dative-PSA” are obvious. In fact, the German “dative-PSA” only appears in *bekommen*-passive constructions. Those, however, are not possible with the verbs that enter into the dative-pivot-constructions shown for Icelandic. Accordingly, the *bekommen*-passive cannot be analyzed in terms of the PSA-selection principle that has been stated for Icelandic. Thus, it cannot be said to represent a case of non-macrorole-PSA-selection.

The conclusion of this discussion is that the subject of the *bekommen*-passive has to be either actor or undergoer. But how can we account for this if there are already an actor and an undergoer in the corresponding ditransitive active clause?

This problem will be dealt with in the following section.

4.3 Is the *bekommen*-passive a case of marked undergoer selection?

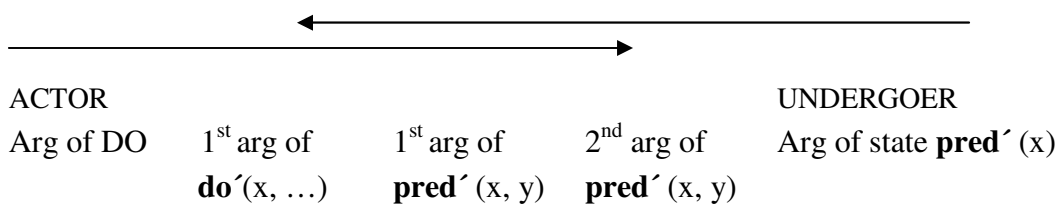
In many languages, undergoer selection with ditransitive verbs cannot be keyed to the traditional notion of ‘direct object’ which is marked by accusative case in German.

The complex logical structure for three-place predicates is given in 17. (cf. Van Valin 2002):

17. [**do**´(x, Ø)] CAUSE [BECOME **predicate**´(y, z)]

With regard to the Actor-Undergoer-Hierarchy given in Fig. 2 it has been stated that the leftmost argument in a LS is always the actor, but the rightmost argument is only the default choice for undergoer (Van Valin 2002).

The Actor-Undergoer-Hierarchy (AUH)



[→ increasing markedness of realization of argument as macrorole]

Fig. 2: The Actor-Undergoer Hierarchy

That means that the linking principles allow for the recipient argument of a ditransitive verb to become undergoer. The theme argument, in accusative languages usually coded as the direct object by accusative case, is then assigned non-macrorole status.

The phenomenon of ‘non-default-undergoer-selection’ has been called “primary objectivity” by Dryer (1986). Other well-known terms are “dative shift” and “variable” or “marked” undergoer selection (cf. Van Valin & La Polla 1997, Van Valin 2002).

An instance of marked undergoer selection is attested in English (Van Valin 2002):

18.

- a) [**do**’(Pat, Ø)] CAUSE [BECOME **have**’(Kim, book)]
- b) Pat [Actor] gave the book [Undergoer] to Kim. (unmarked choice)
- c) Pat [Actor] gave Kim [Undergoer] the book. (marked choice)

In c), the y argument (Kim, recipient) is chosen as undergoer, while the theme argument ‘the book’ is represented as a non-macrorole argument although according to the Actor-Undergoer-Hierarchy, it is the default choice for undergoer. Recipient becomes undergoer here because it occupies the post-nuclear “direct object” position.

The passive construction in d) is given in favour of this argument: Only undergoers can become PSA of a passive construction, and, according to Van Valin (2002), example e) is less accepted among native speakers of English:

- d) Kim was given the book by Pat.
- e) ?The book was given Kim by Pat.

Variable undergoer selection is strongly restricted across languages. Many languages do not permit it at all, and others permit it only with a limited number of verbs. In Dyirbal, for example, marked undergoer selection is only possible with the verb *wugal* ‘to give’ (Van Valin & La Polla 1997, Van Valin 2002).

19.

- a) Ba-la-m miraŋ-Ø ba-ŋgu-n dyugumbi-tu wuga-n ba-gu-l
yata-gu.

DEIC-ABS-III beans-ABS DEIC-ERG-II woman-ERG give-TNS DEIC-DAT-I man-DAT
The woman [Actor] gave beans [Undergoer] to the man.

- b) Ba-yi yata- Ø wuga-n ba-ŋgu-n dyugumbi-tu baŋgum miraŋ-dyu.

DEIC-ABS.I man-ABS give-TNS DEIC-ERG-II woman-ERG DEIC-INST-III beans-INST
The woman [Actor] gave the man [Undergoer] beans.

In Dyirbal, third person actor and undergoer of a transitive verb are marked by ergative and absolutive case, respectively.

In example a) the theme argument is chosen as undergoer by absolutive marking. In b), the recipient argument is undergoer, which is again shown by the absolutive case. The theme argument here is marked by instrumental case which indicates non-macrorole-status.

There is an applicative construction in German which serves about the same function. The marked undergoer selection is indexed by a prefix on the verb:

20.

a) Sie schenkte ihm Blume-n.
 3sgFNOM give.3sgPAST 3sgMDAT flower.plACC
 She [Actor] gave him (DAT) flowers [Undergoer].

b) Sie be-schenkte ihn mit Blume-n.
 3sgFNOM PREF.give.3sgPAST 3sgMACC with flower.plDAT

(lit): She[Actor] presented him [Undergoer] with flowers.

The question is whether the German *bekommen*-passive should also be analyzed as marked choice of undergoer. In my opinion there are a few objections.

In the English examples in 18., the passive constructions have been given to determine the right choice of undergoer here: As PSA selection only involves actor and undergoer, the subject of the passive construction must be undergoer. As the passive construction with the theme-undergoer is not quite accepted, it has been argued that only the recipient argument can be viewed as being the undergoer.

As the German examples show, the active sentence in 1. can be passivized in both ways (1. b+c). So which argument is the undergoer of the active construction then? If it is *diesen Computer*, why then is a construction like 1.c) possible at all?

The German ditransitive active construction does not provide us with any clues about undergoer selection. This is different in English and Dyrbal. In English (ex.18, b+c) there is a slight difference in the coding of the recipient argument, and in the Dyrbal example (19.b)) the instrumental case on the non-macrorole core argument signals marked undergoer selection.

RRG offers two principles with respect to the marked linking alternative given in primary object constructions. The first one already given in Van Valin & La Polla 1997 states that with ditransitive verbs, the animate non-actor argument has to be selected as undergoer. As this principle is problematic with respect to cases where there are two animate non-actor-arguments, Van Valin (2002) offers another one: It states that in

primary object constructions, the second highest ranking argument in the LS has to be selected as undergoer.

This principle, however, can hardly be applied to ditransitive active clauses in German, as many of them seem to allow two passive constructions: In the plain, 'werden-passive' the lowest ranking argument is selected as undergoer, and in the *bekommen*-passive, it is the second highest ranking argument (compare the examples in 1).

So, if an analysis in terms of marked undergoer selection could be said to be valid for German grammar, it could only be applied to the '*bekommen*-passive'-construction, not to the corresponding active construction. This is a problematic point, as to my knowledge, variable undergoer selection that concerns exclusively passive constructions has not been described for other primary object languages: In the description of primary object constructions, the passive construction is only used as a "test" for marked undergoer selection (compare the English example in 18).

Besides that, there is another problem: If we postulate that the *bekommen*-passive is motivated by the need to have an expression of "marked undergoer selection" in the German language, then we have to ask why the already existing *werden*-passive is not used for it as it is done in English.

A construction like the following does not exist in German (compare also ex. 15.b):

21. *Ich wurde diesen Computer von meinen Eltern geschenkt.
1sgNOM become.PAST-1sg thisMsgACC computer by my.plDAT parents give.PSTP
I was given this computer by my parents.

If the need for 'recipient-as-PSA-selection' were to be stated as being the only reason for the development of the *bekommen*-passive, then one has to ask the question why the language bothered to develop a second passive construction with a different auxiliary if the same function could easily be taken over by the "old" passive construction. So, with respect to economical considerations, this is improbable.

At this point, I think we should go back to where we started and take another look at the development of the *bekommen*-passive.

In section 2 it has been shown that the *bekommen*-passive originated from a nuclear juncture of the kind introduced in Figure 1. Propositions like this can generally be paraphrased as follows:

22.

- a) I got/received something. Before that, it was changed into a new state by person x.
- b) I got/received something. Before that, it was transferred to me in one or the other way by person x.²⁷

So, the development of the *bekommen*-passive started out from the expression of an event of receiving. This expression also contains the information that the thing received underwent a change of state or location before it was received. In the course of the reanalysis, this ‘result state reading’ is abandoned: The newly developing “*bekommen*-passive” tells us something about an event involving an object. This event is carried out with respect to the subject referent of the *bekommen*-passive which equals the dative-referent of a ditransitive active clause.

The *bekommen*-passive can now be said to be a semantically equivalent paraphrase of the corresponding ditransitive active clause.

The statement that the ‘result state reading is abandoned’ when the *bekommen*-construction changes into a passive construction does not imply that there is no ‘result state reading’ left at all. The difference is that the ‘result state’ now is to be found in the fact that the recipient relation comes about. In the logical structure, this is expressed by ...CAUSE [BECOME **have**´(y, z)].

So, the recipient is presented as being the most affected participant here.

The existence of the involved object is “downplayed”; it becomes a part of the event expressed in the verb. Hence, intransitive verbs with an inherent recipient reading are also acceptable with the *bekommen*-passive (compare the example in 3. and Wegener (1985) for further examples).

According to Leirbukt (1997:138,156), the *bekommen*-passive is only possible with expressions that involve an agent as “Kausalinstanz” (‘causing instance). Note that in the LS of verbs of giving, there is always a causal relation involved:

24. LS: [**do**´(x,Ø)] CAUSE [BECOME **have**´(y, z)]

The recipient argument y is always the undergoer of the causing event. It is transferred into a new state: the two-place state of having. So it can be said to bear a certain undergoer status with respect to the causing relation. This is in conflict with the fact that

²⁷ This is of course a simplified representation. There may be other ways to paraphrase the constructions in question.

the first argument of **have**' is usually coded as actor. So, the recipient argument cannot be first choice for undergoer. But there is some reason for it to be at least second choice for undergoer.

It seems that primary object constructions in different languages make use of this certain undergoer status of the recipient argument of ditransitive verbs.

Note that the choice of recipient or theme as undergoer can alternate in the same verb (cf. Jiménez 2004). So, this is probably a function of the *bekommen*-passive, too.

In the stage of grammaticalization that it is in now, i. e. in its most accepted uses, the *bekommen*-passive serves the same functions as marked undergoer selection in other languages and as the applicative construction that is already existing in German. The features that have been claimed to prove that this construction is not fully grammaticalized are the ones that are stated as restrictions for variable undergoer selection cross-linguistically. Those constructions are said to be possible only with verbs of giving. The *bekommen*-passive has been claimed to be semantically restricted to ditransitive verbs that involve reception.

Note that these semantic restrictions don't necessarily indicate that *bekommen* is not an auxiliary in the *bekommen*-construction. According to Eisenberg (1998:288), the semantic role of the dative argument is quite determined: It is always almost recipient. So, if the subject referent of the *bekommen*-construction is to be regarded as being semantically equivalent to the dative argument of the corresponding active, it is not problematic to say that it always has some sense of recipient reading. So, the semantics of the auxiliary *bekommen* are compatible with a passive analysis of the *bekommen*-construction.

This discussion has shown that the *bekommen*-passive can be regarded as an additional passive construction that can serve the function of primary object constructions: It marks y as undergoer. Accordingly, I propose the following semantics-to-syntax-linking for the *bekommen*-construction in 1.c): The recipient argument is chosen as undergoer, while the theme argument receives non-macrorole-status. The recipient-as-undergoer-argument can thus serve as PSA.

The motivation for the development of the *bekommen*-passive truly lies in the need to have the recipient at disposal for PSA function. As the examples in 9. and 12. show, the *bekommen*-passive can serve as a 'discourse-reference-tracking-mechanism' (cf. Van Valin & La Polla 1997).

As recipients are very often animate and topical there is a strong motivation for them to appear in subject position.²⁸

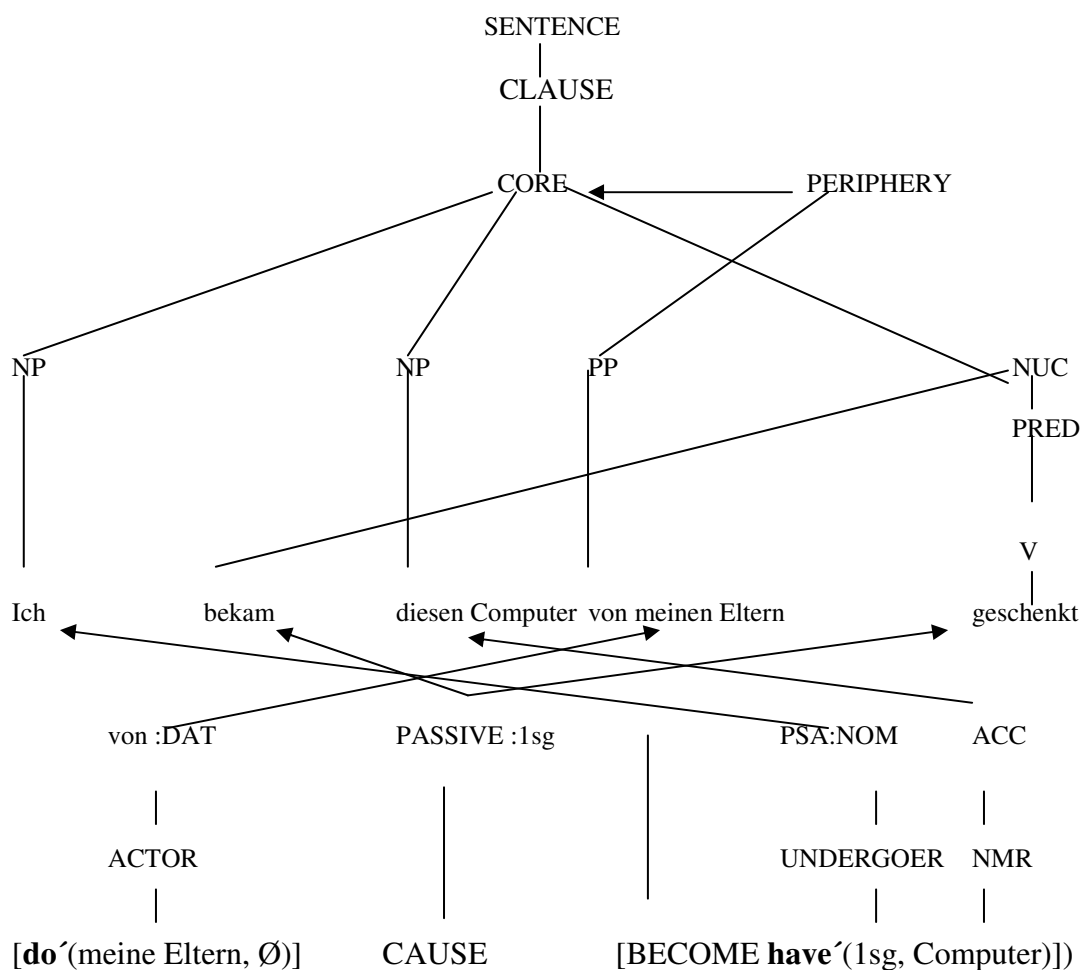


Fig. 3: Simplified linking from semantics to syntax in 1.

But, as has been said before, the coding of an event that involves the reception of an object does not represent the final stage of the development of the *bekommen*-passive. As the examples in 7. show, this construction can also be used to express that some service in the broadest sense is carried out on the subject referent.

These are tricky cases in that the dative argument of the ditransitive active clause might not be regarded as being a direct core argument, as it is not required by the verb. The verbs in question are actually two-place verbs, for example *schneiden* ('cut'), which permit an additional argument marked by dative case.

As Eisenberg (1998:290 ff.) argues, however, datives like these have to be analyzed as „strukturelle Kasus“ (‘structural cases’) as there are many verbs that don’t even permit a

²⁸ Note that animacy of the subject referent is not a condition for the formation of the *bekommen*-passive. See Leirbukt (1997) for exceptional cases.

third argument at all. So, those kinds of datives can be used for verb classification with respect to valency. The datives in question are semantically comparable; in German they are called “Dativus Commodi/Incommodi” and “Pertinenzdativ”. They correspond to “benefactive” and “malefactive” in that the constructions involving these kinds of datives always express that some action is carried out with respect to the dative referent. This action always includes a change of state of the object coded in the accusative.

Very many of the respective constructions involve an object that is inalienably possessed by the dative referent or that is otherwise presupposed.

Eisenberg’s main point in favour of a direct-core-argument-analysis of the datives in question is that they can be the subject of a *bekommen*-passive. Accordingly, the LS of 7.a) should be represented as in 25c). 7.a) is repeated as 25 b). for convenience:

25.

a) Der Friseur schnitt ihr das Haar.
 The.3sgMNOM hairdresser cut.PAST-3sg 3sgFDAT the.NsgACC hair
 The hairdresser cut her hair.

(lit.): “The hairdresser cut her the hair.”

b) Sie bekam das Haar vom Friseur
 3sgFNOM get/receive.PAST the.NsgACC hair by-the.3sgMDAT hairdresser
 geschnitten.

cut.PSTP

(She got/received the hair cut by the hairdresser)

c) LS [**do**’(Friseur, Ø)] CAUSE [BECOME **cut**’ (3sgF, Haar)]

The personal pronoun appears in the “recipient position” of the y argument and can thus be assigned undergoer status by the *bekommen*-passive. Note that direct-core-arguments in German aren’t as easily defined as in English. According to Van Valin (2004:79 f.), direct core arguments in German are those marked by direct case. From this follows that the notion of “direct core argument” is not the same in German as in English. So, some might say that “sie” (‘she’) is not a direct core argument here. This would imply that non-direct-core arguments could be linked to undergoer, which is also possible from the point of view of the theory. Van Valin & La Polla (1997:337 f.) list several cases from different languages.

Viewed from the opposite perspective however, it might also be concluded that the *bekommen*-passive can serve as a “test” for direct core arguments in German.

If one assumes that one of the functions of the *bekommen*-passive is to select the *y* argument as undergoer, then this again shows that undergoer status is not necessarily correlated with any of the grammatical relations.

5. Conclusion

In this paper, I attempted to give an RRG-based account of the development of the *bekommen*-construction in German, which represents an instance of grammaticalization-in-progress. According to many German linguists, this construction is developing towards a passive construction, which is interesting because this passive construction can be used to assign PSA status to the recipient argument of a ditransitive verb.

The discussion of various possible accounts of recipient-as-PSA-selection has shown that the *bekommen*-passive comes closest to the phenomenon of variable undergoer selection that has been described for many other languages.

Although there are important differences between the *bekommen*-passive in German and marked undergoer selection in primary object languages, the *bekommen*-passive can be said to serve the same function: It selects the recipient argument as undergoer while the theme argument receives non-macrorole-status. But the development of the *bekommen*-passive is still going on: It is also possible with verbs that do not code the reception of an object. The respective constructions are claimed to be the latest step on the grammaticalization path postulated for the development of the *bekommen*-passive. These verbs express that some action involving an object is carried out with respect to the dative referent.

In my opinion, the RRG-analysis presented here can account for this development. The recipient argument can be represented as *y* argument in the logical structure even of those verbs that do not code events of giving or transferring. Although some change-of-state-verbs do not require a third argument, they have been described as three-place-verbs for German, as they at least permit a third direct core argument marked by dative case. It has been proposed that this optional third argument should be represented as *y* argument in the logical structure of these verbs. In this argument position, it is accessible to undergoer selection carried out by the *bekommen*-passive. This kind of representation also captures the semantic “decay” of the accusative object: In the latest stages of grammaticalization it doesn’t appear as an object in its own right but rather as a part of the dative referent (in terms of inalienable possession) or as a part of the verbal action. This decreasing importance justifies its non-macrorole-status.

Further research will have to show which additional steps of development the *bekommen*-passive will take and how they can be accounted for by the RRG approach.

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THE OPERATOR PROJECTION, OMAHA AND DIACHRONIC SYNTAX IN RRG

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0. Abstract

This paper considers the grammaticalization of three elements in Omaha from the perspective of RRG. Each element is seen to move from a syntactic element to operator. Further grammaticalization from an operator of lesser scope to an operator which has greater scope also occurs in two of the three cases considered. The operator projection in RRG proves to be key to explaining grammaticalization pathways in Omaha.

1. Introduction

Grammaticalization theory has evolved throughout the past century. The standard definition of grammaticalization is that of Kuryłowicz ([1965] 1975: 52), who posits that “grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one.” This definition primarily concerns the morpho-syntactic status or classification of the grammaticalizing elements. Considering the semantic and pragmatic factors accompanying grammaticalization, Traugott (1986: 540) states that grammaticalization involves subjectification, in which “meanings tend to come to refer less to objective situations and more to subjective ones (including speaker point of view), less to the described situation and more to the discourse situation.” Thus, grammaticalization involves regular morpho-syntactic, semantic, and pragmatic change.

Role and Reference Grammar (RRG), a primarily morpho-syntactic theory, also incorporates semantic and pragmatic information. The linking of an element to a given projection (operator, clause, NP) shows its morpho-syntactic status. Operators ‘represent grammatical categories which are qualitatively different from predicates and their arguments’ (Van Valin & LaPolla 1997: 40). Operators modify the clause and its parts, and are often grammatical (as opposed to lexical) items. Within the operator projection, scope relationships exist. Increasing scope is linked with increasingly discourse-based phenomena. Thus, the above grammaticalization factors of increasing grammatical status and subjectivity may be related to notions within RRG such as linking and scope.

This paper will consider the grammaticalization pathways of three different morphemes in Omaha, a Mississippi Valley Siouan language, using RRG. For each, it is seen that a element moves from syntactic element to operator. Further grammaticalization from an operator of lesser scope to an operator which has greater scope also occurs in two of the three cases considered. Thus, the operator projection in RRG proves fundamental in explaining grammaticalization pathways in Omaha.²⁹

²⁹ Mrs. Alice F. Saunsoci provided and/or verified all the Omaha language data for this paper. A fluent Elder speaker, Mrs. Saunsoci is an instructor at the Nebraska Indian Community College. Special thanks are also due to Mr. Oliver Cayou and Mrs. Marcella Cayou who also provided valuable Omaha language data. These were obtained during the author’s work at the Umoⁿhoⁿ Nation Public School (UNPS) Umoⁿhoⁿ Language Center (ULC). I am grateful for the opportunity provided by the ULC and its Elders. Wibthahoⁿ.

2 First grammaticalization pattern: *wa*

The first element to be considered is *wa*, which serves a variety of functions in Omaha.

2.1 Functions of *wa*

2.1.1 Subject marker

This morpheme acts as the animate third person plural subject marker for stative verbs (1,2).

1. Wa-wasnida.
3pl-late
'They are late.'
2. Wa-zada.
3pl-messy hair
'They are messy haired.'

In (1), *wa* is the third plural subject maker of the stative verb 'to be late.' In (2), it is the third plural subject marker of the stative verb 'to be messy haired.' In each, it is the first argument of a state. The logical structure of these verbs can be represented as **be-late'**(*x*) and **be-messy-haired'**(*x*). In above examples, *wa* fills the the *x* argument position.

2.1.2 Object marker

Wa also functions as the animate plural object marker for active verbs (3,4).

3. Wa-n-ixu-a?
OBJ.pl-2sg-draw-?
'Are you drawing us/them?'
4. A-wa-toⁿbe.
1sg-OBJ.pl-see
'I see them.'

In (3), *wa* marks the second or third person plural object for the verb 'draw.' This marker can be used for both 'us' and 'them.' In (4), *wa* can only be interpreted as 'them,' as the reflexive marker would also appear if it were to be interpreted as 'us.' In both examples, *wa* marks the second core argument of a predicate. Given the logical structures, **do'**(*x*, [**draw**₁'(*x*,(*y*))]) & BECOME **drawn**₂'(*y*), for (3), and **see'**(*x*,*y*), for (4), *wa* serves as the *y* argument.

2.1.3 Activity marker

This element *wa* also occurs as the activity marker for active accomplishment verbs (5, 6).

5. Wa-n-ixu-a?
wa-2sg-draw -?
'Are you drawing?'

In (5), which is phonologically the same as (3), *wa* can be interpreted as marking that the verb is an activity, done over a period of time or habitually. Context distinguishes this reading from that of (3), where the verb is rather an accomplishment, a completed act, and *wa* is the object marker.

A further example of an activity use of *wa* is provided in (6).

6. Wa-that^ha-i-ga.
 Wa-eat-pl-M.IMP
 'Everyone eat!'

In (6), the verb 'eat,' which can be an activity or an accomplishment is marked with *wa*, and, therefore, an activity and not an accomplishment.

The verbs in (5) and (6) are both potentially transitive. However, when *wa* is affixed, verbs cannot co-occur with an object (7).

7. Teskamoⁿzeni bth-at^hoⁿ.
 milk 1sg-drink
 * Teskamoⁿzeni wa-bth-at^hoⁿ.
 milk wa-1sg-drink
 'I drink milk.'

In (7), the activity, *wa*-marked form of 'drink' is not grammatical with the overt object 'milk. Thus, *wa* can be analyzed as removing the second argument, the object, in the logical structure of the verbs it marks. Also, it removes the '& BECOME **predicate**₂'(y)' of active accomplishment logical structures to create activity readings.

d. *Wawe* forms

For certain verbs, *wa* can be used in conjunction with the third dative object *we* to create a sense of doing things habitually, frequently (8, 9, 10).

- 8.a. Iⁿdadoⁿ-shti azhithoⁿthoⁿ ímoⁿxa.
 What-ever various 3sg.ask
 'He **asked** all sorts of questions.'

- b. Niashiⁿga azhithoⁿthoⁿ wé-a-moⁿxe.
 People different 3plDAT-I-ask
 'I **asked** different people about him.' Or 'I **asked** around about him.'

- c. Ardis ak^ha goⁿ wa-wé-moⁿxa moⁿthiⁿ.
 Ardis the such wa-3plDAT-ask 3sg.go
 'Ardis is **going around asking** people.'

- 9.a. Ixa thahegazhi-a.
 Laugh hard-F.IMP
 '**Laugh** loudly.'

- b. Niashiⁿga ama we-xaxa.
 People the.pl 3plDAT-laugh.redup

‘He **laughed at** people.’

c. Wa-we-xaxa.

Wa-3plDAT-laugh.redup

‘Person who **likes to laugh at** people.’

10.a. ik^hita

3sg.cheat

‘He **cheated** him.’

b. We-k^hita.

3plDAT-cheat

‘He **cheated** them.’

c. Wa-we-k^hite-shtoⁿ.

Wa-3plDAT -cheat-CONT

‘He **always cheats**.’

In (8, 9,10), through the addition of *wawe*, the actions of ‘asking,’ ‘laughing’ and ‘cheating’ are made into habitual actions or actions characteristic of an individual.

For *wawe* verbs, the alternation is not from active accomplishment to activity, as was seen in section 2.1.2. For example, ‘laugh’ is already an activity, as can be seen in its aksionsart tests (Table 1).

Criterion	Activity	Ixa ‘laugh’
Occurs with adverbs like <i>vigorously, actively</i>	YES	(9a) –yes
Occurs with adverbs like <i>quickly, slowly</i>	YES	O ⁿ the thahegazhi.
Occurs with <i>for an hour</i>	YES	Mido ⁿ be wi ⁿ thahegazhi.
Occurs with <i>in an hour</i>	NO	*Mido ⁿ be wi ⁿ k ^h i thahegazhi.

Table 1. Tests for activity aksionsart as applied to ‘laugh’ (adapted from VVLP 1997:94)

Adding *wa* + 3pl.DAT ‘to them’ to the verb ‘laugh’ is creating an activity of doing an activity to people, a state of doing things regularly. It makes the event ongoing, recurrent.

2.2 Relatedness of *wa* functions

2.2.1. Object of active verb, subject of stative verb

Both the second argument of active verb (A1) and first argument of stative verb are core arguments and serve a similar function, as can be seen on the actor-undergoer hierarchy (Figure 1).

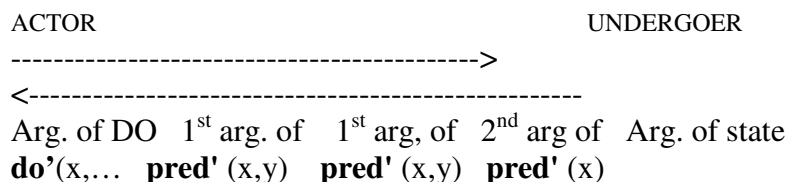


Figure 1. The Actor-Undergoer Hierarchy (VV&LP 1997:146)

Both of these arguments fall on the undergoer side of the hierarchy.

2.2.2 Relatedness of activity *wa* and *wawe* functions:

These both affect the internal temporal structure of the verb. The action is made incomplete or ongoing. This qualifies as *aspect*, a nuclear level modifier. In Russian, the aspectual distinction perfective/imperfective also often correlates for a distinction between active accomplishments and activities. In Omaha, *wa* removes telicity from a given verb changing its internal temporal structure. Verbs which are already activities become habitual activities.

2.3 Grammaticalization account

The aspectual use of *wa* derives from its use as a plural object marker (11-13).

11. Kukusi thiⁿk^he p-ade.
Pig the 1sg-butcher
'I butchered the hog.'
12. Kukusi thoⁿk^ha wá-p-ade.
Pig the 3pOBJ-1sg-butcher
'I butchered the hogs.'
13. Wa-p-áde.
Detransitive activity-1sg-butcher
'I butchered all day.'

Butchering more than one living thing (12) takes more time than butchering a single entity (11). The more one butchers, the longer it takes. The endpoint becomes removed, creating the aspectual use of *wa* such as in (13).

❖ Grammaticalization Pathway

1. Plural animate object marker -> iterative, continuative reading, becomes aspect marker.
2. Aspectual use of *wa* is distinguished from plural object marker use by presence of overt direct object noun phrase. (can co-occur with dative object e.g. *we*)
- (3. Activity reading is generalized to all verbs which take objects, even if not animate. That is, many transitive verbs which normally do not take animate objects use *wa* to create an activity reading.)

❖ RRG Grammaticalization Pathway

Core argument marker *wa* -> nuclear modifier (aspect)

(Also, the nuclear modifier is generalized to a larger class of verbs than the original plural object marker could co-occur with.)

This pathway exemplifies the grammaticalization of a syntactic element, represented in the layered structure of the clause (LSC), (figure 2), to an operator, represented in the operator projection (figure 3).

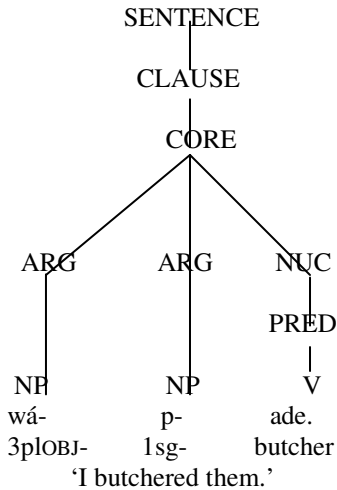


Figure 2. Core argument *wa*

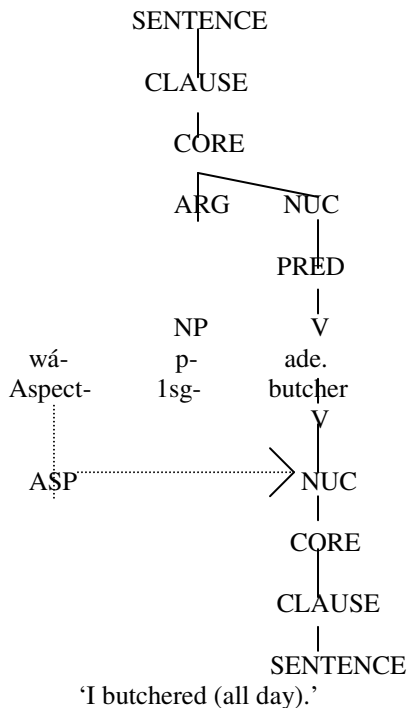


Fig. 3 Nuclear modifier *wa*

3. Second grammaticalization pattern: *i/bi*

3.1 Functions of *-i/bi*

3.1.1 Plural markers

The plural markers in Omaha are *-i*, *-bi*, and ablaut. In non-narrative discourse, *-i* is added to commands (15) and questions (17), but not declaratives (18, 19), in order to show plurality

14. Th-ixu-ga!
3-draw- M.IMP
'Draw it!'
15. Th-ixu-i-ga!
3-draw-pl-M.IMP
'All of you draw it!'
16. N-ixu-a?
2-draw-?
'Are you drawing?'
17. N-ixu-i-a?
2-draw -pl-?
'Are you all (plural) drawing?'
18. Oⁿ-thixu.
2pl-draw
'We drew it.'
19. *Oⁿ-thixu-i.
2pl-draw-pl
*'We drew it.'

Thus, *-i* is added to the command (15) and question (17), but not the declarative (19) when the subject is plural.

In non-narrative declarative sentences, ablaut is used to show plurality. Verbs which vary for *-e/a* in their endings, ablauting verbs, will end in *-a* in plural non-narrative contexts, such as (21).

20. Ebe th-e?
Who 3.go-sg
'Who is going?'
21. Nu ama Shaoⁿ Toⁿwoⁿgthoⁿ ta ath-a.
Man the.pl Sioux City to go-pl
'The men are going to Sioux City.'

Examples (20) and (21) contain ablauting verbs. The plural subject (21) occurs with the *-a* form of the ablaut ending.

In personally experienced narrative, plurality is marked with *-i* (22).

22. Oⁿba t^he goⁿ Nishude gthadiⁿ oⁿg-atha-**i**.
 Day the so river across 2pl-went-**pl**
 ‘During the day, we went across the country to the Missouri.’ (JOD 455.5)

In story (fictional, myth, sacred) narratives, the plural marker is usually evidenced as *-bi*, which is used specifically for narrative and reportative modes (23).

23. ...egithe shi ape ahi-**bi**-ama.
 At length again ask to go arrive-**pl**-EVID
 ‘...They came to ask him to go with them.’ (JOD 164.1)

Figure 4 summarizes the distribution of Omaha plural markers.

Non-narrative:

-i marks plural on imperatives, interrogatives
Ablaut marks plural on declaratives

Narrative: *-i* marks plural in personal accounts
-bi marks plural in other stories (fictional?)

Figure 4. Distribution of various Omaha plural markers.

As markers of plurality of the subject, *i/bi/ablaut* are core level NP operators of number modifying head-marking pronouns.

Typically, head-markers, as pronouns, are not considered to have a layered structure. However, arguments have been made that, in some languages, pronouns (and proper nouns) can have a layered structure (VV&LP 1997: 59-60).

In Omaha, these markers are not marking plurality of NP’s coreferential with the headmarkers (23-25).

23. ...egithe shi ape ahi-**bi**-ama.
 At length again ask to go arrive-**pl**-EVID
 ‘...They came to ask him to go with them.’ (JOD 164.1)

24. Nu ak^ha thixu.
 Man the.sg 3.draw
 ‘The man is drawing.’

25. Nu ama thixu.
 Man the.pl 3.draw
 ‘The men are drawing.’

In (23), the plural marker occurs with no overt NP. In (24), *ak^ha* signals that ‘man’ is singular and in (25) *ama* signals that it is plural. Thus, articles and not the verbal plural markers mark plurality of overt NP’s. Therefore, the plural markers must be modifying the core argument head-markers. Consequently, core argument head-markers in Omaha have a layered structure.

3.1.2 Use of plural marking with singular referents

Seemingly contrary to the above description, ablaut can also occur with singular subjects in non-narrative contexts (26).

26. Nuzhiⁿga ak^ha ath-a.

Boy the go-pl

‘The boy is going.’

c.f

27. Nu ama Shaoⁿ Toⁿwoⁿgthoⁿ ta ath-a.

Man the.pl Sioux City to go-pl

‘The men are going to Sioux City.’

In (26), the *-a* ending is used with a singular referent. Its use with a plural is given in (27),

The plural marker used in personal narratives, *-i*, can also be used with singular referents (28, 29).

28. ...Pathiⁿ-noⁿpazhi agiagtha-i ki uthi’aga-i.

Name .passby-pl when 3.unwilling-pl

‘Pathiⁿ-noⁿpazhi was unwilling for them to pass by.’ (JOD 454.17)

29.... Pathiⁿ-noⁿpazhi Nishude atathishoⁿ ihe itha-i.

Name river toward pass 3.speakof-pl

‘Pathiⁿ-noⁿpazhi spoke of going towards the Missouri.’ (JOD 454.18)

Examples (28) and (29) both have a singular subject but contain verbs marked by *-i*.

Similarly, the plural marker used in story narrative can also occur with singular referents (30, 31).

30. Nuzhiⁿga ak^ha ... goⁿ edi ahi-bi-ama.

Boy the and there arrive-PL-EVID

‘...and he (the boy) arrived there.’ (JOD 164.18)

31. Goⁿk^hi edi hi.Ø-ama nuzhiⁿga thiⁿ.

And there arrive.sg-EVID boy the

‘And the boy arrived there.’ (JOD 163.3)

In (30), the singular boy receives *-bi*, but in (31) he does not. Figure (5) depicts the distribution of plural markers with singular referents.

Non-narrative: ablaut

Personal Narrative: *-i*

Story Narrative: *-bi*

Figure 5. Distribution of plural marker with 3rd singular subjects

3.1.3 Semantico-pragmatics of singular use of *-i/bi*

Koontz (1989) proposed that the use of plural forms with singular referents in Omaha marks an obviation contrast. He posited that the Omaha obviation system is based on "centrality and point of view." Eschenberg (1999) analyzed this system in terms of Deictic Centering Theory (DCT) (Duchan et al. 1995). This theory posits deixis is

central property of language. Deixis is "a psycholinguistic term for those aspects of meaning associated with a self-world orientation (21).

In DCT, narrative is viewed as story world creation. The story world is a mental construct of the reader/listener (130) and is viewed from a deictic center (131). This center is viewed through a window with a focalizing perspective or origin and a focalized perspective or content. The content of the deictic window, including participants, objects, time and location, is the objective of this perspective and moves through the space/time/person coordinates of the story world as viewed by the reader/listener (132). These components are tracked throughout the story. Figure 6 provides a generalized schema of the story world and its deictic window.

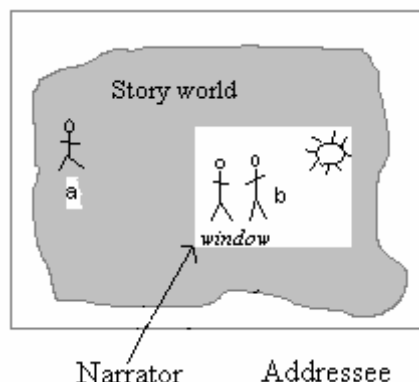


Figure 6. Deictic window on the storyworld

The plural marking of Omaha marks which characters are contained in this deictic window at any given instance in the text. Characters not marked with plural are located in the story world but are not central in this window.

In terms of RRG, this notion of central character corresponds to a deictic, which is an NP level NP operator. The choice of deictic (i/bi/ablaut) is conditioned by clause level operators (evidentials and illocutionary force).

Similar to plural marking uses, the deictic operator is modifying the headmarker and not an overt NP. As with the plural markers, deictic markers can occur with no overt NP (38b, repeated below as 44).

44. Edi ahi-**bi**-ama.
 There arrive-**pl**-EVID
 'He arrived there.'

Articles mark deictic status of overt NP's (38a, repeated below as 45, & 46).

45. Goⁿk^hi edi hi-ama nuzhiⁿga **thiⁿ**.
 And there arrive-EVID boy **the.OBV**
 'And the boy arrived there.'

46. Goⁿ nuzhiⁿga **ak^ha** edi atha-**bi**-ama.
 And boy **the.PROX** there went-pl-EVID
 'And the boy arrived there.'

In (45), the third son is marked with an obviate article. In (46), the first son receives a proximate article. While verb morphology corresponds to this distinction, it is separate, modifying the headmarking on the verb. It cannot be considered part of the

headmarking as it is functioning not as an argument marker but a modifier of the argument marker.

3.2 Grammaticalization pathway: plural to proximate marker

In Omaha, third person plural verbal marking can be used as a backgrounding device. That is, when the subject is unimportant/unspecified, third person plural verbal morphology without an overt subject NP is used (47).

47. K^hi Itigoⁿthai ak^ha moⁿzhoⁿ thoⁿ wethiⁿwiⁿ-**bi** a-i....
 And Grandfather the land the sold it-**pl** he said-PL
 'And Grandfather said that the land was sold ...' (JOD678.1)

In the subordinate clause in (47), the land is of central concern and the person(s) selling it are backgrounded (also reflected in the use of the passive in the translation). Here, the third person plural subject, which is relatively unimportant, has no overt NP but governs the plural affix. The third person singular object, which is of central concern, has an overt NP but is zero-marked on the verb.

A reanalysis of such constructions could result in a reading of the singular object as governing a plural morpheme (48).

48. Egithe itoⁿge thiⁿk^he tizhebegthoⁿ gaxa-**bi**-toⁿ-ama,
 It happened sister the door make-**pl**-AUX-EVID

a k^he agthoⁿkoⁿhoⁿ koⁿtoⁿ-**bi** egoⁿ ubatihetha-**bi**-toⁿ-ama.
 Arm the on each side tie-**pl** having hung up -**pl**-AUX-EVID
 'And behold their sister had been made into a door: having been tied by her arms on both sides, she had been hung up.' (JOD 81.19)

In (48), the singular object co-occurs with plural verb morphology, and there is no overt subject NP. This plural marker could be re-analyzed as marking the object and not the subject. If such a reanalysis did occur, the 'plural' marker could not be marking number, but rather must be marking some sort of discourse status, what is of central concern. This use could then result in a pattern of marking third singular subjects with the 'plural' to show discourse status (rather than number).

Such a reanalysis could only occur with third person subjects (49-51).

49. Thi-d-oⁿba.
 2sg-3-see
 'He sees you.'

50. Thasht-oⁿbe
 2sg-see
 'You see him.'

51. Mizhiⁿga d-oⁿba.
 Girl 3sg-see
 'He sees a girl.' Or 'A girl sees him.'

Other person forms are overtly marked on the verb and have different forms for subjects and objects. For example, both second person subjects (49) and second person objects

(50) are overtly marked on the verb. These forms are different, *thi-* and *thasht-*. Only 3sg subject/objects zero mark the verb and allow for re-interpretation of who is subject and who is object (51). In (51), the lone NP can be interpreted as subject or object.

The grammaticalization of the plural markers to deictic markers occurs in a logical progression. First, the third person plural marker *i/bi* became re-analyzed as a 3sg discourse status marker through a backgrounding construction. Then, as *i/bi* triggered ablaut, ablaut also became associated with this discourse status marking. Finally, the various markers became associated with illocutionary force and genre, where ablaut became used in non-narrative contexts, *-i* in personal narratives, and *-bi* in story narratives. Figure 7 summarizes this grammaticalization.

backgrounding construction

I/bi = Plural → i/bi 3sg = Proximate → i/bi = Narr. Proximate(s)
 (-e+ i/bi = a) (-e + i = a) -E->a = Non-narr. Prox

Figure 7. Reanalysis of plural marking in Omaha

3.3 RRG account of grammaticalization

Originally, as part of the Siouan person marking on the verb, *i/bi* may be considered to have begun as a core argument marker, part of the LSC (Figure 8, letter a). In Omaha, it is argued instead to be a core level NP operator (b) which modifies number on the headmarker. This has further grammaticized into an NP level NP marker which marks deixis (c). Thus, a core argument marker grammaticized to a core level NP operator (#), which in turn grammaticized to an NP level NP marker (deictic).

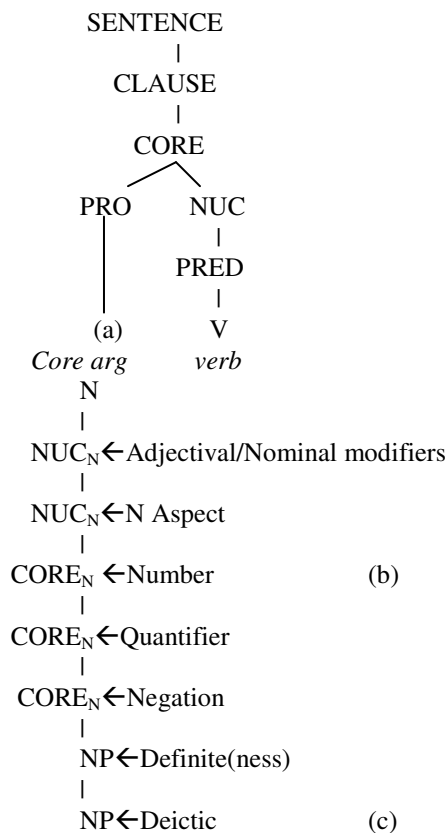


Figure 8. RRG account of reanalysis of plural marking

This grammaticalization pathway moves from an element in the LSC to an operator and then to an operator with wider scope. Currently, this plural marker is also associated with illocutionary force and evidentiality, clause level operators.

4 Third grammaticalization pattern: *ama*

4.1 The functions of *ama*

4.1.1 Auxiliary

Ama functions as an auxiliary both by itself (52) and in conjunction with irrealis marker *ta* (53).

52. Shege egoⁿ nuxe zhoⁿmoⁿthiⁿ abaze goⁿzhiⁿga- **ama**.
That such ice cars drive don't know how AUX
'They don't know how to drive their cars in such icy conditions.' R. White 11-1-01, 7.1

53. Hoⁿ-ki nuzhiⁿga-ama tabe buta shkade ta-**ama**.
Night-when boy the ball round play.3 IRR-3pl
'Tonight, the boys will play basketball.' M. Cayou 2-20-02, ULC, UNPS

In (52), *ama* functions alone as an auxiliary. In (53), it combines with the irrealis marker. *Ama* is used as an auxiliary only when the subject of the verb is or can be marked with the definite article *ama*. In (53), the subject is marked with the article *ama*. In (52), there is not overt subject, but if it were overt, the subject NP would be marked by *ama*.

Koontz (1984:146) glosses the auxiliary use of *ama* as 'exist' (54).

54. Zizika duba edi **am-ama** hegashtewoⁿzhi.
Turkey some there EXIST-EVID by no means a few
'There were some turkeys, a great many.' (JOD 60.1)

In (54), 'exist' does seem fitting gloss for the first *ama* (here occurring as *am-*). Note that for the existential reading, the subject must be plural as in (54) or *akⁿa* will be used.

When used as an auxiliary, *ama* may also have a progressive reading (55, 56).

55. Goⁿ xage athe **am-ama**.
And cry go AUX-EVID
'And he was going along crying.' (JOD 27.6)

56. Una-i ama, Xitha ama, e moⁿxe ibisoⁿde ata-xti gawiⁿxe **am-ama**.
Seek-P the eagles the it sky press-ag. at-very fly-round AUX-EVID
'Those whom he sought, the Eagles, were flying round and round pressing very closely against the top of the sky.' (JOD 25.4)

In (55), the reading cannot be existential as the subject has been introduced and even his action has been introduced (at first he sits and cries). It rather shows an action over a distance. For the progressive reading, the subject may be either singular (55) or plural (56).

In terms of RRG, as an existential predicate, *ama* is a predicate, part of the LSC. As an aspectual modifier of the verb, *ama*, an auxiliary, is a nuclear modifier.

4.1.2 Definite article

Ama also functions as the definite article for agentive arguments that are either plural (57) or in motion (58) (Koontz 1984: 144, following Unknown n.d.: 38-46, following Dorsey ms.: 20-22, 148-52).

57. Nuzhiⁿga oⁿguta-**ama** e uhi.
 Boys our-the it win.3
 ‘Our boys won.’ R. White, 12-16-02 ULC, UNPS

58. Nudahoⁿga **ama** wagoⁿze **ama** moⁿzhoⁿ weahide wathit^hoⁿ ayatha.
 Leader the teacher the land far away work.3 go.3
 ‘The head teacher went far away for work.’ M. Cayou 11-6-02 ULC, UNPS

In the above, *ama* modifies a plural subject NP (57) and a singular subject NP which is in motion (58). As with the verbal proximate marker, *ama* is posited to be a proximate article which marks characters center stage in the storyworld (as per Figure 6).

Eschenberg (2001) notes that not simply motion but rather motion to or just at a change of scene is denoted by use of *ama* (59, 60).

59. Egithe atha-bi-ama wa’u **ama**.
 at length went-P-EVID woman the-P
 ‘At length the woman went.’
 (from the camp to yonder cliff) (JOD 169.9)

60. Goⁿ ti zhiⁿga t^he timoⁿthe atha-bi-ama shinudoⁿ **ak^ha**.
 and lodge small the within the lodge went-P-EVID dog the-P
 ‘And the dog went within the small lodge.’
 (in same general area) (JOD169.17)

In (59), the character moves to a new scene and is marked with *ama*. In (60), the character is in motion but the motion does not result in a change of scene. Thus, *ama* is not used with (60).

A character who is removed from the general locus of conversation can also be marked by *ama* (61).

61. Creighton **ama** at^hi-bazhi.
 Creighton the here-not.3
 ‘Creighton isn’t here.’ M. Cayou 12-10-02, ULC, UNPS

In (61), the subject is not present and is marked with *ama*. A verb of motion is neither present nor implied. The character is centerstage in the dialogue. *Ama* indicates that the person is removed from the scene.

This contrasts with (62) where the character is not present but is marked with *ak^ha* ‘singular, animate, not in motion, proximate the’.

62. LaMar ihoⁿ **ak^ha** Christine Woodhull.
 LaMar mother the C. Woodhull
 ‘LaMar’s mother is Christine Woodhull.’
 M. Cayou 3-21-02, ULC, UNPS

In (62), the character is not present and is centerstage in the dialogue. However, removedness from the scene of dialogue is not being marked, and, therefore, *ama* is not selected as the article.

Just as scene change/removal is implied by *ama* in (62), motion can similarly be implied (continual scene change) (63).

63. Kida-ga ha, a-bi-ama Mashtshiⁿge **ama**.
 Shoot-M.IMP M.DEC say-P-EVID rabbit the
 ‘Shoot it,’ said Rabbit. (Dorsey 10.2)

In (63), the verb associated with the subject is ‘say,’ which is not a verb of motion. However, use of the article *ama* with the subject implies that he is in motion. Here, an interpretation of removedness from the scene is not possible as this is the scene of the narration.

In terms of RRG, when used as an article, *ama* functions as a definite marker and a deictic marker of the NP.

4.1.3 Evidential

Ama also functions as an evidential (64, 65).

64. Moⁿshte k^he ta tadoⁿhe toⁿga bi-ama.
 South the at tornado big pl-EVID
 ‘I guess there was a big tornado in Oklahoma.’
 O. Cayou, 10-10-01, ULC, UNPS
65. Upade akⁿa wani a-bi-ama.
 Surgery the pain say-P-EVID
 ‘They say the surgery is painful.’ M. Cayou 10-02, ULC, UNPS

In (64), the information conveyed is not the speaker’s own; he doesn’t know it personally but has heard it from someone else (on t.v.). Therefore, he marks the phrase with the evidential *ama*. Similarly, in (65), the speaker hasn’t had the surgery (appendectomy) and is marking that knowledge of its pain is not personally attained through the use of *ama*.

Ama is also used as an evidential in narrative (66-67).

66. Hiⁿxpe-agthe abthixe bthe, a-bi-**ama**.
 Fine feather I marry I go say-P-EVID
 ‘I go to take Fine Feather for my husband,’ said she. (Dorsey 166.6)
67. Tena! Hiⁿxpe-agthe wi e bthiⁿ ha.
 Why Fine feather I it I am M.DEC
 ‘Why, I am Fine Feather.’ (Dorsey 166.7)

In (66), the narrator reports on events in storyworld (66). This is called the reportive frame. In (67), the narrator takes on the persona of a character and speaks through them or their thoughts, called the expressive frame. *Ama* is used to denote the reportive frame (66), and is not used in the expressive frame (67). Figure 9 depicts the two types of frames.

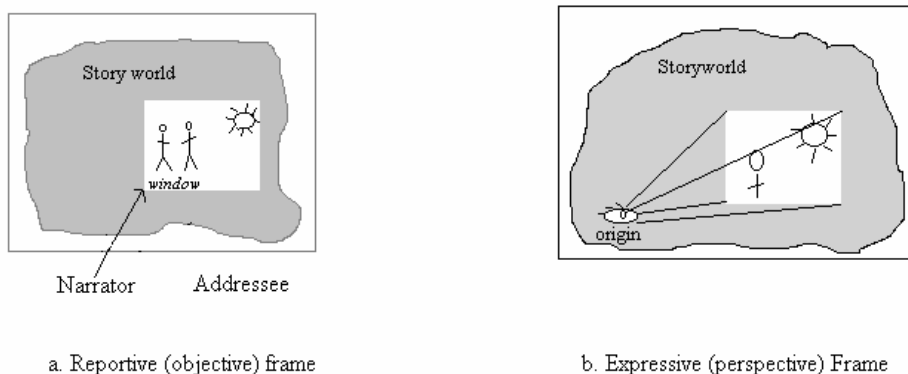


Figure 9. Frames using *ama* (a) and where *ama* is not used by narrator (b)

In both narrative and non-narrative uses of *ama* as an evidential, it functions as a clausal marker in terms of RRG.

4.2. Grammaticalization pathway of *ama*

Following Rankin (1976), the use of *ama* as a main verb begins this pathway (68).

68. The niashiⁿga gahithe ame **ama**, ethegoⁿ-bi-ama.
 This people move the 3pl.EXIST think.3-P-QUO
 ‘These persons are the ones who are moving there, he thought.’ (JOD 35.6)

In (68), *ama* functions as a predicate of existence.

This can be related to the nominal operator of plural definiteness. The verb of existence was reanalyzed as a nominal operator of definiteness (which is a concept which asserts that the given noun does exist as it is defined to the speaker/hearer). Two sentences such as (69) could be reanalyzed as per (70).

69. Te ama. Wathat^ha.
 buffalo exist.3pl eat.3pl
 ‘There were buffaloes. They were eating.’ Existential reading
 ↓
 70. Te ama wathat^ha.
 buffalo the.pl eat.3pl
 ‘The buffaloes were eating.’ Definite article reading

Next, this verb of existence moved from nucleus to nuclear modifier by combining with another verb. If analyzed as modifying the verb rather than the subject, the semantics would consist of multiple existences of the verb, which could result in a reading of a verb as occurring over time or space. (Note the habitual *hnoⁿ* already blocks a habitual reading.)

71. {Moⁿshtiⁿge-iⁿ ama the} ama.
 {Rabbit the go.3} exist.3pl
 ‘There were Rabbits going somewhere.’ Existential reading
 ↓

Moⁿshtiⁿge-iⁿ ama {the ama}.
 Rabbit the go.3 exist.3pl
 ‘The Rabbit was going (+AUX) somewhere.’ Auxiliary reading

c.f.

Moⁿshtiⁿge-iⁿ ama the am-ama.
 Rabbit the go.3 AUX-EVID
 ‘The Rabbit was going somewhere.’ (JOD 9.1)

The verbal modifier could be reanalyzed as a nominal modifier, creating a new reading of noun occurring over a space.

72. Moⁿshtiⁿge-iⁿ the ama. Noⁿga.
 Rabbit go.3 AUX Run
 ‘The rabbit was going. He ran.’ Auxiliary reading
 ↓

Moⁿshtiⁿge-iⁿ the ama noⁿga.
 Rabbit go.3 the run
 ‘The going(moving) rabbit ran.’ Article reading

Note that the occasions for reanalysis such as in (72) would not be very frequent, as it requires both plural existence and an action to be predicated on the NP. Therefore, it is a marked situation. The markedness of this motion entails not just movement but motion to a new scene/location or far away.

Motion to a new scene creates location at a new scene. This creates an extension of meaning such as in (62) where *ama* is used to denote that the person is (markedly) removed.

Finally, the location of an NP as outside one’s vicinity can be extended to a clausal notion of the entire clause being located in another space. In narrative, this marks that the narrator is narrating events from outside the storyworld (reportive stance). This notion can then be extended from the clause to the information within the clause being located elsewhere. In conversation, this creates sentences such as (64) and (65) which are not personal knowledge.

Figure (10) provides a schematic of the entire pathway of grammaticalization for *ama*.

In Figure 10, a main verb grammaticizes to an auxiliary and an article. The article extends in meaning and then grammaticizes to an evidential. This meaning of this evidential is then extended.

While Figure (10), provides a generalized schema for the grammaticalization of *ama*. Figure (11) depicts its grammaticalization in terms of RRG.

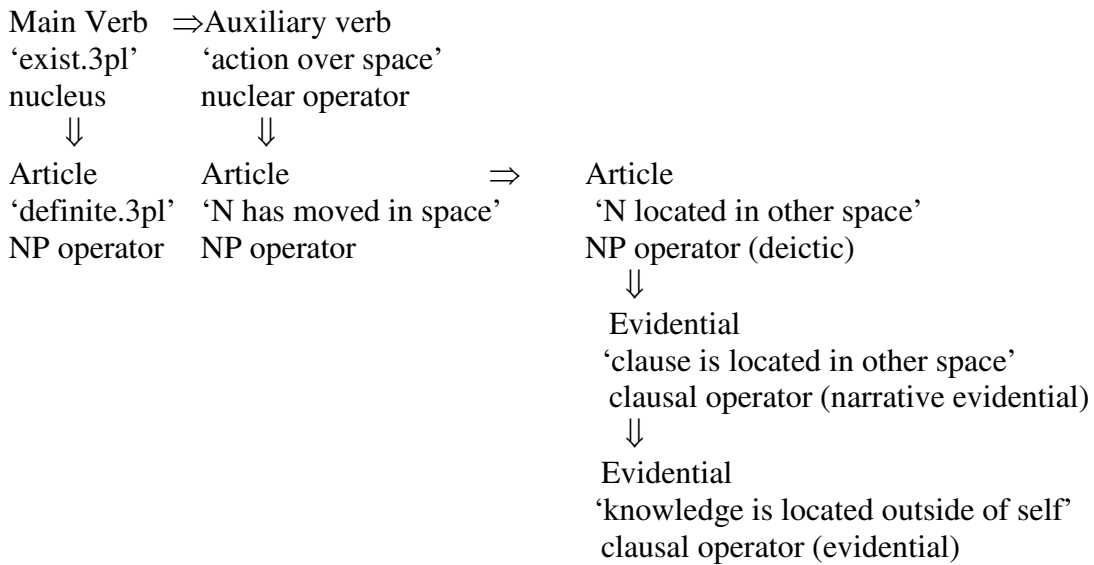


Figure 10. Grammaticalization pathway of *ama*.

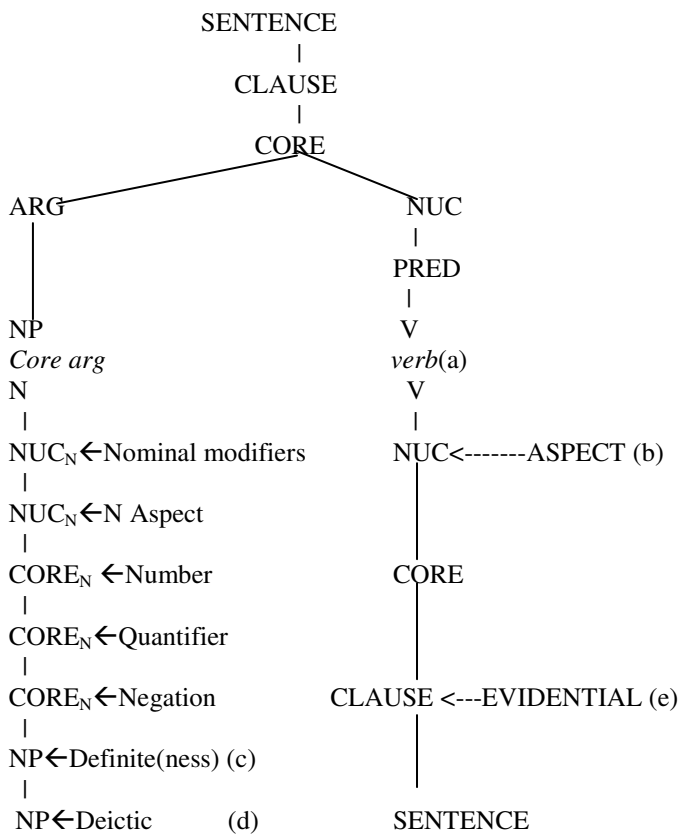


Figure 11. Grammaticalization pathway of *ama*.

In Figure 11, *ama* is seen to have originated as a nucleus (a) which grammaticized to both a nuclear operator (aspect), (b), and an NP level NP operator (definiteness), (c). The nuclear operator then grammaticized to an NP level NP operator (definiteness), (c). This NP level NP operator then re-grammaticized to a new function as a deictic (d),

which is another NP level NP operator. The deictic operator then re-grammaticized to a clausal operator serving an evidential function (e).

In Figure (11), it can also be seen that grammaticalization occurs from syntactic element (a) to operator (b,c). Grammaticalization occurs between operator projections (d,e) and within a layer of a given projection (c,d). This grammaticalization within a layer occurs from lesser to greater scope, supporting the need to posit scope relationships within a given layer.

5. Conclusion: Omaha, Grammaticalization and RRG

Returning to Kuryłowicz's ([1965] 1975: 52) definition, grammaticalization has been posited to consist "in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one." In this paper, the change from lexical to grammatical element can be seen in the grammaticalization of *ama* from predicate to auxiliary. This is a change from an element in the LSC to an element in the operator projection, in terms of RRG.

A change from less grammatical to more grammatical status occurred when definiteness markers became deictic markers, in the case of *ama*. This mirrors an increase in scope in the operator projection in terms of RRG. *Wa*'s grammaticalization from argument marker to activity marker and the plural markers' grammaticalization to deictic markers may also be considered changes from less to more grammatical status. In each of these cases, an element of the LSC became an operator.

Traugott's definition of subjectification, in which "meanings tend to come to refer less to objective situations and more to subjective ones (including speaker point of view), less to the described situation and more to the discourse situation" (1986: 540) also applied in this study. The grammaticalization of the plural markers to proximate markers is a change from an objective to a subjective marker. The external described situation of plurality becomes the internal (perceptual/cognitive) system of proximate, and then this becomes the textual situation of narrativity. Also, while existence is objective, definiteness and deixis are more subjective. Thus, the grammaticalization of *ama* also followed principles of subjectification. Related to this, the operator projections in RRG depict increasing subjective/discourse function as correlating with increased scope.

Both the above principles of grammaticalization need not be posited as a separate component of grammatical theory, but rather are a consequence of morpho-syntactic structure in RRG. RRG proves descriptively adequate for the various functions of the morphemes discussed in this paper. Furthermore, the principles guiding the directions of subjectification and grammaticalization can be seen as resulting from the principles of morphosyntactic role. That is, the hierarchical nature of the operator projection and the functional difference between operator and LSC element motivate direction of grammaticalization. Thus, RRG, a primarily synchronic syntactic theory (VVLP 1997: 15), provides motivating insight into diachronic processes.

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Umoⁿhoⁿ orthography as compared to /IPA/

a /a/	e /e/	i /i/	o /o/	u /u/	o ⁿ /ā/	i ⁿ /ĩ/
b /b/	d /d/	g /g/	p /p/	t /t/	k /k/	' /~ /
p ^h /p ^h /	t ^h /t ^h /	k ^h /k ^h /	p' /p'/	t' /t'/	k' /k'/	ch /tʃ/
ch ^h /tʃ ^h /sh /ʃ/	sh' /ʃ' /	th /ð/				
zh /ʒ/	x /x/	gh /ɣ/	s /s/			
s' /s'/	z /z/	y /y/	w /w/			

Abbreviations:

AB	ablaut	AUX	auxiliary	DAT	dative	DEC	declarative
EVID	evidential	F	female	FUT	future (aspect)	IMP	imperative
IRR	irrealis	JOD	Dorsey 1890	M	male	NEG	negative
OBV	obviative	PL	plural	PROGR	progressive	PROX	proximate
REG	regularly	SG	singular	?	interrogative		

COMPLEMENT TYPES OF PERCEPTION VERBS IN YAQUI

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Abstract

In many languages, perception verbs can take different complement types with corresponding differences in meaning. In English, for instance, verbs denoting direct perception may take either a bare infinitive complement, e.g., *I saw Mary paint the mask*, or a participial complement, e.g., *I saw Mary painting the mask*, whereas verbs coding indirect perception take a fully tensed complement, e.g., *I saw that Mary painted the mask*. The aim of this paper is to examine in detail the semantic and syntactic correlations of complement types of perception verbs in Yaqui. By analyzing the syntactic tightness of the main verb and its complement, temporality, negation, and passive voice properties, it is proposed that these complement types follows the Interclausal Relations Hierarchy proposed by Role and Reference Grammar (Van Valin and LaPolla 1997).

1. Introduction. Perception verbs express the apprehension of some act, event or situation through the senses of an individual. The perception of a situation can be direct, when the actor physically perceives the state of affair, or indirect, when the actor infers such state of affairs from the circumstances. In many languages, perception verbs can take different complement types with corresponding changes in meaning (Kirsner and Thompson 1976; Van der Auwera 1985; Horie 1990; Dik and Hengeveld 1991). In English, for instance, verbs denoting direct perception may take either a bare infinitive complement as in (1a) or a participial complement in (1b), whereas verbs coding indirect perception take a fully tensed complement in (1c).

- (1) a. I saw Mary paint the mask
b. I saw Mary painting the mask
c. I saw that Mary painted the mask

The Yaqui language also allows several complement types.³⁰ When describing a direct, immediate, physical perception of a state of affairs, the predicate-complement construction may be realized as a nominalized complement (2a) or a morphological structure (2b). In the first type, the matrix predicate takes a complement marked by the complementizer *-m(e)* followed by the accusative suffix *-ta*. In the second type, the perception predicate and the linked verb are joined together without a complementizer. As in most complex sentences in the language, the embedded-PSA is accusative.³¹

- (2) a. Nim achai [enchi ye'e-m-ta] bicha-k.
 1SG:GEN father 2SG:ACC dance-NMZ-ACC see-PRFV
 'My father saw you dance.'
- b. Nim achai enchi yi'i-bicha-k.
 1SG:GEN father 2SG:ACC dance-see-PRFV
 'My father saw you dancing.'

When describing indirect perception, that is, the acquisition of knowledge inferred or deduced from evidence that the perceiver sees/hears, the matrix predicate takes a syntactic-like complement usually marked by *-'u*. This complement can appear embedded in the main clause (3a) or can be extraposed to the right (3b-c). In the latter, the matrix core necessarily takes an additional accusative NP: it may be a resumptive pronoun co-indexed to its complement (3b), or a copy of the complement PSA (3c).

- (3) a. Nepo [am uuba-ne-'u]_i bicha-n
 1SG:NOM 3PL:ACC bath-EXPE-CLM see-PASTC
 'I saw that they would take a bath.'
- b. Nepo a_i bicha-n [am uuba-ne-'u]_i
 1SG:NOM 3SG:ACC see-PASTC 3PL:ACC bath-EXPE-CLM
 'I saw it, that they would take a bath.'

³⁰ Yaqui is a Uto-Aztecan language from the Sonora branch, spoken in Sonora, Mexico, and Arizona. The data comes from my own fieldwork based on the Sonora dialect. This study is part of my dissertation on complex sentences in Yaqui. Many thanks to Robert D. Van Valin, Jr. for his invaluable comments on the analysis on Yaqui. Any errors are mine.

³¹ Abbreviations: ACC = Accusative, CLM = clause linkage marker, DESID = Desiderative, DIR = Directional, EXPE = Expected, GEN = Genitive, NEG = Negation, NMZ = Nominalizer, NOM = Nominative, LOC = Locative, PASS = Passive, PASTC = Past continuative, PL = Plural, PRFV = perfective, PRES = Present, SG = singular.

- c. Nepo Peo-ta_i bicha-n [a_i uuba-ne-‘u]
1SG:NOM Peo-ACC see-PASTC 3SG:ACC bath-EXPE-CLM
‘I saw Pedro, that he would take a bath.’

The aim of this paper is to investigate to what extent the predicate-complement constructions coding perception in Yaqui follow the Interclausal Relation Hierarchy proposed in Role and Reference Grammar (henceforth RRG, Van Valin 1993, 2004; Van Valin and LaPolla 1997). The basic questions to be explored are: (i) what are the units involved and what syntactic relations hold between them; (ii) what the function of the complement is when it appears embedded and outside the matrix core; and (iii) what the linkage is when there is another argument in the main clause, in addition to the complement. In order to establish the syntax-semantic correlations of the matrix predicate and its complement unit, I first present the grammatical constructions available for perception verbs; I then explore the syntactic relation among the matrix predicate and its complement, and finally, I establish the juncture-nexus linkage types.

2. Syntactic interclausal relations of perception complement types. RRG proposes three main components for the study of clause union: the theory of juncture, the theory of nexus, and the interclausal semantic relation. For the one hand, the theory of juncture deals with the units which make up complex sentences: nuclear, core and clause. For the other hand, the theory of nexus concerns the syntactic relationship between the units in the juncture, termed subordination, coordination, and co-subordination, which are distinguished on the basis of structural and operator dependency. These syntactic combinations are organized into the Syntactic Relation Hierarchy³² in which they are ranked in terms of the syntactic tightness. For Yaqui, I defined syntactic tightness based on the following properties: operator dependency, the position and syntactic status of the complement, and argument sharing. The idea is that,

the more arguments and operators are shared between the two units, and/or the more the complement serves as a core argument of the matrix predicate, the tighter the predicate-complement construction will be.

(1) *Operator dependency*. Those constructions in which the verb of the complement may be independently marked by tense, mood, and negation, are less tight than those constructions in which the linked verb may be marked only by aspectual operators or must be a bare form. As typical in the family, Yaqui shows little indication of pure tense suffixes, except for the past continuous. The same lexical forms can function as either deontic/epistemic markers as well as matrix predicates, meaning that there are not pure modal operators either. Instead, the usual situation is to display a range of meanings that include tempo-aspectual suffixes. When the matrix predicate takes a syntactic-like complement, the linked verb can not only be marked for the expected suffix *-ne* (4a) and the perfective *-ka* (4b), but also for the past continuative *-ka(n)* (4c).

- (4) a. Ne [yooko Goyo-ta maska-ta jo'a-ne-'u] jikka-k.
 1SG:NOM tomorrow Goyo-ACC mask-ACC make-EXPE-CLM hear-PRFV
 'I heard that Goyo will do the mask tomorrow.'
- b. Goyo-Ø a_i i'inea-k [Tibu-ta kaa jamut-ta jub-ka-'u]_i
 Goyo-NOM 3SG:ACC feel-PRFV Tibu-ACC NEG woman-ACC marry-PRFV-CLM
 'Goyo had a feeling of it, that Tibu didn't want to marry this woman.'
- c. Ne a_i ji'ibwe-n [wakabak-ta si osi cho'oko-kan-'u]_i
 1SG:NOM 3SG:ACC taste-PASTC wakabaki-ACC a lot be salty-PASTC-CLM
 'I tasted it, that the wakabaki was too salty.'

The linked verb in a nominalized complement must be unmarked (5a) or marked only by the perfective suffix (5b). The occurrence of any other operator is completely disallowed.

- (5) a. Maria-Ø [enchi bwana-m-ta] jikka-k.
 Maria-NOM 2SG:ACC cry-NMZ-ACC hear-PRFV
 'Mary heard you cry.'

³² More recently, Van Valin (2004) included two more juncture-nexus types involving the linking of whole sentences: sentential coordination and sentential subordination.

- b. Ne [Peo-ta chu'u-ta jinu-ka-m-ta] bicha-k.
 1SG:NOM Peo-ACC dog-ACC buy-PRFV-NMZ-ACC see-PRFV
 'I saw Pedro to have bought a dog.'
- c. * Ne [Peo-ta chu'u-ta jinu-ne-m-ta] bicha-Ø.
 'I see Pedro will buy a dog.'
- d.* Ne [Peo-ta chu'u-ta jinu-n-m-ta] bicha-k.
 'I saw Pedro was buying a dog.'

When the perception and the linked verbs are joined together in a morphological construction, the linked verb must be unmarked. The clauses in (6b-c) are ruled out because the linked verb is marked for aspectual operators.

- (6) a. Ne Peo-ta chu'u-ta jinu-bicha-k.
 1SG:NOM Peo-ACC dog-ACC buy-see-PRFV
 'I saw Pedro buying a dog.'
- b. * Ne Peo-ta chu'u-ta jinu-ka-bicha-k.
 'I saw Pedro to have bought a dog.'
- c. * Ne Peo-ta chu'u-ta jinu-ne-bicha-k.
 'I saw Pedro would buy a dog.'

The same requirement of co-temporality is reflected in the impossibility of adding temporal adverbials to the complement which would indicate a direct perception situation. In (7a), *inian tuukapo* 'that night' can only be interpreted as modifying the main clause. *Chubala* 'some time ago' is incompatible for immediate perception (7b), but it is fine for non-immediate perception (7c). The clause in (7d) exemplifies the occurrence of *yooko* 'tomorrow' modifying the complement verb, even though the perceptual event has already taken place.

- (7) a. Inian tuuka-po Goyo-Ø Iban-ta sim-bicha-k.
 that night-LOC Goyo-NOM Ivan-ACC go-see-PRFV
 'That night Goyo saw Ivan leaving.'
- b. *Maria-Ø [chubala enchi serbesa-ta je'e-m-ta] bicha-Ø.
 'Maria saw you drink beer sometime ago.'
- c. Maria-Ø a_i bicha-k [chubala enchi serbesa-ta je'e-ka-'u]_i
 Maria-NOM 3SG:ACC see-PRFV time ago 2SG:ACC beer-ACC drink-PRFV-CLM
 'Maria saw it, that you drank beer sometime ago (= she saw the empty bottles).'

- d. Fermin-Ø a_i jikka-k [Ivan-ta aabo siime-‘u yooko]
 Fermin-NOM 3SG:ACC hear-PRFV Ivan-ACC here go-CLM tomorrow
 ‘Fermín heard it, that Ivan will come tomorrow.’

With respect to negation, the linked verb in a syntactic-like construction can be independently negated as shown in (8a-b). For the other two types, however, the linked verb cannot be independently negated. In (8c-d), the negative particle *kaa* necessarily modifies the matrix predicate.

- (8) a. Goyo-Ø kaa [Iban-ta siika-‘u] bicha-k.
 Goyo-NOM NEG Ivan-ACC go:PRFV-CLM see-PRFV
 ‘Goyo didn’t see that Ivan left.’
- b. Goyo-Ø a_i bicha-k [Iban-ta kaa siika-‘u]_i
 Goyo-NOM 3SG:ACC see-PRFV Ivan-ACC NEG go:PRFV-CLM
 ‘Goyo saw it, that Ivan did not leave.’
- c. Goyo-Ø Iban-ta kaa sim-bicha-k
 Goyo-NOM Ivan-ACC NEG go-see-PRFV
 ‘Goyo didn’t see Ivan leaving / *Goyo saw Ivan not leave.’
- d. Ne ka [Goyo-ta maska-ta jo’a-m-ta] bicha-k.
 1SG:NOM NEG Goyo-ACC mask-ACC make-NMZ-ACC see-PRFV
 ‘I didn’t see Goyo make the mask / *I saw Goyo didn’t make the mask.’

That is, those constructions in which the linked verb can be independently marked in (4) and (8a-b), are less tight than those constructions in which the linked verb is restricted to the perfective in (5) and (8c); the latter being less tight than those constructions in which the linked verb must be a bare form in (6) and (8d). Furthermore, this operator dependency indicates that there is a juncture at the level of the clause in (4), but a juncture at the level of the core in (5, 6).

(2) *The position of the complement unit.* The position of the complement within the sentence is crucial to determine both, whether the linkage is symmetrical or not, and whether the complement functions as a syntactic core argument or not. Related to the first one, it is well known that the so-called complementation is a marked construction since it derives an asymmetrical linkage, i.e., the embedding of a full clause as a core

argument of a predicate. Languages have means of resolving this asymmetry, and one of these is extraposition. That is, those constructions involving embedded complements are tighter than those constructions involving extraposition.

The preferred position for the nominalized complement is to appear embedded in the main clause, i.e., the common position for the non-PSA direct core arguments, as shown in (9a). Because there is a core linked to another core, the linkage is symmetrical. The syntactic-like complement can appear embedded, preceding the matrix core as in (9b). Since there is a clause unit linked to a core, the linkage is asymmetrical. The complement can also follow the matrix predicate, as in (9c-d). Since there is a pause between the matrix core and the linked clause, and there is an obligatory resumptive pronoun in the matrix core, we can say that the complement clause occupies the right-detached position, rather than the post-core slot. Because the complement is outside the core in the last two examples, the linkage is symmetrical.

- (9) a. Aurelia-Ø [enchi laaben-ta pona-m-ta] jikka-k.
 Aurelia-NOM 2SG:ACC violin-ACC play-NMZ-ACC hear-PRFV
 ‘Aurelia heard you play the violin.’
- b. Aurelia-Ø [enchi laaben-ta pona-ka-‘u] jikka-k.
 Aurelia-NOM 2SG:ACC violin-ACC play-PRFV-CLM hear-PRFV
 ‘Aurelia heard that you play the violin.’
- c. Aurelia-Ø a_i jikka-k [enchi laaben-ta pona-ka-‘u]
 Aurelia-NOM 3SG:ACC hear-PRFV 2SG:ACC violin-ACC play-PRFV-CLM
 ‘Aurelia heard it, that you played the violin.’
- d. Aurelia-Ø enchi_i jikka-k [enchi_i laaben-ta pona-ka-‘u]
 Aurelia-NOM 2SG:ACC hear-PRFV 2SG:ACC violin-ACC play-PRFV-CLM
 ‘Aurelia heard you that you played the violin.’

Then, constructions in which the complement is embedded (9a-b) are tighter than constructions in which the complement is outside the core (9c-d). In fact, embedded clausal complements are significantly less frequent than complements extraposed to the right, meaning that the language shows a strong tendency to avoid asymmetrical linkage

by placing the complement outside the core. Based on this right-branching preference (Dryer 1992), Yaqui would be atypical in the sense that, although being a verb-final language, the unmarked position for complement clauses is to the right, rather than to the left.

(3) *Complement as a core argument.* This property only applies to non-morphological constructions. Those constructions in which the complement is not a syntactic argument of the matrix predicate are less tight than those constructions in which the complement serves a syntactic argument. Evidence for this comes from passive voice. When the passive suffix *-wa* is added to the nominalized complement in (9a) or the embedded clausal complement in (9b), the actor is omitted and the complement serves as the unique, non-PSA core argument. As we can see in (10a-b), the complement clauses remain without change and the result construction is understood as an impersonal sentence. However, when the passive is added to a construction involving extraposition, the passive version depends on which argument appears in the matrix core. When taking a resumptive pronoun, it is this pronominal argument which functions as the passive-PSA, as seen in (10c). When copying out the embedded-PSA, it is this argument that serves as the passive-PSA, in (10d).

- (10) a. [Enchi laaben-ta pona-m-ta] jikka-wa-k.
 2SG:ACC violin-ACC play-NMZ-ACC hear-PASS-PRFV
 ‘It was heard that you play the violin.’
- b. [Enchi laaben-ta pona-ka-‘u] jikka-wa-k.
 2SG:ACC violin-ACC play-PRFV-CLM hear-PASS-PRFV
 ‘It was heard that you played the violin.’
- c. A_i jikka-wa-k [enchi laaben-ta pona-ka-‘u]_i
 3SG:NOM hear-PASS-PRFV 2SG:ACC violin-ACC play-PRFV-CLM
 ‘This was heard, that you played the violin.’
- d. Empo_i jikka-wa-k [enchi_i laaben-ta pona-ka-‘u]
 2SG:NOM hear-PASS-PRFV 2SG:ACC violin-ACC play-PRFV-CLM
 ‘You were heard, that you played the violin.’

Whereas embedded complements function as a syntactic argument of the perception predicate, extraposed complements do not serve to this function, since there is another accusative argument in the matrix predicate filling this syntactic slot. This is an example of a syntax-semantic mismatch: the complement is a semantic but not a syntactic argument of the perception predicate. Then, those constructions in which the content of the complement serves as a syntactic argument of the matrix predicate (10a-b) are tighter than constructions in which the complement does not function as a syntactic argument (10c-d).

(4) *Correferential vs. argument sharing*. And finally, those constructions involving two NPs that may be correferential are less tight than constructions in which there is a missing syntactic argument, such as the two units share that argument. When taking a syntactic-like complement, the matrix predicate and the linked verb may, but not need to have correferential NPs. In (11a), the PSA of the matrix predicate and the PSA of the linked verb are coreferential. In (11b), the non-PSA core argument of the matrix predicate and the PSA of the complement are correferential. The construction in (11c), however, does not show correferential NPs. What is it not possible for a syntactic-like complement is to have a missing argument as seen in the ungrammaticality of (11d).

- (11) a. Ne ino_i bicha-k [si osi ino_i jaiti-machia-ka-'u]
 1SG:NOM 1SG:REFL see-PRFV a lot 1SG:REFL dirty-appear-PRFV-CLM
 'I saw myself that I was too dirty.'
- b. Ne Iban-ta_i jikka-k [sopa-m a_i bwa'a-ka-'u]
 1SG:NOM Ivan-ACC hear-PRFV soup-PL 3SG:ACC eat-PRFV-CLM
 'I heard Ivan that he ate the soup.'
- c. Ne [Iban-ta sopa-m bwa'a-ka-'u] jikka-k.
 1SG:NOM Ivan-ACC soup-PL eat-PRFV-CLM hear-PRFV
 'I heard that Ivan ate the soup.'
- d.* Ne Iban-ta jikka-k [sopa-m bwa'a-ka-'u]
 'I heard Ivan to have eaten the soup.'

In a nominalized complement type, the matrix predicate and the linked verb cannot have either correferential NPs (12a) or shared arguments (12b). That is, the matrix-PSA and the embedded-PSA must be different.

- (12) a. * Ne_i [si osi ino_i jaiti-machia-m-ta] bicha-k.
 ‘I saw myself being dirty.’
- b. * Ne [si osi jaiti-machia-m-ta] bicha-k.
 ‘*I saw being dirty.’

Regarding the morphological structure, the matrix core and the linked unit share a syntactic argument. In the clause, ‘I saw Pedro buying a dog’ in (13), *Pedro* is the actor of ‘buy’ only, it is not a semantic argument of ‘see’; what I saw is that ‘Pedro bought a dog’. Because the actor *Pedro* functions as a direct core argument of the matrix predicate for the purpose of passive voice, as illustrated in (13b), the matrix predicate and the linked core share a syntactic argument. What is not possible for the morphological structure is to have correferential NPs, as seen in (13c-d).

- (13) a. Ne Peo-ta chu’u-ta jinu-bicha-k.
 1SG:NOM Peo-ACC dog-ACC buy-see-PRFV
 ‘I saw Pedro buying a dog.’
- b. Peo-Ø chu’u-ta jinu-bit-wa-k.
 Peo-NOM dog-ACC buy-see-PASS-PRFV
 ‘Pedro was seen buying a dog.’
- c.* Ne ino_i chu’u-ta jinu-bicha-k.
 ‘I saw myself buying a dog.’
- d.* Ne Peo-ta_i chu’u-ta a_i jinu-bicha-k.
 ‘I saw Pedro (he) buying a dog.’

Accordingly, those constructions sharing a syntactic argument as in (13) are tighter than those constructions involving correferential NPs as in (12). Based on these syntactic interclausal relations, the next and final section lays out the juncture-nexus type for these predicate-complement constructions.

4. The juncture-nexus types. Let's first establish the linkage type for those constructions coding the closer semantic relation. The lexical representation for direct perception is given in (14); it indicates that the participant denoted by *x* is not involved in the state of affairs signaled by the embedded LS.

(14) **PERCEIVE'** (*x*, [_{LS}...*y*...])

As for Yaqui, the same LS as given in (15a) can capture the nominalized complement in (15b) and the morphological structure in (15c). The first argument position of **hear'** (*x*, *y*) consists of the perceiver, *Maria*. Because it is the highest ranked argument in terms of the Actor-Undergoer Hierarchy, it is the actor and is assigned nominative case. The second argument position consists of the content of the perception.

(15) a. **hear'** (*Maria*, [**do'** (*ili uusi*, [**cry'** (*ili uusi*))]))

b. *Maria-Ø* [*ili uusi-ta bwana-m-ta*] *jikka-k*.
Maria-NOM little child-ACC cry-NMZ-ACC hear-PRFV
 'Maria heard the child cry.'

c. *Maria-Ø ili uusi-ta bwan-jikka-k*.
Maria-NOM little child-ACC cry-hear-PRFV
 'Maria heard the child crying.'

The two constructions involve a core juncture, but different nexus relations. The nominalized complement serves as a syntactic argument of the matrix predicate, i.e. it cannot take a resumptive pronoun nor can be placed in the right-detached position. This suggests that the two cores show a subordinate relation. Since there is a core linked to another core, it yields subordination at the core level. A simplified representation for the construction in (15b) is given in Figure 1. The complement unit links independently of the matrix core but, as a whole, it functions as its core argument. Regarding the morphological structure, subordination is ruled out since the complement does not serve as a syntactic argument of the matrix core. Instead, there is one argument of the linked

verb functioning as the passive-PSA. The two constructions differ also in operator dependency. The nominalized complement encodes a punctual/completive event such as the linked verb may be marked by the perfective, whereas the morphological complement denotes a durative/continuous state of affairs meaning that the speaker perceives the whole event, from the beginning to the end, such as the linked verb must be unmarked for aspect. Since the linked verb cannot carry operator information and cannot be independently negated, it shows operator dependency with respect to the matrix predicate. This suggests that morphological structures coding direct and simultaneous perception are encoded as core co-subordination.

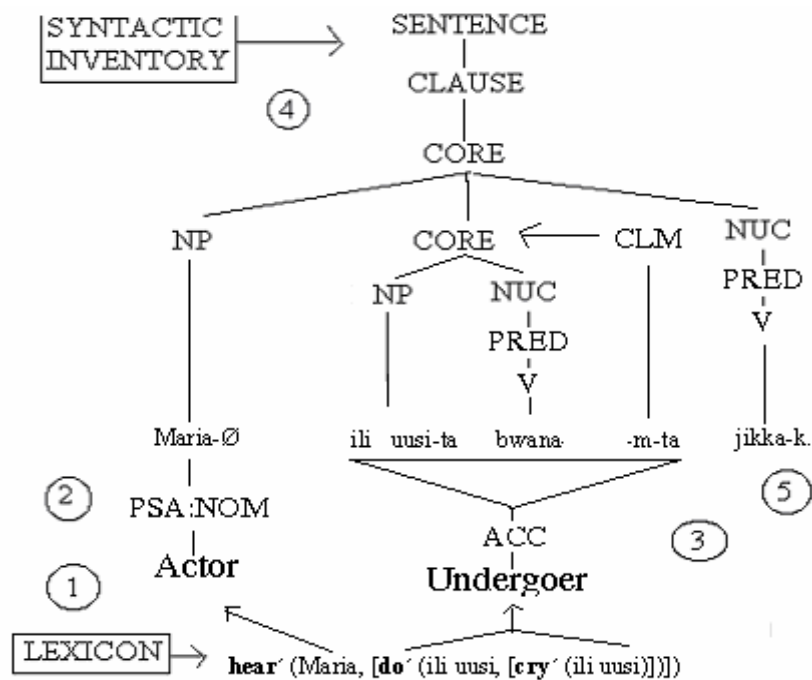


Figure 1: (Symmetrical) core subordination for *Mary heard the child cry* in (15b)

How can we explain that the embedded-PSA acts as a syntactic argument of the matrix core? A plausible explanation consists of analyzing this type as an instance of ‘matrix-coding as non-PSA’, also known as ‘raising’ constructions. In RRG terms, ‘raising’ is understood as a phenomena in which the highest ranked argument of the embedded LS serves as a syntactic argument of the matrix core, but not as a semantic

argument. In the pair of English examples *I believe that Ruth already left* and *I believe Ruth to have left*, the highest ranked argument of the embedded LS, *Ruth*, functions as a syntactic argument of the matrix predicate in the second example. The morphological structure in (15c) is similar to the ‘raising’ alternative in English: the highest ranked argument of the embedded LS *ili uusi* ‘the child’ functions as a syntactic argument of the perception predicate. Notice, however, that there is no change in the semantic role of this shared argument: it is the actor of *cry*, it is not the undergoer *hear*.³³ The representation for this construction type is illustrated in Figure 2. Notice that the highest ranked argument of the linked verb is directly linked to the matrix core.

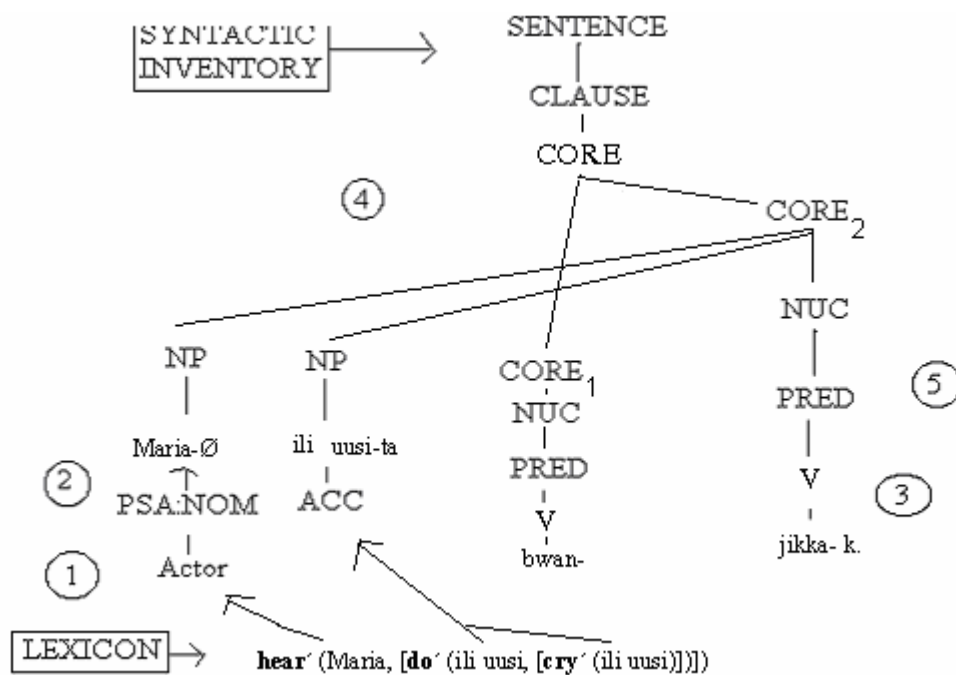


Figure 2: Core co-subordinate ‘raising’ construction for *Mary heard the child crying* in (15c)

The lexical representation for indirect perception is presented in (16). The units in the constructions in (17) show a clausal juncture; the nexus type depends on whether or not the complement clause serves as a syntactic argument of the matrix predicate.

(16) **PERCEIVE'** (x, [LS])

³³ Direct perception are not the unique predicates showing this construction type; other predicates are – *maachia* ‘believe’, –*ea* ‘think’ and the indirect quotation –*tia* ‘say that’.

- (17) a. Maria-Ø [enchi kaba'i-m jinu-ka-'u] bicha-k.
 Maria-NOM 2SG:ACC horse-PL buy-PRFV-CLM see-PRFV
 'Maria saw that you bought the horses.'

a'. **hear'** (Maria, [**do'** (2sg, Ø) CAUSE [BECOME **have'** (kaba'im, 2sg)]])

- b. Maria-Ø a_i bicha-k [enchi kaba'i-m jinu-ka-'u]_i
 Maria-NOM 3SG:ACC see-PRFV 2SG:ACC horse-PL buy-PRFV-CLM
 'Maria saw it, that you bought the horses.'

b'. **hear'** (Maria, [3sg, [**do'** (2sg, Ø) CAUSE [BECOME **have'** (kaba'im, 2sg)]]])

The embedded complement in (17a) serves as a syntactic argument of the matrix, hence core subordination. Since there is a clause linked to a core, the linkage is asymmetrical. A simplified representation for this construction is illustrated in Figure 3. Although the same linkage type codes embedded direct perception in (15b) and embedded indirect perception in (17a), the embedded LS has different status for each type: it is realized as a core unit in direct perception (hence symmetrical), and as a clausal unit for indirect perception (hence asymmetrical).

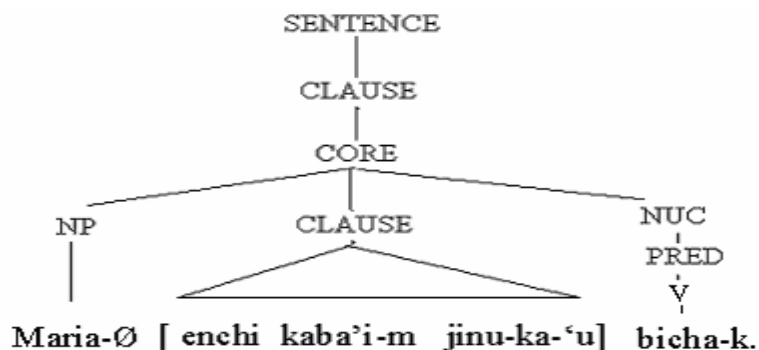


Figure 3: (Asymmetrical) core subordination for *Mary saw that you bought the horses* in (17a)

In the construction in (17b), the matrix predicate apparently takes three direct core arguments -the PSA, the resumptive pronoun and the complement clause. Because the resumptive pronoun and the complement represent the same referent and function as the same argument, they must fill the same argument position in the LS in (17b'). As evidenced by passivization, the resumptive pronoun acts as the passive-PSA, meaning that the complement cannot be also a syntactic argument of the matrix core without

violating the Completeness Constraint. This is solved in Yaqui by placing the complement in a core-external position, as a direct daughter of the higher node. Whereas the preference in Yaqui to posit the complement outside the core violates the basic principle that arguments in the LS of the verb are realized as core arguments, it does yield a symmetrical linkage. The simplified representation for the clausal subordinate construction in (17b) is in Figure 4.

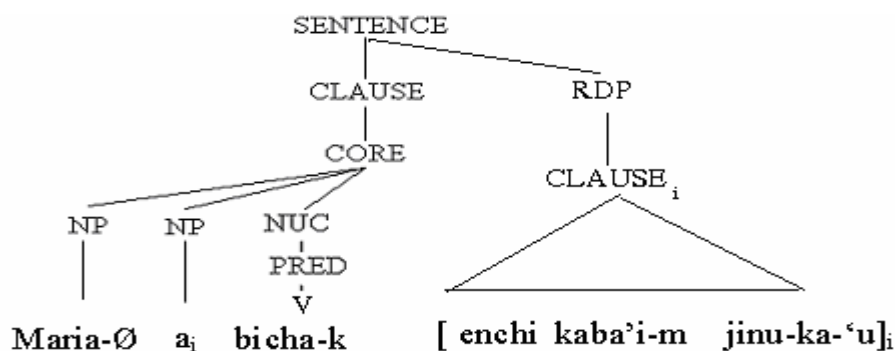


Figure 4: (Symmetrical) clausal subordination for
Mary saw it, that you bought the horses in (17b)

And finally, when the matrix core copies out the PSA of the complement verb in (18), there are two correferential NPs, the undergoer of the matrix predicate and the embedded-PSA.³⁴ For the one hand, the occurrence of the actor of the complement filling a syntactic slot on the main core specifies that the speaker acquired the knowledge by ‘first-hand’; so, it is not inferred from the circumstances. At the same time, the linked verb shows operator independency, indicating a non-immediate perception of the situation.

- (18) a. **hear'** (Maria, Goyo_i [**do'** (3sg_i, Ø)] CAUSE [BECOME **have'** (kaba'im, Goyo)])
- b. Maria-Ø Goyo-ta_i jikka-k [kaba'i-m a_i jinu-ka-'u]
 Maria-NOM Goyo-ACC hear-PRFV horse-PL 3SG:ACC buy-PRFV-CLM
 ‘Maria heard Goyo that he bought the horses.’
- c. Goyo-Ø_i jikka-wa-k [kaba'i-m a_i jinu-ka-'u]
 Goyo-NOM hear-PASS-PRFV horse-PL 3SG:ACC buy-PRFV-CLM
 ‘Goyo was heard that he bought the horses.’

³⁴ The phenomenon of copying out the actor of the embedded clause has been also observed for Lakhota (Van Valin 1977). The difference between the two languages is that in Yaqui the embedded-PSA cannot be omitted.

As given in (18c), it is the embedded-PSA which serves as the passive-PSA, meaning that the complement unit does not function as a syntactic argument. Because there is not a pause between the two units, the complement appears in the post-core slot; this yields clausal subordination. Notice that in Figure 5, ‘Goyo’ is linked twice in the construction: as a core argument of the matrix core ‘hear’ and as a core argument of the embedded core ‘buy’. Here, each of the clauses links separately but the construction as a whole imposes a constraint on the linking: one of the arguments of the matrix core must be co-indexed to the PSA of the complement clause.

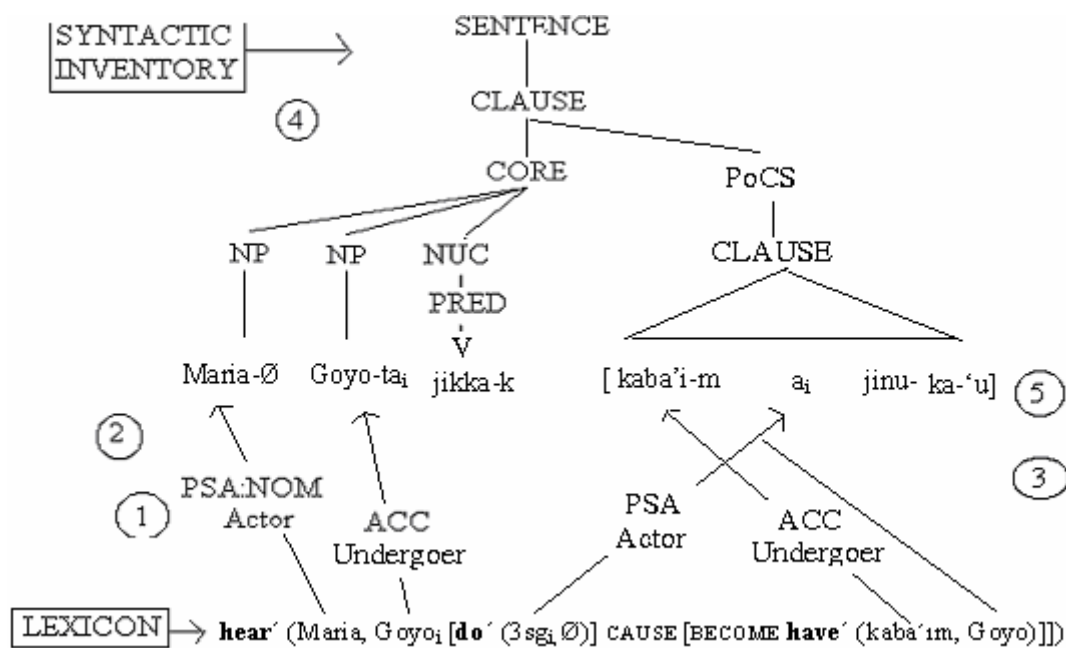


Figure 5: Symmetrical clausal subordination for
Maria heard Goyo, that he bought the horses (18b)

This means that the essential difference among the sentences in (17) and (18) does not lie in the syntactic linkage but rather in how the linking works, which is primarily a function of the semantic properties of the matrix predicate. Because the copy of the embedded-PSA is a language-specific feature observed in certain complement-taking predicates, this information can be captured in a constructional schema in Table 1.

Table 1. Constructional schema for clausal subordination and embedded-PSA copying

CONSTRUCTION: Clausal subordination
SYNTAX: Juncture: Clausal Nexus: Subordination Construction type: Complement clause in the RDP [[CL [CORE [... ARG _i NUC] [CL [CORE [PSA _i ... NUC] CLM]] Unit template(s): default PSA: highest ranked argument (for each clause) Linking: default
MORPHOLOGY: CLM: -'u, -po
SEMANTICS: Direct perception, <i>suale</i> 'believe, trust in', <i>ju'uneeya</i> 'know', <i>mammate</i> 'realize' coding first-hand knowledge.
PRAGMATICS: Illocutionary force: Unspecified Focus structure: Unspecified

5. Concluding remarks. To summarize, the predicate-complement constructions coding perception in Yaqui follows the primary principle governing the syntactic and semantic interclausal relation: the less tight linkage type, being clausal subordination, encodes the looser semantic relation among the two events: indirect perception; the tighter linkage type, being core co-subordination, expresses the closest semantic relation between the two events, physical, immediate and durative perception of a situation; there is also another construction coding a durative/completive perception of the situation, which is encoded by a less tight linkage type, core subordination. It means that the implicational relationship that links the syntactic and semantic representations of complement constructions is obeyed in all cases: when the same predicate may choose between two syntactic realization, the tighter syntactic linkage encodes a higher semantic relation between the two events, and vice versa. Therefore, Yaqui-specific relations between event integration and predicate-complement constructions involving perception verbs are compatible to the cross-linguistic predictions of the Interclausal Relations Hierarchy.

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BENEFICIARY AND RECIPIENT IN DOUBLE OBJECT CONSTRUCTIONS*

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Abstract

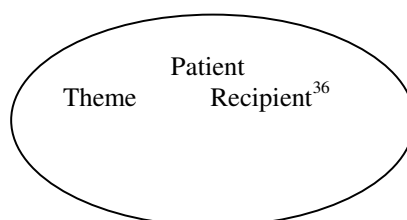
In this paper, I will deal with double object constructions from a cross-linguistic viewpoint in order to seek which semantic principles motivate the selection of the recipient as the undergoer. Unlike other explanations, mainly based on changing-rules and configurational representations, I will claim that Principle B, such as proposed by Guerrero & Van Valin (2004) and Van Valin (2004), is the most unifying and accurate explanation of double object constructions.

0. Introduction

The main purpose of this paper is to revise principle B proposed by Guerrero & Van Valin (2004) and Van Valin (in press) as an extension of the undergoer selection. This paper focuses on double object constructions of underived ditransitives, that is, on verbs which do not increase their valence by means of a derivative process, such as applicative affixes or directive markers. In the construction in focus, both the theme and the recipient argument bear the same markers than the second argument of a transitive predicate, as shown in (1)³⁵:

(1)

DOUBLE OBJECT SENTENCES



Khana (Niger-Congo, Atlantic-Congo; Ikoru 1996: 229)

bà-āā nè zǐ́á pía zím

3PP-PROG give food SPEC.PL ancestral spirits

Lit. 'Someone is giving food the ancestors'.

Throughout this paper, I will try to demonstrate that Principle B is the most common choice cross-linguistically when a three-place predicate presents a neutral alignment, as was shown in (1).

In addition, we will see that Principle B is more explicative than transformational syntactic approaches in order to determine the selection of the prime object in double object constructions.

³⁵ The abbreviations of this paper are the following: →=transition between the actor and the undergoer; ART=article; DET=determiner; ERG=ergative; HOD=hodiernal past (since midnight); HUM=human; NPT=non-past; PASS=passive; PL=plural; PREP=preposition; PRF=perfect; PROG=progressive; PRON=pronoun; SG=singular; SPEC=specifier.

³⁶ See Dryer (in press) for the use of these labels. Dryer notes that it is convenient to have more general neutral labels for noun phrases in ditransitive sentences. He employs R for the recipient-like argument and T for the theme argument. The R receives the T, either literally or metaphorically.

1. Methodology and some assumptions

The examples of double objects come from a sample of 70 languages where I am studying benefactive, malefactive, and recipient coding. The language sampling is based on the Diversity Criteria proposed by Rijkhoff & Bakker (1998), who, generally speaking, demand the distribution of the examples according to the genetic complexity of linguistic families and, hence, their impact in linguistic variation. The diversity criteria have been applied to Ruhlen's (1987) classification for a corpus of 70 languages, as shown in (2):

(2)

Distribution of data following Ruhlen's (1987) genetic classification of the world's languages (phyla)

Steps to distribute data

SDV/n=853, 20/70=12.18

Phase 1: give 1 example to those languages whose diversity value or DV is < 12.18.

Phase 2: divide the DV of each family by 12.18.

Phase 3: in case of the total number is < or > 70, re-distribute the data considered convenient by the linguist.

	BENEFACTIVE AND RECIPIENT (70 examples)			
	DV	Phase 1	Phase 2	Phase 3 (non necessary)
Afro-Asiatic	55.53		(4.58) 4	
Altaic	14.79		(1.21) 1	
Amerindian	178.44		(14.65) 14 ₈	
Australian	67.58		(5.54) 5	
Austic	137.41		(11.28) 11	
Caucasian	8.54	1	1	
Chukotko-Kamchatkan	2.47	1	1 ₀	
Elamo-Dravidian	7.43	1	1	
Eskimo-Aleut	3.34	1	1 ₀	
Indo-Hittite	39.71		(3.26) 3	
Indo-Pacific	123.39		(10.13) 10 ₄	
Khoisan	6.97	1	1	
Na-Dene	9.44	1	1	
Niger-Kordofanian	90.38		(7.42) 7	
Nilo-Saharan	42.18		(3.46) 3	
Sino-Tibetan	38.52		(3.16) 3	
Uralic-Yukaghir	4.93	1	1	
Pidgin	13.47		(1.1) 1	
Isolate	9.00		1	
Total	853.20	7	70	

*bold numbers: more examples of these families are needed.

*small numbers: current number of examples where more examples are needed.

Within the 70 languages in the sample, I have documented 21 where double object constructions are attested. Due to the fact that a 30% of languages in the sample show double objects, then we can consider this type of construction as a current codification of recipients across languages.

After the exposition of the language sampling methodology, I would like to introduce some assumptions in order to clarify the concept of “double object” used here. The construction-type I am dealing with involves only underived ditransitive verbs in which the theme and the recipient are encoded by means of full noun phrases. It won't be part of this study those cases where the theme and/or the recipient are pronouns, neither those constructions consisting of applied objects. So for the reasons I briefly present in paragraphs (a-d), it won't be part of this study the following constructions:

- (a) The theme and/or the recipient are pronouns. → The pronoun hierarchy has internal rules which may obscure their definition as undergoers or prime objects. In the pronoun hierarchy, verbal semantics is not necessarily involved, but rather the animacy hierarchy and several pragmatic factors.
- (b) Derived ditransitivity by means of the so-called ventive extension, directional markers, or applicative affixes. → These morphological processes usually imply a valence-changing, deeply related to grammatical person in the case of the ventive extension and directional markers.
- (c) Metaphorical uses of verbs or semantic verb compounding processes, like *dar una patada a alguien* ‘to give a kick to someone’. → These uses may have special restrictions across languages.

2. Generalizations

Once classified the examples, the data allow us to draw the following generalizations:

1. Both accusative and ergative languages attest double object constructions, as illustrated in (3) and (4), respectively:

(3)

Koromfe (Niger-Congo, Atlantic-Congo; Rennison 1997: 69)

də pa a kɛ̃ɔ hoŋ a ʒãna.

PRON.3SG.HUM give ART woman.SG DET.HUM.SG ART millet.PL

‘He gives some millet to the woman’.

(4)

Dumi (Sino-Tibetan, Tibeto-Burman; Driem 1993: 65)

an-a an dza: bi:-n-t-a

I-ERG you^s rice give-1s→2-NPT-s23

‘I give you rice’.

2. Regarding the possibility of alternation, we find two types of constructions: dynamic double objects, which alternate with an oblique coding strategy of the recipient, as

shown in (5), and non dynamic double objects, which lack alternation, as illustrated in (6). According to Dryer (in press), alternation is less attested cross-linguistically:

(5)

- a. I gave Mary a book.
- b. I gave a book to Mary.

(6)

Noon (Niger-Congo, Atlantic-Congo; Sonkka 2000: 207)

- Mi on Ndew ndímu.
- I give Ndew pague
- 'I give Ndew a skirtcloth'.

3. Apart from verbs like 'give', the verb class selected to have a double object construction is language-specific. Due to the fact that double objects may occur with different lexical classes of three-place predicates, then not only a recipient relation can be involved, but also a beneficiary or maleficiary.

4. Double object constructions are asymmetric, that is to say, although both objects bear the same markers, only one of them is syntactically treated as a prime object. For instance, only one of them is selected as the privileged syntactic argument (PSA) in passive, as shown in (7):

(7)

Betawi (Pidgin, Indonesian-Malayan; Ikranagara 1980: 32)

- Miun di-kasi duit ame siDulo.
- Miun PASS-give money PREP Dulo
- 'Miun was given money by Dulo'.

Even though the asymmetric construction is the most common in the sample, it is also possible to find some examples of symmetrical constructions. In some dialects of English, for instance, both the theme and the recipient can be the PSA in passive, as illustrated in (8) (see Hudson 1992: 257 for examples (8b-c)):

(8)

- a. John was given a book.
- b. %A book was given John.
- c. No information is given the model about word classes.

5. Within the 21 languages where double objects have been attested, 19 select the recipient argument as the prime object. Only Lele, an Afro-Asiatic language, and English seem to preserve the object status for the theme argument under some circumstances. As pointed out by Hudson (1992) for English, recipients are subjects in passive more easily than themes, as was shown in (8) above, whereas themes extract more easily than recipients, as illustrated in (9):

(9)

(Hudson 1992: 258)

- a. Which sweets do you give the children?
- b. %Which children do you give sweets?

4. Prime object in double object constructions

The diagnostics employed to determine which argument is the prime object in double object constructions are the following:

- Linear order
- Control of object agreement or cross-reference
- PSA in passive
- Marked coding of objecthood
- Elicitation

According to these diagnostics, the recipient behaves as the prime object in the following languages in the sample:

(10)

	<i>Languages where the listed features are explicitly cited in grammars</i>
<i>Rec. precedes the Them.</i>	Anejom, Betawi, Danish, English, Hausa, Koromfe, Nama, Noni, Noon, Vietnamese
<i>Rec. controls object agreement or cross-refers with the verb</i>	Chinantec, Dumi, Swahili
<i>Rec. is the PSA in passive</i>	Betawi, Classical Greek, Danish, English, Hausa, Nama, Swahili, Yaqui
<i>Rec. receives marked nominal objecthood coding</i>	Klamath
<i>Them. can be omitted</i>	English (with some verbs), Noon, Swahili (with some restrictions)

*In Classical Greek, Chinantec, and Klamath, the order of objects may vary; in Kana, the recipient follows the theme; in Lele, the recipient must follow the theme; in Ute, the theme precedes the verb.

*English allows both the theme and the recipient to be the PSA. In Koromfe, the indirect-object passive is avoided in favor of active constructions, like *x receives y*; nothing is said about this topic in Klamath, Noni and Noon. Vietnamese does not have passive voice.

*In Dumi, the recipient does not show patient agreement with the verb, but it is observed that the transitional affix, which signals the relationship between the actor and the undergoer, marks the recipient instead of the theme in double object constructions.

Very often in the sample, the recipient argument holds the typical position associated with P in transitive predications, and precedes the theme noun phrase, as shown in (11):

(11)

Nama (Khoisan, Southern Africa; Hagman 1977: 76)

’áop ke tarásà pérépà kè màa.

‘The man gave the woman bread’.

In case of object agreement of any kind or cross-reference, the recipient tends to show it. As illustrated in (12), in Chinantec, an Oto-Manguean language, the recipient conveys animacy agreement with the verb in double object constructions:

(12)

Sochiapan Chinantec (Amerindian, Oto-Manguean, Foris 2000: 246)

má^M lʃ^M-kuẽ^L cú^M mí^Htiei^{MH} cii^L θũʔ^H

PRF HOD-give.DA.3 3 cat DIM grasshopper

‘She just gave a grasshopper to the cat’.

DA=ditransitive animate

If a given language has verbal affixes to encode the actor-undergoer relationship, as occurs in the case of transitional affixes, the recipient will be the noun phrase triggering the undergoer agreement with the verb. In the example of Dumi we saw in (4) above, and repeated in (13) for convenience, the transitional morpheme *-n-* signals the direction of a transitive relationship between a first person singular agent and a second person recipient.

The recipient argument tends to be the one selected as the privileged syntactic argument in the passive construction, as was shown, for instance, in example (7) above. And lastly, if a given language can omit one of the two objects, it will be the theme-argument, as illustrated in (15):

(15)

I told your father.

In sum, the recipient argument of double object constructions is drawn as the argument which conveys objecthood features.

5. Some previous explanations

Explanatory theories on double objects are essentially syntactic and usually point the necessity of a transformational or derivational rule explaining the recipient advancement in the syntactic hierarchy (subject < direct object < indirect object < oblique). Apart from internal divergences, and whatever the adopted approach is, there is agreement among most of scholars on the treatment of the recipient argument as the prime object (see Hudson 1992 for a different interpretation), and hence on the asymmetrical properties of those constructions.

From a cross-linguistic viewpoint, however, explanations based on changing-rules (advancement from a grammatical relation to another) or configurational rules (c-command) seem to fail in different points. Apart from the problem evoked by grammatical relations such as direct or indirect object, the fact that most languages lack alternation in double object constructions, as pointed out by Dryer (in press), makes fail advancement analyses. In addition, and taking into account that alternation is not universal, the explanation of double objects recurring to pragmatic factors, namely the major saliency of recipients in discourse, cannot be considered the *leitmotif* of double object constructions across languages.

Configurational definitions of objects (objects NPs are daughters of VP), on the other hand, are also controversial mainly because VP is not considered a universal constituent.

In sum, it seems that the reason why recipients are prime objects in double object constructions has something to do, first of all, with semantics, as pointed out by Guerrero and Van Valin (2004) and Van Valin (in press).

6. Role and Reference Grammar Approach

In RRG, and particularly in Van Valin (2003), three-place predicates of the type we are interested in receive the logical structure (LS) shown in (16):

(16)

(Van Valin & LaPolla 1997: 387)

Logical structure of transfer predicates

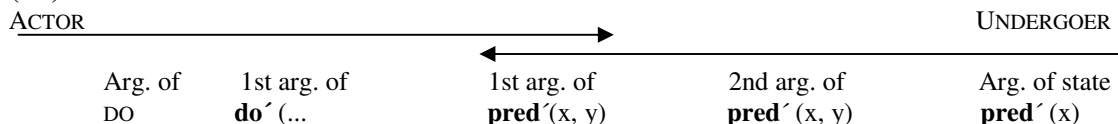
[**do'** (x, \emptyset)] CAUSE [BECOME **have'** (y, z)]

Example: John gave Mary a book.

[**do'** (John, \emptyset)] CAUSE [BECOME **have'** (Mary, a book)]

As we saw for other theories, RRG also faced some difficulties in the treatment of three-place predicates, mainly with regards to the undergoer selection in those cases where the recipient is in fact the prime object. The selection of the macroroles, actor and undergoer, is relational and depends on the Actor-Undergoer hierarchy shown in (17):

(17)



[‘→’ = increasing markedness of realization of argument as macrorole]

(Van Valin & LaPolla 1997: 146)

According to the definition of the undergoer as the lowest argument in the logical structure and given the logical structure in (16) for transfer three-place predicates, the recipient is not the lowest argument in the LS of (17), but the theme. This contradicts the morpho-syntactic tests demonstrating that the recipient noun phrase behaves as the prime object of the double object construction, and hence, that the recipient should be the undergoer of the predication.

The explanation of recipients as undergoers rested on of an animacy criterion in Van Valin & LaPolla (1997), stating that, although the recipient is not the lowest ranking argument in the LS, its animate feature motivates its selection as the undergoer. However, Guerrero & Van Valin (2004) and Van Valin (in press) realize that the animacy criterion is insufficient to explain undergoerhood in double and multiple object constructions, because, in fact, not only human core arguments are selected as undergoers, but also non-animate phrases.

In order to account for these facts, Guerrero & van Valin (2004) and Van Valin (in press) develop two principles for the undergoer selection. Principle A keeps the original definition of the undergoer, whereas Principle B states that the undergoer of the predicate will be the second highest ranking argument in the LS.

In respect to the selection of recipients as prime objects in double object constructions, the advantages of Principle B over any other theories are remarkable. First, Principle B is semantic and does not imply any kind of alternation or derivational syntactic operation, what respects cross-linguistic data. Moreover, it explains why recipients are undergoers without any mention to the animacy criterion or merely descriptive thematic hierarchies, what also seems to be more accurate in order to account for languages in which animacy does not have any syntactic relevance. In addition, Principle B is

compatible with pragmatic factors explaining dynamic double objects. Lastly, Principle B respects what can be called the asymmetrical tendency, stating that only one undergoer is possible in one predication, and not more. So, although we find a double case marking in double object constructions, just one core argument can play the undergoer macrorole at a time.

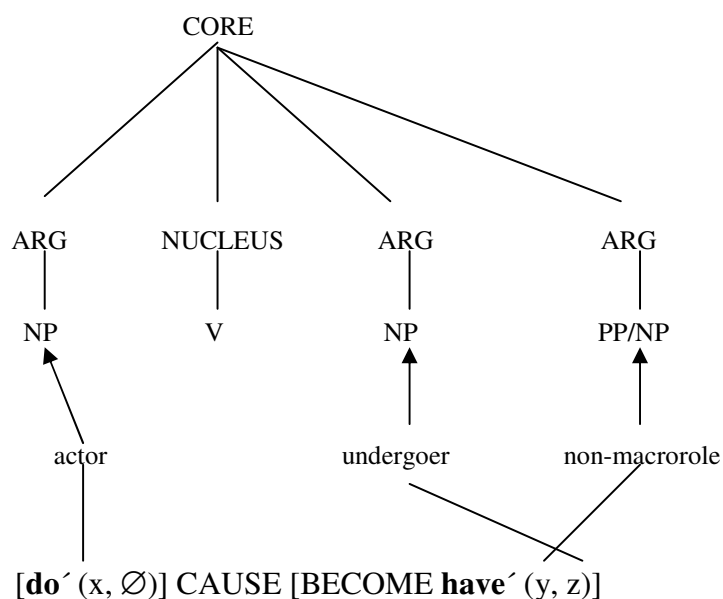
Principles A and B go beyond the selection of recipients as undergoers in double object constructions. They permit us to have a more extended view of three-place predicates. In particular, the combination of these principles and different syntactic templates make possible the description of three-place predicates across languages, and also of the languages themselves. As summarized in (a) to (c), languages may be classified as follows:

- a. Languages in which just Principle A works, like Spanish. These languages, which are the most represented in the sample and follow the so-called DO/IO pattern (see Dryer 1986), treat three-place predicates similarly to syntactic transitives, that is, as asymmetrical syntactic constructions where the recipient is a non-macrorole core argument encoded as an oblique PP or as a non-direct core argument in dative case. See the simplified template in (18):

(18) Spanish

Juan envió un regalo (a una amiga).

'John sent a present to a girlfriend'.



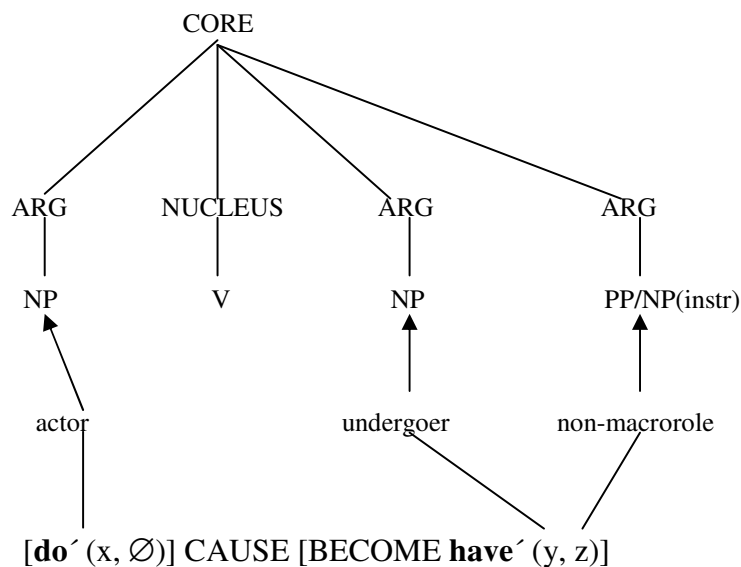
- b. Languages in which only Principle B works, like Lakhota (see Van Valin, in press). These languages, which are the less common in the sample, are called primary object languages (see Dryer 1986 and Van Valin, in press for a more restricted definition of the term) and show two syntactic codifications of ditransitivity: an asymmetrical construction, where the theme is the non-macrorole core argument encoded as an oblique, as shown in (19); or a more symmetrical look-like construction or double object construction in which the theme is a non-macrorole direct core argument, as shown in (20).

(19) Nyawaygi (Australian, Dixon 1983: 495)

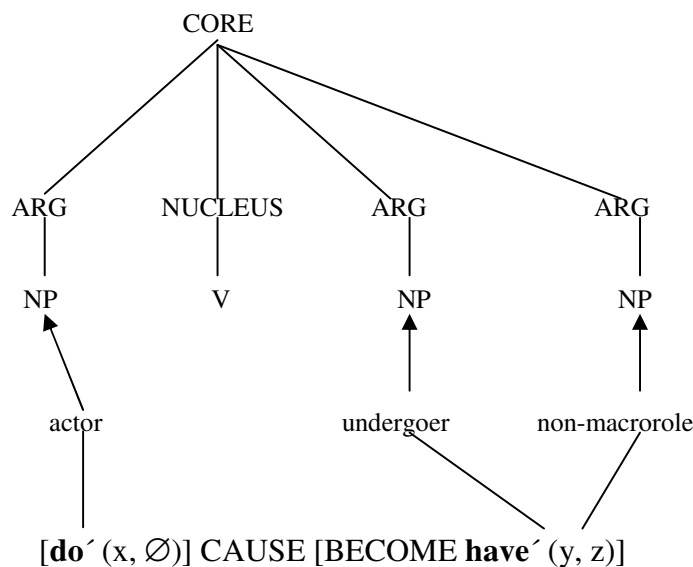
ŋaŋa ɡiŋaŋɡu ɡiniyandu wuwaja.

1Sg.O man.ERG meat.ERG/INST give-REC PAST

'The man just gave me some meat'.



(20)



- c. Split-objectivity languages (see Dryer, in press), where Principle A applies to some verbs and Principle B to others, as occurs in Yaqui (see Guerrero & Van Valin, 2004). The three-place predicates of these languages may have either the template shown in (18) or the templates in (19) or (20). Double object constructions are basically documented in split-objectivity languages.
- d. And finally, it is also possible to talk about cases where Principles A and B overlap in the same verb, as happens, for instance, in current English. Overlapping has a low occurrence in languages and has only been attested in double object constructions of split-objectivity languages.

To conclude, in this paper I have dealt with double object constructions from a cross-linguistic viewpoint in order to seek whether Principle B may account for them. We have seen that unlike other explanations, Principle B does describe and explain pretty well the selection of recipients as undergoers in double object constructions. In addition, the differentiation between Principle A and Principle B allow us to classify three-place predicates across languages as well as to establish their correlation with syntactic codification. It has been pointed out that ditransitivity follows, roughly speaking, a syntactic transitive pattern, but also that ditransitivity encounters its own pattern in double object constructions. Furthermore, we have seen that the most representative group of languages with double object constructions are split-objectivity, followed by far by primary object languages. Finally, we have pointed out the necessity of a fourth group of double object constructions where Principles A and B apparently overlap.

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LEXICAL TEMPLATES AND THE *FRIGHTEN*-TYPE VERBS: AN ENRICHED APPROACH TO RRG LOGICAL STRUCTURES

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ABSTRACT

The aim of this paper is to provide a semantic and syntactic characterization of the well-known English *frighten* verbs from the point of view of the Lexical Grammar Model (LGM) (cf. Mairal Usón & Van Valin (2001); Mairal Usón (2002); Mairal Usón & Faber (2002); Mairal Usón & Cortés Rodríguez (2004)). As a result of this verbal analysis, *lexical templates* are proposed as a means of lexical representation that includes syntactic and enriched semantic features describing these predicates and allowing for the capture of their syntactic and morphological phenomena.

Unlike most of the literature on psychological verbs, whose main concern is related to the inverse linking of the arguments of these *frighten*-predicates or their different aspectual structure (Belletti & Rizzi (1987); Grimshaw (1990); Pesetsky (1990); Pustejovsky (1992)), the LGM conceives such *lexical templates* as a representation that enriches RRG logical structures with a semantic decomposition, introducing semantic primitives and internal variables which define different lexical classes along with the predicates in each class.

Finally, we also account for the semantics-to-syntax linking of these verbs by applying the *Lexical Template Modeling Process*, conceived of by the LMG as a set of lexical rules that govern the mapping between the different syntactic structures and their corresponding templates derived from the *canonical lexical template* codified by this *frighten*-class.

1. INTRODUCTION

The goal of this paper is to provide a semantic and syntactic characterization of the English *frighten* verbs from the point of view of the Lexical Grammar Model (LGM), which is a new proposal for both lexical representation and semantics-to-syntax linking within the framework of Role and Reference Grammar (RRG) (cf. Mairal Usón & Van Valin (2001); Mairal Usón (2002); Mairal Usón & Faber (2002); Mairal Usón & Cortés Rodríguez (2004)).

As a result of the semantic and syntactic analysis of this verb class, a *lexical template* is proposed from which it is possible to derive the syntactic and morphological

behavior of each of the verbs that makes up this lexical class. This is achieved after applying the rules and principles proposed by the LGM in its two-phase semantics-to-syntax linking.

The organization of this paper is as follows. In section 2, the theoretical framework of the LGM will be introduced, especially the semantic notions necessary for the elaboration of lexical templates. In section 3, the lexical template for the class under study will be fully explained, and then in section 4 the linking process from this template to the actual syntactic realizations will be accounted for. Conclusions will be presented in section 5.

2. THE LEXICAL GRAMMAR MODEL

The LGM is a linguistic proposal focused on the design of a syntax-semantics interface where the lexical representations of predicates contain rich semantic information from which the syntactic structures are easily predicted. It is a proposal that has been developed within the framework of RRG (Van Valin & LaPolla 1997; Van Valin 2001), although it is fully compatible with other functional approaches, i.e. Dik's Functional Grammar (1997a,b), or lexicalist models, such as Rappaport and Levin's research (1998) and Jackendoff's Lexical Conceptual Semantics (1997; 2002).

The LGM's semantic input stems from the great amount of work developed in the previous instantiation of the model: the Functional Lexematic Model (FLM) (cf. Martín Mingorance (1998); Faber & Mairal Usón (1999)). By using the main tenets of Dik's Functional Grammar and Coseriu's Lexematic Theory (1981), the FLM organized both the English and the Spanish verbal lexicon paradigmatically and syntagmatically into a series of coherent semantic classes or lexical domains, such as the one presented below for the verbs under analysis or the subdomain **to cause someone to feel fear**:

(1) **To cause somebody to feel fear** [*frighten, terrify, panic*]

1. FRIGHTEN: to cause somebody to feel fear/be afraid (the unpleasant, strong feeling caused by the presence or expectation of danger).

1.1. SCARE: to cause somebody to feel frightened in a sudden way.

1.2. ALARM: to cause somebody to feel frightened and anxious about something unpleasant or dangerous in the future.

1.3. PETRIFY: to cause somebody to feel extremely frightened, esp. so that they are motionless.

2. TERRIFY: to cause somebody to feel terrified, i.e., extreme fear because they think they might be killed.

2.1. TERRORIZE: to terrify somebody deliberately over a long period of time by threats or acts of violence.

3. PANIC: to cause somebody to feel panic, i.e. a great sudden feeling of fear which makes you unable to act sensibly or think clearly.

This type of organization reflects the fact that predicates that belong to the same class show a systematic syntactic behavior, that is to say, the syntactic complementation of each of the verbs of a subdomain depends on its position in the semantic hierarchy.

This close interrelation between syntax and semantics is what the FLM puts forward as the *Principle of Lexical Iconicity* (Faber & Mairal 1999: 187):

(2) *Principle of Lexical Iconicity*

The greater the semantic scope of a lexeme, the greater its syntactic variation.

According to this principle, in (1) one would expect *frighten, terrify* and *panic* to show a greater syntactic coverage than their hyponyms, since they are the most prototypical terms in this subdomain. This is in fact the situation displayed, as Table 1 shows:

Table 1 Syntactic alternations and constructions.

To cause somebody to feel fear						
Verbs	Alternations					Construction
	Caus.	Incho.	Middle	PRO-Arb	Possessor-Subj	Resultative
1. <i>Frighten</i>	+	*	+	+	+	+
1.1 <i>Scare</i>	+	*	+	*	+	+
1.2 <i>Alarm</i>	+	*	+	*	+	*
1.3 <i>Petrify</i>	+	+	+	*	+	+
2. <i>Terrify</i>	+	*	+	+	+	+
2.1 <i>Terrorize</i>	+	*	*	+	+	+
3. <i>Panic</i>	+	+	+	*	+	+

As a consequence of the paradigmatic and syntagmatic research carried out within the FLM, the LGM expands this strong semantic spirit and defends the necessity of enriching traditional RRG's logical structures with semantic content that mirrors the way semantic patterns influence syntactic structures. Such semantic mechanism is the "lexical templates".

3. LEXICAL TEMPLATES AND THE *FRIGHTEN*-TYPE VERBS

3.1. The concept of lexical template

In the LGM the term "lexical template" is used to refer to the formalized construct that functions as a meta-entry, containing the core meaning and the syntactic information relevant for a whole lexical class or subdomain.

The starting point of the lexical templates developed by this model is the logical structures used in RRG. Since these structures only capture those features that have a direct role in the mapping into syntax, the LGM incorporates all the paradigmatic information previously identified by the FLM, introducing a rich semantic decomposition by means of semantic primitives and a number of internal variables. The latter stand for those semantic parameters that do not necessarily have a grammatical realization but which certainly define a complete domain, i.e., instrument, manner, result, etc. They are marked by Greek letters and formalized in the template by means of "ontological constants", which will be later instantiated by a property or entity indicating the manner, the instrument or the result.

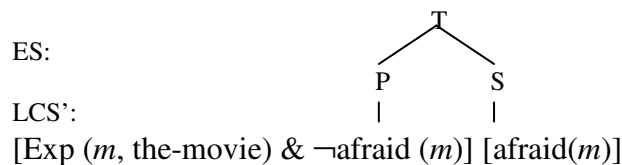
3.2. A lexical template for the *frighten*-type verbs

Most of the literature on psychological verbs has been concerned with the inverse linking of the arguments of the *frighten*-type predicates or their different aspectual structure (Belletti & Rizzi (1987); Grimshaw (1990); Pesetsky (1990);

Pustejovsky (1992)). Therefore, the lexical representations proposed by these studies only contain syntactically relevant information:

- (3) *Frighten* Experiencer Theme (Thematic Tier)
 CAUSE STATE (Aspectual Tier) (Grimshaw 1990)

- (4) a. *The movie frightened Mary* (Pustejovsky 1992)
 b. Event structure:



LCS: cause[Exp (*m*, the-movie), become ([afraid(*m*)])

Furthermore, in the type of lexical representations of (3) and (4) there is no room for other verbs semantically related to *frighten* and which also show a common semantic and syntactic behavior. The LGM proposes the following canonical lexical template instead:

- (5)

To cause somebody to feel fear	
<p>pred' <CAUSE FEAR> [(do' (x, Ø))] CAUSE [feel' (y, [fear. of'] [in.manner (β)for.some.time(ε).because'(φ)](x,y))]</p>	

From (5) we are now able to account for the semantic and syntactic patterns of all the verbs that make up this subclass, except for *petrify* and *panic*. As illustrated in (6) and (7), these two verbs appear in the causative-inchoative alternation:

- (6) a. 116 *And that could easily have **panicked** her.* 17,456 c:\bnc\h\h9\h9d 41
 b. 14 *That's why I **panicked** when I heard he was missing.*
 41,377 c:\bnc\h\h9\h9d 96
- (7) a. 106 *It **petrifies** the governess and she gets into an acute state of anxiety.*
 35,503 c:\bnc\k\k1\k1r 81
 b. 19 *Over a year on from the hurricane blast of "Purity" they still **petrify**.* 44,018
 c:\bnc\c\c\c\c4 77

According to Van Valin (2004), instead of positing either the causative form or the inchoative variant as basic, the lexical entries for these verbs would contain a pointer to the General Lexical Rule for Causative Alternations:

- (8) General Lexical Rule for Causative Alternations
[do' (x, Ø)] CAUSE [BECOME/INGR pred' (y (z))] <-> BECOME/INGR pred' (y, (z))

Thus, depending on the syntactic alternation they enter into, either the right-hand element of the rule would be selected –the inchoative pattern– or the left-hand element would be selected – the causative construction.

For the rest of the non-alternating verbs, the canonical lexical template in (5) does explain them. This template codifies two subevents: the first subevent –a state, accomplishment, achievement or activity– carried out by *x* causes the second subevent or the change of state of *y* in a certain manner (β), for some time (ϵ) and because of a particular reason (ϕ). There are then two external variables marked in Roman letters –*x* and *y*– which will have a syntactic representation, and three internal variables, marked by the Greek letters β , ϵ and ϕ .

Although without any obligatory syntactic expression, these internal variables encode the semantic parameters MANNER, TIME and REASON that permeate the whole subclass allowing us to distinguish each of the predicates that forms this lexical class. Besides, they can also explicate the idiosyncratic syntactic behavior of some of these verbs, since their different instantiation brings about the individual lexical entries of the *frighten* class. For instance, in the lexical entry of the prototypical verb *frighten*, none of these internal variables is instantiated, whereas the less prototypical *terrorize* gives lexical content to MANNER and TIME:

(9)

<i>Frighten</i> <CAUSE FEAR>
[[do' (x, Ø)] CAUSE [feel' (y, [fear. of'] (x,y))]
e.g. 11 <i>You're a fit man, and you're frightening your wife and making yourself unhappy by letting your mind dwell on this.</i> 46,675 c:\bnc\j\jy\jya 83

<i>Terrorize</i> <CAUSE FEAR>
[[do' (x, [deliberately.threateningly' (β), Ø]) CAUSE [feel' (y, [fear. Of'] [for.some.time' (ε)] (x,y))]
e.g. 11 <i>I'm about to change into a monster and terrorize the little people in the garden.</i> 29,670 c:\bnc\fn\fnw 95

In sum, the format of an LGM lexical entry consists of a lexical template, where its selection properties are encoded; the individual lexical representation is a hyponymic projection of the canonical lexical template.

4. FROM THE LGM LEXICAL TEMPLATE TO THE SYNTACTIC REPRESENTATION: A TWO-PHASE LINKING ALGORITHM

From the canonical template represented in (5), the morpho-syntactic structures and constructions shown by the predicates of this class can also be arrived at. Within the LGM format, this is achieved by means of a linking algorithm that entails the two phases described in sections 4.1 and 4.2, respectively.

4.1. The first phase of the linking algorithm

It takes place in the lexicon and consists of a set of mapping rules that establish the conditions under which a particular predicate can occur with a certain construction but block others. Such rules are included in the *Lexical Template Modeling Process* (Mairal Usón & Cortés Rodríguez 2004), fully reproduced below:

(10) **The Lexical Template Modeling Process**

Lexical templates (LT) for the primary lexicon can be modeled iff the canonical lexical template and the construction-based template meet at least one of the following lexical mapping rules:

- Lexical Mapping Rule 1 “Full Matching”: there must be a copying/identification of variables, subevents and operators, between both the canonical LT and the constructional LT.
- Lexical Mapping Rule 2 “Suppression of variables”: the variables in the canonical LT must accommodate to the number of variables of the constructional template. Canonical LT variables can be suppressed iff the basic interpretation of the canonical LT is not violated.
- Lexical Mapping Rule 3 “Internal variables fusion”: the internal variables encoded in the canonical LT must be compatible with the semantic content of the lexical template construction.
- Lexical Mapping Rule 4 “Event Identification Condition”: the semantics of the construction must allow it to be a proper subevent of the canonical lexical template.
- Lexical Mapping Rule 5 “Predicate Integration Condition”: the constructional template may introduce a new predicate into the canonical lexical template iff the semantics of the added predicate is compatible with the semantic content of the lexical template.
- Lexical Mapping Rule 6 “Partial Matching”: the semantics of the constructional template must be compatible with at least one component of the canonical LT.
- Lexical Mapping Rule 7 “Lexical Blocking”: one of the components of the lexical template can block the fusion with a certain construction.

Let us now introduce and explain the syntactic alternations and constructions displayed by the *frighten* subclass, together with the mapping rule satisfied.

4.1.1. Causative alternation

The fusion between the canonical lexical template and the causative constructional template is governed by Lexical Mapping Rule 1 or “Full Matching”, since there exists a complete correspondence between the two variables of the canonical template (x, y) and the two participants of the causative construction: the one that causes fear and the one that is affected by it.

(11) Ex.: 4 *It broke into a shop and wrecked it, terrifying the owner.* 21,933 c:\bnc\h\ht\htx 52

[[do' (x, \emptyset)] CAUSE [feel' ($y, [\text{fear.of}'] (x,y))]$

4.1.2. Inchoative alternation

Lexical Mapping Rule 6 or “Partial Matching” allows for the inchoative template to be identified with the final element of the General Lexical Rule for Causative Alternations (8):

- (12) Ex.: 8 *The two carabinieri panicked.* 25,511 c:\bnc\g\g3\g3b 62

[INGR**feel.panic**'(y,(z))]

4.1.3. Middle alternation

This alternation is accounted for by two different rules. The first one is Lexical Mapping Rule 2 –“Suppression of Variables”- by means of which the highest ranking argument (x) can be omitted, since it is understood as generic, indefinite or “people [or whatever the agent is] in general” (Goldberg 1995: 183).

“Predicate Integration Condition” or Lexical Mapping Rule 5 is the second rule that plays a crucial role in the licensing of the middle alternation, because through this rule the construction introduces a new predicate which attributes a property to the subject (Van Valin & LaPolla 1997: 417):

- (13) Ex.: 171 *Graeme Souness, an Edinburgh man who doesn't frighten easily, once recalled how the scariest moment of his life unfolded outside Parkhead when he made the acquaintance of* 62,529
c:\bnc\k\k5\k5a 45

be'([[[(do' (\emptyset , \emptyset)] CAUSE [feel' (y, [fear.of'] [in.sudden.way'(β))]], [pred'] (\emptyset ,y))

This alternation is not shown by *terrorize* in the class under study:

- (14) Ex.: ?/**Small kids terrorize easily* (RJ)

The reason for this should be looked for in the semantic characterization of this verb as represented in (9). In this lexical entry, the first argument (x) is modified by a manner internal variable: (β). Since the middle construction can only suppress the first

argument if understood generically, there is no possibility of interpreting the first argument of *terrorize* generically because it is specifying and particularizing the way the change of state is carried out: deliberately and threateningly.

Therefore, an internal variable such as MANNER, which is usually not projected syntactically, does have a role in such projection, since it is blocking the occurrence of this predicate with the middle alternation.

4.1.4. PRO-arb object alternation

In this alternation it is the object the one that is not syntactically realized because it is understood as an arbitrary object, as “ ‘one’, ‘us’ or ‘people’ ” (Levin 1993: 38). Thus, the rule that accounts for the fusion between the canonical template and this construction’s template is Lexical Mapping Rule 6 or “Partial Matching”, since the construction focuses on only one component of the canonical lexical template – the first argument –, downgrading the second one as arbitrary:

- (15) Ex.: 96 *If a person acts with the intention of frightening or provoking, there is no difficulty.*
4,313 c:\bnc\g\gv\gvr.dcv 10

[(do' (x, Ø)] CAUSE [feel' (Ø-arb, [fear.of?] (x, Ø-arb))]

So far, no sound explanation has been provided for the verbs that do not alternate in this structure (*scare, alarm, petrify and panic*). Since more work is still needed on the semantic and syntactic characteristics of the PRO-arb object alternation, we leave this issue for further research.

4.1.5. Possessor Subject Factoring alternation

This alternation involves the expression of a possessor and an attribute/activity of the possessor either as a single NP, found as subject of the verb, or as two distinct constituents: the possessor expressed as subject and the attribute expressed in a PP-*with*:

- (16) Ex.: a. *Mark terrified me with his singlemindedness*
b. *Mark's singlemindedness terrified me* (Levin 1993: 77)

The rule that license this alternation is Lexical Mapping Rule 4 or “Event Identification Condition”, since the semantics of the construction, that is, the opposition between the entity that starts the change of state and his properties, is a proper subevent of the causative canonical lexical template:

(17)

$[(\text{have.as.characteristic}'(\underline{x}, z)] \text{ CAUSE } [\text{feel}'(y, [\text{fear.of}'](x, y))]$

4.1.6. Resultative construction

According to Levin (1993: 101), “a resultative phrase is an XP which describes the state achieved by the referent of the noun phrase it is predicated of as a result of the action named by the verb”, as illustrated in these examples:

- (18)
- | | | | | |
|--------|--|--------|-----------------|-----|
| a. 16 | <i>"You've frightened me stiff," I said frankly.</i> | 25,964 | c:\bnc\b\bp\bp9 | 70 |
| b. 112 | <i>I thought perhaps I'd frightened you away."</i> | 17,812 | c:\bnc\l\fs\fs4 | 46 |
| c. 22 | <i>I'll scare them silly!"</i> | 12,204 | c:\bnc\c\cf\cfj | 79 |
| d. 77 | <i>Apart from terrifying him into submission, there is no sure fast remedy to make him comply with your wishes</i> | 20,178 | c:\bnc\h\hp\hp6 | 81. |

In the context of the LGM, the semantic representation of the resultative construction has the following template:

(19)

$LS_1 \text{ CAUSE } LS_2[\text{BECOME/INGR } \text{pred}'(y)]$

Therefore, for the LGM the result phrase – an AP or a PP in (18)– is not an argument of this type of verbs but an argument of the very construction through the second Logical Structure (LS), that is, the LS that signals the new state of affairs: BECOME/INGR **pred'**(y). Due to this semantic characterization, the rule that licenses this construction with the class under analysis is Lexical Mapping Rule 5, which allows the addition of a new predicate into the canonical lexical template because the semantics of this new predicate is compatible with the semantic content of the template:

(20)

$$[(\text{do}'(x, \emptyset))] \text{ CAUSE } [\text{feel}'(y, [\text{fear.of}'])] \text{ CAUSE } [\text{INGR/BECOME pred}'(y)(x,y)]$$

4.2. The second phase of the linking algorithm

The first phase of the semantics-to-syntax linking explains how the canonical lexical template for the *frighten* subclass under analysis, through the application of a number of mapping rules proposed in the Lexical Template Modeling Process (10), is modeled into the semantic constructions shown by the members of such class. However, the semantics-to-syntax mapping process is not finished yet, since these fully specified semantic representations need to be linked to the actual syntactic realizations of the *frighten* predicates. This is then the task assigned to the second phase of the linking algorithm.

The rules and principles of this second phase of the LGM linking closely follow those proposed in RRG: the assignment of the macroroles Actor and Undergoer, as established in the *Default Macrorole Assignment Principles* (Van Valin & LaPolla 1997: 152-153); the selection of the Privileged Syntactic Argument (PSA), the Case Assignment Rules and Finite Verb Agreement (Van Valin 2001: 216), and, finally, the Syntactic Template Selection Principle (Van Valin & LaPolla 1997: 173-174).

The verbs that form the class under study show no exceptions to these rules and principles. When they designate a causative state (4.1.1), the first argument (x) will take the macrorole Actor, be selected as PSA and assigned Nominative case, whereas the second argument (y) will take the Undergoer and be assigned Accusative case³⁷:

³⁷ Since it is not relevant for the discussion, the logical structures employed have not been fully decomposed.

- (21) a. 11 *You're a fit man, and you're frightening your wife and making yourself unhappy by letting your mind dwell on this.* 46,675 c:\bnc\j\jy\jya 83
 b. [[**(do'** (you, Ø))] CAUSE [**feel'** (your wife, [**fear.of'**] (you, your wife))]
 c. *You* = 1st argument of causative state → Actor → PSA; *Your wife* → 2nd argument → Undergoer

In the inchoative and the middle alternations (cf. 4.1.2 and 4.1.3), since there is only one argument (*y*) in a state predicate, this argument will be assigned the macrorole Undergoer, selected as PSA and assigned Nominative case:

- (22) a. *Timid people petrify easily* (RJ)
 b. **be'** ([[**(do'** (Ø, Ø)] CAUSE [**feel'** (**be'** (*people*), [**timid'**]), [**fear.of'**] [**motionless'**(β)]], [**easily'**] (Ø, *timid people*))
 c. *Timid people* = only argument of state → Undergoer → PSA

This clearly contrasts with the argument array displayed in the PRO-*arb* object alternation (4.1.4), where the only argument (*x*), being part of an activity subevent, receives the macrorole Actor instead:

- (23) a. 24 *It is an accomplished work of art, and it was made to terrify, and to give noblemen with guilty consciences (especially depreddators of the monastery's lands) bad dreams.* 35,190 c:\bnc\ad\adc 98
 b. [[**(do'** (*it*, Ø)] CAUSE [**feel'** (Ø-*arb*, [**fear.of'**] [**extremely** (β).**because.of.dying'**(φ)] (*it*, Ø-*arb*))]
 c. *It* = 1st argument of activity → Actor → PSA

As for the Possessor Subject Factoring alternation (cf. 4.1.5), the macrorole assignment varies in the 3rd argument (*z*), which refers to the possessor's attribute or activity. Since *z* is not selected as the head of the NP-subject, it will be syntactically realized by means of a PP-*with*, as correctly predicted by the lexical rule for assigning this preposition in English (Van Valin & LaPolla 1997: 381):

- (24) a. *Mark frightened me with his singlemindedness* (RJ)
 b. [[**(have.as.characteristic'** (*Mark*, *his singlemindedness*))] CAUSE [**feel'** (*me*, [**fear.of'**] (*Mark*, *me*))]
 c. *Mark* = 1st argument of causative state → Actor → PSA; *Me* = 2nd argument of causative state → Undergoer; *His singlemindedness* = Non-macrole argument → *with his singlemindednes*

Finally, we will use the following figure as an instance of this two-phase linking algorithm for the resultative construction in (18a):

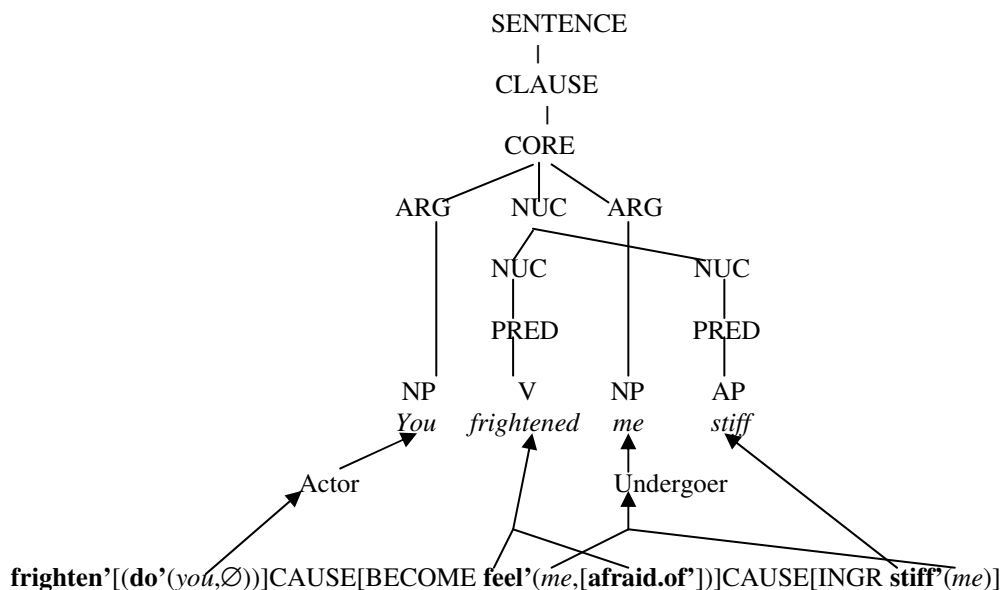


Figure 1. Semantics-to-syntax linking in the resultative construction.

5. CONCLUSION

This paper has stated the possibility of elaborating a lexical template for the whole lexical class of *frighten* verbs. Apart from including syntactically relevant information –the external variables-, this LGM representation has also been enriched with semantic content – the internal variables- that proves necessary in order to distinguish each of the verbs that form this class as well as to block certain alternations. Furthermore, from this single lexical template the semantics-to-syntax linking of these verbs has been dealt with by applying the two-phase algorithm designed by the LGM.

In sum, the LGM proposal of a canonical lexical template that may characterize the lexical classes of the lexicon is a powerful tool for those studies focused on the syntax-semantics interface. By means of one format one can easily capture both the semantic and the morphosyntactic characteristics exhibited by each of the predicates that belong to the same class, reducing thus the amount of lexical entries in the lexicon.

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LINKING SYNTAX TO SEMANTICS: MULTIVARIATE STATISTICAL PP-ATTACHMENT DISAMBIGUATION

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Abstract

One of the fundamental problems of the RRG Linking Algorithm from syntax to semantics is that the selection of the appropriate syntactic template for an input sentence is often subjected to several ambiguities. In this paper, we examine PP attachment ambiguities focusing on the French verb *parler*. Within the first section, we deliver an analysis of the possible syntactic templates occurring with *parler*. Based upon a quantitative evaluation of *parler* sentences, we then propose a statistically-driven algorithm for the distinction between core arguments and adjuncts which results in the selection of the most likely template.

Introduction

In the last 15 years, the relation of the syntactic and semantic structure of an utterance (or: the relation of syntactic and semantic structures), i.e. the linking problem, has dominated linguistic discussion. Butt & Holloway (2000: 1) pointed out that “argument realization – how arguments of predicates surface in the clause – is central to linguistic theory.” As many other linguists, Butt & Holloway adopt the semantics-to-syntax approach. But, obviously, argument realization is only half of the problem. The exact reverse, i.e. the syntax-to-semantics approach, has been widely neglected in linguistic theory. In comparison with other approaches, one of the advantages of RRG lies in accounting for both sides of the linking problem. Van Valin & LaPolla (1997) provide not only semantics-to-syntax but also a syntax-to-semantics linking algorithm.

In a recent paper, Van Valin (2003) discusses the contribution of RRG to language processing as it is accounted for by psycholinguistic and computational modeling. Van Valin (*ibid.*) emphasizes that, from a processing point of view, general principles governing macrorole assignment and general rules which assign the prepositions that mark oblique core arguments should not be part of the linking algorithm itself but that they should be anticipated in a precompiling step at the lexical level. Hence the precompiled logical structures (LS) should contain information on macrorole and preposition assignment. Likewise syntactic templates should be enhanced with macrorole and preposition assignment information. Parsing would then consist in selecting an appropriate template for the input by statistical means. Linking would be reduced to a single step: matching the information on the appropriate template to the information on the logical structure, yielding “a very fast and efficient comprehension process.” (Van Valin *ibid.*)

However, this very optimistic proposal faces a lot of empirical problems when we put the processing algorithm to the text. A closer look at the procedure reveals that for a computational implementation a detailed specification is required. One of the most fundamental problems is the resolution of the syntactic dependencies of the constituents with regard to the distinction between core arguments and adjuncts. The problem is usually referred to with the label PP-attachment ambiguities. Since, at least in languages such as English or French, case-marking prepositions and predicative prepositions cannot be distinguished on morphosyntactic grounds, every PP that does not correspond

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to an obligatory argument is ambiguous. If the PP fills an optional argument slot of the predicate, the PP must be attached to the core. If it is an adjunct, it has to be attached to the periphery. In addition, if the PP follows a NP, the preceding NP (noun attachment) may function as the syntactic head.

The aim of our paper is to provide an algorithm that is capable of predicting the correct semantic representation for any occurrence of French *parler* ('to talk', 'to speak'). As English *talk* or *speak*, *parler* takes two PP-Arguments. The argument introduced by the dative marking preposition *à* or by the preposition *avec* denotes the ADDRESSEE, the argument introduced by the preposition *de* denotes the TOPIC OF CONVERSATION. Both arguments are optional:

- (1) parler *à/avec* quelqu'un de quelque chose [*à/avec* PP = ADDRESSEE; *de* PP = TOPIC OF CONVERSATION]
(‘to talk/speak to/with somebody about something’)

The addressee argument can also be expressed by the preposition *avec* ('with').

In another reading *parler* takes a direct object denoting a language:

- (2) parler un langage *à/avec* quelqu'un
(‘to talk/speak a language to/with somebody’)

Since *de* and *à* are the most current prepositions introducing several kinds of adjuncts and NP-modifiers, *de*-PPs and *à*-PPs co-occurring with *parler* are highly ambiguous.

For example, in:

- (3) J'étais meilleur orateur que lui, quand on allait parler aux ouvriers à la sortie des usines (FRANTEXT: DUVIGNAUD, J.)
(‘I was a better speaker than him, when we went to talk to the workers at the exit of the factories’)

des usines is a modifier of the NP *sortie*, but, leaving our world knowledge aside, it could also be the *de*-argument of *parler* or even an adjunct denoting the place where the speaker talks from. In addition, there are two candidates for the ADDRESSEE: *aux ouvriers* and *à la sortie*. The non-ADDRESSEE *à*-complement could be an adjunct denoting the location where the talking takes place, but if *à la sortie* is not the addressee, it could either be an adjunct at the clause level or a modifier of the preceding NP *ouvriers*.

Syntactic Templates

If the syntax-to-semantics linking algorithm consists in matching the information on the appropriate template to the information on the logical structure, we first have to consider the different syntactic templates that could appear with *parler*.

Due to the fact that both oblique arguments of *parler* are optional, the verb appears in a one-argument template:³⁹

³⁹ Following Van Valin's lead (2003), we provide syntactic templates with macrorole and preposition assignment information.

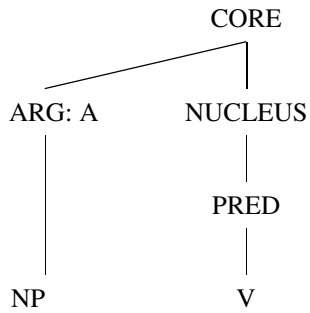
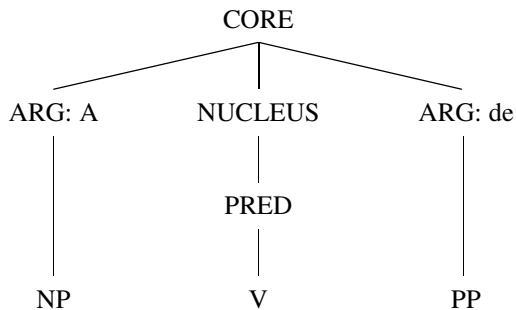


Fig. 1: One-place construction

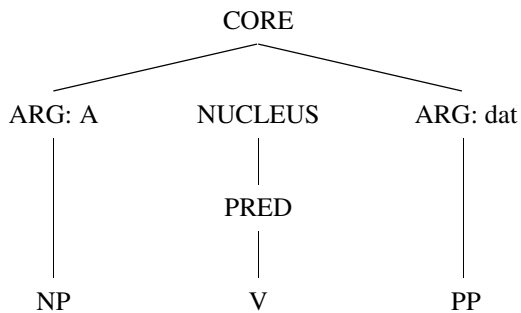
- (4) Je parle et je me tais (FRANTEXT : CLAUDEL, P.)
 ('I speak and I am silent')

If there is a *de*-PP, a two-arguments template might be the appropriate one:

Fig. 2: Two-place construction with *de*-ARG

- (5) Je parle de vous (FRANTEXT: FEBVRE, L.)
 ('I talk about you')

An *à*-PP could also fill a slot of a two-arguments template:

Fig. 3: Two-place construction with *à*-ARG

- (6) Je parlai aux prêtres (FRANTEXT: YOURCENAR, M.)
 ('I talked to the priests')

Instead of the *à*-PP, an *avec*-PP could be the candidate for one of the arguments:

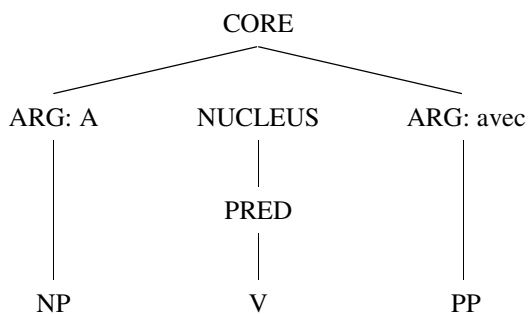


Fig. 4: Two-place construction with *avec*-ARG

- (7) Je parlais avec elle (FRANTEXT: GIDE, A.)
 ('I was talking with her')

If a *de*-PP and an *à*-PP appear in the same sentence, a three-arguments template could be the appropriate one:

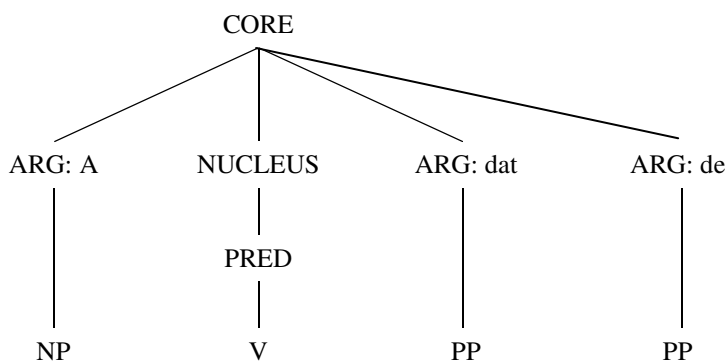


Fig. 5: Three-place construction with *de*-ARG and *à*-ARG

- (8) J'ai parlé à ma mère de notre nouvelle vie (FRANTEXT : MOTHERLAND, H.)
 ('I have talked to my mother about our new life')

But a *de*-PP can also be part of the periphery:

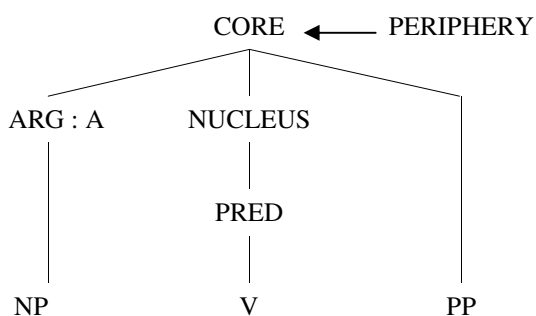


Fig. 6: One-place construction with *de*-ADJ

- (9) Il parlait d'une voix ferme (FRANTEXT: GIBEAU, Y.)
 ('He spoke with a firm voice')

And the same applies to an *à*-PP:

- (10) Il était obligé d'en parler au futur (FRANTEXT: CAMUS, A.)
 ('He was obliged to talk about this in the future')

If a wh-element appears, a precore-slot template is activated. According to the type of the wh-argument, the precore-slot will be marked with the appropriate macrorole and preposition assignment values and the corresponding reduced core template will be chosen:

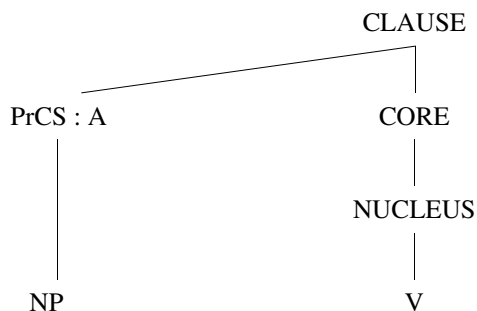


Fig. 7: Precore-slot-construction with actor-wh-element

- (11) Qui parle? (FRANTEXT: GRACQ, J.)
 ('Who is speaking?')

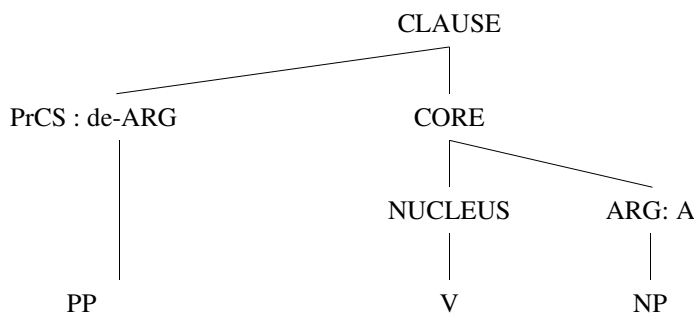


Fig. 8: Precore-slot-construction with de-ARG-wh-element

- (12) De quoi parlez-vous (FRANTEXT: CLAUDEL, P.)
 ('What are you talking about')

Relative pronouns as *dont*, *de quoi* or *à qui* corresponding to the *de*-PP and the *à*-PP can be treated in the same way:

- (13) Voilà de quoi je parle (FRANTEXT: PRÉVERT, J.)
 ('This is what I am talking about')
- (14) La vie dont il parlait avec crainte (FRANTEXT: CAMUS, A.)
 ('The life about which he talked with fear')
- (15) Quelqu'un à qui vous pouviez parler (FRANTEXT: MONTHERLANT, H.)
 ('Somebody you could talk to')

The appearance of a preverbal dative clitic activates the templates containing an *à*-PP, the appearance of the preverbal *en* activates the templates containing a *de*-PP. If both kind of clitics appear, the three-arguments template is activated.

- (16) Tu m'en parles si peu dans tes lettres (FRANTEXT: GIBEAU, Y.)
 ('You talk to me about this so seldom in your letters')

The order of the arguments in the template does not have to be the same as the order in the text. Clitic constructions and relative clauses are not the only examples of a lack of correspondence between the respective orders. Subjects can appear in postverbal position or peripheral material can be inserted between the verb and its arguments:

- (17) Ainsi parlent ces poètes (FRANTEXT : ELUARD, P.)
(‘Thus speak these poets’)
- (18) J’ai parlé tout à l’heure de fièvre et de maladie (GRACQ, J.)
(‘A few minutes ago I talked about fever and illness’)

This overview of the different syntactic constructions of *parler* is not even exhaustive. Choosing the right template is difficult. As we will see, the choice has to be based on statistic facts, e.g. the probability of each possible template to appear in given text and the probability of the constituent to be an argument or adjunct depending on the nature of its inherent semantic properties.

Logical structure of parler and lexical entries

Once we have chosen the right template, the information on the template should be matched with the information on the logical structure of *parler*. However, the LS for *parler* is far from being evident. Van Valin & LaPolla (1997: 116-118) propose the following general LS for verbs meaning "to say:"

- (19) **do**'(x, [**express**.(α).**to**.(β).**in.language**.(γ)'(x, y)])

The internal variables α , β and γ refer to the content of the utterance (α),⁴⁰ the addressee (β) and the language used (γ). Verbs meaning "to say" are described as two-place activities with an optional second argument. The three variables are candidates for the optional y-argument. However, French *parler* as well as English *talk* or *speak* are three-place verbs.⁴¹ The internal α and β variables can be realized in the same construction. It is easy to prove by the *do-so* test that none of them can be considered an adjunct:

- (20) a. J’ai parlé à ma mère de notre nouvelle vie (FRANTEXT : MOTHERLAND, H.)
(‘I have talked to my mother about our new life’)
- b. *J’ai parlé à ma mère et je l’ai fait de notre nouvelle vie
(lit.: ‘I have talked to my mother and I did so about our new life’)
- c. *J’ai parlé de notre nouvelle vie et je l’ai fait à ma mère
(lit.: ‘I have talked about our new life and I did so to my mother’)

Van Valin & LaPolla (1997: 118) propose a more complex LS for the three-place predicate *to tell*:⁴²

⁴⁰ Van Valin / LaPolla (1997: 118) considered the *about*-argument of *talk* and *speak* an instance of the α -variable. González Orta (2004) distinguishes between the content (α) and the topic (ω): [**express**.(α).**about**(ω).**to**.(β).**in.language**.(γ)'(x, y)]. While *say* realizes a content, *speak* or *talk* realize a topic. This finer-grained distinction might be appropriate from a semantic point of view. As we will see, it does not help us to solve the linking problem.

⁴¹ This is not taken into consideration by González Orta (2004). She suggests that the **.about**.(ω) component in her LS is realized by an argument-adjunct *w*. But the external variable *w* does not show up anywhere in the LS she proposes for Old English *secgan* (‘talk’) and *specan* (‘speak’). Argument adjuncts realize a non-macrorole argument of a given verb by means of a predicative preposition. An argument adjunct is not a device for adding an argument to a verb.

⁴² By the way, English *tell* is a dative-alternation verb allowing marked undergoer choice. The LS proposed by Van Valin / LaPolla considers the TOPIC OF CONVERSATION as undergoer construction (*tell*

- (21) [**do'**(x, [**express.**(α).**to.**(β).**in.language.**(γ)'(x, y))] CAUSE [**BECOME aware.of'** (y, z)], where $y = \beta$, $z = \alpha$

Tell differs from *parler* by virtue of being a causative accomplishment. On the contrary, three-place *parler* still is an activity:

- (22) a. *J'ai parlé à ma mère de notre nouvelle vie en 20 minutes
(lit.: 'I have talked to my mother about our new life in 20 minutes')

According to Van Valin (2002), all three-place verbs are causative. Proving that causativity is not restricted to accomplishments, is one of RRG's major contributions to aktionsart classification.⁴³ There are causative activities such as *rouler*:

- (23) Sisyphé roule sa pierre
(‘Sisiphus roles his stone’)
[**do'** (Sisyphus, \emptyset)] CAUSE [**do'** (stone, [**role'**(stone))]]

Hence, *parler* could have a LS like the following one:

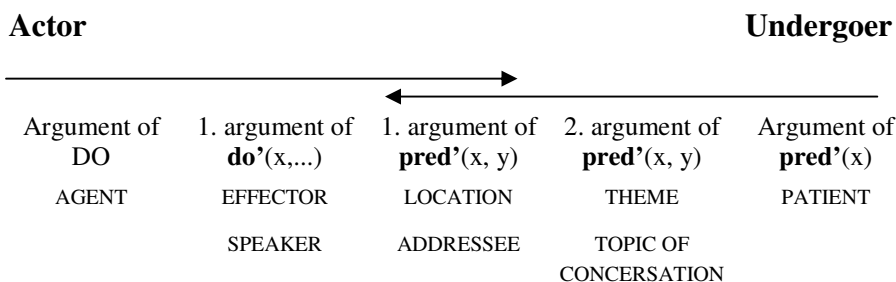
- (24) [**do'**(x, [**express.**(α).**to.**(β).**in.language.**(γ)'(x, y))] CAUSE [**do'**(z, [**listen'**(z))]], where $y = \alpha$, $z = \beta$

But there are several arguments against such a representation. First, in the case of *rouler*, the verb describes a caused activity of the moving object, while *parler* does not describe a caused activity of the ADDRESSEE. Second, we may safely assume that macrorole intransitive causative verbs don't exist. Causing an activity (or change of state) is a strong agent feature resulting in a high degree of semantic transitivity that should correspond to syntactic macrorole transitivity.

Therefore we claim that the three-place reading of *parler* should be described as a non-causative activity having the following LS:

- (25) **do'**(x, [**express.**(α).**to.**(β).**in.language.**(γ)'(x, y, z)], where $y = \beta$, $z = \alpha$ [MR1]

Three-place activities have not yet been described in RRG's semantic formalism.⁴⁴ In our opinion they do not disturb the system in a considerable way. The three arguments correspond to three different degrees of activity in the Actor-Undergoer-Hierarchy:



→ = increasing markedness of realization of argument as macrorole

Fig. 9: Actor-Undergoer-Hierarchy (cf. Van Valin / LaPolla 1997: 127; 146)

sth to sb) the unmarked construction. French *raconter* ('tell') supports this analysis, with the TOPIC OF CONVERSATION argument being the only choice for undergoer.

⁴³ Van Valin & LaPolla (1997: 102-109); Kailuweit (2003)

⁴⁴ The number of non-causative three-place verbs in French is not easy to determine. For many verbs, the argument status of one PP might be doubtful. Apart from *parler*, there is at least one more three-place example: *en vouloir à quelqu'un de quelque chose* ('to be angry with somebody about something').

The ADDRESSEE expressed in French by a dative is located in the center of the hierarchy. The same position is attributed to the dative RECEIVER of *donner* ('give') or the dative LEARNER of *enseigner* ('teach'). This seems to be appropriate from a semantic point of view. Of course, a three-place activity predicate does not embed a two-place **pred'**(x, y) sequence in its logical structure. Hence, the second and the third position of the Actor-Undergoer-Hierarchy have to be redefined respectively as the second rightmost argument of **pred'**(...) and rightmost argument of **pred'**(...).

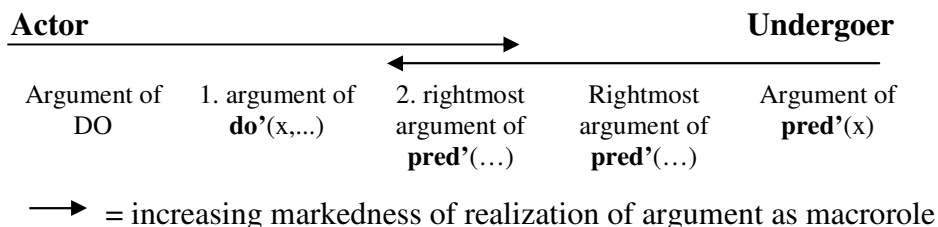


Fig. 10: Actor-Undergoer-Hierarchy redefined

Following Van Valin (2003), our model macrorole and preposition assignment will take place at the lexical level. The actor macrorole is assigned to the x-argument according to the following general rule: activities take an Actor macrorole as leftmost argument of their LS. The oblique case and preposition assignment might follow general rules, too. The dative is the default case for non-macrorole second rightmost arguments of three-place predicates in French. In addition, the preposition *de* seems to be the default marking of non-macrorole rightmost arguments. But this is mere speculation at this stage. Whether by the application of general rules or by idiosyncratic marking, the resulting precompiled LS for the two alternatives of *parler* are the following (round brackets indicate that the y-argument and the z-argument are optional):

- (26) a. **do'**(x, [**express.**(α).**to.**(β).**in.language.**(γ)'(x = A, (y = dat/avec), (z = de))]), where y = β , z = α
 b. **do'**(x, [**express.**(α).**to.**(β).**in.language.**(γ)'(x = A, (y = dat/avec), (z = U))]), where y = β , z = γ

Currently, lexical entries in RRG only consist of the lemma and its LS. For nouns, the qualia structure (cf. Pustejovsky 1995) is supposed to be added (cf. Van Valin / LaPolla 1997: 184-186). Recently (cf. Van Valin forthcoming: Chap. 2), it has been argued that an argument position of a predicate can be annotated with a qualia type if the predicate requires this particular type of argument. Implementation additionally requires a whole range of morphosyntactic information that should be annotated in terms of features and attribute value matrices such that the technique of unification can be used. First of all, a lexical entry has to be labeled with a part of speech value.

While Van Valin (forthcoming: Chap. 2) only refers to qualia, Pustejovsky (1995) distinguishes two kinds of semantic information: argument selection specifications and qualia. In our context, qualia are not important. In order to distinguish two of the possible arguments of *parler*, we will use argument selection specifications in the sense of Pustejovsky (1995: 67). The ADDRESSEE has the specification x = **animate_individual** including the specification x = **human**. The LANGUAGE has the specification x = **language**. This yields the following entry for *parler*:

<i>parler</i>	
POS = V	
LS = do(x, [express.(α).to.(β).in.language.(γ)](x, y, z)]	
ARGSTR	$\left[\begin{array}{l} x - \text{ARG}[\text{SYN} = A] \\ \left(\begin{array}{l} y - \text{ARG} \left[\begin{array}{l} \text{SYN} = \text{dat / avec} \\ \text{SEM} \left[\begin{array}{l} = \beta \\ = \text{animate_ind} \end{array} \right] \end{array} \right] \\ z - \text{ARG} \left[\begin{array}{l} \text{SYN} = \text{de} \\ \text{SEM} [= \alpha] \end{array} \right] \end{array} \right) \end{array} \right]$
	<i>vel</i>
	$\left[\begin{array}{l} x - \text{ARG}[\text{SYN} = A] \\ \left(\begin{array}{l} y - \text{ARG} \left[\begin{array}{l} \text{SYN} = \text{dat} \\ \text{SEM} \left[\begin{array}{l} = \beta \\ = \text{animate_ind} \end{array} \right] \end{array} \right] \\ z - \text{ARG} \left[\begin{array}{l} \text{SYN} = U \\ \text{SEM} \left[\begin{array}{l} = \gamma \\ = \text{language} \end{array} \right] \end{array} \right] \end{array} \right) \end{array} \right]$

Fig. 11: Lexical entry for *parler*

Lexical entries for nouns could be exemplified in the following way:

<i>mère</i>	Fig. 12: Lexical entry for <i>mère</i>
PSO = N	
ARGSTR[ARG1 = human]	
QUALIA[...]	

allemand
PSO = N
ARGSTR[ARG1 = language]
QUALIA[...]

Fig. 13: Lexical entry for *allemand*

After having specified these prerequisites, we will now deal with the central question of this paper: how to find the appropriate syntactic template by means of a multivariate probability-driven device.

Previous Work – Why a multivariate approach?

Much previous work in the field of PP-attachment resolution is restricted to one-sided syntactically or semantically motivated approaches (cf. Ratnaparkhi 1998 for a heuristic approach based on purely syntactic features; Volk 2002, Stetina & Nagao 1997, Hindle

& Rooth 1993 for purely semantic criteria). However, empirical data suggest that these problems are best accounted for by integrated models combining syntactic and semantic criteria (Franz 1996: 30ff.), which is underlined by the following examples:

- (27) Je parlais [de la mort]_{ARG} (FRANTEXT: FEBVRE, L.)
 ('I spoke about death.')
- (28) Il parlait [d'une petite voix aiguë]_{ADJ} (FRANTEXT: GIBEAU, Y.)
 ('He spoke with a tiny shrill voice')

Examples (27) and (28) show that neither semantic nor syntactic features alone suffice to resolve PP-attachment ambiguities. As Franz (1996: 32) pointed out, "these principles in isolation do not constitute an empirically adequate theory". Although having the same syntactic construction on the surface, RRG's syntactic trees of these sentences would differ from each other. The weakness of the majority of the semantic approaches put forward up to now lies in their restriction to the computation of the governing node of the respective PP from statistical values. In the case of Verb Attachment, the final decision whether the PP is an argument or an adjunct is omitted. However, if we aim at modeling "true" sentence processing, the analysis should include this final step.

Interactionist models, as they can be found in psycholinguistic research contributions, also provide a strong argument for multi-dimensional approaches to human language processing. They suggest that sentence understanding relies on the parallel processing of probabilistic syntactic and semantic evidence (cf. Jurafsky 1996, Jurafsky & Martin 2000: 471).

Our aim is therefore to develop a probabilistic model for the resolution of PP-attachment ambiguities for the French verb *parler* that integrates several information sources. This model should be cognitively adequate and compatible with the RRG syntax-to-semantics linking algorithm (cf. Van Valin 2003), i.e. it should enable the selection of the appropriate core template for any occurrence of *parler*.

Training Corpus

The training material has been extracted from the FRANTEXT corpus, a compilation of 631 untagged texts, published between 1951 and 2000. Our statistics is based on the first 1000 instances of *parler* (1951-1952). This is certainly not a representative sample; the preparation of the training material, however, is time-consuming. The training corpus has been annotated manually. We only tagged at the constituent-level, i.e. we tagged arguments and adjuncts of *parler*, but not their internal structure. In the case of PPs headed by *à*, *avec* or *de* we also annotated the following:

- <+hum> if the NP contained referred to a person
- <+an> if it referred to something animate
- <+abs> for abstract entities
- <+loc> for locations
- <adv> to mark adverbial expressions
- <prep> to mark prepositional expressions

The <adv> and <prep> tags are used to generate lexical entries for these expressions, so we can identify them as single units during the morpho-syntactical tagging step. In order to reduce the processing load of the parser, adverbial and prepositional expressions headed by *à* and *de*, e.g. *d'égal à égal*, are filtered prior to parsing the PPs, as they obviously have adjunct status. The information extracted from the annotated

training corpus forms the basis for the decision whether a PP attached to a verb is likely to be an argument or an adjunct of *parler*. How exactly this decision is taken and how we make use of the training data will be described in more detail as we go on explaining the features of the statistical processing.

The Features of our Model

The multivariate disambiguation model relies on the following features:

Syntagmatic position of the PP (Pos). The hypothesis of “minimal attachment”, i.e. PP attachment to the immediately preceding XP, is frequently put forward (cf. Gaussier & Cancedda 2001, Franz 1996: 23). In order to examine the impact of syntagmatic relations on linking, we take into consideration the position of the PP relative to the position of the verb.

Preposition heading the PP (Prep). This feature can be regarded as a probabilistic account of subcategorization frames. The underlying assumption is that specific prepositions indicate the presence of an argument (cf. Van Valin 2003: 18). In the case of *parler*, *à* frequently heads the argument realizing the ADDRESSEE role, whereas *de* tends to mark the TOPIC OF CONVERSATION.

Statistical concordance measures (NounFit, VerbFit). Note, however, that due to their highly ambiguous character not every occurrence of a specific preposition can be seen as an argument marker. Generally speaking, the linking problem is intermingled with a second issue concerning the internal structure of NPs. For complex constructions, there exist at least three different attachment possibilities: attachment to the most recent NP, attachment to a higher level NP⁴⁵ or attachment to the verb (Franz 1996: 30). The various alternatives are exemplified, in the given order, in (29)-(31):

- (29) Les journaux ne parlaient pas de la couleur de son costume (FRANTEXT: GIDE, A.)
(‘The newspapers did not talk about the color of her suit’)
- (30) Nous parlâmes encore de l’abus de la couleur en littérature (FRANTEXT: SAINT-JOHN PERSE)
(‘We also talked about the abuse of color in literature’)
- (31) J’ai parlé à ma mère de notre nouvelle vie (FRANTEXT: MONTHERLANT, H. de)
(‘I have talked to my mother about our new life’)

In the case of verb attachment, complete linking must further distinguish verb arguments from adjuncts. Before we can solve the linking problem, we must determine the boundaries of the XPs involved. This decision is based on the comparison of the statistical cooccurrence values:

$$\text{VerbFit}(V, PP) = \frac{\text{freq}(V, PP)}{\text{freq}(V)}$$

$$\text{NounFit}(N, PP) = \frac{\text{freq}(N, PP)}{\text{freq}(N)}$$

Note that, following Volk’s example (2001), we consider the whole of the PP in order to compute these cooccurrence values. This can be understood as an expansion of the method used by Hindle & Rooth (1993), whose approach was restricted to the head-preposition.

⁴⁵ We exclude cross-dependencies, i.e. higher NP attachment is considered as a valid alternative only if the immediately preceding PP has been attached to the higher NP, too. This view is supported by our corpus data.

The underlying hypothesis is that the higher the compatibility of their lexical properties, the higher the probability that the phrases in question constitute a complex XP. In other words: The decision whether a PP is part of one of the preceding XPs or should be attached to the main verb instead should be in favour of that alternative with the higher lexical compatibility. Since a sufficient amount of lexical information which is based on an appropriate ontology is not available for French, we rely on these co-occurrence counts instead.

Semantic class of the PP head noun (Specifier). Our corpus reveals that the semantic class of the head noun of a PP strongly affects its qualification as an argument. This view is supported by the notion of selectional preferences of verbs, which is a well-known concept stating that verbs tend to impose certain semantic constraints on their arguments (cf. Pustejovsky 1995: 66f., Manning & Schütze 1999: 288). Consequently, we are interested in extracting statistical facts about the nature and the strength of these constraints from our training material. In the case of *parler*, we found that *à*-PPs whose head nouns bear the semantic attribute +human/+animate, have a strong tendency to function as the ADDRESSEE. The TOPIC OF CONVERSATION role, however, is far less restricted in this respect.

Estimating Probabilities

The features of the model can be formally represented as a tuple $T = \langle t_1, t_2, t_3, t_4 \rangle$, where t_1 contains the whole PP, $t_2 \in \mathbf{Pos}$, $t_3 \in \mathbf{Prep}$ and $t_4 \in \mathbf{Specifier}$.⁴⁶ A shallow parser operating with finite-state techniques (cf. Grefenstette 1996) recognizes NPs and PPs from our training corpus and creates an instance T_i for every PP.

- (32) Il parlait [dans une longue interview]_{PP} [d'un grand nombre]_{PP} [de morts]_{PP} [au cours]_{PP} [des dernières 24 heures]_{PP}. (Abeillé & al. 2001)
(‘He was talking in a long interview about a large number of victims during the last 24 hours’)

For this example, our shallow parser produces the following set of T instances:

$$T = \{ \begin{array}{l} T_1: \langle \text{dans une longue interview}, +1, \text{dans}, \text{None} \rangle, \\ T_2: \langle \text{d'un grand nombre}, +2, \text{de}, \text{None} \rangle, \\ T_3: \langle \text{de morts}, +3, \text{de}, +\text{hum} \rangle, \\ T_4: \langle \text{au cours}, +4, \text{\`a}, \text{None} \rangle, \\ T_5: \langle \text{des dernières 24 heures}, +5, \text{de}, \text{None} \rangle \end{array} \}$$

As our training corpus is manually annotated, we can identify arguments and adjuncts in every training instance taking into account the features involved. As a result, we can compute conditional probabilities for PPs being an argument or adjunct given the evidence we obtain from T_i .

$$P(\text{Arg} | T_i) = \frac{P(T_i | \text{Arg}) \cdot P(\text{Arg})}{P(T_i)} = \frac{P(\langle t_1, t_2, t_3, t_4 \rangle | \text{Arg}) \cdot P(\text{Arg})}{P(T_i)}$$

The Bayesian approach enables us to cover potential dependencies between the features in a statistically adequate manner. Furthermore, it can be shown that this Bayesian approach optimally classifies data with respect to its minimum error rate compared to other decision methods (Fahrmeir 1984: 305f.).

⁴⁶ As stated above, the comparison between VerbFit and NounFit precedes the linking procedure and, moreover, follows a different logic of application. Thus, these features are not part of T . See the section on the algorithm for details.

In order to account for sparse data problems, we can not simply equate probabilities with observed frequencies. Thus, we rely on Laplace Smoothing, which is known as a rather simple smoothing technique equally distributing the missing probability mass on unobserved cases (cf. Gaussier & Cancedda 2001, Manning & Schütze 1999).

Distinguishing Arguments and Adjuncts

In order to obtain the probability that a given PP is an argument or an adjunct, we generate a Finite State Transducer from the annotated training samples.

Finite State Transducers can be regarded as a variation of Finite State Automata, which, apart from accepting an input X , simultaneously emit an output Y (cf. Klabunde 1998: 72). The first step consisted in generating a data structure I , where for each segment of the corpus all contained PPs are described with regard to the criteria introduced above:

$$(33) \quad X = \langle x_1, x_2, x_3 \rangle, \text{ where } x_1 \in \mathbf{Prep}^{47}, x_2 \in \mathbf{Pos}, x_3 \in \mathbf{Specifier}^{48}.$$

Concerning the verb, the syntactic construction⁴⁹ is taken into account.

This information is used to annotate the transitions of the transducer. Its states are labelled by the type of arguments and adjuncts seen so far. The new target state is chosen according to the above specified criteria. When reaching a new state, the transducer emits a tuple containing information on whether the PP is an argument or an adjunct of the verb and on the respective probability, given the state of the transducer, which depends on the PPs seen so far, i.e.:

$$(34) \quad Y = \langle y_1, y_2 \rangle \text{ where } y_1 \in \{\mathbf{ARG}, \mathbf{ADJ}\}, y_2 = P(y_1 | \text{currentState})$$

In some cases, both the “ARG” and the “ADJ” transition is possible, they just yield different results with different probabilities. Figure 14 shows a simple example for a transducer generated from two training sentences (35) and (36).

(35) Je parle à l’indicatif présent
(‘I speak in the present indicative’)

(36) Je parle à ma mère
(‘I talk to my mother’)

The dotted lines are transitions that were not generated from the training samples, but account for unseen instances.⁵⁰

⁴⁷ We do not take into account prepositions that can only head adjuncts, i.e. *en, dans, sur, sous...*The instances of *en* given in the table refer to the pronoun *en* replacing a *de*-PP.

⁴⁸ If no specifier can be identified for certain nouns, the respective value is *None*.

⁴⁹ This is important, for example, in the case of imperative constructions, where the dative clitic, which usually appears before the verb, comes after the verb. For simple SVO sentences, the value is *None*.

⁵⁰ For the sake of simplicity, only two such transitions have been added; in fact, there would be even more possible combinations that would yield valid transitions.

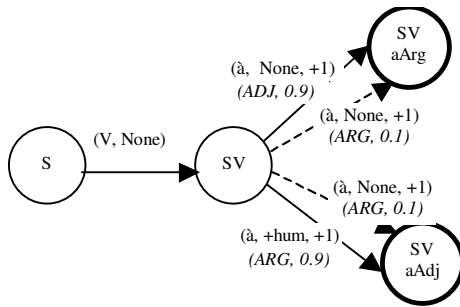


Fig.14: Transducer example

The 68 templates shown in Table 1 (in a reader-friendly form) illustrate the possible combinations and thus the terminal states that have been identified on the basis of the training data.

Template	Frequency	Probability Estimations
V de <ARG>	300	28,2%
V	257	24,2%
dat – clitic V	55	5,20%
dont V	52	5,00%
dat – clitic V de <ARG>	48	4,60%
V <ARG: lg>	45	4,30%
en V	41	3,90%
V à <ARG>	30	2,90%
dat – clitic en V	16	1,60%
V à <ADJ>	15	1,50%
<constr1:Vpour_au_nom_de>	13	1,30%
à qui V	8	0,84%
V avec <ARG>	7	0,75%
dat – clitic V à <ADJ>	6	0,65%
en V à <ADJ>	6	0,65%
V avec <ADJ>	6	0,65%
<constr3:qcVde_refl>	5	0,56%
en V à <ARG>	5	0,56%
V de <ADJ>	5	0,56%
de quoi V	4	0,47%
V de <ARG> à <ARG>	4	0,47%
c'est à <ARG> que V	3	0,37%
de <ARG> V	3	0,37%
refl dat clitic V à ARG	3	0,37%
V de <ARG> avec <ADJ>	3	0,37%
<constr2:Vcontre>	2	0,28%
à qui V de <ARG>	2	0,28%
acc –clitic:lg V	2	0,28%
c'est de <ARG> que V	2	0,28%
dat - clitic V <ARG:lg>	2	0,28%
dat - clitic V à <ARG>	2	0,28%
dat - clitic V de <ADJ>	2	0,28%
dat - clitic V de <ARG> avec <ADJ>	2	0,28%
dont dat - clitic V	2	0,28%

dont V à <ARG>	2	0,28%
dont V avec <ADJ>	2	0,28%
est-ce que à <ARG> que V	2	0,28%
qu <ARG:lg> V	2	0,28%
Refl acc clitic V	2	0,28%
V à <ARG> de <ARG>	2	0,28%
V de <ARG> à <ADJ>	2	0,28%
V:Imp dat - clitic de <ARG>	2	0,28%
<ARG:lg> qu V	1	0,19%
à <ADJ> V	1	0,19%
à <ADJ> V de <ARG>	1	0,19%
à <ARG> V	1	0,19%
à qui V à <ADJ>	1	0,19%
avec <ADJ> V de <ARG>	1	0,19%
c'est de <ARG> que dat - clitic V	1	0,19%
dat - clitic en V à <ARG>	1	0,19%
dat - clitic V avec <ADJ>	1	0,19%
dat - clitic V de <ARG> de <ADJ>	1	0,19%
dont à <ARG> V	1	0,19%
en V avec <ADJ>	1	0,19%
en V avec <ARG>	1	0,19%
en V avec <ARG> à <ADJ>	1	0,19%
qu <ARG:lg> V à <ADJ>	1	0,19%
Refl dat clitic V	1	0,19%
V à <ADJ> à <ADJ> de <ARG>	1	0,19%
V à <ADJ> avec <ADJ>	1	0,19%
V à <ADJ> de <ARG>	1	0,19%
V à <ARG> avec <ADJ>	1	0,19%
V à <ARG> de <ADJ>	1	0,19%
V avec <ADJ> à <ARG>	1	0,19%
V avec <ADJ> de <ARG>	1	0,19%
V de <ARG> avec <ARG>	1	0,19%
V:Imp dat - clitic	1	0,19%
V:Imp en	1	0,19%

Table 1: Templates occurring with *parler*

The algorithm

Due to the probabilities gained from the training corpus, we are able to process input sentences with regard to the linking problem. These sentences have to be kept strictly separate from the training data. In our case, they were extracted from a French corpus (Abeillé et al. 2001) which is morpho-syntactically tagged. Part of the corpus is also available as a fully tagged treebank. As the markup does not reflect whether the PPs have argument or adjunct status, however, we manually added this kind of annotation to the corpus. As a result, this sample serves for evaluation purposes.

Within our algorithm, the PPs contained in the input sentence are incrementally processed according to their linear order. This seems to be the cognitively most adequate procedure, which our linking approach is supposed to take into consideration (cf. Jurafsky 1996, VanValin 2003).

The first step of the algorithm consists in the **NounFit/VerbFit** disambiguation described above. There are several reasons for the separate processing of this step: First,

these criteria refer to all preceding XPs, whereas the scope of **Pos**, **Prep** and **Specifier** is limited to the current PP only. As a consequence, the computational approach to **NounFit/VerbFit** diverges from the other features. Second, there is a considerable difference in the probabilistic models as well.⁵¹ Moreover, our training corpus is considered too small for the computation of valid cooccurrence statistics, so that we make use of the World Wide Web as an external resource here (cf. Volk 2001). Third, we believe that the distinction between **NounFit** and **VerbFit** has to be kept separate from the argument-adjunct distinction which logically requires a preceding **NounFit/VerbFit** disambiguation.

The incremental linking process can be formalized as a traversal of the transducer generated from the training data. The states of the transducer can be understood as a representation of the current status of the slot-filling process. Each transition between states is labelled with a tuple $X = \langle Prep, Pos, Specifier \rangle$ representing one PP from the input string.

As a crucial requirement, the transducer must represent all *possible* combinations of arguments and adjuncts within an input sentence. Recall that *parler* opens two argument slots (apart from the PSA-slot) for exactly one *à*-complement and exactly one *de*-complement.⁵² Whenever one of these slots is filled by a PP from the input, this is a logical constraint for the following PPs.

The most probable reading of an input sentence concerning the argument or adjunct status of its PPs is thus determined by selecting the chain of transitions with the highest total probability. A complete Bayesian probability model for a sentence consisting of two PP constituents can be exemplified as:

$$(37) P(V-\grave{a}Arg-deAdj) | \langle de, +anim, +2 \rangle, \langle \grave{a}, +hum, +1 \rangle$$

Note that the complexity of this model generally depends on the number of PP constituents within the respective sentence: n PPs necessarily cause an n -gram model to be applied. In order to avoid sparse data problems with increasing n , we reduce the complete model by introducing an independence assumption:

$$(38) P(V-\grave{a}Arg-deAdj) | \langle de, +anim, +2 \rangle, \langle \grave{a}, +hum, +1 \rangle = \\ P(V-\grave{a}Arg | \langle \grave{a}, +hum, +1 \rangle) \cdot P(V-\grave{a}Arg-deAdj | \langle de, +anim, +2 \rangle)$$

As the algorithm proceeds strictly incrementally, it is reasonable to include a Probabilistic Pruning Step (PPS) similar to the one used in the Beam Search Algorithm proposed by Jurafsky (1996): All chains whose total probability at the current stage is outside the beam width are immediately discarded. The beam width itself is computed as the ratio between the best and the worst path. The pruning threshold has to be determined experimentally (cf. Gibson 1991). Within our algorithm, an alternative is pruned if the ratio between the current total probability of the next more highly ranked alternative and its own current total probability exceeds 10.

Below, our algorithm is described in pseudo-code:

⁵¹ As mentioned above, the mathematical background of the linking procedure is Bayesian classification of feature vectors T_i , whereas the **NounFit/VerbFit** disambiguation refers to the comparison of likelihood coefficients.

⁵² This knowledge is gained from the Logical Structure of the verb, which is stored in its lexical entry. Note that even if we currently concentrate on *parler*, our approach can be generalized to any verb, provided the subcategorization frame is coded in the lexical entry and there is sufficient training data.

```

for every PP:
  if PP.NounFit > PP.VerbFit:
    merge PP with respective constituent
    continue
  else:
    for every transition in currentState:
      if transition == X.Preposition and transition is valid53:
        newState = expand transition
        compute P(C) based upon y2
        if P(C) lies outside of beam width:
          discard newState // PPS
        else:
          currentState = newState
return chain with maximum probability

```

This algorithm results in the selection of the appropriate core template from RRG's syntactic inventory according to the number of arguments on the most probable chain of states within the transducer. Now, as described by Van Valin (2003), the ultimate step of the linking procedure consists merely in matching the selected syntactic template with the Logical Structure retrieved from the lexicon. For illustration purposes, consider the following example covering the whole process from template processing to linking.

Input:

- (39) Il parlait [dans une longue interview]_{PP1} [d'un grand nombre]_{PP2} [de morts]_{PP3} [au cours]_{PP4} [des dernières 24 heures]_{PP5}. (Abeillé & al. 2001)

The shallow parser indicates *dans une longue interview* as a PP, leading to the following transition within the transducer:

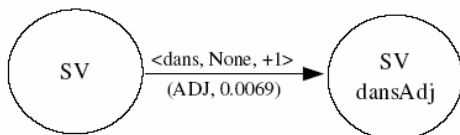


Fig. 15: State of the transducer after the transition <SV, SV-dansAdj>.

Note that the **VerbFit/NounFit** test is omitted here, as the first post-verbal PP can only be attached to the verb. For *dans*, there is only one transition, as this preposition can only head adjunct phrases. As a consequence, the Probabilistic Pruning Step is omitted, too. The parser proceeds to *d'un grand nombre* as the second PP. The result of the **VerbFit/NounFit** comparison suggests that **VerbFit** is the more likely alternative.⁵⁴ Thus, *d'un grande nombre* is regarded as an immediate constituent of its own, which leads to the next transitions described below:

⁵³ "Valid" means in this case that no argument slot is filled twice (logical constraint).

⁵⁴ $P(\text{VerbFit})=2.09 \cdot 10^{-5}$ vs. $P(\text{NounFit})= 8.47 \cdot 10^{-8}$; All results were computed according to the formula stated above, based upon data retrieved from queries of the search engine www.google.fr on June 22, 2004.

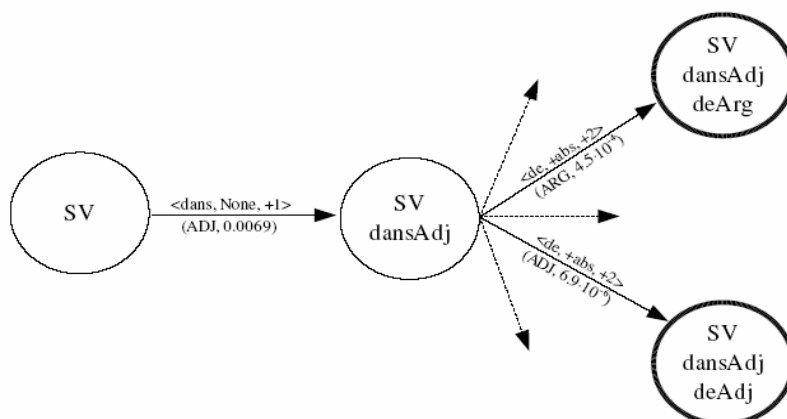


Fig. 16: State of the transducer after the transitions <SV-dansAdj, SV-dansAdj-deArg> resp. <SV-dansAdj, SV-dansAdj-deAdj>.

According to our independence assumption, the total probabilities at the current states are computed by multiplication. Up to the current state, the path leading to state SV-dansAdj-deArg is the most likely alternative. Since its probability is about 100 times higher than the probability of the dispreferred one, which clearly exceeds our chosen beam width of 10, SV-dansAdj-deAdj is immediately pruned.

The next step examines the third PP, *de morts*. Applying our theoretical thoughts from above, we have to consider two possible attachment locations for this phrase: attachment to the verb, or attachment to the preceding PP.⁵⁵ The **VerbFit/NounFit** comparison results in a strong preference for attachment to the latter alternative⁵⁶ so that no further transitions are expanded. Instead, *d'un grand nombre* and *de morts* are merged resulting in one single PP. Its probability to function as an argument or adjunct is already contained in the current state of the transducer.

The next PP, *au cours*, is a priori a candidate for an argument filling the ADDRESSEE slot. However, the **VerbFit/NounFit** test reveals that it should be attached to the preceding complex PP.⁵⁷ The same holds for the last PP in the input, *des dernières 24 heures*.⁵⁸ As a consequence, our transducer has expanded no further transitions.

Having reached the end of the input, the system returns SV-dansAdj-deArg as the most likely terminal state, revealing the following constituency structure of the input sentence:

- (40) Il parlait [dans une longue interview]_{ADJ} [d'un grand nombre de morts au cours des dernières 24 heures]_{ARG}.

The *de*-PP is identified as the only core argument present in the input. Hence, the following syntactic template is selected:

⁵⁵ The third possibility (attachment to higher NP) has been dismissed, because no such higher NP is present here.

⁵⁶ $P(\text{VerbFit})=2.46 \cdot 10^{-5}$ vs. $P(\text{NounFit})=7.01 \cdot 10^{-4}$

⁵⁷ $P(\text{VerbFit})=1.57 \cdot 10^{-4}$ vs. $P(\text{NounFit})=2.07 \cdot 10^{-3}$

⁵⁸ $P(\text{VerbFit})=6.08 \cdot 10^{-7}$ vs. $P(\text{NounFit})=1.53 \cdot 10^{-4}$

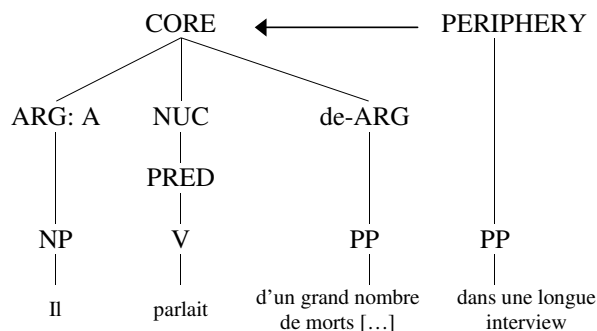


Fig. 17: Syntactic template for (40)

After the appropriate syntactic template has been determined, it can be used as an input for the linking procedure in the sense of Van Valin (2003). We retrieve the precompiled Logical Structure from the lexicon, which is repeated below for convenience:

- (41) **do'**(x , [**express.**(α).**to.**(β).**in.language.**(γ)'($x = A$, ($y = \text{dat/avec}$), ($z = \text{de}$))]),
where $y = \beta$, $z = \alpha$

The linking algorithm matches the information on the syntactic representation and on the Logical Structure: First, being the ACTOR, *il* is chosen as the x -argument. Second, as only one core argument has been detected in this case, it is linked to the z -slot representing the TOPIC OF CONVERSATION role. This step can be propagated via the preposition governing the PP, which is coded as subcategorization information within the lexical entry, and the thematic information about the respective slot, which can be derived from the LS. Third, after all argument-PPs from the syntactic representation have been linked to their respective slot within the LS, not all of the oblique argument slots of *parler* have been filled. Nonetheless, the remaining y -slot is optional. Therefore, there is no violation of the completeness constraint (Van Valin forthcoming) being a necessary condition for accepting the input as grammatically valid. As a last step, the remaining PP, which has been classified as a core adjunct before, is linked to the periphery of the core. This eventually leads to the following semantic representation of the input sentence:

- (42) **do'**(*il*, [**express.**(α).**to.**(β).**in.language.**(γ)'(*il*, $\alpha = \text{un grand nombre de morts au cours des dernières 24 heures}$))])

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THE SYNTACTIC-SEMANTIC RELATION OF SOME FRENCH INFINITIVAL CONSTRUCTIONS: AN RRG PERSPECTIVE

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Abstract

This paper explores different possibilities of “juncture” within the construction of *pouvoir, devoir, désirer, souhaiter, vouloir, aimer, aller, venir, commencer à, finir de* + INF. We attempt to answer the following questions :

- What type of “juncture” is selected by the two verbs of the VP + INF construction?
- Are there degrees of dependence between the governing verb and the infinite predicate?

How is it possible to account for the markedness relation (marked vs non marked relation) and for its representation in RRG, if a *continuum* from “closest to loosest” and its correlate in terms of syntactic integration (from “strongest to weakest”) is posited within the syntactic-semantic interface propounded by Van Valin and La Polla (1997 : 477-81)?

Syntactic and semantic tests are applied to answer the above questions, and the findings are discussed. The status of the marker (preposition) involved in the French infinitival construction is examined. The findings are discussed.

Introduction⁵⁹

The purpose of this paper is to explore different possibilities of “juncture” within infinitival constructions (VP + INF) in French. The classification of French verbs according to their predicative vs non predicative function has kindled much research work (François 2003-04; Gross M. 1975). In various grammars of French, non predicative verbs are classified as auxiliaries, semi auxiliaries, verbal operators, *verbes supports*. François (2003 : 293-300) argues in favour of a grading of auxiliaryity for non predicative verbs on the basis of their potential for government (*potentiel de rection*). I propose a complementary perspective to François (2003) where account is taken of the classifications of French grammar (these are often used to tease apart predicative and non predicative verbs) .

The paper attempts to answer the following questions :

- What kind of “juncture ” is selected by the two verbs in the VP + INF construction ? Is it possible to account for the classification of French grammar in terms of auxiliaries, semi auxiliaries etc. ? Are there different degrees of dependence between the matrix verb (the governing verb) and the infinite predicate?

- The status of a marker (colourless prepositions) between the two verbs, whether it is a syntactic “peg”or whether it is incompletely bleached, will be

⁵⁹ This contribution is a summarized version of an article to be published.

examined⁶⁰. How is it possible to account for the markedness relation (marked vs non marked relation) and for its representation in RRG, if a *continuum* from “closest to loosest” and its correlate in terms of syntactic integration (from “strongest to weakest”) is posited within the syntactic-semantic interface propounded by Van Valin and La Polla (1997 : 477-81)?

1. Methodology

The following syntactic / semantic tests have been applied to the list of French verbs below

- *Pouvoir, devoir*
- *Désirer, souhaiter, vouloir, aimer*
- *Aller, venir*
- *Commencer à, finir de :*

- insert a clitic
- insert negation *ne pas*
- use extracting device with *c'est...que*
- V + *que* Clause

and for the construction V+prep + INF :

- insert a complement (V+compl+prep+INF)
- permute preposition with a parasynonym.

2. Results

Table 1

Verbs	Insertion of a clitic	Insertion of <i>ne pas</i>	<i>c'est...que</i>	<i>que</i> -clause
<i>pouvoir devoir</i>	X	X		
<i>désirer souhaiter vouloir aimer</i>	X	X	X	X
<i>aller venir de</i>	X	X		
<i>commencer à finir de</i>	X	X		
<i>commencer par finir par</i>	X	X	X	

X = the result of the test is positive.

⁶⁰ See the works of Vandeloise on space and those of Cadiot (1997), Cervoni (1991) on preposition in French.

2.1. Comments on table 1

1°/ *Pouvoir, devoir, aller, venir de, commencer à finir de*, do not accept either extraction construction of the infinite verb or *que* Clause construction.

2°/ The psych verbs listed in table 1 are compatible with the tests proposed. The findings show that although the two verbs in the VP + INF sequence are merged at the semantic level, psych verbs are not auxiliaries as the verbs listed in 1°/ above.

3°/ The fact that *commencer par* admits the extraction test demonstrates that its degree of auxiliaryity is less important than is the case with *commencer à*. This is shown in table 2.

Table 2

Verbs	Preposition	Insert of a complement	Synonym (verbs / prepositions)
<i>commencer</i>	<i>à</i>	* <i>je commence des gâteaux / la journée à manger</i>	
<i>finir</i>	<i>de</i>	* <i>je finis les journaux / la journée de lire</i>	<i>terminer de</i>
<i>Commencer</i>	<i>par</i>	<i>Je commence la journée par lire ??? les gâteaux par manger</i>	<i>Avec + N (avec un repas) En + Ger. (en mangeant) D'abord + V (d'abord je mange des gâteaux)</i>
<i>finir</i>	<i>par</i>	<i>???Je finis la journée par lire Je finis la journée en lisant</i>	<i>Avec + N (avec un fruit) En + Ger (en lisant le journal) Enfin + V (enfin je mange des gâteaux)</i>

2.2. Comments on table 2

1°/ The selection of the projective preposition *à* (which is incompletely bleached “peg”) is related to the meaning of the verb *commencer* which is inchoative. The same relation holds in the case of *finir* as a verb of achievement combined with *de*, a retrojective preposition. From the point of view of French grammars, these verbs are *semi auxiliaires* expressing the beginning or the end of the process depicted by the following infinite verb (Wilmet 1998 : 318; Riegel *et alii*, 1994 : 253).

2°/ The selection of *par* (which has various synonyms like *avec + N, en + Ger.*etc.) does not encode the notion of *projection* in the following infinite verb. Inchoativity remains intrinsic to the matrix verb *commencer* and achievement to the verb *finir*. However, it is possible to insert a complement between *commencer* and *par + INF* if the meaning of the NP complement denotes duration (this is the reason why (cf. Table 2) “*je commence les gâteaux par manger*” sounds bizarre in modern French). Without any complement, inchoativity or achievement which are the strongest semantic features of *commencer* and *finir* are not “visible” in the utterance. Interpretation of these

features is difficult in the absence of any complement. In other words *commencer à* + INF marks the beginning of what is depicted by the infinite verb. In contrast, *commencer par* + INF does not imply the speaker's intention. The latter expresses how, in what manner, according to which order, an event takes place which is not mentioned but maybe retrieved by the hearer from the context.

Two types of argument have been listed :

- syntactic : a complement may be inserted between *commencer* and *par* ; this is not possible with *à*⁶¹.

- semantic : the meaning of the verb and the preposition it selects do not bear in the same manner on the infinite verb.

Following these arguments play in favour of the idea that *commencer à* behaves more like an auxiliary than *commencer par*. This partly due to the meaning of the selected prepositions (projective vs rétrojective) which play a part in the degree of syntactic integration and auxiliaryity of verbs *commencer* and *finir*.

3. Auxiliaryity / semi auxiliaryity and its formalisation within the RRG framework

The verbs we have tested cannot be classified as genuine auxiliaries. They are *semi auxiliaires* or *verbes supports*. They exhibit neither the features associated with french *être* and *avoir* or with English auxiliaries (*be, have, must, can, ought* etc.), which are completely integrated and do not accept the tests.

In the RRG's framework, a complex construction V+INF within which the first verb is not completely, syntactically integrated, does not form a single core but two cores which are cosubordinated (*core cosubordination*). This last remark is especially relevant to the construction V + Prep + INF where the preposition can be explained in terms of a linkage marker (Van Valin and La Polla, 1997 : 468-476) between the matrix verb and the infinitive verb. But as the linkage of *devoir / pouvoir* with the infinite verb is not marked, the core cosubordinated juncture is less relevant. The case of *aller / venir* is also different : the juncture may be unmarked or marked. To account which among those verbs select a core cosubordination or are more integrated (like genuine auxiliaries), the meaning of the processes involved has to be examined :

- *aller* and *venir* describe concrete and referential or mental / directional movement.
- *devoir* and *pouvoir* are *primitives* which require a complement⁶² (infinite verb).

3.1. Aller + INF

When *aller* is directly followed by the infinite verb, without referential context, it is considered to be an auxiliary or a marker of proximal futur by French grammars; but it is also possible to interpret the meaning of *aller* as a directionnal movement oriented towards the second process which falls in its scope:

- a) *Je vais lire.*
- b) *Je vais devoir prendre une décision.*
- c) *Je vais rendre visite à ma tante.*

⁶¹ The construction *Commencer par* + INF (or *Finir de* + INF) seems to admit a left dislocation : *par des gâteaux j'ai commencé (pas par du fromage) !* which argues in favour of a less syntactic integration of the complement *par* + INF than the one *à* + INF.

⁶² They look like psych verbs (*je pense, je désire, je souhaite* etc.) but they don't allow a *que*-Clause construction.

The spatial / locative reference can be specified by the directionnal projective preposition (*à* + NP) : *Je vais lire à Dublin*. French grammars (Riegel *et alii*, 1994 : 253) mention the ambiguity of example c), *I'm going to visit my aunt*. They argue that *aller* describes a concrete movement (a directional / spatial movement) which is anterior to the process *rendre visite*, precisely at a stage which is before the realization of the beginning of the process described by the infinite verb. Thus, the verb *aller* does not operate as an auxiliary. The test in that case is to replace *aller* by *partir* (*Je pars rendre visite*) which is also acceptable in example a) but s not in b) where *aller* has *devoir* + *prendre* in its scope. The replacement by with *partir* is always acceptable with events that refer to activities which can be conceptualized and situated in an appropriate space or locality (town, country etc.) :

- d) *Je vais partir*. (???) .
- e) *Je vais lire*. (??? library, office, etc.)
- f) *Je vais divorcer*. (court)
- g) *Je vais crier*. (???)
- h) *Je vais mourir* (???)

Those different points of view on *aller* (*verbe de mouvement* vs *auxiliaire temporel*) do not bear on the juncture selected by the verb *aller* and the infinite verb. In both cases, the process of *aller* describes a movement which is spatially / temporally (*temporellement*) oriented forward. It is generally agreed that time is not separately conceptualized from space and the same prepositions and verbs are often used for the two domains⁶³. Whether *aller* captures (as a mental movement) a stage just before the realization of the infinite verb or whether it describes a spatial and concrete movement which has been accomplished before the second verb⁶⁴, the juncture is core cosubordinated and the verbs are not completely integrated.

3.2. Venir de + INF

Infinite construction with *venir* is linked or not by the retrojective preposition *de*:

- i) *Je viens de lire*.
I have just read.
- j) *Je viens de devoir prendre une décision*.
I have just taken a decision.
- k) *Je viens de rendre visite à ma tante*.
I have just visited my aunt / I come from a visit to my aunt.
- l) *Je viens manger(avec vous)(demain)*.
I come / I am coming to eat with you (with you)(to morrow).
- m) *Bob vient me parler(demain)*.
Bob will come over to speak to me(to morrow).

Just as *aller*, *venir* + Prep.⁶⁵ depicts spatial and temporal movement : either it captures the final phase of the event described by the the infinite verb or it describes a movement adjacent to the event described by the infinite verb which may have been

⁶³ Ex : *passer*

⁶⁴ A speaker can say : “ *Je vais manger*”, without moving toward somewhere or going away.

⁶⁵ The classical French construction *venir à* + INF will not be commented here.

completed in the preceding time interval. It should be noted that the two readings *time* vs *space* of the utterances above are encoded through different sentences in English.

When *venir* is used alone it denotes a targeted spatial movement without specification or its starting point :

- in l) the speaker is going / will go somewhere to some place where the addressee stands
- in m) the process describes the movement of Bob to some place where the addresser stands.

In the two infinite constructions, with or without preposition, the juncture between the two verbs is a core cosubordination. However, in English, the surface structure is different according to the temporal or spatial interpretation of the juncture (k, m)). The temporal juncture is syntactically more integrated in one core; the spatial juncture is a core cosubordination of two events which are adjacent but separately conceptualized (m)).

3.3. Syntactic-semantic interface

The examples commented above show that syntactic criteria (see 1.) do not suffice to capture differences between the verbs analysed above. Psych verbs are the least syntactically integrated. They admit *que*-clause construction which *devoir* and *pouvoir* reject. These verbs describe intrinsic modalities of the cognitive activity⁶⁶ (as developments / processings of *cogito*) and they do not have any conceptual representation; they need to be connected to a *dictum* with which the construction of mental representations is possible. From the point of view of RRG and according to semantico-cognitive criteria discussed above, the infinite construction with *devoir* and *pouvoir* is a “block” which must be analysed in one core where *devoir* and *pouvoir* have the status of operators of the core. As for the other verbs mentioned above (*aller*, *venir*, *commencer*, *finir* + Prep. + INF), the fact that they refer to conceptual representations and that their prepositions are not completely bleached, suggests a core cosubordination juncture.

Conclusion

Formalisation in RRG takes account for verbs which bear conceptual representations (*beginning*, *end*, *movements*) and thus select appropriate prepositions. However, verbs like *devoir* and *pouvoir* do not share these features and are integrated and merged to the following infinite verb. The degree of auxiliarity of these verbs is majored in terms of syntactic integration (+ or – integration) and semantic (*continuum* from closest to loosest) interface. This analysis does not conflict with classification of French grammars although the point of view is different, focusing on degrees of dependance between the governing verb and the infinitive one. This paper and emphasized the need to pay more attention to the meaning of the prepositions and to produce cross linguistic comparison between French and related and unrelated languages.

⁶⁶ « Qu'est-ce qu'une chose qui pense ? C'est-à-dire une chose qui doute, qui conçoit, qui affirme, qui nie, qui veut, qui ne veut pas et imagine aussi et qui sent », Descartes, 2^{ème} *Meditation*, 1641 (Adam and Tannery Ed., Paris, Vrin, Vol.IX p.22)

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ADVERBIAL CLAUSES, RECURSION, AND A MISSING LINKAGE TYPE

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Abstract

Recursion is widely cited in the linguistic literature as a pre-eminent characteristic feature of human natural language ; yet, ‘upward’ recursion in adverbial clause constructions is the most neglected phenomenon in descriptive and theoretical works on grammar.

At RRG-2002 I recalled that the triple sequence *A sub B sub C* of one ‘main clause’ *A* and two ‘adverbial subordinate clauses’ *B* and *C* can be analysed in two different ways, either as *A sub [B sub C]* or as *[A sub B] sub C* ; I suggested that RRG cannot properly account for the latter structural analysis. Since then, the Layered Structure of the Clause and the theory of clause linkage have undergone not unimportant changes by which part of the objections is set at rest ; but the essential point remains unchanged. The present paper elaborates further on the issue. First, some preliminary questions are discussed :

- which options does RRG offer for the analysis of multiple adverbial clause constructions ?
- what exactly is being modified by a finite ‘adverbial subordinate clause’ ?

and then it is shown, with the help of a couple of tests, that there are still a few problems left. It is argued in particular that :

- *a finite adverbial clause of a certain type (also known as ‘circumstantials’) is not embedded into a matrix, but externally adjoined to a clause that is complete in itself ;*
- just like a circumstantial is not necessarily a simple clause, the clause it is adjoined to need not be simple either ;
- ‘sentence’ is neither a basic nor an essential notion in the analysis of language ; it is derived from written language, and there is no need for it in the inventory of syntactic templates.

I advocate, in conclusion, an alternative co-subordination-like linkage type (*à la* Bickel 2003) with its corresponding template that is as yet missing from the current inventory.

Adverbial clauses, recursion, and a missing linkage type

Introduction and outline

Practically all grammars state that two clauses may be combined into a complex sentence by adjoining one of them as an ‘adverbial subordinate clause’ to the other ; it is further invariably remarked that “of course” the ‘subordinate clause’ itself may be complex as well, “and so on, ... without theoretical limit ... ” – a phenomenon that is always cited as a model illustration of the recursive properties of human natural language. What has never been recognised, though, except by very few authors, is that in such constructions the ‘main’ or ‘superordinate’ clause may also be complex, in other words, that ‘upward’ recursion is possible too.

At RRG-2002 I recalled that the triple sequence *A sub B sub C* of one ‘main clause’ *A* and two ‘adverbial subordinate clauses’ *B* and *C* can be analysed in two different ways, either as *A sub [B sub C]* or as *[A sub B] sub C* ; I suggested that the RRG Layered Structure of the Clause and theory of clause linkage cannot properly account for the latter structural analysis. Meanwhile, at RRG-2003 Bickel once again advanced his “ad-subordination” proposal to be incorporated into the overall theory. The Belhare adverbial subordinate clauses that motivate his “revised view” are not quite of the same kind as what is meant here, as far as I understand. His “OP-sharing co-subordination” template, however, might indicate how the issue could be handled in a satisfactory way, provided his approach allows for what I call ‘upward recursion’ at the clause level.

Role and Reference Grammar is by far not exceptional in not recognising recursion in the upward direction. When I met with the problem in the framework of Functional Grammar, I spent some time to a survey of its treatment in various descriptive and theoretical grammars. Here I first present a selection from the results of that investigation, as an introduction to and an illustration of the issue. Next I examine, after the prerequisite pointers to the actual RRG view, how the cited examples would be analysed, whereby possibilities of ingenious escapes are being revealed, and then I look for ways to test RRG’s general assumptions with respect to adverbial clauses. In the conclusion I summarise some suggestions for what probably sounds like a rather radical rupture with more traditional views, but what I see as a consistent line in the development of RRG. The subsequent sections are entitled as follows

1 *Subordination, structural ambiguity, and scope*

2 *Present state of the theory*

3 *Questions and tests*

4 *Recommendations*

1 Subordination, structural ambiguity, and scope

Long ago, in the course of designing a computer model for sentence generation in Functional Grammar, I encountered the problem of how to add a finite adverbial subordinate clause to an existing clause that already contains some other finite adverbial subordinate. Upon consulting the linguistic literature I discovered to my surprise that, apart from the Chomskyan school that introduced the use of formal rewriting PS rules, almost everybody else completely ignored the question of multiple adverbial clause constructions (Kwee 1999). Not quite everybody. Butler (1985:35) cites the structurally contrasting pair of sentences (1ab) from Huddleston’s critical comments on Halliday’s theory of Systemic Grammar. The examples speak for themselves : (1a) illustrates the

commonly known form of ‘downward’ recursion, while (1b) exemplifies the ‘upward’ recursion I am in particular interested in. For ease of understanding I put square brackets around each of the main parts that are linked by the connective at the highest level.

(1a) [I’d have come] if [you’d telephoned before she left].

(1b) [I’d have come before she left] if [you’d telephoned].

The next two exceptions I could find in the literature, apart from a splendid paper which is to be treated shortly, bear a subtle relation to this Halliday–Huddleston pair but date from much later than the latter’s review (1977) of the former’s views. The first one can be cited as it were under the banner of “Systemic Functional Grammar *ab omne naevo vindicata*,” for Downing–Locke (1992:19-20 ; 2002), in their introductory textbook, adduce and explain it precisely in the context of the “property of language ... sometimes called ‘recursion’ ... ”

(DL) [I’ll let you borrow the tapes as soon as I’ve finished]
provided [you bring them back when I need them].

In this clause complex the fourth clause ‘when I need them’ is dependent on the third clause ‘provided you bring them back’ ; these together form a block which is dependent on the block formed by the first (independent) clause ‘I’ll let you borrow the tapes’ and its dependent clause ‘as soon as I’ve finished’.

The additional square brackets in this and in the following example are mine, just like those in (1ab). The second one is, could it have been otherwise, from Huddleston–Pullum (2002:760).

(HP) If [the proposal is adopted]
[prisoners will be entitled to a personal TV set
if they enrol for a course at the Open University].

Huddleston–Pullum (2002) is the most recent title in a long row of comprehensive grammars of English, and the most outstanding one until now. The status of being the standard reference grammar of the English language was held for a long time by Quirk *et al.* (1972, 1985). Their treatment of adverbial clauses can be taken as a model of more traditional views. I found only one example that is directly related to the issue at hand, and one indirectly, but still of interest. The first one is from section 14.37 *Combining subordination devices within a sentence*.

(Q1) [^A [^B To keep dirt roads even marginally useful, ^B]
barrier gates are swung shut
[^C when drops begin to fall, ^C]
[^D lest the roads become churned into impassability. ^D] ^A]

The labelled bracketings, this time, are from the authors, not mine (but the display over four lines is). Quirk *et al.* (1985:1035-1037) state that “clauses [B], [C], and [D] are all adverbials that are immediately subordinate to the complex sentence [A].” The view that all adverbial subordinate clauses are equal, and subordinate to (that is, dependent on) the entire complex sentence as a whole (of which they are a part), is widely spread, although obsolete nowadays. The second one is from section 14.41 *Structural ambiguity*. Quirk *et al.* (1985:1042) note

Ambiguities may arise in complex sentences when two interpretations are plausible. If a complex sentence contains two final subordinate clauses, as in [(Q2)], the last subordinate clause may be interpreted as subordinate (a) to the sentence as a whole or (b) to the preceding subordinate clause. The two paraphrases are given in [(2a)] and [(2b)] respectively.

- (Q2) I'll let you know whether I'll need you here when the doctor arrives.
(2a) When the doctor arrives, I'll let you know whether I'll need you here.
(2b) I'll let you know whether, when the doctor arrives, I'll need you here.

This example gives rise to several remarks. First of all, it looks as if all 'subordinate clauses' are equal : complement and adverbial clauses are put in the same box, not distinct from one another. But here, as opposed to the previous example, not all of them are subordinate to the complex sentence as a whole. The concept of being 'subordinate to' is used with a persistent vagueness : on the one hand *when the doctor arrives* may be interpreted as subordinate to the entire sentence *I'll let you know whether I'll need you here when the doctor arrives* (of which it is a part itself), on the other hand it may be interpreted as subordinate to the clause *whether I'll need you here* (of which it is not a part itself). Apart from those sloppy details, I am happy with Quirk *et al.*'s drawing the attention to a possible structural ambiguity, as it is the point in their work that is nearest to the issue at hand, as far as I could find.

The approach I like best to the phenomenon of adverbial clauses in general, and also the treatment that answers in the most natural way the question of possible recursion in both directions, 'downward' as well as 'upward,' is to be found in Matthiessen–Thompson (1988). Before selecting some relevant multiple adverbial clause constructions from that paper, which supplies full support for my point of view, I must sum up the latter in a couple of statements.

- notwithstanding the traditional classification, complement and adverbial subordinate clauses have next to nothing in common with each other ; a complement subordinate clause is part of an otherwise incomplete 'matrix' into which it is embedded as an obligatory constituent, whereas an adverbial 'subordinate' and its 'superordinate' are both complete clauses each of which independently 'represents' (or 'expresses' or 'describes') a state-of-affairs ;
- an adverbial clause and its 'superordinate' relate in a certain way to each other by virtue of a connecting 'subordinating conjunction'; the combination represents another state-of-affairs, that is, a (complex) new one, consisting of the original two plus their connecting relation ;
- the operation of adjoining a (possibly complex) clause to another (possibly complex) clause with the help of such an 'adverbial clause connector' may, theoretically, be repeated at will.

Now for the examples from Matthiessen–Thompson (1988). Their paper really deserves to be studied, read and re-read on its own. As it is impossible to summarise it in brief here, I mainly pick out a few illustrative examples, leaving aside their principal thesis that "hypotactic clause combining is best understood as a grammaticalization of the Nucleus-Satellite relations which characterize the rhetorical organization of certain types of written discourse." (MT 1988:317). The authors draw, for their argument, upon Systemic Functional Grammar (clause combining, enhancing hypotaxis) and on RST, the Rhetorical Structure Theory as developed by Mann and Thompson. The kind of

clause combinations they discuss is practically identical to the type of adverbial clauses intended in the present paper, except that some of their connectives require a non-finite verb form, but they “don’t want to give them a specific traditional name, since any name is likely to presuppose a particular kind of interpretation.” (MT 1988:276-277). Instead, they introduce them by exemplification, and then characterise them in the following way.

The clause combinations in the examples above present propositions that are related circumstantially. The circumstantial relation is coded by a connective in one of the clauses in the combination ; a number of these are listed in Figure 2 : Connectives coding circumstantial relations.

circumstantial relation	connective
temporal	<i>when, while, as, before, after, etc.</i>
conditional	<i>if, unless, provided that, as long as, etc.</i>
reason	<i>because, since, as, etc.</i>
concessive	<i>although, even though, except that, etc.</i>
purpose	<i>in order to, so that, in order that, etc.</i>
means	<i>by</i>
manner	<i>as if, as, etc.</i>

Furthermore, the authors draw a sharp distinction between embedding and clause combining, and thereby state (MT 1988:280-281)

ii. Clauses may combine with clause combinations

When one clause combines with just one other clause, it may seem to function as an adverbial, although it does not. But when one clause combines with a combination of clauses, it is quite clear that there is no single clause it could be an embedded constituent part of. Let’s consider a fairly complex example taken from a conversation between parent and child analyzed in Halliday (1985a:270). The part we want to focus on is in italics :

- (H1) Child : How do you see what happened long ago before you were born ?
 Parent : *You read about it in books ?*
 Child : *No, use a microscope to look back.*
 Parent : How do you do that ?
 Child : *Well, if you’re in a car or you’re in an observation coach, you look back and then you see what happened before but you need a microscope to see what happened long ago because it’s very far away.*

The italicized part breaks down into a conditioning disjunction of clauses, if you’re in a car or you’re in an observation coach, and a conditional coordinated sequence, you look back and then you see what happened. The point of the example is that the condition does not relate to a simple clause but to a clause combination : There is no simple clause that the condition could be analyzed as embedded in. Here are three additional examples, the first two are from Longacre (1970) and the third from Halliday (1985b). In all three, there is a combination with a coordinative clause combination, in italics :

- (L1) When Ed was coming downstairs, *Mary slipped out the front door, went around the house, and came in the back door.*
 (L2) Although Ed never slept more than five minutes overtime, *his father got cross with him and made things generally unpleasant.*
 (H2) When you have a small baby in the house *do you call it it or do you call it she or he ?*

The authors also treat the question of scope, in association with nesting or layering, important concepts in the treatment of adverbial clauses in Functional Grammar (Kwee

1999). The last example is taken from subsection 4.3.2 *Scoping and number of clauses* (MT 1988:303-304). (I reproduce their figure 15 in what I assume to be its intended form, with arrows on the arcs in accordance with similar diagrams in other publications on RST.)

Rhetorical units defined by an enhancing Nucleus-Satellite relation have only one satellite. This satellite may be realized by a list of rhetorical units, but it is still a single satellite. Consequently, we predict that the same characteristics will hold for enhancing hypotactic clause combinations. Consider the following clause combination ‘spoken by a girl aged nine’ (Halliday 1985b) :

- (H3) Our teacher says that
1. if your neighbour has a new baby and
 2. you don’t know whether it’s a he or a she,
 3. if you call it ‘it’
 4. well then the neighbour will be very offended.

Concentrating on the conditions, we can identify the following conditional parts : *if your neighbour has a new baby*, (*if*) *you don’t know whether it’s a he or a she*, and *if you call it ‘it’*. Rhetorically, these are not three sister satellites in a flat structure organized around the same nucleus. Ultimately, they are all related to *the neighbour will be very offended*, but there is nesting (layering). Rhetorically, as shown in Figure 15, we analyze it as one conjoined condition, Units 1 and 2, *if your neighbour has a new baby and you don’t know whether it’s a he or a she*, which scopes over the combination of Units 3 and 4, where Unit 3 is a condition on Unit 4, *if you call it ‘it’ well then the neighbour will be very offended*. There are, then, two rhetorical units of condition. The rhetorical nesting is reflected in the grammatical analysis given to the example ; see Halliday (1985a).

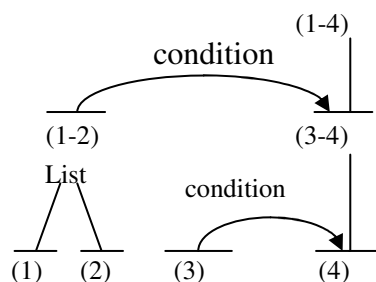


Figure 15. Relational structure of the ‘Neighbour’ text

At the end of this introductory section I should explicitly state, in order to avoid any possible misunderstanding, that the adverbial clauses treated here (also abbreviated as ‘circumstantial clauses’) are those involved in a pair of clauses that are “related circumstantially,” where this Matthiessen–Thompson expression is taken in the widest sense, not as a subcategory on a par with causal, concessive, conditional, final, temporal, etc. but as a cover term including all of them ; all conjuncts, subjuncts, and style and content disjuncts (Quirk *et al.* 1972, 1985) are excluded, as are the higher order satellites from Functional Grammar (Dik 1997) such as the *because*-clauses in

John’s at Sue’s house, because his car’s outside. (third order, or level 3)

Watch out, because there’s a bull in the field. (fourth order, or level 4)

For simplicity’s sake, furthermore, I restrict the study to just finite adverbial clauses, ignoring non-finite verb forms (gerunds, infinitives, or participles). I prefer, finally, ‘dependent’ clause to ‘subordinate’ clause, and use ‘dominant’ clause instead of ‘main’ or ‘superordinate’ clause.

2 Present state of the theory

Since Van Valin–La Polla (1997:464) wrote

The two main types of clausal subordination in English, adverbial clauses and *that*-complement clauses, are presented in figures 8.13 and 8.14. In English adverbial clauses, subordinating conjunctions are treated as predicative prepositions taking a clausal argument and are part of the periphery of the clause. The subordinate clause is an adjunct modifier of the core, ...

something has been changed in the state of RRG. The implied generalisation over the entire class of English adverbial clauses, at that time based on *after he went to the party*, *after she arrived at the party*, and some other *after*-variations as the only model instances, needed an update, especially after Bickel (2003). Van Valin (2004, in press) presents a refined LSC with peripheries at the lowest three layers and also a corresponding splitting up, at all three primary levels of juncture, of the Subordination nexus type into the Daughter and Peripheral subtypes. At the top Sentence level only the traditional nexus relations of Coordination (leading to a yet higher Text layer) and common Subordination are recognised, but not Co-subordination (this is as it was before), nor the newly generalised subtype of Peripheral Subordination, as far as I can see. Henceforth, adverbial clauses may fall into one of two classes. Those that are objects of predicative adpositions such as *after* modify the matrix core and occur in the periphery_{CORE} – this is just as it was before, only now their linkage type is not classified any more as Clausal subordination but as Core subordination (“juncture type [is] defined by the level at which the linkage occurs [...] and not [by] the size of the linked unit”), or rather, to be more precise, as ‘ad-core subordination’ ; on the other hand,

those that are not, e.g. adverbial clauses marked by *because*, *if* or *although* in English, [...] [do] not occur in the periphery_{CORE} but rather in the periphery_{CLAUSE}. Unlike ad-core subordinate clauses, they do not express the spatial or temporal setting of the event expressed by the core ; they express, e.g. the cause or a condition for the event expressed by the clause as a whole.

It is also noted that “[m]any adverbial subordinate clauses are introduced by clause-linkage markers rather than by predicative adpositions which have clausal arguments.” All this leads me to infer the following general dichotomy for adverbial clauses.

- (i) spatio-temporal clauses are introduced by an adposition, modify a core, and occur in an ad-core periphery ;
 - (ii) all other adverbial clauses are introduced by a clause linkage marker (CLM), modify a clause, and occur in an ad-clausal periphery.

Given the most recent version of the theory (as of Summer 2004), now the first question to be investigated is : can it account for all examples selected from literature as cited in section 1 ?

- (1a) [I’d have come] if [you’d telephoned before she left].
- (1b) [I’d have come before she left] if [you’d telephoned].

The Halliday–Huddleston pair from Butler won’t raise problems (in their intended readings). In (1a) *I’d have come* has an ad-clausal periphery in which *you’d telephoned* has an ad-core periphery *before she left*, while in (1b) *I’d have come* has an ad-core periphery *before she left*, and their combination has an ad-clausal periphery *if you’d telephoned*.

(DL) [I'll let you borrow the tapes as soon as I've finished]
provided [you bring them back when I need them].

The analysis of the complex sentence from Downing–Locke is equally simple. In the first half, *I'll let you borrow the tapes* has an ad-core periphery *as soon as I've finished*, and this complex clause has an ad-clausal periphery consisting of the entire second half, the CLM *provided* followed by *you bring them back* with its own ad-core periphery *when I need them*.

(HP) If [the proposal is adopted]
[prisoners will be entitled to a personal TV set if they enrol for a course at the OU].

The multiple *if*-construction from Huddleston–Pullum can also be handled, that is, in the word order as given with the ‘highest’ *if*-clause in sentence-initial position. While the ‘lower’ *if they enrol for a course at the Open University* is ad-clausal peripheral to *prisoners will be entitled to a personal TV set*, the ‘higher’ circumstantial clause *If the proposal is adopted* occupies the Left Detached Position LDP in the Layered Structure of the Clause.

At this point an explanation is called for, as not all possibilities have yet been revealed in the above very succinct rendering of the present state of the theory. Fronting or preposing of elements is a phenomenon that is frequently met in language. Fronting of what otherwise would have been ad-core or ad-clausal peripheral adverbial clauses is a clever and convenient solution for the analysis of multiple adverbial clause constructions. English has more than one such way-out available. Van Valin (in press) gives two examples, after the introduction of an instance of Sentential Subordination not shown before ; *en passant* the Subordination concept gets enlarged such that it now encompasses much more than the original halves of Argument and Modifier from Van Valin–La Polla (1997:454, Figure 8.5 *Nexus types*)).

Sentential subordination is possible, and it involves sentences or clauses occurring in the right- or left-detached positions. An example of a sentence in the LDP can be found in spoken Acadian French (Pavey 2001).

(6.18) *Moi, quand j'étais jeune, on parlait seulement en français.*

[...] *Moi, quand j'étais jeune* ‘me, when I was young’ is a preposed adverbial clause with its own left-detached expression, which makes it a sentence, and this sentence is then in the LDP of the matrix sentence. [...] A more common example of sentential subordination involves the fronting of peripheral adverbial clauses, as in

(6.19) *After she arrived at the party, Kim saw Pat.*

[...] English also has clear instances of a fronted clause in the precore slot, as illustrated in

(6.21) *Bill was very angry, because after Mary arrived at the party she slapped him.*

(Q1) [A [B To keep dirt roads even marginally useful, B]
barrier gates are swung shut
[C when drops begin to fall, C]
[D lest the roads become churned into impassability. D] A]

The analysis of the first complex sentence from Quirk *et al.* may also benefit from the LDP for the adverbial clause-like non-finite constituent *To keep dirt roads even marginally useful*, while the remaining part is analysed in the standard way : *barrier gates are swung shut* has an ad-core periphery *when drops begin to fall*, and their

combination has an ad-clausal periphery *lest the roads become churned into impassability*.

- (Q2) I'll let you know whether I'll need you here when the doctor arrives.
 (2a) When the doctor arrives, I'll let you know whether I'll need you here.
 (2b) I'll let you know whether, when the doctor arrives, I'll need you here.

At the second complex sentence from Quirk *et al.*, the one which 'mixes up' complement and adverbial clauses, the authors point at the possibility of structural ambiguity, and present (2a) and (2b) as paraphrases. Those can simply be analysed ; in (2a) *When the doctor arrives* is in LDP and the clause with core *I'll let you know* has a daughter subordinate *whether I'll need you here*, whereas in (2b) the same *I'll let you know* has a daughter subordinate, introduced by *whether*, where *when the doctor arrives* in the PrCS precedes the core *I'll need you here*.

- (Q2) I'll let you know whether I'll need you here when the doctor arrives.
 (2aa) [I'll let you know whether I'll need you here] when [the doctor arrives].
 (2bb) [I'll let you know] whether [I'll need you here when the doctor arrives].

If, however, the original sentence is not paraphrased by choosing different word orders, but its two interpretations are instead indicated by different bracketings of the same word order, then the analysis becomes somewhat problematic for the first reading (2aa). In the second reading (2bb) no problem arises at all : there the clause with *I'll let you know* as core takes the rest of the sentence as its daughter subordinate, where *I'll need you here* has *when the doctor arrives* in its ad-core periphery (*cf.* (2b) above, which has the circumstantial in the PrCS).

Why is the analysis for (2aa) problematic ? Because, on the assumption that the *when*-clause is a temporal adverbial clause, it should modify the 'matrix' core *I'll let you know*, in which case we have crossing branches ; but Van Valin (in press) notes that "English does not normally allow structures with crossing branches." True, that remark is hedged by *normally*, and it is cited out of context here. That context, then, is the motivation for distinguishing two types of adverbial clauses (ad-core *versus* ad-clausal), and the remark is made with regard to a sentence that differs from the Quirk *et al.* example in that it has two adverbial clauses instead of a mixture of one complement and one adverbial clause. Nevertheless, the argument seems to implicitly deny the structural ambiguity that Quirk *et al.* do recognise (albeit not in exactly the same configuration, I admit). It is short enough to be quoted here *in toto*.

A piece of evidence that this type of adverbial clause occupies a different position from an ad-core subordinate clause comes from the fact that when the two cooccur in a single sentence, there is a definite preference for the ordering of the two clauses [...] as shown in

- (6.24) a. Kim berated Pat after they arrived at the party because she kissed Chris.
 b. Kim berated Pat because she kissed Chris after they arrived at the party. (≠ (6.24a))

The strongly preferred ordering is (6.24a) with the ad-core subordinate clause preceding the ad-clausal subordinate clause; with the reverse order it is almost impossible to give the sentence the same interpretation, as the ad-core subordinate clause is construed as modifying the core in the *because*-clause, not the matrix core. This ordering preference follows from the structural differences between the two types of adverbial clauses, as Figure 6.8 clearly shows.

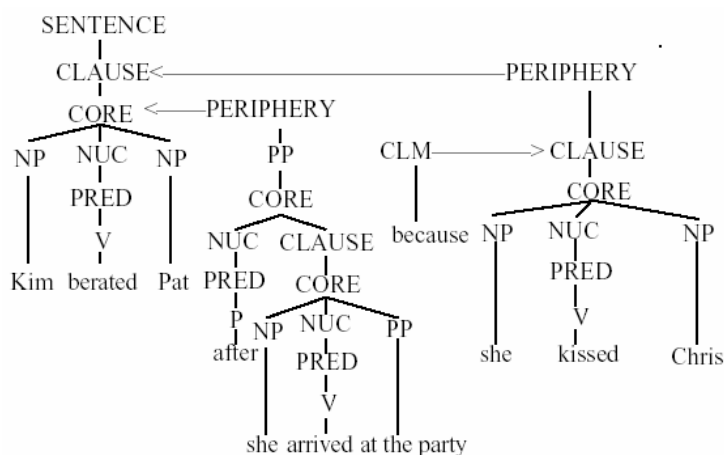


Figure 6.8: Structure of (6.24a) with ad-core and ad-clausal subordinate clauses

The structures assigned to these two constructions predicts that the ad-core subordinate clause should be closer to the matrix core than the ad-clausal subordinate clause, and this is in fact the strongly preferred order. While the RRG theory of the layered structure of the clause permits crossing branches [...], English does not normally allow structures with crossing branches, and accordingly the structure in Figure 6.8 is the only possible one with the *after*-clause interpreted as modifying the matrix core.

True, again, there are several hedges (*definite preference*, *strongly preferred ordering*, *almost impossible*), yet the conclusion sounds rather absolute “accordingly the structure in Figure 6.8 is the only possible one.” Here I disagree, for in my view in the alternative reading of (6.24b) *after they arrived at the party* does not modify the ‘matrix’ *Kim berated Pat* but the whole of the complex clause *Kim berated Pat because she kissed Chris*. But I won’t anticipate here on a later argument. I return to this point shortly. Note, in passing, however, that Quirk *et al.*, in explaining the structural ambiguity, paraphrase the first reading of their sentence as (2a), and not as (2a’), which would be the strongly preferred ordering that corresponds to (6.24a).

(2a’) I’ll let you know, when the doctor arrives, whether I’ll need you here.

Structural ambiguity is a pervasive phenomenon. Examples of multiple interpretations can be found not only in sequences of adverbial clauses such as (6.24b) or of ‘subordinate’ clauses in general such as the Quirk *et al.* sentence, but also in many sequences of prepositional phrases. There are no structural grounds for preferring a ‘minimal’ reading. PP-attachment is notorious – a favourite exercise in introductory computational linguistics courses, for instance, is

I saw the man from the house on the hill with the telescope yesterday.

Let’s now look at the various sentences from Matthiessen–Thompson. For reasons that will be clear in due time, discussion of the long first example is postponed till the end of this section.

- (L1) When Ed was coming downstairs,
Mary slipped out the front door, went around the house, and came in the back door.
- (L2) Although Ed never slept more than 5 min. overtime,
his father got cross with him and made things generally unpleasant.
- (H2) When you have a small baby in the house
do you call it it or do you call it she or he ?

These examples are now simple to analyse. The Longacre sentences have similar structures : an adverbial clause in LDP followed by a Clause that is the result of clausal Co-subordination. The same holds for the second Halliday example, provided, at least, *do you call it it or do you call it she or he* is analysed as clausal Co-subordination, that is, a Clause, not as Coordination, which would make it a Sentence. Let's assume, for the time being, it indeed is.

- (H3) If [your neighbour has a new baby and you don't know whether it's a he or a she],
[if you call it 'it' well then the neighbour will be very offended].

The third Halliday example from Matthiessen–Thompson (of which the previous one seems to be an abbreviated version) shows a combination of two fronted *if*-clauses of which the second one doesn't cause any problem as it occupies a PrCS. At first sight, the highest *if*-clause is in LDP, so it wouldn't raise any problems either, except for a minor one in that *your neighbour has a new baby and you don't know whether it's a he or a she* definitely is the result of clause Coordination, and, thus, a Sentence instead of a Clause. Can the CLM *if* also take a Sentence, in other words, are there, apart from adverbial clauses, 'adverbial sentences' as well ? Let's assume, for the time being, there indeed are. Can a Sentence occur in the LDP of a Sentence ? Yes, as we have seen above in one of the quotes from Van Valin (in press).

- (H1) *If you're in a car or you're in an observation coach, you look back and then you see what happened before* but you need a microscope to see what happened long ago because it's very far away.

While the other two Halliday examples from Matthiessen–Thompson each cause a puzzle that is relatively easy to solve, the long first Halliday sentence gives rise to more problems, minor and not so minor. The first one is similar to the previous puzzles : *you're in a car or you're in an observation coach* may be analysed as an instance of clausal Co-subordination, but even if it were clausal Coordination, the CLM *if* may take a Sentence, so *If you're in a car or you're in an observation coach* is put in the LDP anyhow, whether it is a clause or a sentence.

A puzzle that is less easy to solve, however, is that the LDP in the LSC is intended to precede a Clause. But in this particular case the *if*-clause or *if*-sentence is preposed to another instance of clausal Coordination, either a long one with three units (v) [*you look back*] and [*then you see what happened before*] but [*you need a microscope to see what happened long ago because it's very far away*], or a shorter one with only two units (w) [*you look back*] and [*then you see what happened before*], leaving another clause that still needs to be analysed.

- (v) If [you're in a car or you're in an observation coach],
[you look back and then you see what happened before
but you need a microscope to see what happened long ago because it's very far away].
- (w) [If [you're in a car or you're in an observation coach],
[you look back and then you see what happened before]]
but [you need a microscope to see what happened long ago because it's very far away]

In either case the LDP precedes a Sentence, and then the node above that Sentence should be labelled Text. Does Text have a kind of LDP too ? Or would this be a sentential juncture, two Sentences (both instances of clausal Coordination) somehow

being linked to one another with the help of the conjunction *if*? A further complication arises in (w), when the conjunction *but* is taken as indicating the top level, that is, as linking everything before it (Text) to everything after it. Would that be textual juncture? If so, how would the result be labelled? Hypertext? There seems to be no upper limit to layering.

3 Questions and tests

The confrontation of RRG-as-of-today with multiple adverbial clause constructions selected from linguistic literature suggests two or three conclusions. Adverbial clauses with a complex dominant are often fronted or preposed, and since “the syntactic representation of a sentence corresponds closely to its actually occurring form,” the positions LDP and PrCS can cleverly be exploited as convenient escapes for an analysis. Furthermore, what seems to be an instance of Coordination may often turn out to be an instance of Co-subordination, since “[i]t is crucial to distinguish [...] an abstract linkage relation between units from [...] a formal construction [type],” so another smart way-out offers itself. But those are only contingent successes. In the fronting case, simple order variations may disturb the apparent peace. Take, for example, the stacked *if*-construction from section 2 and the possible permutations of its constituent clauses.

- (HP) If [the proposal is adopted]
[prisoners will be entitled to a personal TV set if they enrol for a course at the OU].
- (x) If [the proposal is adopted], [then,
if prisoners enrol for a course at the OU they will be entitled to a personal TV set].
- (y) [If prisoners enrol for a course at the OU they will be entitled to a personal TV set],
if [the proposal is adopted].
- (z) [Prisoners will be entitled to a personal TV set if they enrol for a course at the OU],
if [the proposal is adopted].

The first variation is still manageable, with *If the proposal is adopted* in LDP and *if prisoners enrol for a course at the OU* in the PrCS. And in the second variation *If prisoners enrol for a course at the OU* should preferably be in the PrCS as well rather than in LDP. Which position remains for *if the proposal is adopted* here? The ad-clausal periphery, although it belongs by right to the other *if*-clause which is preposed? Possibly, but it's not very elegant. And there is no such thing as an ad-sentential periphery, as far as I understand. But the RDP is available in English, as a last resort. We're saved. The same holds for the third variation: *if they enrol for a course at the OU* now, instead of being preposed, is in the ad-clausal periphery it is entitled to, and therefore the RDP is the only remaining position for *if the proposal is adopted*.

In the Co-subordination case, a simple argument replacement easily turns the linkage type into a proper Coordination, and the last example in the previous section shows how that may ultimately lead to the need of yet higher and higher layers. Apart from such Coordination cases, then, for which there seems to be no rescue, the question whether RRG-as-of-today can account for multiple adverbial clause constructions with a complex dominant deserves a more systematic investigation. I assume as point of departure the general dichotomy for adverbial clauses in English, as inferred in section 2 from remarks in Van Valin (in press).

- (i) spatio-temporal clauses : modify cores ; predicative adposition, ad-core periphery ;
- (ii) other adverbial clauses : modify clauses ; clause linkage marker, ad-clausal periphery.

I have some preliminary objections to this classification. That temporal clauses are introduced by predicative adpositions and *vice versa*, is just a coincidence of the English language. Other Western-European languages such as Dutch or German, and French or Italian, adapt the items to the intended application ; *before, until, after*, for example, translate, depending on whether the adposition or the conjunction is intended, either as *voor, tot, na, and avant, jusqu'à, après*, or as *voordat, totdat, nadat, and avant que, jusqu'à ce que, après que*. Temporal adpositions, moreover, may get a non-temporal (causal, concessive, etc.) flavour which is hard to abstract from, as witnesses *since*. On the other hand, clause linkage markers such as *when, while, and as* may have a temporal flavour, or even downright introduce a temporal adverbial clause.

That temporal clauses modify just a core, and nothing more, is already questioned in anticipation in section 2 at the following sentence pair from Van Valin (in press)

- (6.24) a. Kim berated Pat after they arrived at the party because she kissed Chris.
 b. Kim berated Pat because she kissed Chris after they arrived at the party. (\neq (6.24a))

I disagree with the observation that in (6.24b) *after they arrived at the party* only modifies *she kissed Chris* and cannot modify the 'matrix' *Kim berated Pat*, that is to say, in my view, in an alternative reading of (6.24b) *after they arrived at the party* may have 'wide' scope modifying the whole of the complex clause *Kim berated Pat because she kissed Chris*. Look, for support of this view, at the slightly altered version (6.24b') where *they arrived at the party* is replaced by *they left the party*. Suppose that Chris stayed when Kim and Pat left the party and that they had words, but that it is unclear when exactly that was. Under such conditions, the following focus question-answer pair is possible. True, (6.24b') can always be analysed with *after they left the party* in RDP, so syntactically the problem may be solved ; semantically, however, the question as to what exactly may be modified by a temporal clause is still there.

- (6.24) b'. Kim berated Pat because she kissed Chris after they left the party.

FOCUS

Question : Did Kim berate Pat because she kissed Chris AFTER they left the party ?

Answer : No, BEFORE.

Now for a systematic testing of the question whether the classification holds or not ; in other words, search for (A) a temporal adverbial clause that is adjoined to a complex Clause, and (B) a non-temporal adverbial clause that is adjoined to a complex Sentence.

Case A1 : a temporal adverbial clause modifying a dominant with a complement. An example of this type is met in section 2, one of the interpretations of a structural ambiguity.

(Q2) I'll let you know whether I'll need you here when the doctor arrives.

(2aa) [I'll let you know whether I'll need you here] when [the doctor arrives].

In the previous section this case is called 'somewhat problematic' ; in the current section the RDP emerges as a general escape. Is it possible to cut off that emergency exit ? Certainly, as witness the following examples (square brackets, as usual, indicate the intended reading).

- (A11) [[It surprised Mary that Fred won the race] after [she saw him last week]]
because [she didn't expect him to recover so soon].
- (A12) [[Kim decided that she will write to Chris] after [he sent her flowers]]
because [the line was always busy when she tried to call him].

Case A2 : a temporal adverbial clause modifying a dominant with another adverbial clause.

- (A21) I already bought a new umbrella because I could not find my old one
before I realised that I had left it at the library.
- (A22) I already bought an umbrella because an information leaflet advised us to have one
before I discovered that it was from another conference.
- (A23) Chamberlain was applauded as a great politician
because he 'returned from Germany bringing peace with honour'
until their troops invaded Poland.

These examples superficially resemble the multiple adverbial clause constructions that show structural ambiguity, but here the interpretation with 'minimal' or narrow attachment is rather implausible. In order to cut off the annoying RDP position, each of the first two examples can easily be extended by adding expressions like *silly me* or *how dumb can one be* ; and a similar extension may be found for the third example.

Case A3 : a temporal adverbial clause modifying a dominant with conjoined units.

- (A31) Robin left Phoenix this morning and [pro] will arrive in Atlanta tomorrow
after the travel company offered the cheapest possible flight.
- (A32) Robin left Phoenix this morning and Vic will arrive in Atlanta tomorrow
after they both agreed that it was the best schedule.

In the first example the dominant (as an instance of clausal Co-subordination) is a Clause and can't have the *after*-clause in its ad-core periphery simply because it hasn't a single such one. In the second example the dominant (being an instance of clausal Coordination) is a Sentence, and again lacks a single ad-core peripheral position but also a single ad-clausal peripheral one. The story becomes a bit monotonous, for the RDP is still available as a general way-out and it should therefore be blocked in some way or another. I'll leave it as an exercise for the readers (hint : use conjuncts, subjuncts, style and content disjuncts, or else FG higher order satellites, as referred to at the end of section 1).

Case B : a non-temporal adverbial clause which modifies an entire complex Sentence. The above series (A31-32) can be extended with (B11). Another specimen is found in section 1, and at the end of section 2 it is shown to lead far beyond reach of the actual LSC.

- (B11) Robin will leave Phoenix this morning and Vic will arrive in Atlanta tomorrow unless one of them decides otherwise at the last moment.
- (H1) *If you're in a car or you're in an observation coach, you look back and then you see what happened before* but you need a microscope to see what happened long ago because it's very far away.
- (v) If [you're in a car or you're in an observation coach],
[you look back and then you see what happened before
but you need a microscope to see what happened long ago because it's very far away].

- (w) [If [you're in a car or you're in an observation coach],
[you look back and then you see what happened before]]
but [you need a microscope to see what happened long ago because it's very far away]

At the construction of the above check list to investigate if the strict dichotomy into temporal ad-core and non-temporal ad-clausal peripheral clauses would be water-tight, two by-product cases emerged which do not quite fit into it, as it's not complex units that are being modified.

By-product case AA : a temporal adverbial clause modifying a clause without a single overall core, or possibly modifying a core at a distance. At first sight the next few examples contain a temporal adverbial clause adjoined to a clause that is an instance of core Coordination, and as such has no single ad-core periphery available. At second sight it is also possible that it is not so much both cores that are being modified here – in which case the trivial RDP would again be available, and could again be pre-empted – but only the first of the two coordinate cores, in which case it is impossible to avoid crossing branches.

- (p) Chris forced Diana to leave the party before he knew that Kim arrived late.
(q) Dinah saw Chris washing the car until he was out of sight.
[context : she sat at the window in a train that passed in front of his garage]
(r) Louisa told Bob to close the window after she heard the weather forecast.
(s) Fred saw Harry leave the car when he looked in the mirror.

By-product case BB : a non-temporal adverbial clause necessarily modifying just one core in a core Coordination (in some sense the counterpart of AA). It is possible that a non-temporal clause follows a core Coordination that cannot host it in its ad-clausal periphery, as it doesn't modify a combination of two cores but only exactly one of them. While the examples in case AA have the rescue of exceptionally crossing branches at their disposal, no such straw can be offered in the case at hand. Consider, as a final bonus, the nasty extensions in (s') and (s'').

- (p') Chris forced Dana to leave the party unless its main attraction was yet to come.
(q') Dana saw Chris washing the car because it had suffered from the trip in the woods.
(r') Louisa told Bob to close the window if he were the last to leave the room.
(s') Al saw Joe leave the room although dinner wasn't yet over because he didn't feel well.
(s'') Al saw Joe leave the room although dinner wasn't yet over lest he missed his flight.

4 Recommendations

The questions and remarks in the previous sections lead to recommendations for a revision of the theory of clause linkage, and, subsequently, of the layered structure of the clause and the corresponding inventory of syntactic templates. A very preliminary incomplete first tentative sketch of some complex templates is given in the appendix.

It is obvious that complement clauses and adverbial clauses have nothing in common except their being dependent on another clause, which is always called the 'higher' one. The two types of 'subordinate' are utterly different as for the status and function of their respective higher clauses and the role of the respective dependent clauses. The 'matrix' of a complement clause is not complete in itself, and that complement is an essential semantic argument to it. An adverbial clause modifies the clause it is adjoined to, but this 'main' clause can perfectly stand on its own. RRG acknowledges this division by distinguishing two types, Daughter and Peripheral

Subordination. One of the outstanding merits of RRG has been the introduction of Co-subordination, breaking the traditional bipartition of coordination *versus* subordination, to explain various morpho-syntactic phenomena hitherto problematic and hard to treat (not only in ‘exotic’ tongues spoken in the Pacific, Asia, Africa, or the Americas, but also in ‘common’ Western-European languages such as Dutch, English, French, German, or Italian). Now RRG should dare to continue this line and define Ad-subordination (*cf.* Bickel 2003) as a separate linkage type for adjunction of adverbial clauses to ‘superordinates,’ as opposed to embedding of clausal semantic arguments in otherwise defective ‘matrix’ units. If the semantic field were not already filled by an existing lexeme with different connotations the latter could have been called In-subordination, but maybe Em-subordination would be an acceptable candidate for it.

A declaration of independence in favour of Ad-subordination may look like mere re-labelling and reclassification, although it is more than that. But it is not yet enough to warrant ‘upward’ recursion. What is needed, in order to enable adjunction of several adverbial clauses one after another (or ‘stacking’) to a ‘superordinate’ which is steadily growing more and more complex *without any category change* (that is, recursion taking place at the same layer), is a recursive category. Something similar is shown in Co-subordination, where two or more units of equal type form a new unit at the same level, as opposed to Coordination, where two or more units of equal type form a new unit at the next higher level.

For ‘upward’ recursion of adverbial clause adjunction to be possible, therefore, a kind of ‘clause-under-clause’ template is needed, with two units, a ‘dominant’ and a ‘dependent,’ forming a new unit at the level of the ‘dominant.’ The Co-subordination template differs from this in that it may have more than two constituent units and these constituent units ‘have equal rights,’ whereas adverbial clause adjunction is a strictly binary relation, and asymmetric in the sense of non-commutative or uni-directional. At present, Daughter Subordination is realised in RRG in the various standard templates for the simple clause, plus an additional template for *that*-complement clauses embedded in either object or extraposed subject position. The latter template does fulfil the conditions of strict binarity and uni-directionality, but cannot be used for Ad-subordination, because adjunction is not the same as embedding where there is only ‘downward’ and no ‘upward’ recursion.

Separation of Ad-subordination and introduction of a recursive layer are the principal recommendations. Besides these, there are some minor desiderata. It would also be advisable to restore, when separating Em-subordination from Ad-subordination, the argument-modifier opposition (Van Valin–La Polla 1997:454 Figure 8.5 *Nexus types*). Daughter subordination in the generalised form (Van Valin in press) blurs the distinction between complement clauses and constituents ‘embedded’ in LDP, RDP, or the PrCS. It has become a container concept or ‘waste basket’ tool. It is furthermore suggested to abandon the distinction between temporal and non-temporal adverbial clauses, as they all belong to the same type, relating one state-of-affairs to another state-of-affairs. They may occur in an ad-core or in an ad-clausal periphery alike, and also at ‘higher’ layers, without being sent into exile at the RDP. As for peripheries, it may also be insightful to distinguish adjoined adverbial clauses from non-clausal adjuncts. Adverbial clauses are Clauses (or even Clause Complexes, as will be explained shortly) and as such representatives of the highest possible layer : they have more in common with clauses that stand on their own than with NPs, PPs, or adverbs.

The result layer in the Clausal Ad-subordination template is, of course, also a Clause. It could also be called a ‘clause complex’ (borrowing this term from Halliday), if you like that better. The new label is useful for distinguishing it from a simple clause,

and it is preferable to ‘complex clause’ ; the latter is often used in the narrow sense, or rather as ‘complex sentence’ in contradistinction to a compound sentence, which is one of the possible surface realisations of Clausal Coordination, resulting in an element of the next higher layer in the LSC, Sentence. It is shown at the end of section 3 that adverbial clauses can be adjoined to a dominant of any complexity, including Sentences. Above Sentence there is Text, and so on. It is much simpler to introduce one single (but recursive) level above the Simple Clause, call it Clause *tout court*, or Clause Complex, or just Complex, and to dispose of Sentence and Text altogether. In the syntax part of grammar there is nothing else above recursive combination of clauses (the use of clauses and combinations of clauses in, for instance, Paragraphs, Sections, Chapters, Texts, etc. for communicative, expressive, or other purposes belongs to the domain of Rhetorics). It is an article of faith in modern linguistics that language is first and foremost spoken language. The majority of languages in the world is not written. ‘Sentence’ is a unit in written language. It is just a matter of punctuation. It is neither a basic nor an essential notion in the analysis of language, only a derivative one. There is no need for it in the inventory of syntactic templates.

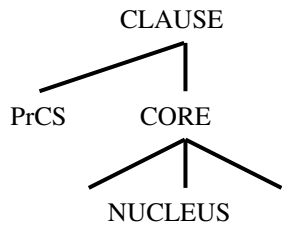
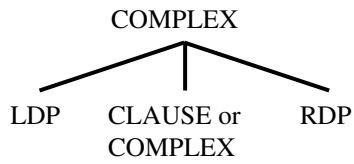
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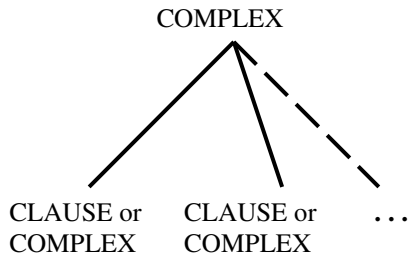
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Appendix

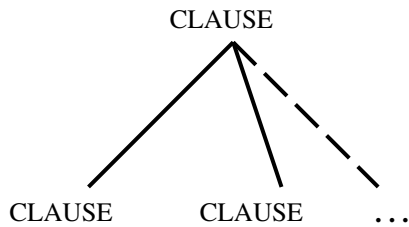
'A very preliminary and incomplete first tentative sketch of some complex templates'



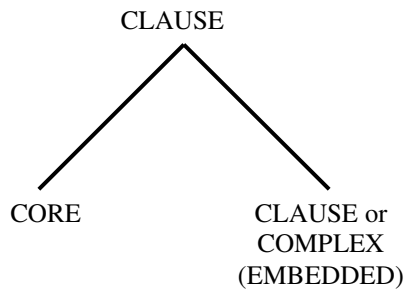
Layered Structure of the Clause



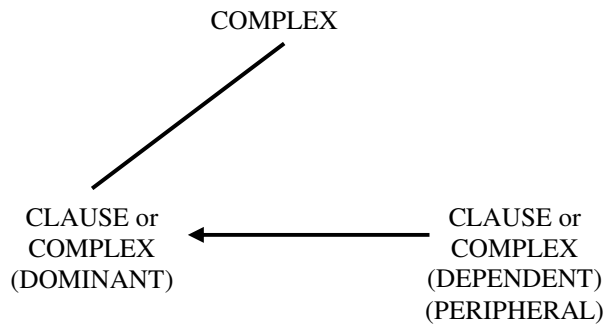
Coordination



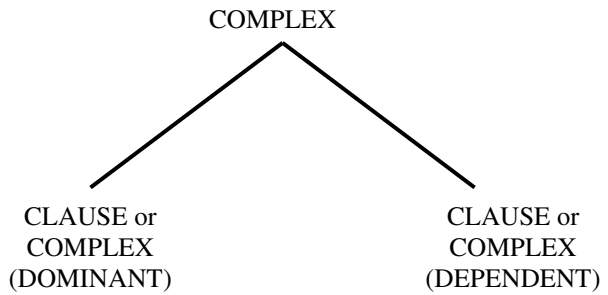
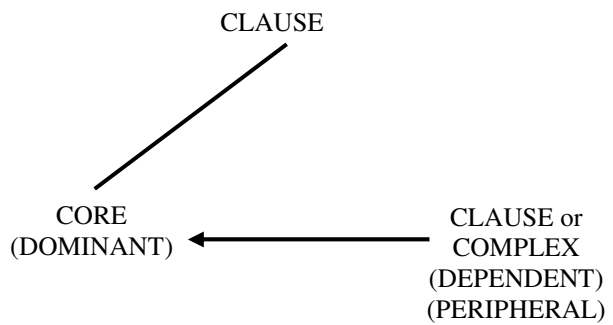
Co-subordination



Em-Subordination



Ad-subordination (option 1)



Ad-subordination (option 2)

[cf. Bickel 2003]

INFIXED PRONOUNS AND CASE MARKING IN OLD IRISH

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INTRODUCTION

Among the typologically more interesting features of Old Irish grammar is the way pronominal objects are expressed in that language. Old Irish has a set of pronominal bound morphemes that are infixes in the verbal complex. Traditionally, they are called "infixes"; they are not independent words, so "object markers" would be a better term, but we shall stick to the traditional label. Historically, infixes (or object markers) developed from Proto-Celtic pretonic personal pronouns in the accusative case. By the Old Irish period, case-inflexion on pronouns was lost, so the infixes remained as the only possible way of expressing pronominal objects in the language. They are generally infixes after the first verbal prefix, or after a pretonic particle in the verbal complex:

- (1) *Ro-m-gab dano éolchaire immon mnái*
 PERF-1sg.-get.3sg. yet longing for.ART.3sg.f. woman-ACC.sg.
 "Yet longing for the woman has seized me" (*Echtrae Chonnlai*, §13, ed. McCone)

If the verb has no prefixes, and there are no pretonic particles, the pronoun is infixes between the dummy prefix *no-* and the verb:

- (2) *no-n-anich Dia di cach imniud*
 pref.-1pl.-protect.3sg.pres. God from every tribulation.DAT.sg.
 "God protects us from every tribulation" (Wb. 16a4)

Here is the basic set of infixes (the so-called "Class A"):

	Sg.	Pl.
1	- <i>m(m)</i> ^{+ASP} -	- <i>n(n)</i> -
2	- <i>t</i> ^{+ASP} -	- <i>b</i> -
3f.-	- <i>s</i> ^{+/-NAS} -	- <i>s</i> ^{+/-NAS} -
m.	- <i>a</i> ^{+NAS} -	- <i>s</i> ^{+/-NAS} -
n.	- <i>a</i> ^{+ASP} -	- <i>s</i> ^{+/-NAS} -

(the superscripts ^{ASP} and ^{NAS} refer to the consonant mutations, aspiration and nasalization, respectively, that the infixes may cause to the verbal root).

There are two other sets of infixes (the so-called classes B and C), but they need not concern us here⁶⁷. Their use is regulated by the kinds of verbal prefixes and particles they co-occur with, and by the type of the clause the verb occurs in.

A similar set of infixes exists in Middle Welsh, but both Insular Celtic languages lost this pattern of object marking during the Middle Ages. Let us now look at the use of infixes in some detail⁶⁸.

THE TRADITIONAL ACCOUNT

In traditional grammars of Old Irish (e. g. Thurneysen 1946: 255ff, Pokorny 1969: 50ff, McCone 1987:10), infixes (or "object markers") are claimed to express the following grammatical functions:

1) they are used as pronominal objects of transitive verbs, e. g. *no-m-ben* "he hits me"; nominal objects of such verbs receive the accusative case marking: *benaid in lóech in nech* "the warrior hits the horse" (or: "the warrior is hitting the horse").

2) they are used as pronominal subjects of verbs in the passive/impersonal, e. g. *no-m-benar* "I am (being) hit"; nominal subjects of verbs in the passive/impersonal are in the nominative case: *benair in lóech* "the warrior is being hit". However, if the subject of the verb in the passive/impersonal is in the third person singular or plural, the infix is not used: rather, the subject is marked by the verb ending: *benair* "he/she/it is being hit", *bentair* "they are being hit".

3) occasionally, they are used as pronominal indirect objects with verbs of giving, and some other ditransitive verbs, e. g. *do-m-beir lebor* "he gives me a book". Cp. also the following example:

(3) *do-n-beir* *ingantas* *mór méd* *a delba*
 2pl.-give.PRES.3sg. surprise.ACCsg. great size.Nsg. his form.GENsg.
 lit. "his greatness gave us great surprise" (*Ériu* IV.138).

By default, however, it is the direct objects that are infixes, as in the following example:

(4) *con-de-tubert* "so that he gave it" (ZCP VIII 308.34).
 pref.-3sg.n.give.3sg.PRET

4) they are used as logical subjects of the construction meaning "to have", e. g. *ro-g-mbia lóg* "they shall have reward" (Wb. 6a5); this construction literally means "there is reward to them", since it contains the substantive verb *at-tá* "is". Nominal possessors cannot be subjects when construed with this verb; rather, they are construed with the prepositions *la* "with", or *oc* "at":

⁶⁷ See, e.g., Thurneysen 1946: 260, or Pokorny 1969: 50, for the collection of forms.

⁶⁸ The material for my analysis was drawn from the texts of the 8th and 9th centuries collected in "Thesaurus Palaeohibernicus" (Stokes and Strachan 1975), the focus being on the language of the Würzburg Glosses (Kavanagh 2001). I have also consulted the Royal Irish Academy's "Dictionary of the Irish Language" (DIL), and the abbreviations of the names of Old Irish texts are from that dictionary.

- (5) *at-tá in claidib lasin rí*
 be.PRES.3sg. Art. sword.NOMsg. with.Art. king.ACCsg.
 "the king has the sword" (lit. "the sword is with the king").

5) they can be used with the 3rd person sg. of the copula, which is proclitic in Old Irish, and can be used only with nouns and adjectives as predicates:

- (6) *iss-um-écen precept*
 be.3sg.PRES-1sg.-necessity.NOMsg. teaching.NOMsg.
 "it is necessary for me to preach" (Wb. 10d24)

In this construction, the infixed pronouns correspond to nominals construed with the preposition *do* "to", which governs the dative case: *ní-écen dond fiur* would mean "it is not necessary to the man". Here, there seems to exist a free alternation in Old Irish, since we also find pronominal objects construed with *do*, cp.: *is écen doib ingremmen dofoditiu isin biuth* (Wb 30c23) "it is necessary for them to endure persecutions in the world".

6) finally, the infixed pronouns are used in some highly idiomatic constructions, e.g. as negated subjects of the substantive verb (which means "to be at"):

- (7) *ní-m- fil oc oul fína*
 Neg.-1sg.-be at drinking.DAT.sg. wine.GEN.sg.
 "I am not at the drinking of wine" = "I'm not drinking wine".

I consider this last usage as truly exceptional, and I shall have nothing more to say about it. I can only add that verbs meaning "to be" often have quirky case-marking that cannot be captured by rules, cp., e.g., the use of the genitive for indefinite subjects of the verb "to be" in Croatian non-present tense, e. g. *Ondje će biti djevojaka* "there will be girls there", where the logical subject *djevojka* "girl" is in the genitive case. Similarly idiosyncratic is the use of the 3rd person sg. neuter infixed pronoun as "dummy object" with some verbs, such as *at-baill* "dies", literally "throws it (away)".

THE RRG ACCOUNT

Now, five out of six aforementioned instances of the use of infixed pronouns are obviously rather clumsily lumped together. A simplification, or generalization, would surely be welcome, and I believe that a unified account of the various uses of infixed pronouns in Old Irish can be achieved if one assumes that their use is determined by semantic, rather than syntactic rules, i. e., in terms of the choice of actor and undergoer, rather than subject, object, and indirect object.

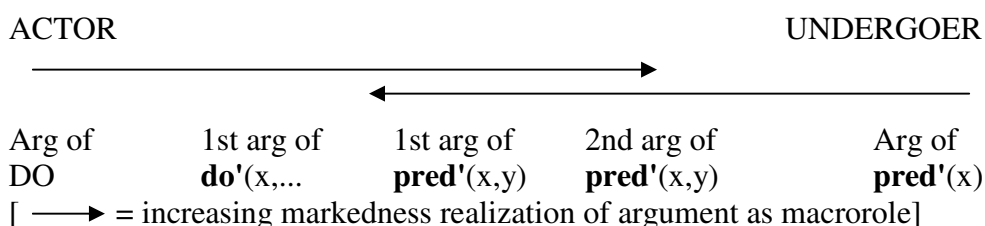
The case-assignment rules of Old Irish are rather straightforward: Old Irish is an accusative language, in which the highest ranking macrorole argument is assigned nominative case, and the other macrorole argument is assigned accusative case:

- (8) *beoigidir in Spirit in corp in fecht-so*
 bless.PRES.3sg. Art. spirit.NOMsg. Art. body.ACCsg. Art. moment-Dem.pron.
 "The spirit vivifies the body now". (Wb. 13d7)

The non-macrorole core argument is assigned dative case, and is governed by the preposition *do* "to":

- (9) *Do-beir Día ícc dond domun*
 give.PRES.3sg. God.NOMsg. salvation.ACCsg. to.Art. world.DATsg.
 "God gives salvation to the world"

The choice of undergoer argument is based on the actor-undergoer hierarchy (cp. Van Valin & LaPolla 1997: 146, Van Valin forthc. 53):



With one-place activity verbs (e.g. *téit* "goes"), the single argument is the actor, while for stative verbs (e.g. *at-baill* "dies"), the single argument is the undergoer.

With non-stative verbs, infix pronouns are used to mark pronominal lowest-ranking macrorole arguments, i. e. undergoers. For some verbs, there are also variable linking rules, similar to "dative shift" (cp. Van Valin 2002). Although the lowest-ranking argument is the default choice of undergoer, the other (second-lowest) argument is also a possible choice, when the argument is pronominal. As we shall see in the next section, this accounts for the so-called "dative" use of the infix pronouns.

VARIABLE UNDERGOER SELECTION

With at least some three-argument verbs (three place predicates), we must assume that the undergoer selection was variable in Old Irish. We already saw that *do-beir* "gives" occurs with both theme and recipient arguments as infix pronouns, i. e., as undergoers (ex. 3). We have a similar alternation with the following verbs:

1. *dánaigidir* "bestow" (a denominative verb derived from *dán* "gift", like Latin *donare* and Croatian *darovati*, which both have dative shift):

- (10) *is [laigiu] intí danaigther indaas*
 is small.COMP Dem. bestow.PRES3sg.PASS than

intí na-d-danaigedar
 Dem. Prep.-3sg.n.-bestow.PRES3sg.REL

"He who is endowed is less than he who bestows it" (Ml. 17c7)

In the first clause, the undergoer is the recipient (the subject of the passive verb), while in the second clause, the undergoer is the theme (the infixed pronoun).

Usually, the verb *dánaigidir* takes the theme as the undergoer and the recipient as the non-macrorole core argument (governed by *do*):

- (11) *.i. i trédiu: ro-s-pridach, ro-s-comalnastar,*
 i.e. in three things PERF.-3pl.-preach.3sg PERF.-3pl.-fulfil.3sg.

ro-s-dánigestar dún co do-s-gnem
 PERF.-3pl.-grant.3sg. to.1pl. so.that 3pl.do.SUBJ.1pl.

"i.e. in three things: he has preached them, he has fulfilled them, he has granted them to us that we may do them." (Wb. 21b9)

2. *for-cain* "teaches":

- (12) *for-dub-cechna* "who shall teach you (pl.)"
 Pref.-2pl.-teach.FUT.3sg. (Wb. 9a16)

In this example, the taught person is selected as undergoer. In the following one, it is the object of teaching, whereas the taught person is construed with the preposition *do* "to" as the non-macrorole direct core argument:

- (13) *is í sin forchanub-sa duit-siu*
 is Dem. Dem. teach.REL.FUT1sg.-Emph.1sg. to.2sg.-Emph.2sg.
 "This is what I shall teach you" (Trip. 392.15)

Probably by analogy with this verb, we find infixed pronouns with *fo-cain* "sing to" in the famous verse of the *St Gall* codex: *fo-m-chain lóid luin* "a blackbird's lay sings to me" (*Thesaurus Palaeohibernicus*, II: 290).

3. *ernaid* "grants, bestows":

- (14) *ro-nn-ír et ro-n-lín di*
 PERF.-2pl.-grant.3sg. PERF.-2pl.-fill with

rath in Spirto
 grace.DATsg. Art. Spirit.GENsg.

"he has granted us and filled us with the grace of the Spirit" (Wb. 20d11);

in (14) the recipient is selected as undergoer; in the following example, it is the theme:

- (15) *r-a-aéra Día duín*
 Prep.-3sg.n.-grant.SUBJ.3sg. God.NOM.sg. to.2pl.
 "May God grant it to us" (Wb. 25a31)

In parentheses, it should be noted that a similar rule for the use of infixed pronouns applied in Middle Welsh, cp. the following examples from Simon Evans 1964: 57:

(16) *y gwr a'm rodes y gwin* "the man who gave me the wine"
 Art. man rel.part.-inf.pron.1sg. give.pret. art. wine

(17) *a'n gwnel iechid* "may he provide salvation for us"
 part.-inf.pron.1pl. do.subjunctive3sg. salvation

It seems, according to Simon Evans, that the usage of infixed pronouns "in the dative meaning" (i.e. to denote recipients with three argument verbs of giving) was a characteristic of early poetry.

I must stress that I have found no cases of this alternation with nominal arguments. That is, for nominal arguments, there is actually no choice of undergoer: the undergoer is always the lowest-ranking argument on the actor-undergoer hierarchy, and it is marked with the accusative case.

"QUIRKY CASE" WITHOUT CASE-MARKING

The use of infixed pronouns with the substantive verb (4) and with the copula (5) is comparable to the "quirky" case-marking in languages like Latin (Michaelis 1993) and Croatian (Dahm-Drakšić 1997). In Latin, for example, the verb "to have", *habere*, can be replaced by the verb "to be", *esse*, which is then construed with the dative case of the possessor:

(18) *mihi es-t liber*
 I-DATsg. be.PRES.-3sg. book.NOMsg.
 "I have a book"

The RRG analysis of such constructions would stipulate that the verb is "macrorole-intransitive" in them, and that this feature, [M+] should be specified in the lexicon. Since this is a stative verb, its single macrorole must be undergoer, which is marked with the nominative case (*liber*), as is the rule in accusative languages. Non-macrorole arguments are marked with the dative case, as default, in most languages, so the dative marking (*mihi*) in the preceding Latin example comes as no surprise. Now, this Latin construction is clearly similar to the Old Irish possessive construction with the infixed pronoun, except that there is no case-marking on infixed pronouns:

(19) *no-m-thá lebor*
 pref.-1sg.-be.PRES.3sg. book.NOMsg.
 "I have a book"

That the possessor is indeed a non-macrorole core argument in such a construction is indicated by the fact that nominal possessors are construed as prepositional phrases, rather than as noun phrases in the nominative, or accusative (the cases used to mark macrorole arguments):

(20) *at-tá lebor ocond fiur*
 be.3sg.PRES. book.NOMsg. at.Art. man.DAT.sg.
 "The man has a book"

Therefore, we may conclude that the infix pronoun in *no-m-thá* is used to mark a non-macrorole argument of an intransitive verb taking two arguments.

A similar line of reasoning could be applied to the examples involving the copula construction: in the construction *iss-um-écen* "it is necessary for me" the infix pronoun marks the second non-macrorole argument of a M-intransitive predicate. Here, the use of the infix pronoun is optional, because that argument can also be marked with a prepositional phrase (*is écen dom*), as we saw above.

We thus arrive at the following set of rules for the use of infix pronouns in Old Irish:

- (a) For M-transitive predicates: use infix pronouns to mark pronominal undergoers whenever they are not marked by verbal endings;
- (b) For M-intransitive predicates: use infix pronouns to mark pronominal non-macrorole arguments whenever they are not construed with a prepositional phrase.

The concept of M-transitivity is crucial here, because it helps us distinguish the two relevant classes of predicates involved in the rules a) and b). The two rules cannot be collapsed into a single rule by saying that the infix pronouns always mark the lowest argument (in terms of the actor-undergoer hierarchy), since variable undergoer selection is actually quite exceptional in Old Irish. As we have seen above, it is possible only with a handful of verbs.

CONCLUSION

I believe that I have been able to show that:

(1) the use of infix pronouns in Old Irish is best described by involving the RRG's terms *undergoer* and *M-transitivity*, which are semantically defined, rather than the traditional syntactic terms *subject*, *object*, and *indirect object*. If this is accepted, five out of six different rules about the use of infix pronouns can be conflated to just two general statements: a) for M-transitive verbs, the infix pronouns are used to mark pronominal undergoers, whenever they are not denoted by agreement markers on the verb; b) for M-intransitive verbs with two arguments, the infix pronouns are used to mark pronominal non-macrorole core arguments.

(2) Old Irish belongs to the class of languages allowing variable undergoer selection. Variable undergoer selection occurs with three-place predicates in Old Irish, and exhibits features similar to "dative shift" in more familiar languages of Europe. However, this variable selection is possible only with pronominal arguments, not with nominal ones.

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THE GRAMMATICALIZATION OF *BE GOING TO* FROM A RRG PERSPECTIVE

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In RRG the grammatical categories of tense, modality and aspect are characterized as operators with scope over different parts of the layered structure of the clause (LSC). RRG also posits a rigid order of such operators with respect to the predicating element, including the relative ordering tense/status > deontic modality > aspect. However the English *be going to* construction, which has been characterized as a future tense operator, has variable surface scope. In addition, in some (but not all) utterances, *going to* encodes various meanings in addition to expressing future time reference. In this paper I argue that variation in the scope of *going to* correlates with semantic differences. Specifically, when *going to* is within the scope of one or more operators it functions as a clause nucleus, rather than a tense operator, and exhibits semantic retention, that is, hearers recover its conceptual semantic content. Conversely, when *going to* has one or more operators within its surface structure scope it functions as a tense operator and semantic retention is impossible. Finally, if there are no other operators either within the scope of *going to* or that have *going to* within their scope, *going to* may function as a tense operator, unless it exhibits semantic retention, in which case it is only analyzable as a clause nucleus.

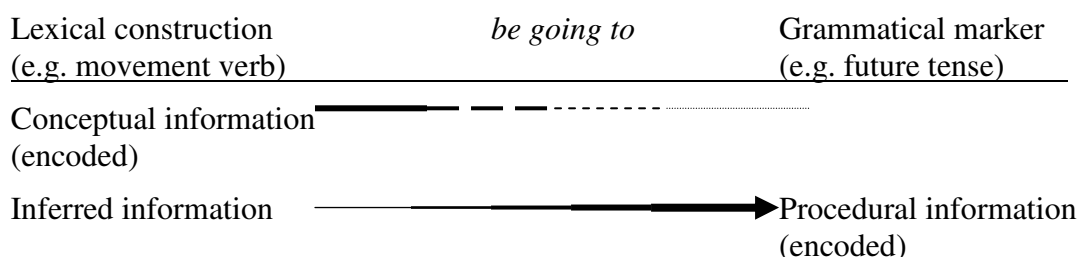
1. Introduction

One of the stated aims of RRG is to explain how the same form may have different functions (Van Valin & Foley 1980: 330). The English *be going to* construction has various functions. In some utterances it conveys 'current relevance' (1), in others prior intention (2), or inevitability (3), and in still others it functions as a marker of futurity without any of the previous meanings (4).

- (1) Singh said, 'I think there is going to be a storm.' (Brisard 2001: 265)
- (2) 'What are you going to do about Sarah?' she asked. (Brisard 2001: 261)
- (3) Don't go near that parcel! It's going to explode! (Nicolle 1997: 356)
- (4) Easter is going to be in April next year.

None of these meanings can be cancelled (unlike many of the meanings associated with *will*) which indicates that they are (at least in part) semantically encoded rather than being wholly pragmatically inferred; that is, they are not implicatures. In Nicolle (1998a, b) I showed that *be going to* has all the necessary characteristics of a future tense, but an analysis of *be going to* in purely procedural terms (as a grammatical marker) fails to account for the meanings in (1) to (3), and the fact that such meanings are not always recovered. For this reason, I argued that *be going to* also exhibits 'semantic retention', i.e. it has residual conceptual content. Brisard (2001: 275) came to a similar conclusion within the framework of Cognitive Grammar when he stated that periphrastic constructions, such as *be going to*, might well be in an intermediate stage of grammaticalization. What this means is illustrated in figure 1:

Figure 1



In RRG the grammatical categories of tense, modality and aspect are characterized as operators with scope over different parts of the layered structure of the clause (LSC). Tense (along with evidentials, realis-irrealis status, and illocutionary force) has scope over the clause, deontic modality (along with participant directionals, distributives and internal negation) has scope over the core, and aspect (along with negation and non-participant directionals) has scope over the nucleus. For Van Valin and La Polla (1997: 49), “One of the major motivations for this scheme is that operators virtually always occur in the same linear sequence with respect to the predicating element.” The predicted order of operators works for *will*, which Van Valin and La Polla (1997: 41) characterize as a future tense,⁶⁹ but *going to* has various surface scope relations. In (5), *have left* consists of the predicate LEAVE plus the perfect aspect, and if the order predicted in RRG is to be preserved, then *going to* must function as an operator with wider scope than *have left*, most probably as a tense marker. In (6) on the other hand, *going to* is within the scope of a perfect aspect operator (*have _en*) and so cannot be characterized as a tense operator without violating the order of operators predicted by RRG.

- (5) She’s going to (gonna) have left.
 (6) She has been going to leave.

2. Proposal

RRG allows the same form to function as different kinds of operator. For example, *may* can function both as a status operator with scope over a clause when it expresses possibility, and as a deontic modal operator with scope over the clausal core when expressing possibility. John Roberts (p.c.) has pointed out that *may* can also function as an illocutionary force operator expressing a wish or a hope, as in “May she rest in peace.” I want to suggest something similar for *be going to*, namely that it sometimes functions as a tense operator (with clausal scope) and sometimes as a clause nucleus.

These structural differences have important functional or semantic correlates. I will show that when *going to* is within the scope of one or more operators it is therefore part of the ‘top layer’ of the LSC, namely a clause nucleus, rather than being a tense operator. In this case, *be going to* exhibits semantic retention, that is, hearers recover conceptual semantic content of the kind illustrated in (1) to (3). Conversely, when *going to* has one or more operators within its surface structure scope (and does not occur within the scope of any other operator) it functions as a tense operator and semantic retention is impossible. Finally, if there are no other operators either within the scope of

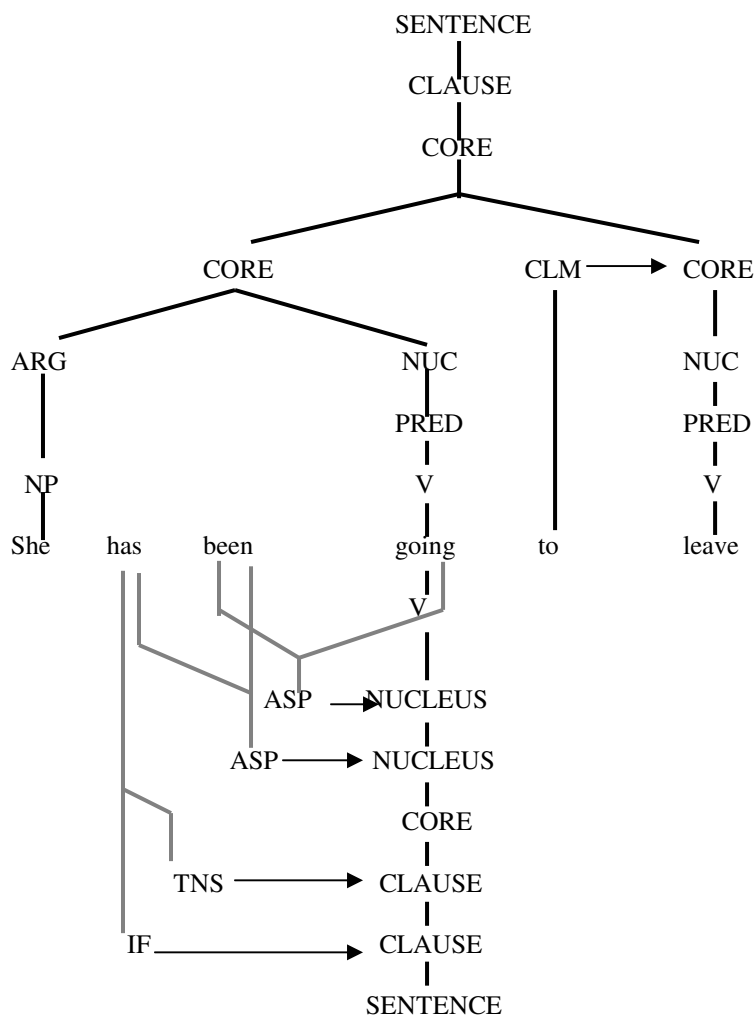
⁶⁹ I would prefer to characterize *will* as a status operator in line with the analysis in Nicolle (1998a), but this does not affect my point: *will* has constant surface structure scope relative to other operators.

going to or that have *going to* within their scope, *going to* **may** function as a tense operator, unless it exhibits semantic retention, in which case it is analyzable as part of the clause nucleus. Crucially for this analysis, semantic retention **always** occurs when *going to* has narrow surface structure scope, and only **sometimes** occurs when it has wide surface structure scope. I shall illustrate each possible scenario in turn.

2.1 Interpretation of *going to* with narrow scope

In example (6) ('She has been going to leave'), *going to* is inside the scope of a number of operators. In this example *going to* exhibits semantic retention in that it encodes the notion of prior intention: "for a period of time up to and including the moment of speech, the subject has had the intention to leave some place." An interpretation in which *going to* expresses 'plain' future time reference is just not possible, and so *going to* should not be characterized as a tense operator. Instead, I claim that (6) involves core cosubordination with *going* functioning as a predicate. This is represented in figure 2 below:

Figure 2



Note that by treating *going* as a predicate rather than as a tense operator, it is marked for progressive as well as for perfect aspect, which is on line with the interpretation of (6) as expressing the proposition that the subject has had the intention to leave for some time. Note also that (6) involves core rather than nuclear juncture; since the *going to* construction in (6) encodes conceptual semantic information (prior intention) it should be treated as a predicate in its own core, and, as John Roberts has pointed out to me

(p.c.), scope and aspectual adverbs such as *completely* which take the nucleus as scope cannot take *going to* within their scope:⁷⁰

- (7) Ruth had been going to completely hide the cash.
 (8) * Ruth had completely been going to hide the cash.

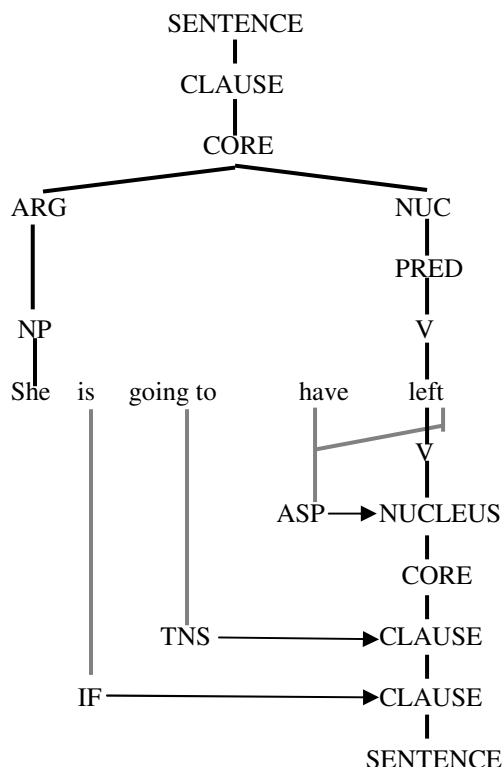
Also, I have treated (6) as a case of core cosubordination (rather than core coordination) since the cores share a single argument (*she*). The infinitival core (*to leave*) is similar to that in clauses like *she wanted to leave* in that it is semantically an argument of the matrix core but syntactically does not behave as an argument (compare (9a) and (10a)); the only possible second syntactic argument is a locative (PP) as in (10b), but in this case *go* can only function as a motion verb:

- (9) a. * It was to leave that she wanted.
 b. It was money that she wanted.
 (10) a. * It was to leave that she has been going.
 b. It was to Dublin that she has been going.

2.2 Interpretation of *going to* with narrow scope

In example (5) ('She's going to have left') *going to* takes wide scope over the perfect aspect operator in *have left* and therefore functions as a (future) tense operator rather than as a predicate. It also can not exhibit semantic retention in this sentence. The structure of (5) is illustrated in figure 3.

Figure 3



Note that there are not two tenses here, as has been suggested to me, namely present tense on *is* and future on *going to*. English has two morphological tenses: past and non-

⁷⁰ Note that *completely* is infelicitous at any position before *hide*; it is placed before *been* in (8) as this is where adjectives such as *certainly* can occur. Other adverbs, such as *secretly* can occur in any position.

past, and I take *is* to be non-past here. Future is subsumed by non-past, but since future is more specific than non-past, non-past is in a sense trivial or redundant here and so is not represented. The situation is very different when *was* or *were* are used. Take the past tense version of (4):

- (11) Easter was going to be in April next year (but now they have changed the calendar).

According to my analysis, *going to* is now within the scope of a past tense operator and must therefore exhibit semantic retention and not function as a tense operator itself. The parenthesis ('but now they have changed the calendar') cancels the notion of **intention** (the date of Easter had been planned) that did hold once but now no longer holds. That is, there can be no 'pure future/prospective' reading of (9); (9) can only express a previously existing state of affairs, i.e. the intention or plan to have Easter on a certain date. The fact that the planned date of Easter was in the future relative to the reference time (when the plan or intention was made) allows the state of affairs [Easter be in April next year] to be inferred, but of course this inference (but not the fact that the intention existed) can be cancelled, as the parenthesis demonstrates. Thus (4) and (9) have the following structures:

- (4') Easter is going to [be in April] next year.
IF TNS
- (9') Easter was [going to be in April] next year.
IF, TNS

2.3 Interpretation of *going to* with indeterminate scope

What happens when *going to* occurs both within the scope of an operator (or operators) and has an operator (or operators) within its scope? Recall that in figure 2, in which *going to* was within the scope of a perfect aspect, it was viewed as a predicate (*going*) within its own core, plus a clause-linkage marker (*to*) which links this core to another containing the predicate *leave*. It is quite possible for the second clause in such a construction to have its own operators (obviously at core and nucleus level only), as in the following example:

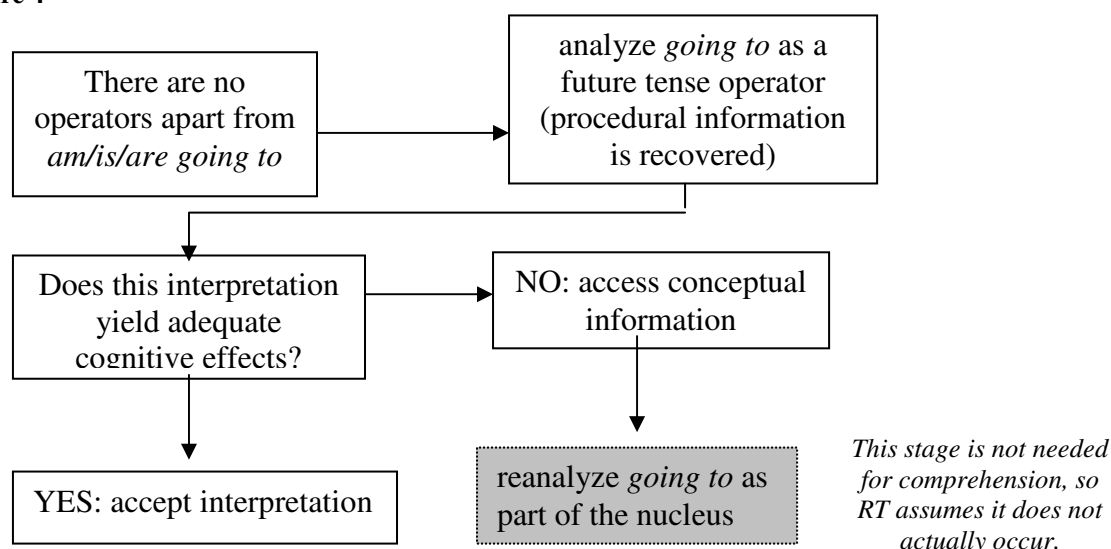
- (12) She was going to have left.

Here, *was* provides a past tense operator with clausal scope; *going* is therefore a predicate with progressive aspect, and *to* functions as a clause-linkage marker which links the core containing *going* and the core containing *have left*. However, in contrast to *leave* example (6), *have left* is finite, and consists of a core containing a predicate LEAVE plus a perfect aspect operator. The interpretation of (12) is consistent with this analysis: at some time in the past (past operator encoded by *was*) the subject (*she*) had the intention (encoded by *going*) to leave at some time prior to a contextually determined reference time (e.g. 'two hours ago', 'before five o'clock', etc.). (12) is therefore an example of core-cosubordination, just as (6) is (as illustrated in figure 2) but in this case the operator projection of the second core contains a perfect aspect operator.

The final scenario is one in which *be going to* occurs without any other operator (apart from the redundant non-past operator) in the same clause. In this case I suggested (Nicolle 1998b) that *be going to* **may** function as a tense operator (as in example (4)),

unless it exhibits semantic retention (as in examples (1) to (3)), in which case it is analyzable as a predicate. In accordance with the search for optimal relevance, I proposed that the default interpretation in clauses where there is no other operator is to interpret *be going to* as a (future) tense operator. This is because, according to Relevance Theory, the purpose of procedural information is to reduce processing effort, and so procedural information will always be recovered and used in the interpretation process. However, conceptual information is also accessed (or ‘activated’) and if the procedural information encoded by *be going to* does not yield adequate cognitive effects this conceptual information is **recovered** and used in the interpretation process. This is illustrated in figure 4:

Figure 4



3. Summary

When *going to* has the widest scope of all the operators in a clause, it cannot be analyzed as part of a nucleus and so functions obligatorily as a tense operator. This means that only procedural (tense) information can be accessed, and any interpretation in which *be going to* might exhibit semantic retention is blocked (this was illustrated in example (5) and figure 3). Conversely, when *going to* is within the scope of a tense operator and/or any core or nucleus level operator, it cannot function as a tense operator, and so the procedural information which it encodes is bypassed and the hearer directly recovers the conceptual information also encoded by *going to* (this was illustrated in examples (6), (11) and (12) and in figure 2). Finally, if there are no other tense, core level or nuclear level operators in a clause, *be going to* is interpreted as a future tense operator. If this interpretation fails to yield adequate cognitive effects, the conceptual information encoded by *be going to* is recovered; *going to* can then be reanalyzed as a predicate, i.e. a nucleus within its own core (but in actual online utterance interpretation this is unlikely to happen as adequate cognitive effects can be achieved by recovering the semantic content of *going to* without the need to reconstruct syntactic structure). Thus we see form and function interacting during the utterance interpretation process.

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FIRST STEPS TOWARD A COMPUTATIONAL RRG

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Abstract

This paper what examines would be required to facilitate the implementation of the RRG model in software. As it stands, the RRG lexicon, while theoretically very rich, does not easily lend itself to such an implementation. This paper argues that the RRG lexicon, to be implemented successfully in software, needs to be articulated in terms of features and attribute value matrices such that the technique of unification can be used to support the computational modelling of RRG. Achieving this requires that we undertake an exploration of the various sub-domains of the lexicon and re-express the actual structure and architecture into a “formal theory of the RRG lexicon”. In this regard, we draw on research on computational treatments within other lexicalist theories of grammar and recent work within functional grammar with a computer-based ontology.

In this paper, therefore, we provide a first attempt to formally motivate a feature-based architecture of the lexicon, using the operating principles of RRG (Van Valin and LaPolla 1997), as primary guidelines. A goal is to facilitate enhanced computational intelligence within the lexicon through use of features and unification. We express the lexicon architecture in a feature-based lexical representation language in which the lexical entries and the lexical rules share a common formalism. We posit a Hierarchy of Types in the RRG Lexicon and, from this, motivate a possible feature-based architecture of the RRG lexicon. We restate the Constituent Projection and the Operator Projection in this new view of the lexicon structure and discuss a possible status of constructional templates in RRG while suggesting that a subsumption order in constructional templates might exist that lends itself to a feature-based approach. In this regard we present a “first cut” formal frame schemata of the RRG constructional templates 1 to 6 for English. We apply the same feature-based architecture to the logical structures of lexical entries for verbs and discuss (part of) the RRG Linking System in terms of unification across features-based attribute value matrices. We draw a number of important conclusions regarding the relationship of the lexicon to the grammar and make suggestions for a future research programme in the treatment of computational models of RRG, particularly with respect to the layered structure of the noun phrase and the morphosyntactic interface.

1 Introduction

In this paper we examine the role of the lexicon in RRG. Using the operating principles of RRG (Van Valin and La Polla 1997), we formally express a richer architecture of the lexicon. A design goal of the constraints-based architecture is to facilitate enhanced computational intelligence within the lexicon that facilitates use of feature structures and unification. The architecture is expressed in a lexical representation language in which the lexical entries and the lexical rules share a common formalism. We identify some gaps in the theory and suggest areas for future research.

2 The RRG theory of grammar

RRG is distinguished by its stance on language as a “*system of communicative social action, and accordingly, analysing the communicative function of grammatical structures plays a vital role in grammatical description and theory from this perspective...Language is a system, and grammar is a system in the traditional structuralist sense; what distinguishes the RRG conception...is the conviction that grammatical structure can only be understood with reference to its semantic and communicative functions. Syntax is not autonomous. In terms of the abstract paradigmatic and syntagmatic relations that define a structural system, RRG is concerned not only with relations of cooccurrence and combination in strictly formal*

terms but also with semantic and pragmatic cooccurrence and combinatory relations”. (Van Valin and LaPolla: 1997:13)

The main theoretical characteristics of RRG relate to its view of grammatical relations, the actor-undergoer hierarchy, the syntax-semantic interface and the layered structure of the clause. We briefly outline these major positions following, drawing heavily on Van Valin and LaPolla (1997), for this discussion.

2.1 Grammatical relations

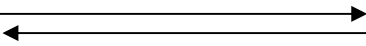
RRG has argued that grammatical relations like subject and direct object are not universal across languages and cannot be taken as the basis for adequate grammatical theories. In place of these notions, RRG employs the notion of ‘syntactic pivot’, sometimes called the Privileged Syntactic Argument (PSA), instead of subject. The other arguments in a clause are characterised as direct or oblique core arguments and there is nothing in the theory of RRG that corresponds to direct or indirect object. Syntactic functions like pivot/PSA and direct core arguments represent the syntactic pole of the system, while logical structures represent the semantic pole.

In every language with grammatical relations, there is an accessibility to pivot hierarchy for verbs with multiple arguments. This is the actor-undergoer hierarchy and it is interpreted obliquely from the left, i.e. the actor end. In syntactically accusative languages like Irish, the highest-ranking macrorole is the default choice for pivot. That is, in a syntactically accusative language the unmarked choice for syntactic pivot of a transitive verb is the actor, with the undergoer being the marked choice possible only in a passive construction. In more traditional functionalist terms, the actor maps to subject and the undergoer to object, except in the passive where the undergoer maps to subject. With an intransitive verb, the Actor-Undergoer Hierarchy is irrelevant, as the single macrorole functions as pivot/subject regardless of whether it is actor or undergoer. The relationship between the macroroles and the argument positions in logical structure is captured in the Actor-Undergoer Hierarchy in (1), which encapsulates a larger inventory of thematic roles for illustration purposes.

2.2 The linking system

The linking system is bi-directional in that it maps from syntax to semantics and from semantics to syntax. The linking between semantics and syntax has two phases. The first phase consists of the determination of semantic macroroles based on the logical structure of the verb (or other predicate) in the clause. The second phase is concerned with the mapping of the macroroles and other arguments into the syntactic functions. As previously mentioned, the traditional grammatical relations have no particular status in RRG in that the theory posits a single construction-specific grammatical relation called the pivot or Privileged Syntactic Argument, (PSA), of the construction. The non-PSA syntactic arguments in the clause are referred to as direct or oblique core arguments. The PSA for most constructions is the traditional subject. Individual languages have selection hierarchies to determine the PSA. The default PSA can be overridden and a different argument can be selected to function as PSA. For instance, it is possible for another macrorole argument of a transitive verb, the undergoer, to function as the PSA in a personal passive construction with the default choices for PSA treated as oblique adjuncts, appearing in a prepositional phrase.

(1) Actor-undergoer hierarchy

Actor				Undergoer
Argument of DO	1 st Argument of do' (x...	1 st argument of pred' (x,y)	2 nd argument of pred' (x, y)	Argument of state pred' (x)
Agent	Effector	Location	Theme	Patient
	Mover	Perceiver	Stimulus	Entity
	Emitter	Cogniser	Content	
	Performer	Wanter	Desire	
	Consumer	Judger	Judgement	
	Creator	Possessor	Possessed	
	Speaker	Experiencer	Sensation	
	Observer	Emoter	Target	
	User	Attributant	Attribute	
			Performance	
			Consumed	
			Creation	
			Locus	
			Implement	

For a syntactically accusative language, the highest ranking direct core argument in terms of the Actor-Undergoer Hierarchy (AUH) is default, that is, the leftmost argument in the AUH. Case and agreement rules are also formulated with reference to the linking system. For an accusative language, the highest ranking core macrorole takes nominative case, other core macroroles take accusative case and non-macrorole direct core arguments take dative as their default case. The agreement rules work in a similar manner with the finite verb agreeing with the highest core macrorole in person and number.

The linking system of RRG is divided into two parts, (See Figure 1) one of which is labelled *universal* with the other *language specific*. RRG claims that what it calls the lexical phase of the linking, the determination of the macrorole assignments based on the lexical structure of the verb, is virtually universal and subject to limited cross-linguistic variation. The second phase, the syntactic phase, deals with the mapping of the macroroles and other arguments into the syntax and as such, is subject to considerable cross language variation.

The RRG linking system has two discrete steps: first, relate logical structure to macroroles and second, relate macroroles to syntactic functions. By achieving the linking in this manner RRG captures a number of generalisations across languages that are not possible with other approaches (Van Valin and LaPolla 1997). There is a particular and principled reason why the lexical phase of the linking system of RRG is universal. The aktionsarten distinctions underlying the decomposition are universal in that, as far as can be determined, all languages have them.

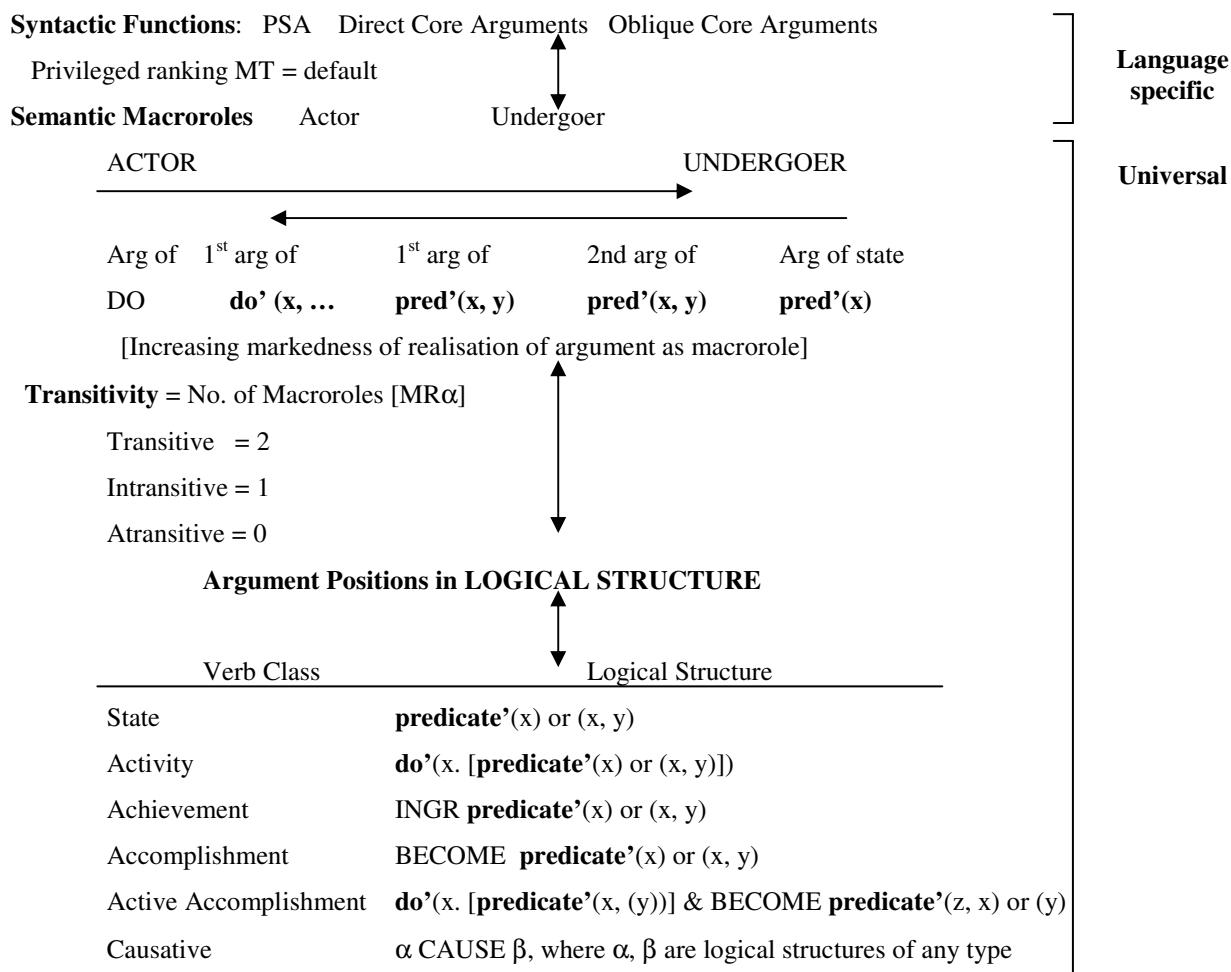


Figure 1. The System linking semantic and syntactic representations in RRG (Van Valin & LaPolla 1997)

The actor and undergoer notions are also valid across languages and the relationship between macroroles and logical structure is governed by the Actor-Undergoer hierarchy and associated principles. Most cross-linguistic variation is found in the syntactic phase and the factoring of the RRG linking into two phases, one lexical and the other syntactic, allows the linking system to handle this and universally work.

2.3 The layered structure of the clause

The system of lexical representation is based on Vendler's (1967) Aktionsart classifications of verbs into states, activities, accomplishments and achievements. Each of these also has a causative counterpart. Examination of the verbal systems of a number of languages had led to the conclusion that this set of aspectual distinctions is one of the fundamental organising principles of verbal systems in human language. The RRG theory of semantic roles is different from that of other theories, in that it posits two types of semantic roles. Specifically, Van Valin and LaPolla (1997) have proposed a more general type of semantic role, a macrorole, which subsumes groups of specific thematic relations. There are two macroroles, actor and undergoer. The actor and undergoer are the two primary arguments of a transitive predication, and correspond to the agent and patient, respectively. They correspond to what is commonly called

‘logical subject’ and ‘logical object’. Either of these macroroles can be the single argument of an intransitive clause.

RRG defines thematic relations in terms of positions in logical structure representations. All thematic relations are defined in terms of argument positions in state and activity logical structures. All of the other logical structure types are composed of them along with primitives such as BECOME, CAUSE, INGR. Since thematic relations have no independent status, they are treated as mnemonics for the argument positions in logical structure.

Macroroles act as the primary interface between the logical structure and syntactic representations. There are only two macroroles, actor and undergoer, corresponding to the two primary arguments in a prototypical transitive relation. They are called macroroles because each subsumes a number of specific thematic relations. Given the logical structure representation for a verb, the most agent-like argument will be the actor and, in the default case, the most patient-like argument will be the undergoer. Macroroles are not, however, equivalent to grammatical relations.

3 The role of the lexicon in RRG

The lexicon plays an important role in the theory. Lexical entries for verbs are built around logical structure representations. In RRG, no syntactic subcategorisation information is included in lexical entries. All of the relevant information is derivable from the logical structure of the verb, such that the syntactic subcategorisation of a verb is predictable from its semantic representation.

3.1 The lexicon in RRG

For RRG, the lexicon “*contains information relating to semantic, morphosyntactic and other properties which determine how a lexical item will behave grammatically*” (Van Valin & LaPolla 1997: 154). As the theory is primarily motivated by the aktionsarten of a verb in a clause, the logical structure for a verb (3) is its lexical entry. These lexical entries do not need to specify any thematic role or transitivity information. General macrorole assignment principles (2) operate across all the verbs in the lexicon (with some exceptions – see discussion in Van Valin & LaPolla 1997: 154).

(2) Default macrorole assignment principles

- a. **Number:** the number of macroroles a verb takes is less than or equal to the number of arguments in its logical structure.
 1. If a verb has two or more arguments in its logical structure it will take two macroroles.
 2. If a verb has one argument in its logical structure, it will take one macrorole.
- b. **Nature:** for verbs which take one macrorole,
 1. If the verb has an activity predicate in its logical structure, the macrorole is actor.
 2. If the verb has no activity in its logical structure, the macrorole is undergoer.

(3) Sample lexical entries for verbs (Van Valin & LaPolla 1997: 155)

a.	kill	[do' (x, 0) CAUSE [BECOME dead' (y)]	
b.	receive	BECOME have' (x, y)	
c.	own	have' (x, y)	
d.	belong(to)	have' (x, y)	[MR1]
e.	arrive	BECOME be-at' (x, y)	
f.	go	do' (x, [move.away.from.ref.point' (x)]) & BECOME be-LOC' (y, x)	
g.	seem	seem' (x, y)	[MR0]
h.	see	see (x, y)	
i.	watch	do' (x, [see' (x, y)])	
j.	show	[do'(w, 0)] CAUSE [BECOME see' (x, y)	
k.	run	do' (x, [run' (x)])	
l.	drink	do' (x, [drink' (x, y)])	
m.	melt	BECOME melted' (x)	
n.	afraid	feel' (x, [afraid' (y)])	

where:

MR0: Indicates in the lexicon that the verb is macrorole atransitive, that is, has no macroroles

MR1: Indicates that the verb is macrorole-intransitive

3.2. The status of lexical rules in RRG

The RRG position on lexical rules is contained in Van Valin and LaPolla (1997: 179ff). In this, the authors recognise that the lexicon plays a vitally important position in linguistic theory in general and grammatical theory in particular. One reason for this is the development of rules which apply in the lexicon permitting the capturing of important linguistic generalisations. These lexical rules relate lexical entries to each other. A question for the design and specification of the lexicon is whether verbs like, for example, English *break* and *eat* should be listed twice in the lexicon, once for each Aktionsarten type, or whether there should be one base entry for each with lexical rules to derive the other alternative forms. The key considerations are the economy, motivation, and predictiveness of the lexical rules that operate on lexicon entries within the lexicon.

It is not desirable to have a lexicon populated with massively redundant information, that is, with much common information repeated for each lexical entry. One possible way of avoiding this redundancy is, for example, when there are multiple entries for a verb, to state only that information which is distinctive for the form and have a lexical rule that takes as input the root or base entry and produces as output the derived form.

The motivation for positing certain lexical rules must come from the morphology of the language under study. In this regard RRG does not at present have a fully expressed position on morphological processes. We will therefore assume that the lexical rules are well motivated within the lexicon (Katamba 1993; Spencer 1992; 1996; Trost 2003). The predictiveness of lexical rules can be empirically tested to determine whether they correctly predict, for example, whether language learners over-generalise the rules of the L2, or whether children over-generalise the rules of their L1 (Bowerman 1974, 1990).

3.3 The operating principles of the RRG lexicon

We use Van Valin and LaPolla (1997:69ff) as the basis for determining the operating principles of the RRG Lexicon. In particular, we express the general hierarchical ordering from sentence to argument in terms of immediate dominance rules expressed in a rewrite rule notation (4). We then express the RRG rules for Operator Projection (5) and the scope ordering of these (6) with respect to the logical structure of a clause.

(4) **Universal immediate dominance rules**

SENTENCE	→ { (DP) } CLAUSE
DP	→ XP/ADV
CLAUSE	→ { (ECS) }, CORE, (PERIPHERY), {NP*}
ECS	→ XP/ADV
PERIPHERY	→ XP/ADV
CORE	→ ARG*, NUC
NUC	→ PRED
PRED	→ V/XP
ARG	→ PRO/NP/PP

where the * represents the Kleene star

(5) **Rules for operator projection**

SENTENCE	→ CLAUSE ← IF
CLAUSE ← IF	→ CLAUSE ← OP*
CLAUSE ← OP	→ CORE (← OP*)
CORE (← OP*)	→ NUC (← OP*)
NUC (← OP*)	→ V/XP

(6) **The scopal ordering of the operators with respect to the logical structure**

<IF DEC < EVID HS < TNS PAST < STA REAL < NEG 0 < MOD OBLG
< DIR 0 < ASP PERFPROG < **Logical Structure** > >>>>>>>

where (following Van Valin and LaPolla 1997: 40ff):

OP: Operators that modify the clause and its parts.

TNS: Tense: A category which expresses a temporal relationship between the time of the described event and some reference time., which, in the unmarked case, is the speech time.

ASP Aspect: Related to temporality, but does not express this temporal relationship between event time and speech time. Instead, it tells us about the internal temporal structure of the event itself.

NEG: Negation.

MOD Modality: refers to the root or deontic sense of modal verbs. This category included such things as strong obligation, ability, permission, and weak obligation. Modality concerns the relationship between the referent of the subject NP and the action

STA Status: Includes epistemic modality (necessity and possibility), external negation, realis and irrealis.

IF Illocutionary Force: refers to whether an utterance is an assertion, a question, a command or an expression of a wish

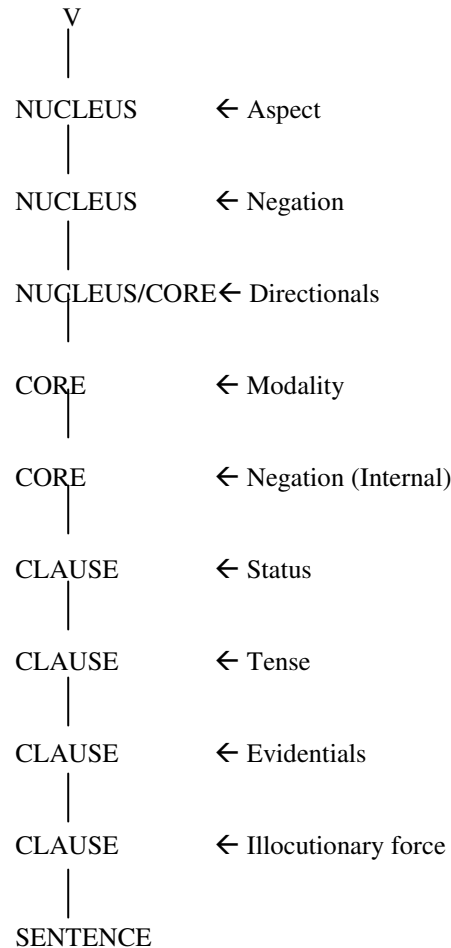
DIR Directionals: Markers of direction of the event or the motion of one or the core arguments

EVID Evidentials: Refer to the sources of information, or evidence, which form the basis of what we are saying.

The principle of scope assignment governing operators (Van Valin and LaPolla 1997: 46) is as follows, where Clausal \supset core \supset nuclear where ‘ \supset ’ means ‘has scope over’. Among clausal operators, the scope relations are illocutionary force \supset evidentials \supset

tense/status. Among core operators, the scope relations are modality/directionals \supset negation. Among nuclear operators, the scope relations are directionals/negation \supset aspect. In (7), we diagram the Operator Projection in the Layer Structure of the Clause.

(7) **Operator projection in the layer structure of the clause**



We next look at the representation of the nominal in the RRG lexicon.

4 Representation of nominals in the RRG lexicon

The lexical entry for nominals is based around ideas from Pustejovsky (1995) in his the Qualia Theory of Nominals. In this, he attempts to capture the attributes and behaviours of nominals as: constitutive, formal, telic, and agentive. The manner in which they relate together is indicated in (8).

The theory requires that the lexical entry for a noun contain a set of qualia { Q_C , Q_F , Q_T , Q_A }, which represent its primary semantic properties, much like a logical structure represents the semantic properties of a verb. A more complete semantic representation is available when the verb and noun lexical entries are combined, as in example (9).

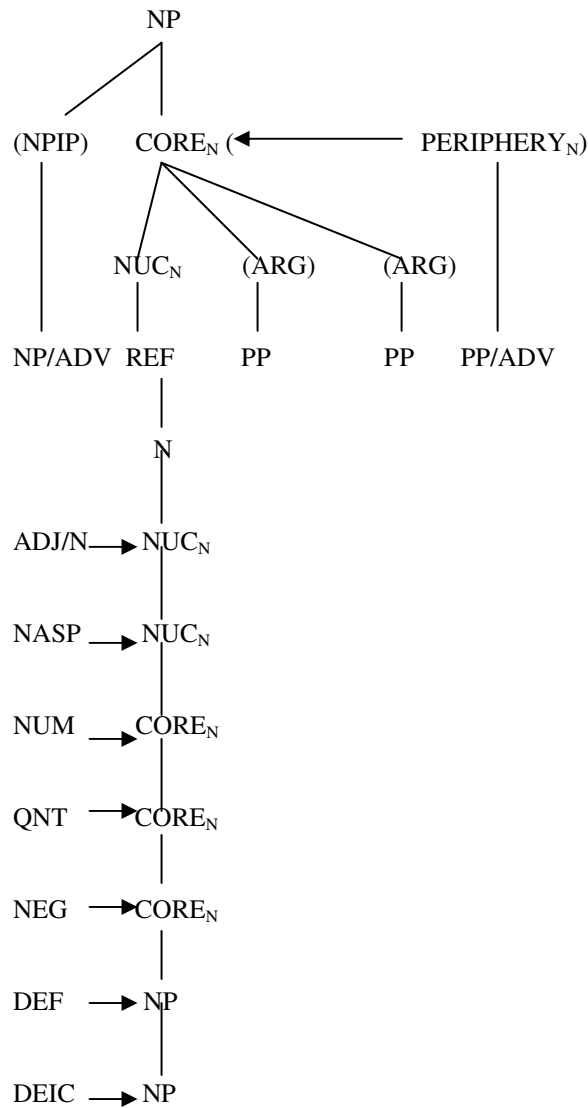
- (8) **Qualia theory**
- a. *Constitutive role* **Q_C**: The relation between an object and its constituents, or proper parts.
 - 1. Material
 - 2. Weight
 - 3. Parts and components
 - b. *Formal role* **Q_F**: That which distinguishes the object within a larger domain
 - 1. Orientation
 - 2. Magnitude
 - 3. Shape
 - 4. Dimensionality
 - 5. Colour
 - 6. Position
 - c. *Telic role* **Q_T**: Purpose and function of the object
 - 1. Purpose that an agent has in performing an act
 - 2. built-in function or aim that specifies certain activities
 - d. *Agentive role* **Q_A**: Factors involved in the origin or “bringing about” of an object
 - 1. Creator
 - 2. Artefact
 - 3. Natural kind
 - 4. Causal chain
- (9) a. The door opened.
 b. BECOME **open'**([door(x), { Q_C, Q_F, Q_T, Q_A }])

The mechanisms by which these are achieved within the RRG lexicon are not well articulated at this time however, and remain largely aspirational. In addition, we argue that Qualia Theory more properly should reside in an ontology of entities in the world and their (constitutive, formal, telic, and agentive) properties, rather than in the lexicon.

Such an ontology would be presumably expressed in a first order logic and represented visually as a semantic network of entities within an IS_A/HAS_A hierarchical set of relations. Indeed, one such implementation of an ontology, the Microkosmos ontology, within the Functional Grammar world is described (Ortiz and Hernandez 2002: 179-212; Mairal Uson and Faber 2002:70ff) as an intertwined hierarchy of frames, each frame representing a concept. The constraints-based approach for RRG suggested in this paper is intended to be compatible with this use of an ontology. The lexicon would, in a constraints-based architecture, inherit relevant information from the ontology.

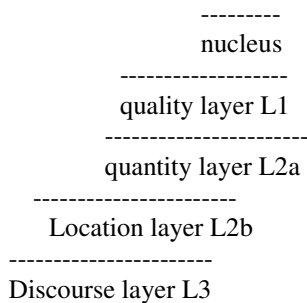
For our purposes of identifying a structure for the NP that would lend itself, within the RRG framework, to a constraints-based approach, we can find elsewhere a more suitably motivated representation of nominals than that found in Qualia Theory of Pustejovsky (1995). Van Valin and LaPolla (1997: 53ff) where they suggest a general schema (10) for a layered structure of the noun phrase (LSNP), and in Rijkhoff (2004: 343ff) who outlines the hierarchical structure (11) of the NP.

(10) **The general schema for a layered structure of the noun phrase**



(11) **The hierarchical structure of the NP**

$$(\Omega_3 [\omega_{2b} [\omega_{2a} [\omega N \tau_1] \tau_{2a}] T_3])$$

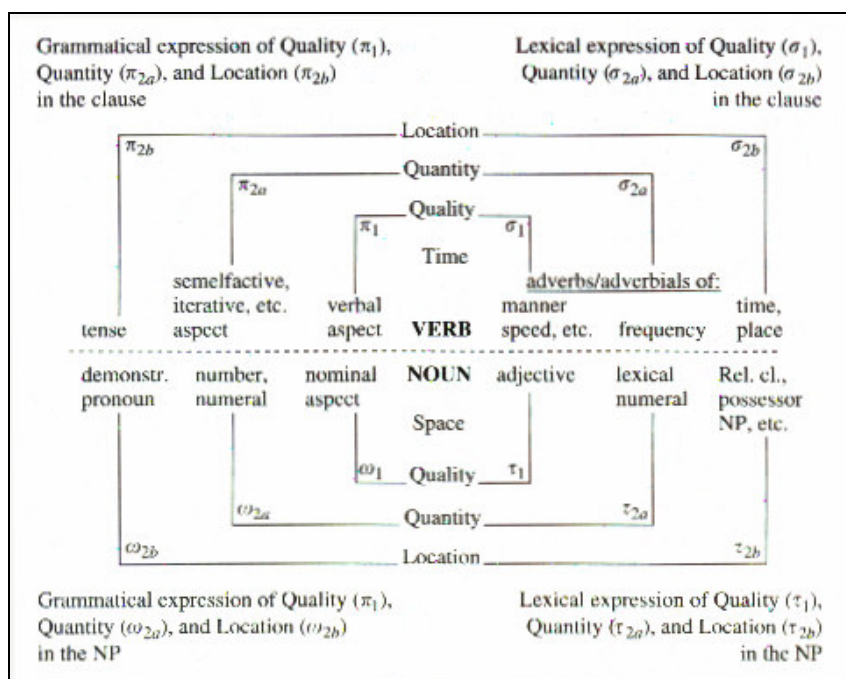


where:

Ω and ω symbolise grammatical categories
 τ and T symbolise lexical modifiers in the NP

(From Rijkhoff 2004:343)

(12) The symmetry in the underlying structure of the clause and the NP



(From Rijkhoff 2004:224)

Rijkhoff (2004: 224), in turn, indicates the symmetry in the underlying structure of the clause and the NP. This suggests that a treatment of verbal predicates has a direct analogue for the NP. We argue that the constraints-based approach to predicates can also apply equally well to nominals and the noun phrase.

5 The specification of a computational lexicon

Typical lexicalist theories include Head-Driven Phrase Structure Grammar, Lexical Functional Grammar and Construction Grammar. Each of these has a specific (formal) theory of how the lexicon operates and how its lexical rules are implemented. These theories do not regard the smallest units of grammar as atoms, but as complex objects which may be represented as feature structures, that is, by attribute-value structures, with internal representation.

What then is required of a computational lexicon of RRG?

5.1 A theory of the RRG lexicon

A lexicon to support a computational implementation of RRG, as is the goal here, must, by definition, be a sub-theory of RRG, that is, a theory of the lexicon. Such a lexicon must, of necessity, be well defined and well formed.

A lexicon is based on specific modelling conventions that define the ontology of language in terms of finite lexical units. This defines the structure of the lexicon. The lexicon as a theory is interpreted in terms of the morphological, syntactic and semantic of the macro theory. In our case this is RRG and, having earlier outlined the motivating and operating principles of the RRG lexicon, we need to translate these into a formal RRG model of the lexicon.

Recent thinking on the structure of the lexicon (Zadac 1993; Sehitoglu and Bozsahin 1999; Sag and Wasow 1999) has proposed that the lexicon be represented as an inheritance hierarchy with information common to a class of lexical items inherited by its subclasses. Commonality between lexical entries can be captured succinctly by a well-defined type system. Default inheritance is inherently supported but the lexicon must support the over-riding of default information, if required, by the subclasses of a type. Our formal model of the RRG lexicon will require that we express the symbols, signs and entities of the formalism. In this regard, we must identify a hierarchy of types with which we will be concerned.

As linguistic theories have become more lexical, the focus of such work has highlighted the need for a lexical representation language. One common approach to a lexical representation language is based on the idea of unification within a feature structure, or attribute value matrix (AVM), formalism. Unification is a form of bi-directional pattern matching and is used extensively in theories of the lexicon, for example in GPSG, LFG and HPSG. A feature structure is displayed in AVM notation in which coindexing indicates token identity of subparts of the feature structure. Unification of two feature structures, if defined, produces a new feature structure in which information from both are combined.

The lexical representation language for RRG will need to allow linguists to define and test basic theorems about a language under study. In the case of RRG, this is presently articulated in the procedural outline of the bi-directional linking between the syntax-semantic interface within the RRG linking theory. I suggest that an extended linking theory is required to capture universal and language specific morphotactics and the morphosyntactic interface needs to be developed. This is not yet in place within RRG. The lexical representation language must also allow the linguist to define instances of the types within the type hierarchy. For phonological information, the notation of the IPA symbol set should, of course, be used. To capture regularities found in inflection, derivation and valence alternation, we propose the adoption of a constraint-based framework for computational work within RRG and modelling of its lexicon.

One constraint mechanism of value here is that of underspecification, where an attribute is given as its value a less specific type *T* to indicate that any of the more specific subtypes of *T* can unify with that attribute's value. Sharing of properties or constraints is typically implemented via use of types ordered in an inheritance hierarchy, supported by a set of lexical rules which relate pairs of lexical entries. A key factor in the success of inheritance as a tool is the fact that it can support nonmonotonicity. Nonmonotonic inheritance means that if class *C2* from property *P2* inherits from class *C1* with property *P1*, inheritance of the information from *P1* is blocked if *P1* and *P2* are incompatible. That is, default properties may be overridden or suppressed by subclasses. This makes inheritance a valuable tool to have available in modelling the lexicon.

Lexical rules that operate on the types in the lexicon are the principle means for capturing generalisations within the lexicon. We have outlined the operational principles of RRG with respect to lexical rules. In a computational implementation, these rules will need to be formally expressed. Typically this will be in the form of a rule expressed in the manner of LHS [] → RHS [], where [] is a AVM structure and the LHS is the input to the rule and RHS is the output. PS rules are replaced by frame-based schema and constituents are built according to specifications on its members,

projected from lexicon entries. Locating this information in the lexicon allows the same very general schema which is used to construct the syntactic representation of phrases and clauses to also build up the semantic representation in parallel.

The lexicon should support development of RRG parsers. Such parsers would be expected to check the syntax of a sequence of lexical items as representing a clause of the language and return a result in the form of an RRG style tree structure showing the layered structure of the clause. As the primary goal is to specify, design and implement a computational lexicon compatible with the RRG theoretical framework, the resulting implementation of this in software can be considered an execution of the RRG theory in a testbed environment on a computer. The computer program will be a running model of the theory.

A first cut prototype of a parser for RRG has been implemented at ITB in Java, an object-oriented programming language.

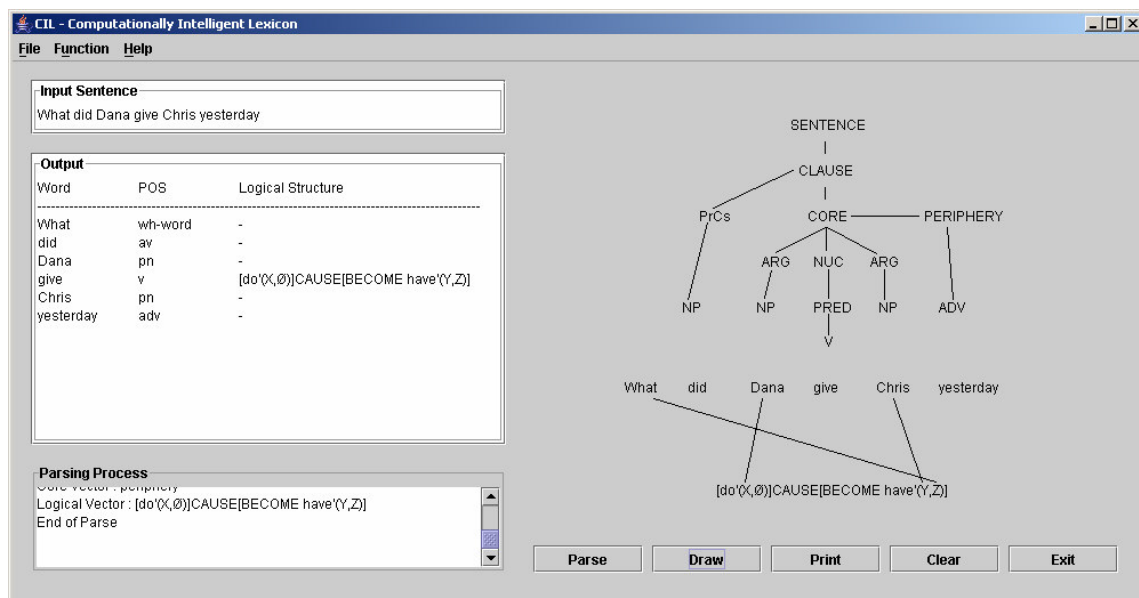


Figure 2: A first cut prototype of a parser for RRG

This implementation is object-oriented. It is not constraints-based and therefore not readily extensible with respect to its lexicon and generality for use. This proof-of-concept has indicated strongly the need for a formal constraints-based architecture on which to build.

5.2 Lexical rules

Flickinger and Nerbonne (1992) propose a flexible and powerful mechanism in which lexical rules map between word classes in a default inheritance hierarchy which do not necessarily stand in an inheritance relationship, imposing additional constraints and creating derived entries.

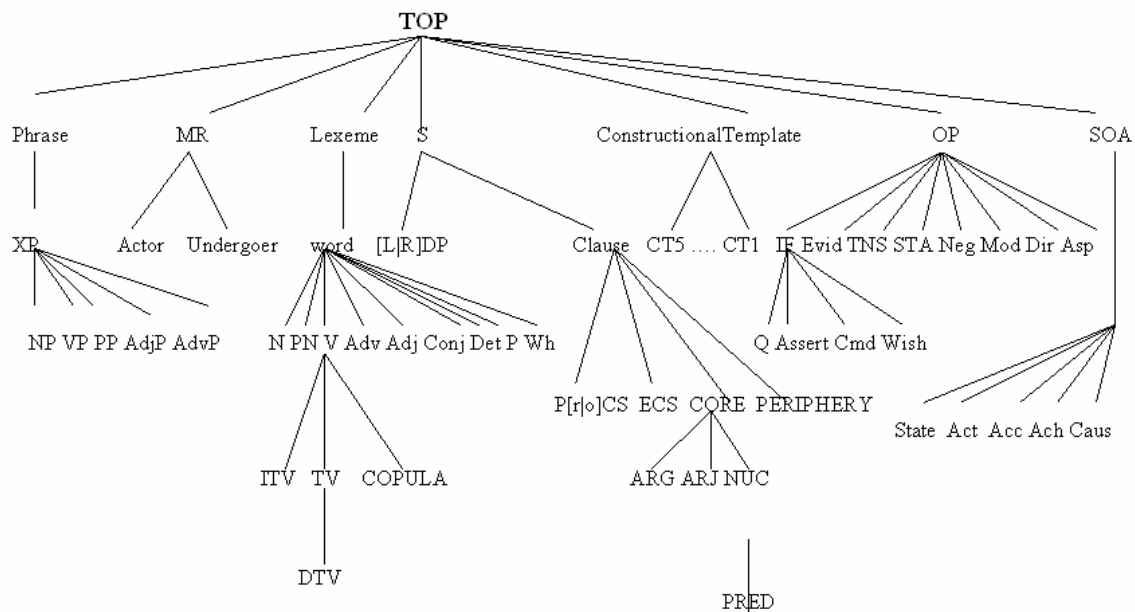
It is generally accepted as an advantage when lexical rules are stated in the same representational language as the lexicon. This is possible to achieve by adopting a HPSG style notation for expressing the RRG lexical entries, the constructional templates of the syntactic inventory, the lexical rules and critically, for defining the

RRG type hierarchy. Using the example of the HPSG style notation, one (AVM) template can be used for information about subcategorisation, another can contain information about agreement. Templates are therefore orthogonal. By making use of such templates the RRG lexical entries and lexical rules can be elegantly expressed in a manner conducive to a computational implementation.

5.3 The hierarchy of types in the RRG lexicon

A major challenge in designing a constraints-based architecture and approach for RRG is to define a hierarchical type system for the RRG Lexicon to include morphological items including lexemes, affixes and lexeme to word rules. The challenge is to define a hierarchical type system for the RRG Lexicon to include morphological items including lexemes, affixes and lexeme to word rules. By relating the motivating elements of the RRG theory as expressed in, for example, the universal immediate dominance rules, the rules for operator projection and the components of the logical structure we can formulate a hierarchy of types compatible with RRG (13). The hierarchy of types is partial in that it does not yet contain RRG morphosyntactic entities. Later, we make some suggestions as to what these entities might be.

(13) **A partial type hierarchy for the RRG lexicon**



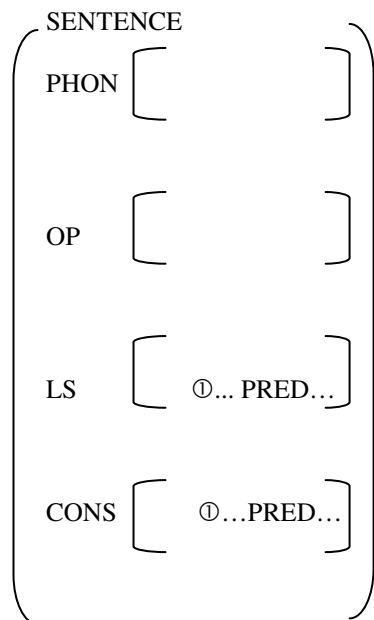
From this an initial RRG type hierarchy, we now need to design frame schemata compatible with the idea that each type in the hierarchy has internal structure composed of features. We express this internal structure using the AVM formalism.

5.4 The architecture of the RRG lexicon

Our strategy for implementing the RRG lexicon architecture and its internal structure is through use of a well defined type hierarchy. We impose a constraints-based mechanism that employs underspecification and AVM feature structures on this hierarchy. This architecture of the lexicon must adhere to the operating principles of RRG and respect the lexicon goal of economy, motivation and predictiveness.

We therefore propose a frame-based schema for each type in the hierarchy. For a sentence, this would look as follows:

(14) **Frame-based schema for a sentence**



Where:

PHON: Phonological information

OP : Operator projection

LS: Logical Structure

CONS: Constituent projection

① Index to indicate commonality
or shared structure, i.e. same predicate
used in two structures

As we can observe, this consists of a constituent projection, an operator projection, the logical structure and a projection called PHON to capture the phonological-morphological information consistent with the morphosyntactic interface. Indexing is used to signal commonality or sharing of structure. (For a discussion on the place of phonology in a constraints-based approach to the lexicon see Bird and Klein 1994 and Bird 1995).

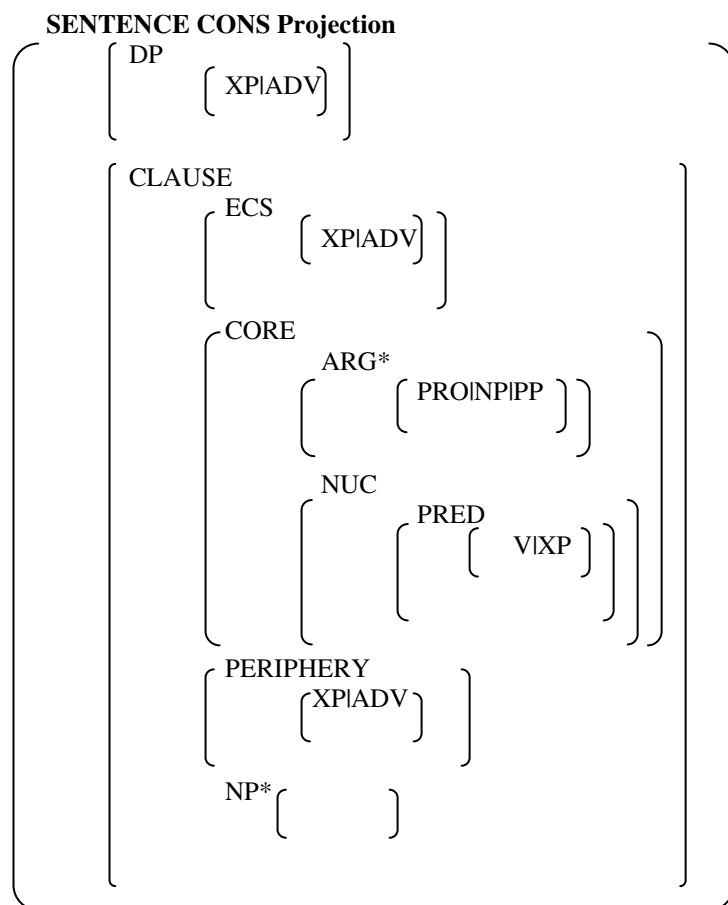
5.5 The constituent projection

In this section we give a formal representation of the RRG constituent projection that makes use of the type hierarchy and the lexical representation language discussed earlier. We state the universal immediate dominance rules (15) from Van Valin and LaPolla (1997) that forms the basis of the constituent-projection and then express these as a frame structure in (16)

(15) **Universal immediate dominance rules**

SENTENCE	→ { (DP) } CLAUSE
DP	→ XP/ADV
CLAUSE	→ { (ECS)}, CORE, (PERIPHERY), { NP* }
ECS	→ XP/ADV
PERIPHERY	→ XP/ADV
CORE	→ ARG*, NUC
NUC	→ PRED
PRED	→ V/XP
ARG	→ PRO/NP/PP

(16) **Frame-based schema of the constituent projection for a sentence**



5.6 The operator projection

In this section we give a formal representation of the RRG operator projection using the same type hierarchy and lexical representation language discussed earlier. We state the rules for operator projection (17) and operator precedence order (18) with respect to the logical structure that forms the basis of the projection and then express these as a frame structure in (19)

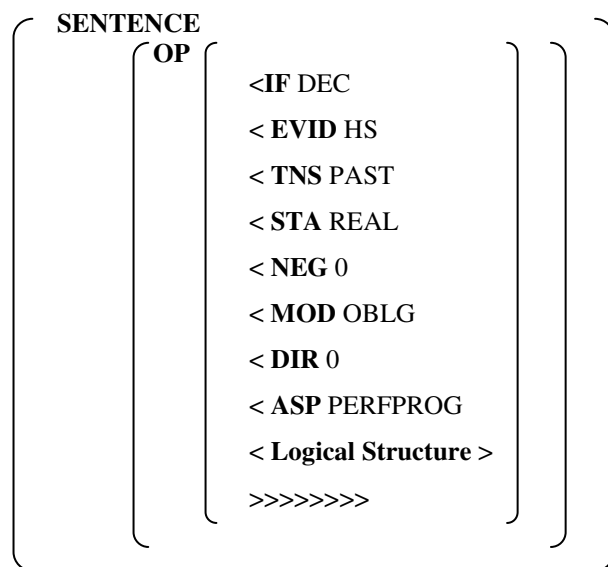
(17) **Rules for operator projection**

SENTENCE	→ CLAUSE ← IF
CLAUSE ← IF	→ CLAUSE ← OP*
CLAUSE ← OP	→ CORE (← OP*)
CORE (← OP*)	→ NUC (← OP*)
NUC (← OP*)	→ V/XP

(18) **The operator projection and precedence order**

<IF DEC
 < EVID HS
 < TNS PAST
 < STA REAL
 < NEG 0
 < MOD OBLG
 < DIR 0
 < ASP PERFPROG
 < LS >>>>>>>>

(19) **The frame schema for the operator projection of a sentence**



5.7 The lexicon structure

The structure of the lexicon will therefore contain, at a minimum, the following types (20). It will, of course, contain much greater type information than that shown here, particularly when an RRG theory of morphology is implemented that addresses the morphosyntactic interface and its relationship to the lexicon. This is a project for future research by the RRG community. We have not formulated a generic frame for other POS including ADJ, ADV, PP in this paper, but leave this also to future research.

We can see that constructional templates are included in the lexicon. What is the status of these RRG?

(20) **The lexicon structure**

Constructional templates	type
Word	type
Verb [OPS [] CONS [] LS []]	type
Noun [num person G]	type
Pronoun [num person G]	type
Adj []	type
Adv []	type
Prep []	type
Det []	type
Conj []	type
Particle []	type
NP []	phrasal category type
ADJP []	phrasal category type
ADVP []	phrasal category type
PP []	phrasal category type
Constructional templates	INSTANCE for a sentence (language specific)
Lexeme	INSTANCE of BASE form of word (N or V)
Phoneme	INSTANCE of phoneme set
INSTANCES of V	type V
INSTANCES of N	type N
INSTANCES of Pronoun	type PRO
INSTANCES of ADJ	type ADJ
INSTANCES of PREP	type PREP
INSTANCES of ADV	type ADV
INSTANCES of CONJ	type CONJ
INSTANCES of DET	type DET
Categories of N	(MASS, COUNT, Proper, Common)
Categories of V	(verbs of experiencing, perceiving, etc.)
Lexical Rules expressed in the same format as the lexical entries	
Phoneme + phoneme → lexeme	
Lexeme + phoneme → INSTANCE of word	
Lexeme → Word → Noun → Noun Category N hierarchy	
Lexeme → Word → Verb → Verb Category V hierarchy including ITV/TV/DTV	

5.8 The status of constructional templates in RRG

According to Van Valin and LaPolla (1997: 73ff), “*In the RRG approach to constructional templates, it is assumed that there is a set of syntactic templates representing the possible syntactic structures in the language, which are stored in the ‘syntactic inventory’, and that there is a separate lexicon containing lexical items, morphemes and other types of lexical entities. Each of the templates specified (...) can be specified by the immediate dominance rules. (...) They represent a part of the structure of a possible sentence in English. (...) While syntactic templates have a universal basis in the layered structure of the clause, the templates in the syntactic inventory of any particular language will reflect the properties of clauses in that language. English syntactic templates, for example, reflect the fact that English has left- and right-detached positions, as well as a precore slot, and the restrictions on the ordering of the constituent projection. (...) we have five different core templates*”

(arbitrarily labelled ‘1’ through ‘5’), along with a precore slot template and a left-detached position. (...) All of these core templates may be realized as simple sentences. (...) Syntactically speaking, templates combine to form more complex structures in a way that is formally equivalent to applying the various immediate-dominance rule options to create structures. Template combining is also subject to the same semantic constraints as immediate-dominance rules, i.e. the resulting combinations must be able to be linked to a semantic representation by means of a set of very constrained linking principles”.

5.9 A subsumption order in constructional templates

A natural ordering may exist for the constructional templates held within the syntactic inventory part of the lexicon. Such an ordering is based on subsumption. For example, for the constructional templates of English as indicated in Van Valin and LaPolla (1997: 74, 174), we can posit that the following subsumption order exists, based on structure and not on the arbitrary template name.

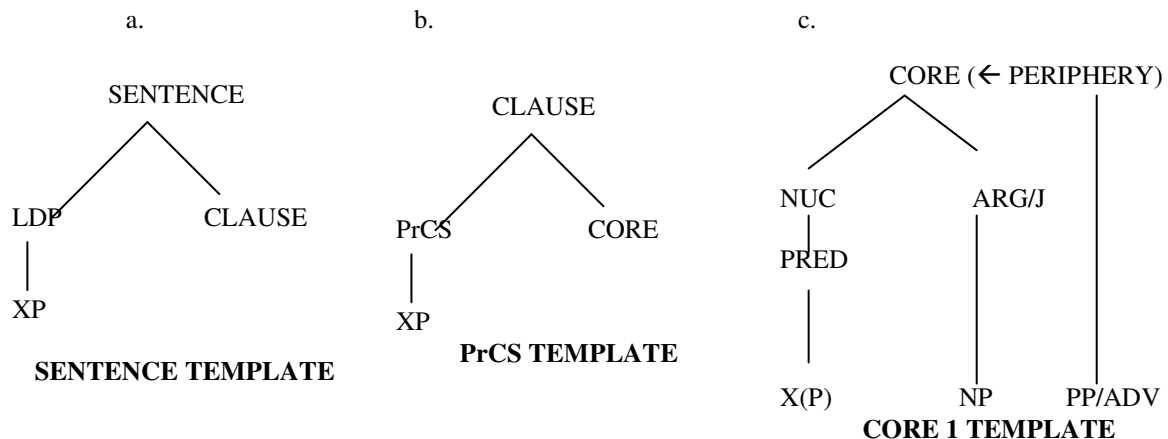
$$(21) \quad \text{CT1} \subseteq \text{CT2} \subseteq \text{CT3} \subseteq \text{CT4} \subseteq \text{CT5}$$

This subsumption ordering lends itself to expression within a typed hierarchy.

5.10 Frame schemata of the RRG constructional templates 1 – 6

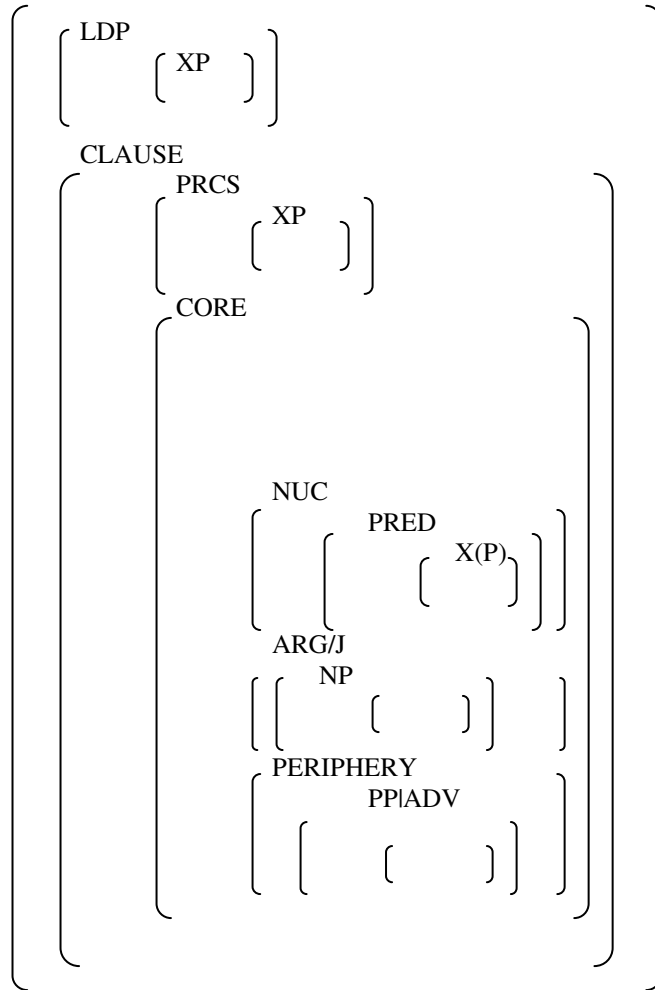
In this section we use the sentence template, the precore template and the core template to define a frame schema for the constructional templates of English, in a notation suitable for use in a constraints-based model of RRG.

(22) The sentence, PrCS and core 1 templates

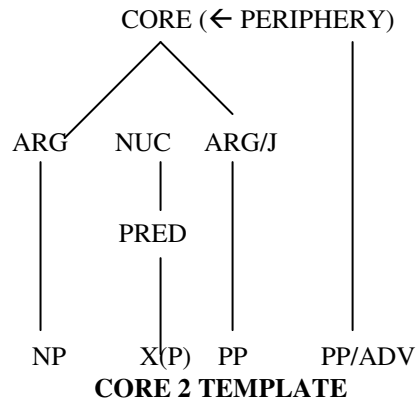


(23) **The core 1 constructional template**

SENTENCE CONS Projection for CORE 1 Template

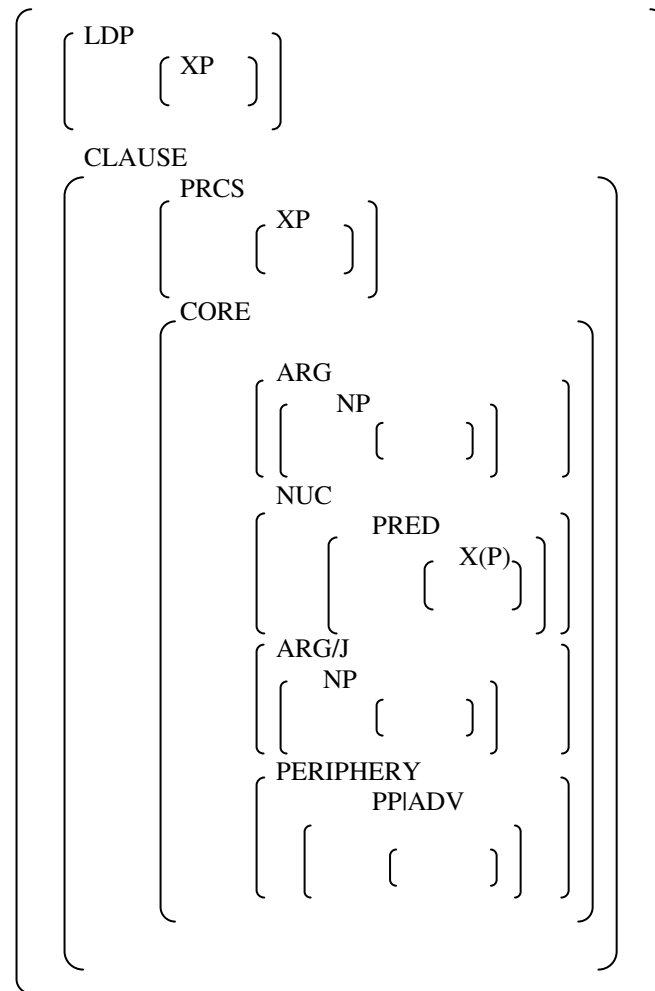


(24) **The core 2 template**

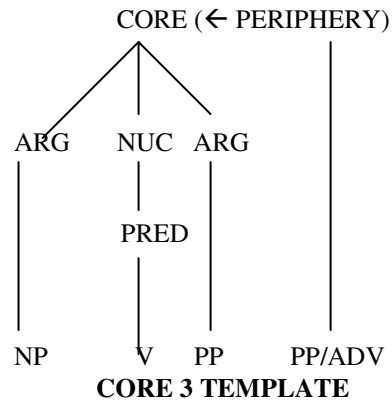


(25) **The core 2 constructional template**

SENTENCE CONS Projection for CORE 2 Template

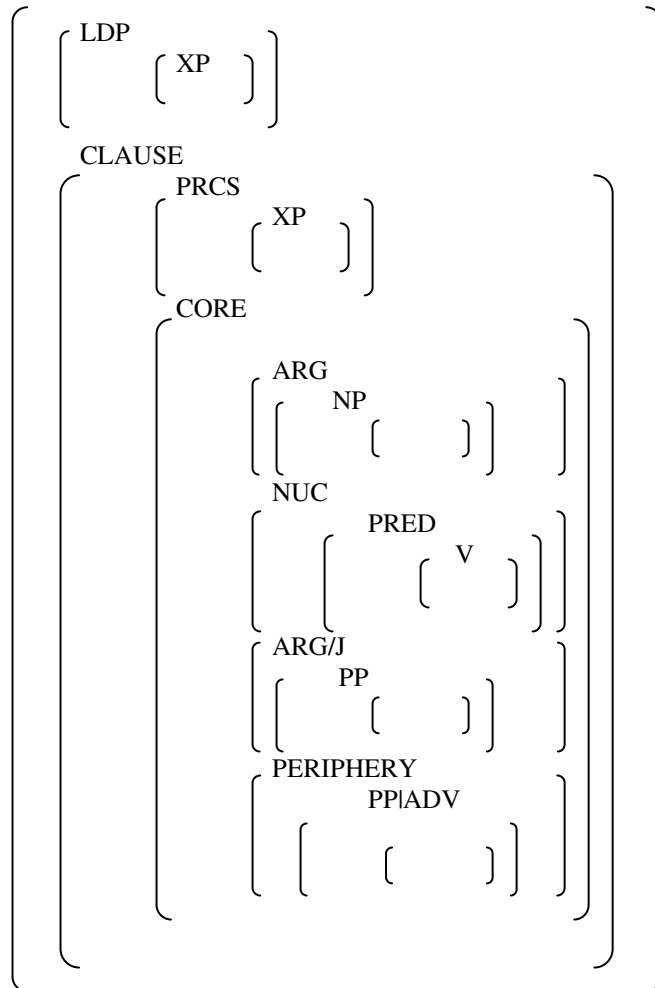


(26) **The core 3 template**

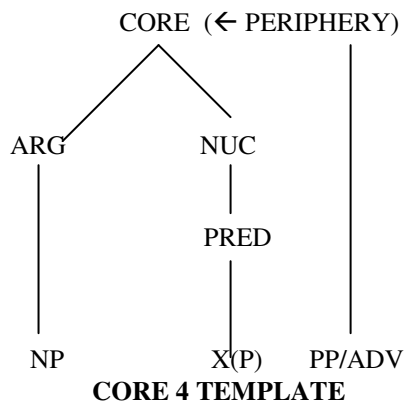


(27) **The core 3 constructional template**

SENTENCE CONS Projection for CORE 3 Template

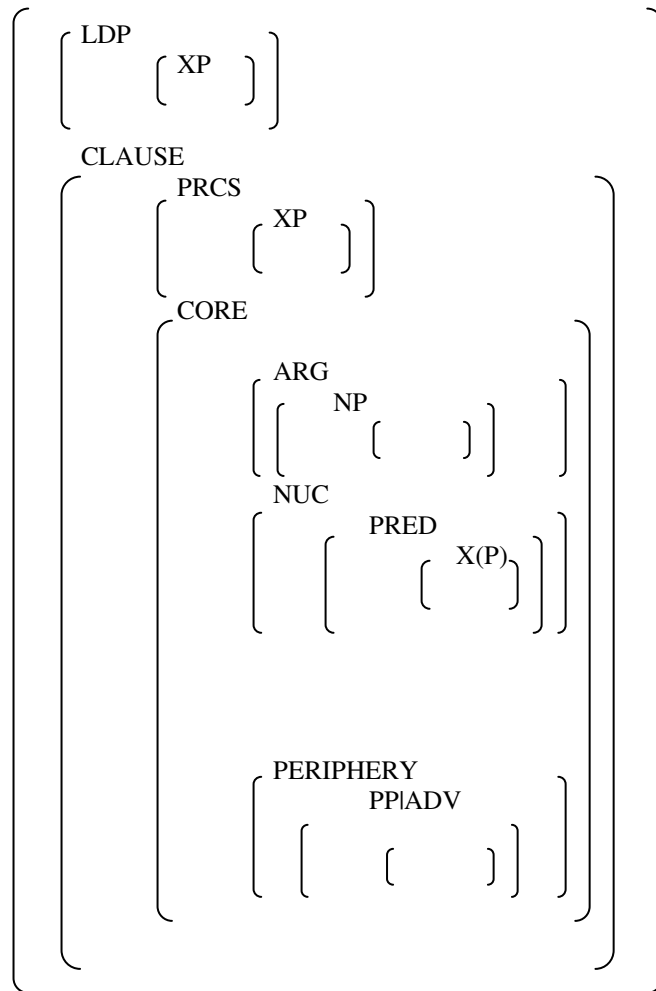


(28) The core 4 template

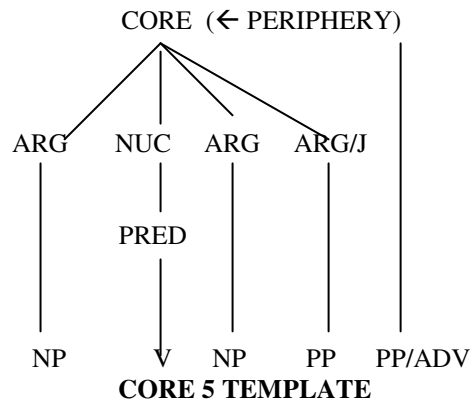


(29) The core 4 constructional template

SENTENCE CONS Projection for CORE 4 Template

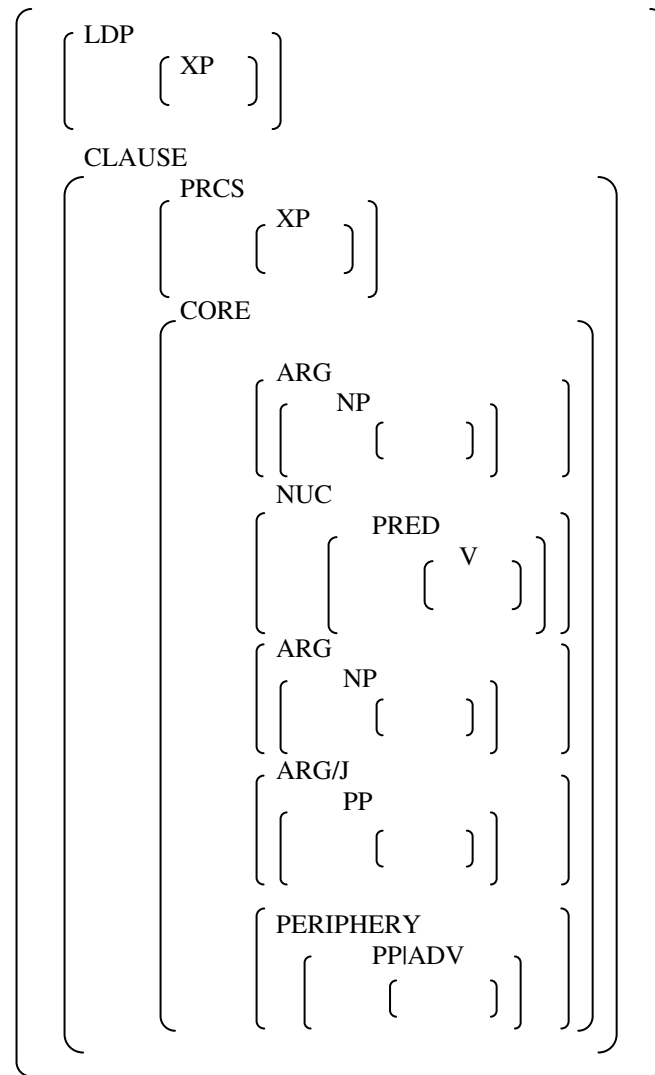


(30) The core 5 template



(31) The core 5 constructional template

SENTENCE CONS Projection for CORE 5 Template



5.11 Representing the logical structure

Similarly, we build frame structures to represent the RRG Aktionsarten for a verb and a sentence, as expressed in logical structure.

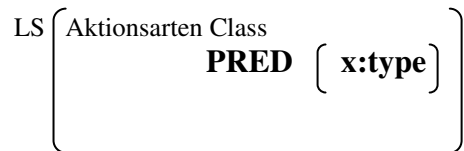
The logical structure for each of the aktionsarten classes is indicated following.

(32) Aktionsarten Classes: Logical Structure of Predicate

State	predicate' (x) or (x, y)
Activity	do' (x, [predicate' (x) or (x, y)])
Achievement	INGR predicate' (x) or (x, y)
Accomplishment	BECOME predicate' (x) or (x, y)
Active Accomplishment	do' (x, [predicate' (x, (y))]) & BECOME predicate' (z, x) or (y)
Causative	α CAUSE β , where α, β are logical structures of any type

We express this generically in a frame representation in the following manner:

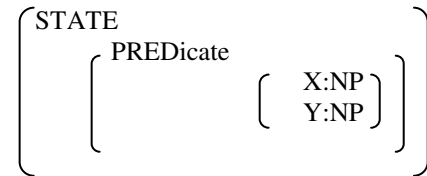
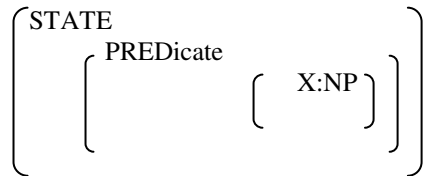
(33) **The generic frame for the aktionsarten class**



(34) a. State aktionsarten class

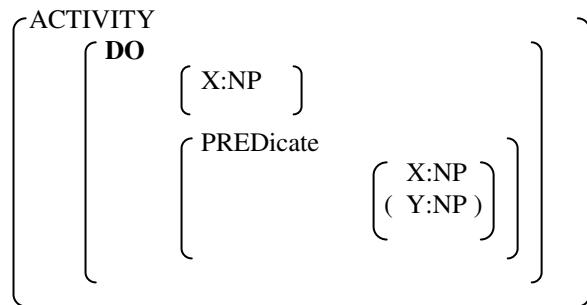
or

b. State aktionsarten class

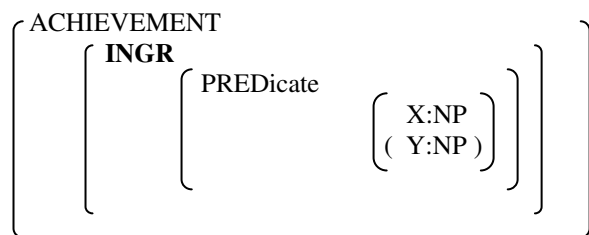


(35)

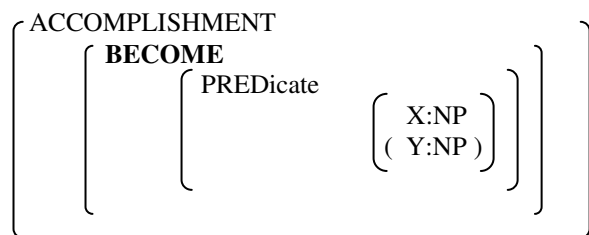
Activity aktionsarten class



(36) **Achievement aktionsarten class**

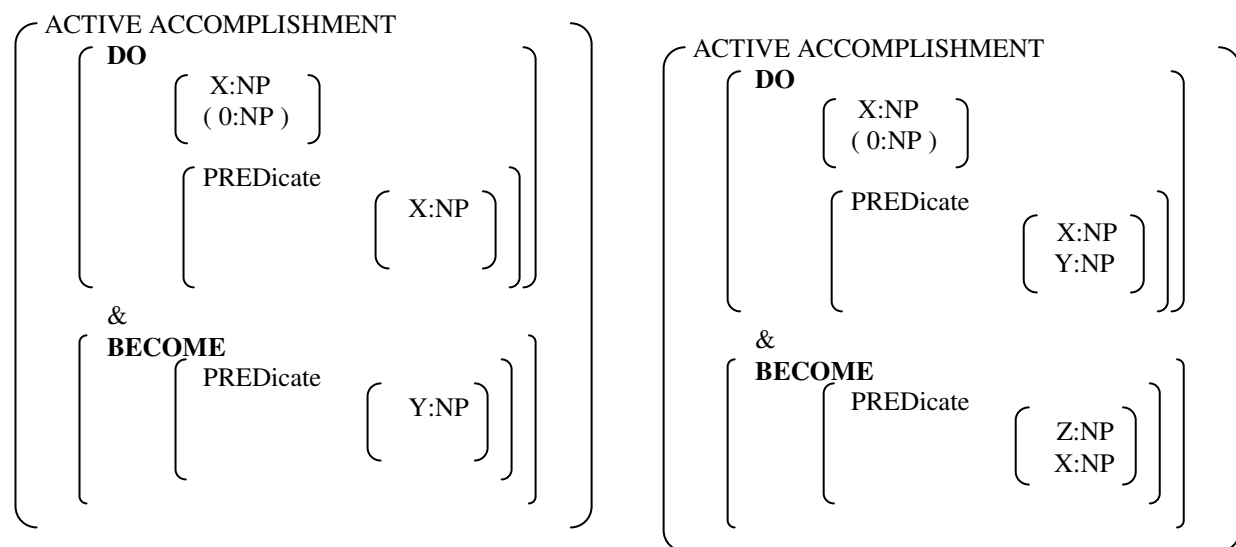


(37) **Accomplishment Aktionsarten Class**



(38) **Active accomplishment aktionsarten class**

a. or b.



5.12 Expressing the RRG linking system in the lexicon architecture

In the design of the constraints-based approach to RRG we have carefully taken guidance from the AUH and the RRG linking principles. Implicit in the constraints-based approach is use of unification as a tool. The constraints-based approach with unification will allow support for non-monotonicity and protect the RRG lexicon against redundant entries. Commonality between lexical entries is motivated by use of indices on feature structures within attribute-valued matrices (AVMs). This, then, is the ‘engine’ of the RRG lexicon and the related implementation of the RRG linking system and can be found across the logical structure of a clause, the General Frame representation and the Indexed Frame representation. This constraints-based architecture for RRG is amenable to treatment in a computational model of RRG

6. Conclusions and discussion

In this paper we have examined the role of the lexicon in RRG. Using the operating principles of RRG (Van Valin and LaPolla 1997), we have attempted to formally express a richer architecture of the lexicon that is constraints-based and amenable to implementation in computer software models. A design goal of the constraints-based architecture is to facilitate enhanced computational intelligence within the lexicon that facilitates use of feature structures and unification, while minimising redundancy and promoting productivity within the lexicon. The architecture is expressed in a lexical representation language in which the lexical entries and the lexical rules share a common formalism. We suggested how this approach is broadly compatible with current work on a computational ontology in Functional Grammar.

We posit a Hierarchy of Types in the RRG Lexicon and, from this, motivate a possible feature-based architecture of the RRG lexicon. We restated the Constituent Projection and the Operator Projection in this new view of the lexicon structure and discuss a possible status of constructional templates in RRG while suggesting that a subsumption order in constructional templates might exist that lends itself to a feature-based approach. In this regard we present a “first cut” formal frame schemata of the RRG constructional templates 1 to 6 for English. We apply the same feature-based architecture to the logical structures of lexical entries for verbs and discuss (part of) the RRG Linking System in terms of unification across features-based attribute value matrices.

We identified some gaps in the theory and suggested areas for future research. These relate to the need for an RRG theory of morphology that addresses the morphosyntactic interface and the extension of the types in the RRG type hierarchy. We suggest that research is required particularly with respect to a constraints-based modelling of the layered structure of the noun phrase and its morphosyntactic interface.

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AN RRG ACCOUNT OF REFLEXIVE CONSTRUCTIONS IN MODERN IRISH

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Abstract

This paper examines reflexive constructions in modern Irish, a VSOX language that, in a functional-typological analysis, does not contain a VP. Stenson (1981:40) notes that “*because of the basic word order, with the subject intervening between the verb and object, the notion ‘verb phrase’ as a syntactic category is meaningless for Irish. ... It should be noted that the association between the verb and subject is in fact much tighter than that between verb and object, apart from the closeness inherent in the linear order. Although elements such as adverbs and prepositional phrases can sometimes precede the object nothing can ever intervene between the subject and verb.*” The generative analysis of reflexives, using c-command (based on a binary tree structural account of grammatical relations that depends on a VP), is considered problematic. Indeed, some generative approaches have recognised the difficulties with c-command and instead use the notion of obliqueness-command to characterise reflexivity. In modern Irish, the reflexive occurs in transitive constructions with the reflexive marker *féin*. This particle can also be used non-reflexively for emphasis. In our analysis of data of modern Irish reflexive constructions, a continuum is observed with a human/animate participant at the reflexive pole and a non-human inanimate at the emphatic end. Van Hoek (1997:172-174) notes that when the reflexive marker is used *emphatically* it tends to exhibit a number of characteristics. We provide evidence that these apply in the case of modern Irish. We posit a schema for the reflexive-emphatic constructions and use this in our analysis. Jackendoff (1990) has argued that reflexivisation is sensitive to the thematic hierarchy and that certain thematic roles tend to control the antecedents for reflexives. We argue that RRG, through its use of verb logical structures, the actor-undergoer hierarchy, the role hierarchy condition on reflexivisation, logical structure-superiority and the superiority condition on reflexivisation, provides a more appropriate framework for understanding the reflexive construction in general and therefore a better motivated account of these type of constructions in modern Irish.

1 Reflexive constructions

1.1 Introduction

In this paper we provide an RRG account of reflexive constructions in modern Irish, a VSOX language for which the generative analysis of reflexives (Geniusiene 1987) using c-command is problematic. The Irish reflexive occurs in transitive constructions with the reflexive marker *féin*. This particle can also be used in non-reflexive constructions under certain conditions for purposes of emphasis.

The structure of this paper is as follows. We first discuss issues relating to different approaches to reflexivity, especially binding theory and constituent-command (c-command), highlighting problems with these as an analysis tool in a VSO language. We examine alternative approaches concerned with the notion of obliqueness and obliqueness-command (o-command), and relate this to the Actor-Undergoer Hierarchy within the RRG framework. We examine the use of the thematic hierarchy as a device to motivate an account of reflexive behaviour. From this discussion of other approaches we introduce the RRG suite of constraints on reflexivity and use these to determine whether a particular Irish construction is reflexive, or not. We then provide a characterisation of reflexive, emphatic and possessive-reflexive constructions, as found in modern Irish.

1.2 Approaches to understanding reflexive constructions

In this section we briefly explore the treatment of reflexives in a number of frameworks, including the generative framework, as a prelude to the analysis of reflexives in Irish. We look at the traditional generative approach, Head-driven Phrase Structure Grammar, and also the semantic thematic hierarchy approach of Jackendoff, and others.

1.2.1 Binding theory and c-command

In the literature, reflexive behaviour is generally explicated by binding theory and, in the generative tradition, with c-command. For purposes of our discussion, we will adopt a general version of this approach without particular concern about specific proposals for minor variations. The binding domain is the syntactically defined scope for the co-indexing relation. In the generative tradition the syntactic constraints on binding (co-indexing) are expressed in forms of constituent command, or c-command. The notion of c-command is a structural one, derived from phrase marker architecture. It is usually defined in terms similar to the following, adapted from Borsley (1999: 96ff):

- (1) A node X c-commands a node Y iff neither dominates the other and the first branching node (i.e. node with more than one daughter) above X dominates Y.

A reflexive must have a c-commanding antecedent

In the generative tradition the use of c-command has been broadly successful, particularly with regard to languages where the word order is SVO (English) or SOV (Japanese). In languages such as these, the tree structures that may be drawn to represent a typical well formed clause follow the usual binary branching with X-bar intermediate categories encapsulating a mix of NP and VP categories. Terminal nodes at the tree endpoints represent the lexical categories of N, V etc. The orientation of the trees reflects a pre- or post-positional bias according to the constituent word order. These essentially deliver a generalised top-down tree structural account of the grammatical relations hierarchy of subject > direct object > indirect object > oblique.

1.2.2 VSO word order and c-command

In Irish, this grammatical relation hierarchy is broadly reflected in the linear word order and not in a tree structural account because the language maintains a VSO order in its finite clauses. Not only does this not easily facilitate the use of a notion such as c-command, it also poses a serious question over the nature of, and the use of, a category such as VP in relation to Irish. The notion of a VP (Berman 1974, Borsley and Roberts 1996) may not actually be viable in its usually understood form. Stenson (1981:40) notes that *“because of the basic word order, with the subject intervening between the verb and object, the notion ‘verb phrase’ as a syntactic category is meaningless for Irish. ... It should be noted that the association between the verb and subject is in fact much tighter than that between verb and object, apart from the closeness inherent in the linear order. Although elements such as adverbs and prepositional phrases can*

sometimes precede the object nothing can ever intervene between the subject and verb." (For an alternative discussion, see McCloskey 1983).

Irish does not lend itself to a binary tree structural account of grammatical relations without substantial re-arrangement of the constituents to enable the c-command machinery to work. Such transformations operate with a base word order of SVO upon which the transformations are applied in a procedural manner until the desired word order is arrived at. This holds in Principles and Parameters theory and also within the Minimalist programme where the subject is internal to the VP, but crucially, within the VP, is left of the V which is in turn left of the O, thereby positing an underlying SVO order (Radford 1997). Bobaljik and Carnie (1996:223ff) undertake such an analysis within the Minimalist programme while McCloskey (1996:241ff) proposes an alternative analysis to Bobaljik and Carnie on subjects and subject positions in Irish within the Minimalist program.

1.2.3 Obliqueness and o-command

A number of researchers and authors have commented on the limitations of both the tree structural approach and the notion of c-command, and have suggested an alternative based on the notion of obliqueness, of *o-command* (Sag and Wasow 1999; Pollard and Sag 1994; Borsley 1999). In particular, Borsley (1999:102) suggests, in relation to Head-driven Phrase Structure Grammar (HPSG), the following:

(2) o-command

An argument structure list member X is less oblique than another argument structure list member Y if X preceded Y.

1.2.4 Jackendoff and the thematic hierarchy

Jackendoff (1990) argues that reflexivisation is sensitive to the thematic hierarchy and that certain thematic roles tend to control the antecedents for reflexives. This suggests that the antecedent of a reflexive has to be higher on the thematic hierarchy than the reflexive particle. Specifically, "*A reflexive may not be higher on the thematic hierarchy than its antecedent*" (Jackendoff 1972:148). In support of this, Wilkins (1988:211ff) has determined that the thematic hierarchy must include both patient and affected roles while Kuno (1987:176ff) argues that reflexivisation must be sensitive to a hierarchy that includes undergoer categories such as experiencer and benefactive. We will call this the *thematic hierarchy constraint*.

(3) Thematic hierarchy constraint

A reflexive may not be higher on the thematic hierarchy than its antecedent.

An obvious concern then is what exactly is the thematic hierarchy? This is still a debated area (Dowty 1986, 1989, 1991; Jackendoff 1987) with no agreed definition of either the hierarchy or the thematic roles themselves. Within the literature the following rankings (4), showing a wide range of variation, can be found.

(4) Variations in thematic hierarchy ranking

- a. Actor > Patient/Beneficiary > Theme > Location/Source/Goal.
(Jackendoff 1990:258). Note that Experiencer and Instrument are not included.
- b. Agent > Beneficiary > Recipient/Experiencer > Instrument > Theme/Patient > Location
(Bresnan & Kanevara 1989:23)
- c. Agent > Dative/Benefactive > Patient > Location > Instrument/Associative > Manner
(Givón 1983:139)
- d. Agent > Effector > Experiencer > Location/Recipient > Theme > Patient
(Van Valin 1993:75)

RRG abstracts over all of these issues and avoids these theoretical problems in virtue of its Actor-Undergoer Hierarchy model. Essentially, the RRG model motivates in a more principled way the link between obliqueness and the AUH such that we need not concern ourselves with c-command as a tool to motivate an explanation of reflexivity.

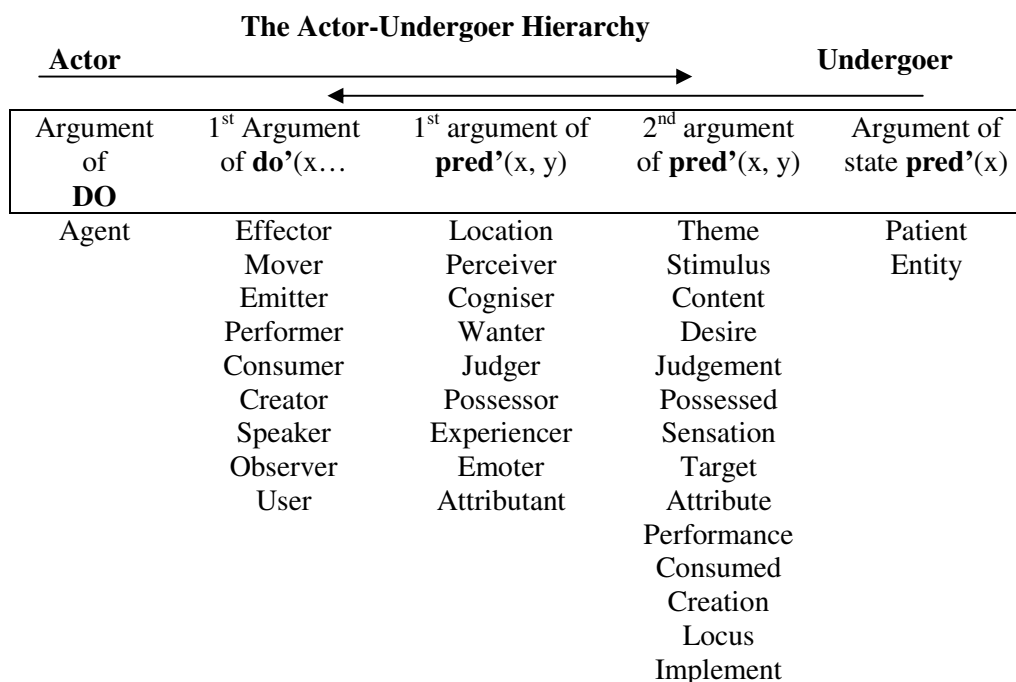


Figure 1: The Actor-Undergoer Hierarchy (Van Valin and LaPolla 1997).

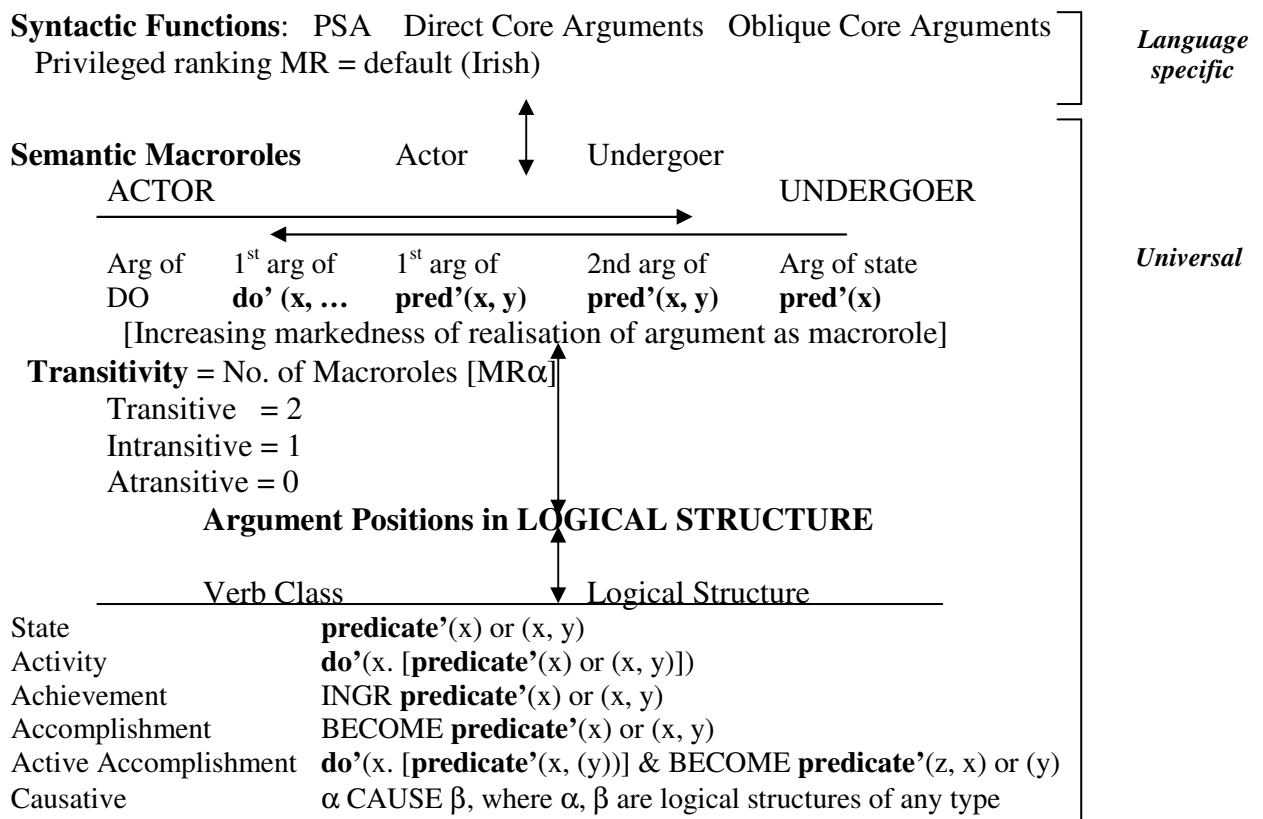


Figure 2: The System Linking the Semantic and Syntactic Representations of Irish in RRG (After Van Valin & LaPolla 1997).

For Irish, we illustrate within figure 2 the relationship between the Actor-Undergoer Hierarchy of Figure 1 and the logical structure into which the Vendler classes (Vendler 1967, Van Valin & LaPolla 1997) are decomposed. The relationship between these two components is motivated by the linking system of RRG.

1.2.5 An obliqueness condition on the binding domain

The notion of obliqueness is used in Head-driven Phrase Structure Grammar (HPSG), as we discussed, and is inherent in the thematic hierarchy. We will refer to this notion as the *Obliqueness Condition within the Binding Domain*. The use of obliqueness is also inherent in the logical structure formalism in our model. To motivate this we appeal to the inherent obliqueness of the actor-undergoer hierarchy in logical structure, with the actor to the left. Within this, the linking system maps the actor participant to the syntactic subject and the undergoer to syntactic object for finite clauses. The logical structure representation encapsulates the idea behind the thematic hierarchy of Jackendoff, while not depending on a taxonomy of thematic roles. The co-indexing mechanism, when applied within logical structure, denotes an antecedent leftward of a downstream referring nominal. We will refer to this as the following:

- (5) Obliqueness condition within the binding domain
1. A logical structure participant X is less oblique than another logical structure participant Y if X precedes Y.
 2. An anaphor must be coindexed with a less oblique member of the same logical structure argument in the minimal S containing the verb.
 3. The binding domain for a verb is the scope of predication of the verb in logical structure.

Within RRG, Van Valin and LaPolla (1997: 604) provide a suite of constraints (6), as follows, that must be respected for reflexivity to occur. These also encapsulate the notion of obliqueness and the relationship between arguments in logical structure. We will appeal directly to these constraints in our analysis.

- (6) a. **Role hierarchy condition on reflexivation**
The reflexive pronoun must not be higher on the AUH (as applied to selection of privileged syntactic arguments in the language) than its antecedent.
- b. **Logical structure superiority**
A constituent P in logical structure is LS-superior to a constituent Q iff there is a constituent R in logical structure such that
- (i) Q is a constituent of R, and
 - (ii) P and R are primary arguments of the same logical structure.
- c. **Superiority Condition on Reflexivisation**
A bound variable may not be LS-superior to its binder.
- d. **Domain of Obligatory Reflexivisation Constraint**
One of the two coreferring semantic co-arguments within a simple clause must be realised as a reflexive, while one of the two coreferring syntactic arguments (which are not semantic co-arguments) within a simple clause may be realised as a reflexive.

2 The deployment of the particle *féin*

In this section we demonstrate the deployment of the particle *féin* in a number of reflexive and non-reflexive emphatic constructions. Reflexivity can be found in constructions that make use of the particle *féin* ‘self’. In the syntax, this particle *féin* has the purpose of acting as a reflexive marker on a grammatical relation in a predicate argument position. The particle *féin* may also be used simply for emphasis, that is, non-reflexively. The same reflexive marker can operate in constructions requiring single or plural number agreement, with no overt marking for this on the reflexive marker itself. Any necessary agreement marking is on the core antecedent referent having the same index (‘left upstream’) in logical structure, the binding domain of the clause. The reflexive marker can also be used with lexically reflexive verbs, that is, verbs of understood object.

2.1 The underlying schemata

Morphosyntactically, the reflexive/emphatic marker *féin* is a freestanding word. Its use can be represented by an underlying schema that has template positions within which *féin* can occur reflexively, and in which it can occur emphatically. Used reflexively, the marker *féin* is tied to specific argument positions. The constructional templates are generalised below, where the indices indicate the co-indexed and co-referring participants.

- | | | |
|------|--|-------------------|
| (7) | Verb actor ₁ undergoer ₂ <i>féin</i> ₁
Reflexive | <u>TV</u> |
| (8) | Verb actor ₁ undergoer ₂ ((prepositional-PN ₃) <i>féin</i> ₁) ₁
Reflexive | <u>DTV</u> |
| (9) | Verb actor ₁ <i>féin</i> ₁
Emphatic | <u>ITV</u> |
| (10) | Verb actor ₁ undergoer ₂ <i>féin</i> ₂
Emphatic | <u>TV</u> |
| (11) | Verb actor ₁ [possessive-PN ₁ [undergoer ₂]] ₂ (prepositional-PN) <i>féin</i> ₁
Possessive-Reflexive | |

Van Hoek (1997:172-174) notes that when the marker is used *emphatically* it tends to exhibit a number of characteristics. These are: 1) proximity, when the reflexive marker occurs directly adjacent to a nominal with which it corresponds, 2) prominence, where the antecedent is the most prominent nominal in relationship to the reflexive, and 3) contrast, where there is some implied contrast between the entity designated by the reflexive and some other (typically unspecified) set of possible entities. In contrast, Van Hoek finds that when the marker is used in a *reflexive* construction, the following characteristics hold: 1) proximity, where the antecedent and reflexive code arguments of the same verb; 2) prominence, where the antecedent is the most prominent nominal in relation to the reflexive, and 3) the recipient of the action is perceived differently than in a non-reflexive event involving two distinct participants.

In the next section we will provide an analysis of the construction types introduced in this section, that is, the reflexive, emphatic, and possessive-reflexive.

3. The analysis of reflexive constructions

In this section we provide an account of reflexive constructions. We employ the RRG constraints on reflexivity. We posit that constructions that obey (6a), the role hierarchy condition on reflexivation are, in fact, reflexive, and that constructions that violate this condition are emphatic and not reflexive. We will also discuss one type of construction, the possessive-reflexive which violates the condition in a typologically interesting way. We will then be in a position to validate our hypothesis regarding reflexive and emphatic constructions, that they may be characterised in terms of a common underlying principle.

Before we proceed with our analysis, there are a number of considerations that need to be discussed, and some additional constraints to be highlighted. We need to assume a general background constraint to our discussion of reflexives:

- (12) Coindexed elements agree in person and number.

We state this in terms of coindexing rather than coreference for a number of reasons. Firstly, we use indices within our logical structure to indicate that two entities, having two distinct expressions in the syntax, refer to the same thing. Second, coindexed entities are not necessarily the same as coreferenced entities, though in many instances they are. An example of this would be there is no coreference between the subject and object NPs but a constituent of the object NP is coindexed with the subject NP.

We have borrowed the idea of obliqueness of arguments from HPSG in the formulation of our obliqueness condition. Within HPSG, a theoretical problem exists with respect to reflexives and obliqueness within the HPSG argument structure list that is relevant to our discussion here. The problem within HPSG is that the argument structure list only contains the highest phrase governed by the head, or in an alternative terminology, the maximal projections. In terms of prepositional phrases, for example, this means that the prepositional object NP within the prepositional phrase would not be represented on the argument structure list. Only the PP itself would be listed as an argument of the verb. The implication of this is that if a reflexive pronoun is inside a prepositional phrase that is a complement of a verb, then that reflexive pronoun will not appear on the HPSG argument structure list after the subject and object arguments.

Sag and Wasow (1999: 155) have noticed that certain prepositions seem to be transparent for binding purposes. That is, if a preposition was simply not there and the object of the preposition was an object of the verb, then the binding theory would make just the right predictions. In this case, therefore, the preposition functions as an argument marker that indicates what role their object plays in the situation denoted by the verb of the clause they appear in. Such prepositions may also be independent predicates. The HPSG problem regarding the argument structure list can be stated as follows, from Sag and Wasow (1999: 156): “*For prepositions that function as argument markers, however, we need to provide some way by which they can transmit information about their object NP up to the PP that they project. The higher verb that takes such a PP as its complement will then have the information about the PP’s object NP in its ARG-ST, within the PP’s synsem-struc. Note that without some method for transmitting this information up to the PP, the information about the preposition’s object is invisible to the higher verb selecting the PP as its complement.*” In relation to the HPSG terms, the ARG-ST is the argument structure list and the synsem-struc is a syntactic-semantic structural representation. Essentially what HPSG proposes is a feature [ANA+] which is percolated up through the structure to the level of the PP, such that it becomes visible to the argument structure list, thereby causing the PP object NP to be entered onto the argument structure list.

This problem does not particularly manifest itself within the RRG framework that we employ in this study, and is essentially a problem internal to HPSG. However, we need in this regard to be mindful of an analogous issue relating to special class of constructions which we discuss later, that of the possessive-reflexive, where we need to

look into an NP in a structured and meaningful way. The RRG framework that we are operating with is not feature-based and therefore there are no binary features such as [ANA \pm] to be percolated. In addition, within the representation that we employ, all entities are represented in an order of obliqueness in the logical structure. A direct benefit of our framework is that all arguments are coded in logical structure, and there is no sense of certain arguments being not visible, and others visible. As all arguments are coded along with their predicates, the obliqueness of the representation of arguments is primary. Even though the preposition is a predicate that contains its own object, the PP is argument marking with respect to the matrix verb in the clause, and coindexing indicates whether the arguments refer to the same entity. According to Sag and Wasow (1999: 158), “prepositions that are transparent for purposes of binding should be analysed as argument markers; those whose objects cannot be bound by a preceding NP in the clause should be analysed as predicative”.

As all of our analysis is motivated by the semantic representation of the clause in logical structure, our framework avoids the problem stated above. We can therefore appeal to the role hierarchy condition on reflexivation relating to actor > undergoer, as earlier formulated. Also, as will become evident from this study, only a core argument may be a participant within a reflexive construction, as either an antecedent or a “downstream” reflexive pronoun. These participants include syntactic arguments headed by prepositions, including prepositional pronouns. All core arguments, as represented in the logical structure, may participate in reflexive constructions. In this regard, we can therefore say that a logical structure representation is well formed with respect to reflexivity if it obeys the role hierarchy condition on reflexivation.

A construction does not violate the LS-superiority constraint simply because its NP argument is embedded within a prepositional phrase. What is important is that the logical structure is well formed with respect to reflexivity if it obeys the role hierarchy condition on reflexivation, as previously mentioned, but also the LS-superiority constraint which specifically covers these types of situations. The domain of reflexivity we have earlier defined as being the scope of predication of the verb. The controller of the reflexivity must be left upstream as a legal antecedent within the logical structure representation of the clause. When the prepositional phrase encapsulates core arguments, as is frequently the case in modern Irish, these arguments are coded and readily visible within the logical structure representation, and are naturally represented as downstream in the logical structure. These then are available to participate in reflexive constructions. We will now start our analysis with constructions that obey the RRG constraints on reflexivity.

3.1 Constructions that obey the Role Hierarchy Condition on reflexivation

We start our analysis with an example (13) that is reflexive. Two participants are coded and the second participant, the undergoer and object of the sentence, is reflexively coindexed to the first participant, the antecedent actor. The reflexive connection between the actor and undergoer is facilitated by use of the reflexive marker *féin*. This captures the insight that the initiator and endpoint participants are distinct while co-referential. The verb *mhol* ‘praise’ is not inherently reflexive but is made so in this utterance by the coding by a speaker of *féin* ‘self’ against the participant in the second participant position. Reflexive use of the marker *féin* requires a transitive construction,

that is, with two participants in logical structure and two arguments in argument structure.

- (13) *Mholfainn mé féin.*
 Praise:V-COND+I:PN me:PN self:PART
 I would praise myself.
 [**do'**(x_1) **praise'**($x_1, y^{féin}_1$)]

As this verb in the conditional tense uses a synthetic form, the personal pronoun is incorporated as a postfix on the verb. We can observe, therefore, that the logical structure actor *mé*, the syntactic subject morphologically expressed within the synthetic form of the verb, is antecedent to the grammatical object *mé* (overtly expressed in the syntax) and its associated marker *féin*. The actor and the undergoer, are both within the binding domain, that is, the scope of predication of the matrix verb. In addition, the role hierarchy condition on reflexivation predicts that the reflexivity is well formed, as the controller of the reflexivity is the grammatical subject and the reflexive downstream participant is oblique within the binding domain.

In contradistinction to the previous example, (14) below does not exhibit these characteristics. The marker *féin* is simply adjacent to the subject. That the participant with which it is associated cannot be reflexive is predicted by role hierarchy condition on reflexivation.

- (14) *Mholfainn féin é.*
 Praise:V-COND+I:PN self:PART him:PN-3sg
 LIT: 'I **self** would praise him'.
 I **myself** would praise him.
 [**do'**(x_1) **praise'**($x^{féin}_1, y_2$)]

This example therefore is emphatic only, demonstrating the veracity of Van Hoek's proximity principle, as mentioned in the introduction to this chapter. The use of *féin* here does not signal reflexivity, merely emphasis.

3.2 The reflexive use of *féin* in prepositional phrases

Syntactically, *féin* can occur in prepositional phrases that we can relate in a principled way to our obliqueness constraint as expressed in the role hierarchy condition on reflexivation and the LS-superiority condition, and semantically, it can occur with beneficiary, goal or recipient arguments.

- (15) *Cheannaigh mé brontanais dom féin.*
 Buy:V-PAST I:PN present:N for:PP+me:PN self:PART
 I bought a present for myself.
 [**do'**(w_1, \emptyset)]CAUSE[BECOME have'($x_2, y^{féin}_1$)]

This example is reflexive with three participants in logical structure. The thematic roles of the participants are agent, theme and recipient respectively. Each of these thematic roles has a direct and distinct reference. What makes this utterance different is that the speaker utilises a prepositional pronoun *dom* (which conflates the preposition *do* 'for'

with the pronoun *mé* ‘me’) against which is associated the reflexive marker *féin*, signalling co-reference between the actor and the recipient. The animate and human actor is therefore the recipient of the transaction described by the verb. The grammatical subject and the indirect object are therefore reflexively co-referential and the indirect object is contained within the prepositional phrase. The reflexivity is sanctioned by the deployment of the marker *féin* post adjacent to the third argument. The role hierarchy condition on reflexivation, the LS-superiority condition and the domain of obligatory reflexivation constraint are all respected.

Within the ditransitive example in (16) we have the reflexive marker *féin* adjacent with the conflated object of the prepositional pronoun *leis* ‘with+him’. This is within the binding domain of the clause and meets the role hierarchy condition on reflexivation, the LS-superiority condition and the domain of obligatory reflexivation constraint allowing for reflexivity to occur with the actor/subject antecedent. Of interest here is the change in word order (with *é* ‘it’ at end of clause) that is sanctioned when a pronominal object occurs, as in this example.

- (16) *Thóg sé leis féin é.*
 Took:V-PAST he:PN with:PP+him:PN self:PART it:PN
 He took it with himself.
 [do'(x₁,∅)] CAUSE[BECOME have'(y₂, z^{féin}₁)]

This is a common phenomenon within Irish (Ahlquist 1978, Ball and Fife 1993, Tallerman 1998, Ó Siadhail 1989, Stenson 1981). Notwithstanding the change in word order, the role hierarchy condition is respected within the logical structure of the clause.

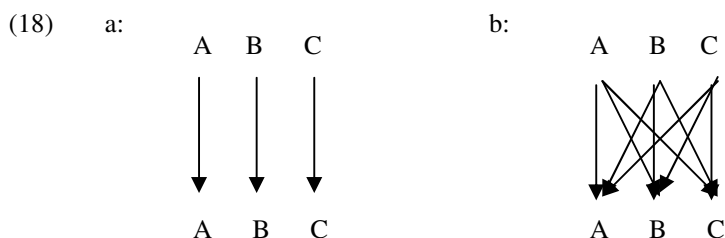
3.3 Reflexive and reciprocal within the same construction

We mentioned earlier that the reflexive marker can operate reflexively over single (17a) or plural (17b) number agreement. Something very interesting can, however, be observed when the marker *féin* is reflexively used in the context of plural agreement. That is, the participants appear to act on each other. Reflexivity coded with *féin* under plural agreement codes for a potential reading for reciprocity. This reading for reciprocity may require a discourse context to sanction it. In reality, it may or may not actually exist. This means that any of the initiators of the action, the actors, may also, depending on the discourse context, be considered as the endpoint of the action, the undergoers. The clause is transitive with two participants in logical structure.

- (17) a. *Chonaic sé é féin.*
 Saw:V-PAST he:PN him:PN self:PART
 He saw himself.
 b. *Chonaic na cailíní iad féin.*
 Saw:V-PAST the:DET girls:N them:PN self:PART
 The girls saw themselves.
 c. see'(x₁, y^{féin}₁)

In (17b), we have simple reflexivity coded by the reflexive marker *féin*. The reflexive marker is adjacent to and immediately following the undergoer participant and this is co-referential with the antecedent actor. Here, the agreement parameter is set to plural.

With regards to reciprocity, we potentially have in this example, simultaneous but multiple events where each member of the set of subject participants acted on the others. To illustrate how this is reciprocal, we can, for example, assume a set of participants {A B C}.



Each individual participant of this set may act on itself (18a), or the participants may alternatively act on each other (18b) in some manner.

3.4 Constructions that violate the RRG constraints on reflexivation

In this section we examine constructions that use the marker *féin*, but which violate the RRG constraints on reflexivation. We will demonstrate that these constructions are not reflexive, but are instead emphatic. One further construction, the possessive-reflexive, violates the role hierarchy condition on reflexivation and LS-superiority condition in a particular way and we will examine this separately in Section 3.4.2.

3.4.1 Emphatic constructions

Example (19) is a causative utterance with the marker *féin* associated with the actor and, in word order sequence, occurring immediately following the actor participant. Here the marker *féin* is used emphatically, that is, simply for emphasis. The clause is transitive and the underlying logical structure has two participants. As the marker *féin* is proximate to the first argument, there is no upstream participant to act as the antecedent, thereby violating the condition for reflexivity to occur.

- (19) *Bhris an fear féin an gloine.*
 Break-V-PAST the:DET man:N self:PART the:DET glass:N
 LIT: ‘The man self broke the glass’.
 The man himself broke the glass.
 [do'(x^{féin}₁,∅)]CAUSE[BECOME broken'(y₂)]

Example (20) codes for an emphatic construction with plural agreement recorded on the NP to which the marker *féin* is associated. The participants in the clause are within the correct binding domain but the marker *féin* simply exhibits emphatic use against the actors of the clause. There is no upstream participant to act as the antecedent, thereby violating the role hierarchy condition on reflexivation.

(Traditional Irish Song. Anonymous. Title: *Thugamar féin an samhradh linn*)

- (20) *Thugamar féin an samhradh linn.*
 Give:V-FUT+we:PN self:PART the DET summer:N to:PP+us:PN
 LIT: ‘We₁ selves₁ will give the summer to us₁’.
 We ourselves will have our summer.

[do'(x^{féin}1,∅)] CAUSE[BECOME have'(y₂, z₁)]

The construction in example (21), which uses one of the two verbs of ‘to be’ in Irish – the non-copula substantive verb, has the subject nominal immediately followed by the marker *féin*. Here again, the use is emphatic rather than reflexive. We can note that the subject nominal is inanimate.

- (21) *Bhí an gleann féin uaigneach.*
 Be:SUBV-PAST the:DET glen:N self:PART lonely:ADJ
 LIT: ‘The glen self was lonely’.
 The glen itself was lonely.
 [lonely’(glen)]

This, then, is a clause indicating a situation type of state with one participant in logical structure. Reflexivity cannot play a part in this construction, as no antecedent is available upstream. It violates the role hierarchy condition on reflexivation.

3.4.2 The possessive-reflexive construction

The relationship in (22) following is one of necessary possession of the undergoer by the actor, and that undergoer partakes of the action expressed by the verb. This example demonstrates a violation of the role hierarchy condition on reflexivation and LS-superiority whereby the marker *féin* is attached to a possessive pronoun that is itself a constituent in a complex NP. The NP is not co-referential with the actor, but its possessive pronoun constituent is co-referential with the actor antecedent. This type of construction therefore violates our constraints in a very interesting way that is quite different from the simple violations of the emphatic constructions.

- (22) *Chóirigh Mairéad₁ a₁ gruaige₂ féin₁.*
 Brush:V-PAST Mairéad:N her:PN-POSS hair:N self:PART
 LIT: “Mairéad brushed her self hair”.
 Mairéad brushed her own hair.

The NP that elaborates the undergoer participant is complex and consists of a possessive pronoun and a concrete mass noun. Quite clearly, co-reference between the NP and the actor antecedent is not sanctioned because the undergoer has very different attributes to that of the actor participant, *Mairéad*. The possessive pronoun *a* ‘her’ within the complex NP does, however, sanction co-reference. The concrete mass noun that elaborates part of the undergoer is a component body part of the actor and therefore necessarily and inalienably possessed by the actor. This possession is coded by the possessive pronoun that forms a component part of the complex NP that elaborates the undergoer. The particle *féin* therefore is associated with the possessive pronoun within the NP. The nominal in the NP intervenes between the possessive pronoun and the particle *féin*, in this situation. This example is therefore not truly reflexive in virtue of the deployment of the marker *féin*. In particular, the marker *féin* is not immediately post adjacent to its referent within the undergoer NP. The antecedent *Mairéad* is left upstream and appropriately indexed. The complex NP that is the undergoer participant is downstream. The nominal within this NP has a different index to that of the actor. The possessive pronoun has the same index as the actor.

Givón (1990:639) has noticed this phenomena of possessive-reflexives as a variant of reflexivity that occurs within a specific semantic context where “*the subject is the possessor of the object*”. In this type of construction, the subject and object are not co-referential. They are “*semantically more transitive than true reflexives*” and, as no argument is lost from argument structure, they are not valence decreasing and therefore also “*syntactically more transitive than true reflexives*”.

3.4.3 The conditions on the emphatic use of *féin*

Based on the analysis on the above construction types that violate the suite of RRG constraints on reflexivity, we can summarise the conditions on the emphatic use of *féin* as follows.

- (23) The conditions on the emphatic use of *féin*
- a. Emphatic use of *féin* requires simple, but immediate post adjacent, proximity to the nominal to which it is associated.
 - b. The nominal with which *féin* is associated within emphatic use may be the syntactic subject, object or indirect object.
 - c. No antecedent to the nominal associated with *féin* is coded upstream in the logical structure, that is, the role hierarchy condition on reflexivation is violated.
 - d. The LS-superiority condition is violated.
 - e. Emphatic use provides the speaker with a strategy to create a contrast between the emphasised nominal and the other entities, particularly the entity that is the syntactic subject.

We can note that the possessive-reflexive construction is not truly reflexive, but even though it violates the reflexivity condition, it is not emphatic either. It represents a middle space between the reflexive and emphatic construction types. Specifically, it violates the obliqueness condition (23c). It also violates (23a) as it does not have simple proximity to its associated nominal.

4 Discussion and Conclusion

We have examined constructions that use the marker *féin* and found that some of these are reflexive, some are emphatic, and some, the possessive-reflexives, are neither but represent a middle space between reflexive and emphatic constructions. As an abstraction over the constructions we identified the constructional templates of Irish for the reflexive and emphatic constructions where the indices indicate co-referring participants.

Crucial to identifying which constructions are reflexive are the set of RRG constraints on reflexivity. We originally motivated an obliqueness condition on the binding domain and associated this with the RRG constraints suite (6). We then proceeded to use the constraints to argue towards our claim that constructions that deploy the marker *féin* and obey this condition are reflexive, and that constructions that violate the condition are not, being either emphatic or possessive-reflexive. We have seen that the possessive-reflexive construction represents a mid-point between the emphatic and reflexive constructions.

At the semantic level, two participant roles may exist for a verb and in many instances this is reflected in syntax as two arguments in a transitive clause. The reflexive marker *féin* preserves the two participant roles at the semantic level but also encodes the fact that both roles share the same reference, that of the antecedent. In the syntax, the leftmost role in logical structure is reflected as the grammatical subject and the rightmost role that is co-referenced with it attracts the reflexive marker *féin*. Therefore, the reflexive clause is still transitive but the transitivity is weakened, not reduced.

Reflexivity weakens the transitivity and hence the valency, but it does not reduce it. Semantically and syntactically the valency is still two (in a transitive clause) but the identification of the human and animate participant in the second argument is reflexively linked to the human and animate participant in the first argument. In a ditransitive construction, the same holds for the first and third arguments.

The notion of obliqueness is encapsulated in the role hierarchy condition on reflexivation within the RRG suite of constraints on reflexivity and, important in our characterisation of reflexive constructions of Irish within the RRG framework. The RRG approach therefore avoids the problems associated with generative tree-structural renderings of constructions, the absolute requirement for a VP, and the well-known problems associated with the taxonomy of thematic roles.

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THE SYNTAX-SEMANTICS INTERFACE OF VERBS OF 'ORDERING' IN PRESENT-DAY ENGLISH AND SPANISH⁷¹

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The aim of this paper is to analyse the syntactic structures in which Present-day English and Spanish verbs of ordering can appear. Firstly, as a result of the analysis of their syntactic behaviour, we will propose a *lexical template*, conceived within the Lexical Grammar Model as a lexical representation including the syntactic and enriched semantic features describing these predicates, what will allow for the capture of their syntactic and morphological phenomena. As will be shown, *lexical templates* will supply Role and Reference Grammar logical structures with a semantic decomposition, introducing semantic primitives and internal variables or ontological constants which will define the different lexical classes. Secondly, we will provide the linking between the syntactic and semantic representation of these predicates by applying the *Lexical Template Modeling Process*, which will establish the lexical rules that motivate the mapping between the different syntactic structures and their corresponding lexical templates derived from the lexical template codified by this lexical subdomain.

1. Introduction

This paper provides the semantic description of the verbs of 'ordering' in Present-day English and Spanish, as a result of which we will propose a *lexical template* for this subclass. Following the Lexical Grammar Model, a *lexical template* encodes the description of a semantic scenario in a formal system of representation, which will allow us to capture the interaction of meaning and syntax within this lexical subclass.

Although this analysis has been applied to the most prototypical verbs of 'ordering'⁷², we posit that the rest of the members in this subclass will show basically the same morpho-syntactic behaviour, except for some particularities which may arise in a detailed description. As a methodological premise, the *British National Corpus (BNC)* and the *Corpus de Referencia del Español Actual (CREA)* will supply us with the contexts in which these lexemes appear, providing the elaboration of their semantic decomposition.

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⁷² The members of this subclass are *order, dictate, command, direct, enjoin, instruct, ordain, prescribe* and *decree* in Present-day English, and *ordenar, mandar, conminar, prescribir, decretar, determinar, disponer, preceptuar* and *establecer* in Spanish.

2. Lexical templates: Semantic decompositions enriching RRG logical structures

Let us introduce the concept of *lexical template*. Lexical templates are conceived as lexical representations which allow for the capture of syntactic and morphological phenomena, supplying RRG logical structures with a semantic decomposition which will define different lexical classes. Thus, a detailed description of lexical units will be achieved by incorporating the semantic and syntactic features holding within a lexical class into one unified representation, reducing the information to be included in the lexical entries.

3. A canonical lexical template for the subclass of verbs of ‘ordering’

Let us describe now the canonical template for the subclass of verbs of ‘ordering’ in English and Spanish. Following Van Valin & LaPolla (1997) and Van Valin (2004), we propose the following canonical template for this subclass, considered the maximal structure relevant to it. This template reads as follows:

[do´(x, [use.(α).express.instructions.(β).to.(γ).in.language.(ω)´(x, y)])] CAUSE [do´(z)], where z = β, y = γ, [in´(v)] = ω

This lexical representation codifies two subevents where an effector (x) uses an instrument (α), e.g. voice or words, (codified in the template in terms of the *use´* predicate and the variable α), causing the effector and speaker (x) to express by verbal means some instructions (z) to an addressee (y) in a language, so that (z) will be done, as encoded in the terminal subevent.

This template, thus, contains the logical structure of a *causative activity* showing three external variables x, y, z, or external argument positions, marked in Roman letters, which will have a syntactic representation. Besides, the internal variables α, β, γ and ω, marked in Greek and considered as ontological constants that do not necessarily receive linguistic expression, encode the instrument, the content, the addressee and the language used, respectively, where β will be linked to z, γ to y, and finally ω to v, raising the prepositional construction [in´(v)] (marked in Spanish by the preposition *en*), and corresponding to an *argument-adjunct* preposition, since following Van Valin &

LaPolla (1997: 159), it “introduces an argument into the clause and shares it with the logical structure of the core”.

4. From the canonical template for verbs of ‘ordering’ to their semantic constructions

The canonical template proposed above not only includes the semantic information corresponding to the verbs of ‘ordering’, but also allows us to describe the morpho-syntactic structures and alternations shown by these predicates. Then, the linking system entails two phases: the first phase of linking will depart from the canonical template in order to provide an adequate description of the semantics of the constructions where the predicates under analysis participate; and the second phase of linking will make use of a set of morpho-syntactic rules in order to capture the morphological and syntactic structure of the constituents in the different constructions.

Thus, the first phase of the linking algorithm attempts to apply the *Lexical Template Modeling Process*, which, by means of the lexical mapping rules proposed by Mairal & Cortés (2004) (which will be shown below), will enable us to account for the mapping between the canonical template and the semantic constructions shown by these predicates: on the one hand, transitive alternations such as *double object* and *single object construction* and the *instrument subject alternation*; and, on the other, intransitive ones, such as *goal object as single object* and the *unspecified object construction*.

With regard to the second phase of linking, the *macrorole assignment principles*, and the *case assignment rules* in Spanish, will motivate the morpho-syntactic behaviour of these predicates from their semantic structure. The interaction between arguments and macroroles is established in the *macrorole assignment principles* (Van Valin & LaPolla 1997: 152-53), according to which the first argument (x) of verbs of ‘ordering’ designating an activity will take the macrorole Actor and the Undergoer will be assigned to z (content) or y (addressee and goal of the communication), depending on the language and construction.

In relation to the variable z, we must point out that it can be syntactically realised by simple or complex structures. The latter are the result of combining the theories of juncture and nexus. The theory of juncture deals with the types of units involved in complex constructions, derived from the layered structure of the clause: nuclear, core, or clausal. The theory of nexus, on the other hand, takes into account the type of relationship among the units in complex constructions: coordination,

cosubordination or subordination. The difference between subordinate and non-subordinate junctures lies in the fact that only the former function as arguments of the main verb, since they may be clefted and occur as privileged syntactic arguments in a passive construction.

Thus, the complex structures which combine with verbs of ‘ordering’ are core coordination or subordination, clausal subordination, and sentential coordination. As the examples below will show, core coordinations and subordinations are realised by infinitive constructions, whereas a subordinator will introduce clausal subordinations. Regarding sentential coordinations, we assume that the linkage between a direct discourse construction and the speech verb that introduces it is sentential juncture and the nexus coordination. In the case of core and sentential coordinations, the variable z cannot take a macrorole since only subordinate junctures are considered arguments of the main core.

5. Semantic constructions for verbs of ‘ordering’

Let us turn now our attention to the constructions where these lexemes participate.

5.1. Double object construction

The first one is the so-called *double object construction*, taken from Levin (1993). The corresponding construction-based template below which provides a semantic representation of this construction and the canonical template above meet the lexical mapping rule “full matching”, according to which there exists an identification of variables, subevents and operators, between both the canonical and the constructional template. As can be seen, this constructional template coincides entirely with the canonical one:

[**do'** (x , [**use**.(α).**express.instructions**.(β).**to**.(γ).**in.language**.(ω)' (x , y))] CAUSE [**do'** (z)], where $z = \beta$, $y = \gamma$, [**in'** (v)] = ω

In this constructional template the variables (x), (y) and (z) have a syntactic realisation. Applying the *macrorole assignment principles*, x takes *Actor* and the assignment of *Undergoer* is specified below. Thus, we have the following variants:

d. simple object and goal object

This is illustrated by examples (1), *the Labour Party has (...) allowed certain factions in society to dictate to them the philosophical approach they should be following*, and (2), *me ordena algo en alemán*. In them *z* (*the philosophical approach* and *algo*, respectively) takes Undergoer and *y* (*to them* and *me*) is considered as a non-macrorole argument:

(1) *the Labour Party has (...) allowed certain factions in society to dictate to them the philosophical approach they should be following* (BNC: e9p)

x	Actor	<i>certain factions</i>
z	Undergoer	<i>the philosophical approach</i>
y	Non-MR	<i>to them</i>

(2) *me ordena algo en alemán*, ‘He orders me something in German’ (CREA: 2001

Muñoz Molina, A. S. Una novela de novelas)

x	Actor	(<i>él</i>)
z	Undergoer	<i>Algo</i>
y	Non-MR	<i>Me</i>
v	Argument-adjunct	<i>en alemán</i>

e. core coordination/subordination and goal object

With respect to this alternation, we must point out that the variable *y*, controller of the second event, is assigned when combined with Spanish jussive verbs Dative case or marked by the *argument-marking preposition a*, (as *a todos los médicos* in example 4, *ordeno a todos los médicos abandonar la asistencia de los enfermos*), since following Jolly (1991) this kind of preposition signals a core argument of the verb, in this case, the addressee. In opposition to the English language in which control constructions with jussive verbs require Undergoer-controller (as *the students* in example 3, *the teacher orders the students to sell lottery tickets*), Spanish jussive verbs allow dative controller (cf. Paris 1999) as it also occurs in Japanese and Korean (cf. Nakamura 1997 and Park 1995):

- (3) *the teacher orders the students to sell lottery tickets*
(BNC: b12)

x		Actor	<i>the teacher</i>
z	Core coord	Non-MR	<i>to sell lottery tickets</i>
y		Undergoer	<i>the students</i>

- (4) *ordeno a todos los médicos abandonar la asistencia de los enfermos*, ‘I order all doctors not to attend the patients’
(CREA: 1980 Signes Mengual, M. La comedia de Charles Darwin)

x		Actor	<i>(yo)</i>
z	Core subord	Undergoer	<i>abandonar la asistencia de los enfermos</i>
y		Non-MR	<i>a todos los médicos</i>

Regarding the variable *z* (*to sell lottery tickets* and *abandonar la asistencia de los enfermos*, in 3 and 4, respectively), it is considered a core coordination in English but a core subordination in Spanish, since it can be clefted and occur as the PSA in a passive sentence, as illustrated by Paris (1999).⁷³ Thus, core coordinations cannot be assigned a macrorole whereas core subordinations will take Undergoer.

f. clausal subordination and goal object

This is illustrated by (5), *You cannot dictate to families what they can have*, and (6), *Alejandro acababa de ordenar a sus arquitectos que reconstruyeran la gran torre*. In them *z* (*what they can have* and *que reconstruyeran la gran torre*, respectively) takes Undergoer and *y* as a non-macrorole argument can be marked by the argument-marking preposition *to* as *to families* in (5) or by the preposition *a* as *a sus arquitectos* in (6):

- (5) *You cannot dictate to families what they can have* (BNC: bm4)

x		Actor	<i>You</i>
z	Clausal subord	Undergoer	<i>what they can have</i>
y		Non-MR	<i>to families</i>

⁷³ *Juan ordenó lavar el auto*, ‘Juan ordered to wash the car’; cleft as *Fue lavar el auto lo que ordenó Juan*, ‘It was to wash the car what Juan ordered’; passive as *Lavar el auto parece haber sido ordenado por María*, ‘To wash the car seems to have been ordered by María’ (Paris 1999: 42-3).

- (6) *Alejandro acababa de ordenar a sus arquitectos que reconstruyeran la gran torre*, ‘Alejandro had just ordered his architects to reconstruct the great tower’

(CREA: 1995 Leguineche, M. El camino más corto)

x		Actor	<i>Alejandro</i>
z	Clausal subord	Undergoer	<i>que reconstruyeran la gran torre</i>
y		Non-MR	<i>a sus arquitectos</i>

g. sentential coordination and goal object

In English the variable *y* takes Undergoer (as *the attendant* in 7, *Get the key to this devilish contraption*, James ordered *the attendant*), whereas in Spanish, as in (8) *Luego se volvió para ordenar a la joven-*: *Vete a la cocina a preparar la sopa*, there is no assignment of this macrorole since both *z* (*Vete a la cocina a preparar la sopa*) and *y* (*a la joven*) are non-macrorole arguments:

- (7) *Get the key to this devilish contraption*, James ordered *the attendant*

(BNC: bp1)

x		Actor	<i>James</i>
z	Sentential coord	Non-MR	<i>Get the key to this devilish contraption</i>
y		Undergoer	<i>the attendant</i>

- (8) *Luego se volvió para ordenar a la joven-*: *Vete a la cocina a preparar la sopa*, ‘Then he turned round to order the young girl: ‘Go to the kitchen and prepare the soup’’

(CREA: 1993 Torbado, J. El peregrino)

x		Actor	<i>(él)</i>
z	Sentential coord	Non-MR	<i>Vete a la cocina a preparar la sopa</i>
y		Non-MR	<i>a la joven</i>

5.2. Single object construction

The second construction under study is the *single object construction*. The corresponding constructional template and the canonical one meet the mapping rule “suppression of variables”, according to which “canonical LT variables can be suppressed iff the basic interpretation of the canonical LT is not violated” (cf. Mairal & Cortés 2004):

[do´ (x, [use.(α).express.instructions.(β).to.(γ).in.language.(ω)´ (x, Ø)]] CAUSE [do´ (z)], where z = β, Ø = γ

In this constructional template, the Actor (x) expresses some instructions (z), although the addressee (y) is not lexically realised. Applying the *macrorole assignment principles*, x takes *Actor* and z can have different syntactic realisations. So again the following variants can be distinguished:

5.2.1. Simple object

This is illustrated by (9), *the Commissioner could order an execution*, and (10), *El dictador soviético ordena el bloqueo de Berlín*. In English and Spanish z takes Undergoer (cf. *an execution* and *el bloqueo de Berlín*, respectively):

(9) *the Commissioner could order an execution*

(BNC: bph)

x	Actor	<i>the Commissioner</i>
z	Undergoer	<i>an execution</i>

(10) *El dictador soviético ordena el bloqueo de Berlín*, ‘The Soviet dictator orders the blocking of Berlin’
(CREA: 1996 García de Enterría, E.; Tizzano, A. Código de la Unión Europea)

x	Actor	<i>El dictador soviético</i>
z	Undergoer	<i>el bloqueo de Berlín</i>

5.2.2. Core coordination/subordination

In Spanish z takes Undergoer (as *guardar silencio* in 12, *Un carabinero ordena guardar silencio*), but not in English (cf. *to bring the document to the notice of the person to be served* in 11):

(11) *the court directs to bring the document to the notice of the person to be served* (BNC: j6u)

x	Actor	<i>the court</i>
z	Core coord	<i>to bring the document to the notice of (...)</i>

(12) *Un carabinero ordena guardar silencio*, ‘A carabineer orders to keep silent’
(CREA: 2001 Cercas, J. Soldados de Salamina)

x	Actor	<i>Un carabinero</i>
z	Core subord	<i>guardar silencio</i>

5.2.3. Clausal subordination

In English and Spanish z takes Undergoer (cf. *that these, too, be handed over* in 13, *she ordered that these, too, be handed over*, and *que acaben con todo esto* in 14, *Voy a ordenar que acaben con todo esto*):

(13) *she ordered that these, too, be handed over* (BNC: bnb)

x		Actor	<i>She</i>
z	Clausal subord	Undergoer	<i>that these, too, be handed over</i>

(14) *Voy a ordenar que acaben con todo esto*, ‘I’m going to order to stop this’
(CREA: 1981 Zaragoza, J. R. Concerto Grosso)

x		Actor	<i>(yo)</i>
z	Clausal subord	Undergoer	<i>que acaben con todo esto</i>

5.2.4. Sentential coordination

In English and Spanish *z* does not take Undergoer (cf. *Leave it here and follow me* in 15 and *Siga, siga* in 16):

(15) *Leave it here and follow me, he ordered* (BNC: b1x)

x		Actor	<i>He</i>
z	Sentential coord	Non-MR	<i>Leave it here and follow me</i>

(16) *Siga, siga- ordena el Viejo*, ‘Go on, go on’ the old man ordered’ (CREA: 1989 Memba, J. Homenaje a Kid Valencia)

x		Actor	<i>el Viejo</i>
z	Sentential coord	Non-MR	<i>Siga, siga</i>

5.3. Instrument subject alternation

The following construction is the instrument subject alternation. In this case, the corresponding constructional template and the canonical one also meet the lexical mapping rule “suppression of variables”. The constructional templates (in a. and b.) will show the alternating behaviour of the instrument participant:

a. [**do**′ (x, [**use**.(α).**express.instructions**.(β).**to**.(γ).**in.language**.(ω)′ (x, y)))] CAUSE
[**do**′ (z)], where z = β, y = γ

b. [**do**′ (∅, [**use**.(α).**express.instructions**.(β).**to**.(γ).**in.language**.(ω)′ (∅, y)))] CAUSE
[**do**′ (z)], where z = β, y = γ

Let us explain the difference between these constructional templates. Taking into account the first subevent in the constructional template codified in a., [**do**′ (x, [**use**.(α).**express.instructions**.(β).**to**.(γ).**in.language**.(ω)′ (x, y)))]], where “the potential

instrument is part of a causal chain and the argument of an implement predicate like *use'*, if x is chosen as Actor, then the instrument α will be introduced by the preposition *with, con* in Spanish (as illustrated by 17a):

(17a) *vuelve a empezar – ordenó con voz destemplada el maestro* ‘‘Start again’, the teacher ordered with an unpleasant voice’
(CREA: 1989 Hernández, F. Naturaleza)

x		Actor	<i>el maestro</i>
z	Sent coord	Undergoer	<i>vuelve a empezar</i>
α		instrument (argument-adjunct)	<i>con voz destemplada</i>

In order to capture these *argument-adjunct* prepositions, we must apply Van Valin (2004)’s lexical rule, which says:

Assign *with [con in Spanish]* to a non-MR argument which is a possible actor (...) but which is not selected as a MR.

On the other hand, in the constructional template in b., x is not lexically filled and the following candidate to function as Actor will be α , as shown in the first subevent [**do'** (\emptyset , [**use.**(α).**express.instructions.**(β).**to.**(γ).**in.language.**(ω)' (\emptyset , y)]]], given the behaviour of α as effector of the predicate *use'* (cf. 17b and 18b):

(17b) *una voz ordenó que nos ajustáramos los cinturones*, ‘A voice ordered us to fasten our seatbelts’
(CREA: 1978 Galeano, E. Días y noches de amor y de guerra)

α		Actor	<i>una voz</i>
z	Clausal subord	Undergoer	<i>que nos ajustáramos los cinturones</i>

(18b) *Open the doors, the voice ordered sharply from behind her* (BNC: gup)

α		Actor	<i>the voice</i>
z	Sentential coord	Non-MR	<i>Open the doors</i>

5.4. Goal object as single object

The fourth construction under study is that with a goal object as single object. The corresponding constructional template and the canonical one meet both the lexical mapping rules ‘‘suppression of variables’’ and ‘‘partial matching’’. According to the latter, ‘‘the semantics of the constructional template must be compatible with at least one component of the canonical LT’’ (Mairal & Cortés 2004):

[**do'** (x , [**use.**(α).**express.instructions.**(β).**to.**(γ).**in.language.**(ω)' (x , y)]]], where $y = \gamma$

In this constructional template containing an activity the Actor (x) expresses to the addressee (y) some instructions, although they are not lexically realised. According to the *macrorole assignment principles*, x takes Actor and y takes no macrorole (cf. *you* in 19, *Did the Warden of the Forest order you?*, and *a quién* in 20, *¿Quién manda a quién?*):

(19) *Did the Warden of the Forest order you?*

(BNC: bmx)

x	Actor	<i>the Warden of the Forest</i>
y	non-MR	<i>you</i>

(20) *¿Quién manda a quién?*, ‘Who commands whom?’

(CREA: 1986 Gironella, J. M. Los hombres lloran solos)

x	Actor	<i>Quién</i>
y	non-MR	<i>a quién</i>

5.5. Unspecified object

The last construction to be explained is the unspecified object construction. Levin (1993: 33) posits that this construction “is manifested with a wide range of activity verbs. (...) the verb in this variant is understood to have as object something that qualifies as a typical object of the verb”. As in the previous construction, the corresponding constructional template and the canonical one also meet the lexical mapping rules “suppression of variables” and “partial matching”:

[do´ (x, [use.(α).express.instructions.(β).to.(γ).in.language.(ω)´ (x, Ø)])]

Therefore, in this constructional template the first event containing an activity will be selected from the canonical template and there will be only a macrorole Actor (cf. *He* in 21, *He could oversee and suggest, but not dictate*, and *el que* in 22, *yo soy (...) el que ordena*):

(21) *He could oversee and suggest, but not dictate*

(BNC: bml)

x	Actor	<i>He</i>
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(22) *yo soy (...) el que ordena*, ‘I am the one who gives orders’
lucha inútil)

(CREA: 1984 Ayerra, R. La

x	Actor	<i>el que</i>
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6. Conclusions

This paper has shown the interaction between the semantic structure of verbs of ‘ordering’ in Present-day English and Spanish and their syntactic behaviour, together with the morphological marking of the constituents in the sentences where they appear. Thus, our proposal of a canonical template for this verbal subclass and a set of linking mechanisms between the constructional templates and the morpho-syntactic patterning exhibited by these lexemes implies a way to capture the interrelation of their semantic structure and syntactic patterning.

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CASE ASSIGNMENT IN CLASSICAL GREEK

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This article uses one Classical Greek verb to show some peculiarities of case assignment rules in that language. The verb in question is timōréō, meaning "to avenge", and here we have a brief analysis of the arguments that verb can take, looking at their semantic and syntactic properties.

I. INTRODUCTION

Unlike most of the languages used for examination in RRG, Classical Greek has a disadvantage of not having any living native speakers. Therefore, the only way to study that language is through looking at the texts that still exist today. The data for this article have been collected precisely in that way. The authors whose works have been searched are the following: **Aeschylus, Sophocles and Euripides** as the representatives of the classical Attic drama style with some influence of the epic language and artificial Doric dialect, **Homer** (including **Homeric hymns**) and **Hesiod** representing the epic style, **Bacchylides and Pindar** as authors of poems in Doric dialect, **Plato and Xenophon** as Attic prose writers, **Herodotus** as Ionic historiographer and **Aristophanes**, an Attic comedian, as a source of somewhat colloquial expressions. The authors were selected on the grounds that all dialects and main styles should be represented. They were also intended to cover a period that we know as Classical Greek, that is from the times of the *Iliad* and the *Odyssey*, as our first Greek literary documents, to the end of the Peloponnesian War, in the time of Plato. The choice was made out of the texts that exist on Perseus 2.0 CD-Rom, because that disk, to my knowledge, has the best tools for text searching.

Classical Greek is an accusative language, and has a system of five cases. Nominative is the default case for subject⁷⁴, and vocative is the case used for calling and addressing. Genitive is usually considered to have taken the role of the PIE ablative besides its original one, and that would be denoting a possessor. Dative is the case of indirect object, but it has also absorbed the functions of PIE locative and instrumental cases. Direct object usually appears in the accusative case. As Classical Greek is an accusative language, the following rules for case assignment, postulated by RRG (Van Valin, 2004, pp.101, 103), should apply:

- a. Assign nominative case to the highest ranking macrorole argument.
- b. Assign accusative case to the other macrorole argument.
- c. Assign instrumental case to non-MR *b* argument if, given two arguments, *a* and *b*, in a logical structure, with (1) both as possible candidates for a particular macrorole and (2) *a* is equal or higher (to the left of *b*) on the Actor-Undergoer Hierarchy, *b* is not selected as that macrorole.
- d. Assign dative case to non-macrorole arguments (default).

So a sentence with default case-marking in Classical Greek would be:

⁷⁴ There are also some cases of dative subjects, such as *mélei moi* "I care", *dókei moi* "it seems to me", but these can be explained as it was done for Latin in Michaelis 1993.

- 1) *Odysseùs* *hirà* *theòisin athanatoîsin* *édōke*
 Odysseus-sgN sacrifice-plAcc god-plD immortal-plD give-3sg.AOR.ACT
 "Odysseus gave the sacrifices to immortal gods." Homer, *Odyssey*, 1.67

Greek verb has three voices: active, middle and passive. Passive has special forms only in aorist and future tense, so in present and perfect tense middle voice can bear either a middle or a passive meaning. Function of the middle voice is not easily described, but it could suffice to say that it usually bears a reflexive meaning.

A number of Greek verbs can take both genitive and accusative (and sometimes even dative), as cases for objects. Traditional grammars usually explain this variation by attributing it to the partitive function of the genitive case, or by claiming that a noun which is in genitive case is less affected in the course of action than the noun which is in accusative case. Verbs with that variation of genitive and accusative belong to different semantic groups (verbs of perception, asking, depriving, verbs that mean "to teach", "to conceal", "to avenge", etc). This variability of case assignment has never been specially explained in traditional grammars; it is usually only mentioned in the chapters concerning the syntax of the cases, with a couple of verbs given as examples. I will discuss the problem with the example of the verb *timōréō*.

II. THE CASE OF *timōréō*

One of the verbs with which we find alternation in the case of the object is *timōréō* "to avenge". Its logical structure would look like this:

[do' (x, ø)] CAUSE [BECOME **avenged'** (y, z)]

X here denotes the first argument of the three-place predicate, the one who exacts a vengeance. Y is the second argument, the person avenged, while z is the reason for which vengeance is being carried out.

By default case marking, according to traditional grammars and lexicons⁷⁵, the avenger takes the nominative case, the reason for vengeance takes the accusative, and the person avenged takes the dative case⁷⁶.

- 2) *o paî,* *ei timōrē'seis* *Patrōklōi* *tōi* *hetairōi*
 o child-sgV⁷⁷, if avenge-2sg.FUT.ACT Patroclus-sgD article-sgD friend-sgD

tòn phónon kaí Héktora *apokteneîs,* *autòs* *apothanēi.*
 murder-sgAcc and Hector-sg.Acc kill-2sg.FUT.ACT, self-MsgN die-2sgFUT.ACT

"O son, if you should avenge the murder for/of your friend Patroclus and kill Hector, you yourself will die." Plato, *Apology*, 28c.

- 3) *hos* *gēgeneî* *drákonti* *timōreî* *phónon*
 which-MsgN earth-born-MsgD dragon-sgD avenge-3sgPRES.ACT murder-sgAcc
 "who is avenging the murder for/of (his) earth-born dragon." Euripides, *Phoenissae*, 935.

⁷⁵ cf. for instance, the entry in LIDDELL – SCOTT.

⁷⁶ Dative can also mark the instrument with which the vengeance is executed, as in: *táts eschátails timōroínto timōríaís*: "they take vengeance with ultimate penalties" Plat.Rep.9.757a

⁷⁷ Abbreviations: Acc-accusative, ACT-active, AOR-aorist, D-dative, F-feminine, FUT-future, M-masculine, MID-middle, N-nominative, PART-participle, PASS-passive, pl-plural, PRES-present, sg-singular, V-vocative

It is not possible to find any instance of the reason of vengeance appearing in the accusative case, without a person on whose behalf the revenge is carried out also being expressed in the dative case. On the other hand, we can find only the person in the dative without the reason in the accusative, and in that case the verb can also be translated as simply meaning "to help someone". This leads to the conclusion that the person avenged is an argument of *timōréō*, taking the place of the *y* argument and appearing in the dative case, while the *z* argument, the reason for vengeance, takes the role of the Undergoer and is expressed in the accusative.

The reason for revenge can also be in the genitive case, and then it is the person punished by vengeance that appears in the accusative:

- 4) *Palamē'dous se timōreî phónou.*
 Palamedes-sgG you-sgAcc. avenger-3sg.PRES.ACT murder-sgG
 "He is avenging the murder of Palamedes on you" Euripides, *Orestes*, 433.

The same construction also appears with the middle voice⁷⁸:

- 5) *kaì Lakedaimoníous te tês exapátēs timōrēsō'metha*
 and Lacedaemonian-plAcc and article-FsgG deceit-sgG avenger-1plFUT.MID.
 "and we shall also take revenge on the Lacedaemonians for the deceit." Xenophon, *Anabasis*, 7.1.25

Examples 2) and 3) are the cases of default case assignment. In examples 4) and 5) we have a variation that shows some similarities with the phenomenon usually called the dative shift. There, instead of the lowest ranking argument (*z*), which is the default choice for Undergoer, the second highest argument (*y*) takes on the role of Undergoer and appears in the accusative case, leaving the *z* argument in the instrumental case, or expressed with a preposition, according to language-specific rules. Here, if the *y* argument is selected as Undergoer, the reason (the *z* argument) then appears in the genitive case (instead of dative, as expected). Another problem is that in this marked construction, the *y* argument must express the person punished by vengeance, that is, the verb in the marked construction demands a semantically different complement.

The following scheme should represent the variable Undergoer assignment that *timōréō* exhibits:

The avenger (effector)	Person avenged	Person punished	Reason
N (x)	D (y)	-	Acc (z)
N (x)	-	Acc (y)	G (z)

Among the three arguments *timōréō* can take, the avenger is an Actor, and it seems that either the reason for vengeance (the *z* argument) or the person punished by vengeance (that is, the *y* argument) is selected as Undergoer. Undergoer, by default case marking, takes the accusative case in Greek, and the third, non-macrorole core argument, for this verb specifically, in an unmarked construction takes the dative and in the marked construction, the genitive case. The proper case for dative shift would, of

⁷⁸ Another construction can also appear with the middle voice, where both the person and the reason appear in the accusative case:

eì mē' s'(e) adelphês haîma timōrē'setai "if he does not avenge his sister's blood on you" Euripides, *Alcestis*, 733.

But it seems that this construction is limited to poetic language, more precisely on Euripides, who is the only one among the selected authors to use this combination of cases. The cases in all these (three altogether) examples from Euripides cannot be determined with certainty because all instances of these accusatives are either elided or could be attracted.

course, be the dative (as a case that took on the role of instrumental in Classical Greek). We can see that in the cases of verbs *dídōmi*, commonest verb meaning "to give" in Classical Greek, *dōréō*, also meaning "to give", or *kalýptō* "to conceal". These verbs take the accusative as the case of direct object, and the dative as the indirect object⁷⁹ (to give / cover something - z argument, to someone - y argument, e.g.:

6) *még' ophélēma toút' edōrē'sō brotoîs.*

"You gave that to mortals-D (as) a big gift-Acc." Aeschylus, *Prometheus Bound*, 253.

7) *tō` dé hoi ósse ny`x ekálypse mélaina:*

"and black night covered the eyes-Acc on him-D" Homer, *Iliad*, 14.439.)

But all these verbs can undergo dative shift, taking the following constructions: to present someone-Acc, y argument, with something-D, z argument / to cover someone or something-Acc, y argument, with something-D, z argument, e.g.:

8) *ándres edō`rēsan theôn káryka litaîs thysíais*

"people presented the messenger-Acc of the gods with prayers and sacrifices-D"

Pindar, *Olympic ode*, 6.78

9) *hò dè aspídi taureíēi kekalymménos euréas ó`mous*

"he covered his broad shoulders-Acc with the shield of bull's-hide.-D" Homer, *Iliad*,

16.360)

Shortly speaking, these verbs behave exactly as verbs with dative shift should.

The genitive case also appears as a case of direct object instead of the accusative, with verbs of perception, such as *akouō* or *klýō* "to hear". In traditional grammars it is explained as partitive genitive. There it is defined as the case marking used when the action affects the object only in part (Smyth, 1984, §1341). With verbs of perception specifically, it is defined as denoting a source out of which a sound comes (Smyth, 1984, § 1361). The source can also appear without its head noun (e.g.:

10) *akouō tēs thýras kai dē` psóphon.*

"I hear the door-G and the very knocking-Acc"⁸⁰, Aristophanes, *Frogs*, 604).

Cases where we find the sound itself in the genitive case (e.g.:

11) *... kai tēsq' akouson loisthíou boês*

"...and listen to this last cry-G", Aeschylus, *Choephoroe*, 500) present a counter-example to this explanation of genitive as source. One of the rare generalizations that can be made by looking at the distribution of cases with these two verbs is that the noun denoting a person is in the genitive case if it is the person one hears (a sound from), and it is in the accusative case if it is the person one hears about. It is possible that this distinction has something to do with the Aktionsart of the verb, because in many cases (though not all) the translation can differ depending on the case of the object. But that is a question for a different analysis that we have no time to explore here. The genitive as the case of the object also appears with verbs of asking, depriving, remembering, ruling, filling, eating, etc., and with some of those verbs it is very hard, if not impossible (as especially with *timōréō*, to describe the genitive as partitive.

Concerning *timōréō*, we can prove that the person punished by vengeance is an Undergoer by looking at a passive construction such as this:

⁷⁹ cf. example 1)

⁸⁰ Although semantically connected, the knocking and the door here are two separate arguments

12) *metà dè tòn* *tòn* *állōn* *thánaton* *stratēgōn*
 after but article-MsgAcc article-MplG other-MplG death-sgAcc commander-plG

timōrētheis *hypò basiléōs* *apēthanen*
 avenge-MsgNomPART.AOR.PASS. under king-sgG die-sg3.AOR.
 "But after the death of other commanders, the king took vengeance on him and he died."
 Xenophon, *Anabasis*, 2.6.29

It seems that only a person punished by vengeance can be the subject of the passive construction for this verb in Classical Greek. We cannot find a sentence, for instance, that says: "The murder has been avenged on him by the king". The person avenged is expressed in the dative case even in passive constructions, such as: *tetimō'rētai tōi Leōnídēi* "it was avenged for Leonidas". But we can say that the reason for vengeance also probably takes on the role of the Undergoer, although this cannot be proved. The fact that it appears in the accusative case (the default case for Undergoer in Greek) in the default construction and that it is very often found even in genitive in a construction parallel with dative shift (giving an impression that the meaning of the verb is incomplete without it) would point to its being an Undergoer when it is in the accusative case.

Furthermore, it seems that in the construction where the reason is found in the accusative and the person avenged in the dative, the one punished by vengeance cannot be expressed, not even by using prepositional expressions. Similarly, the person avenged could not be found in any way expressed when the person punished was present in the clause. That is to say, the *y* arguments of the verb are mutually exclusive.

Here we have a case of a verb that changes the semantic requirements for the *y* argument depending on whether or not it is selected as an Undergoer; and a verb whose *z* argument, when not selected as an Undergoer, is in the genitive, and not the dative case, as would be expected in an accusative language.

III. CONCLUSION

The purpose of this paper was to point out some of the problems a theory can have when applied to a dead language: for instance, being unable to find a construction that would serve to check a thesis. Its aim was also to present a couple of questions that Classical Greek poses to RRG approach to case assignment. Although it doesn't bring many answers, I dare say it could serve as a beginning of a deeper analysis that would encompass more verbs and more authors more fully.

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THE FOCUS STRUCTURE OF SOMALI

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1. Introduction

1.1 Aims

Although I'm not a practitioner of RRG I am a keen reader of its literature and, as an Africanist an admirer of both the foundational principles and the success in coming up with insightful analyses of a wide range of the languages of the world. More particularly, for this paper, I welcome the project to instantiate the integration of information structure and grammar into the model of language.

In this talk I want to discuss a particular kind of focus system, where pragmatic notions, more specifically information packaging notions like focus and topic are very heavily grammaticalized. This kind of system is found in various versions in the East Cushitic languages of North East Africa, though similar features are found all over Africa. I will use Somali as my example, partly because I know this language best and partly because most of the literature on focus in Cushitic has been on Somali. I have two basic aims:

- (a) to try to explain some key syntactic and semantic constraints on focus structures in this kind of focus system; and
- (b) to briefly discuss the typological implications

At the level of syntax I briefly examine the relationship between clause structure and focus structure. In the semantics I discuss the implications this system has for relationship between given and new, on the one hand, and presupposition and assertion, on the other. The general aim of the paper is to make clear the interdependence of focus structure and morphosyntax, which supports the RRG approach to information structure.

1.2. Terminology

The discussion of information structure, or packaging, is a terminological minefield so I will begin by defining some basic terms. In discussing Somali and related East Cushitic languages we can define our terms as follows:

By **topic** is meant sentence topic. This is a syntactic position occupied by a constituent whose referent is known and which provides background or contextual knowledge judged by the speaker to be useful to the hearer in comprehending the sentence.

By **focus** is meant a constituent occupying a specific syntactic position and also identified by an accompanying focus morpheme. The focused constituent is marked as of higher salience than non-focused constituents in the same sentence. One typical use of focus is to mark new information in a sentence. Another is to provide contrastive focus on one member of a set, which typically represents old, or given information.

These definitions rely on a distinction between *given* and *new*. Without going into details of different terminology I will assume a distinction between the various types of knowledge in (1a-c):

- (1) (a) background/common/shared knowledge
- (b) given (Chafe 1976)/ salient (Prince 1981)/activated (Dryer 1996) information
- (c) common ground (Clark 1996)

The terms in (1a) can be used to describe the knowledge (or beliefs) that the interlocutors might have independently of or prior to the talk we are examining; while those in (1b) reflect knowledge that is activated in the conversation and thus linguistically signalled in some way. Such signalling, for example, licensing the use of pronouns, has been much studied in the literature (e.g. Gundel et al. 1993 and Walker et al. 1998). For present purposes I leave aside the interaction between (1a), (1b) and other knowledge sources that combine to give rise to what Clark (1996) calls the *common ground* (1c), that is the set of assumptions taken for granted at any particular point in the communicative act.

An important difference between 1a and 1b of course is that the terms in 1a refer to states of knowledge while those in 1b describe speakers' actions in discourse, i.e. they might be better described in terms of *information packaging* rather than *information structure* (to recall Lambrecht's 1994 discussion). In Halliday's terms they reveal the linguist's interest in meaning rather than knowledge or information; for Halliday linguistic devices:

- (2) "treat 'information' as meaning rather than knowledge and interpret language as a semiotic system, and more specifically as a social semiotic, rather than as a system of the human mind...meaning is a social, intersubjective process. If experience is interpreted as meaning, its construal becomes an act of collaboration, sometimes of conflict, and always of negotiation." (Halliday & Matthiessen 1992:2)

In this discussion I will use the terms *given* and *new* as terms in this process, where given could also be termed activated and new, non-activated, as we shall see. It seems reasonable to allow some kind of gradient between activated and inactivated, for example for referents that are fading from the current centre of attention ('semi-activated' in Dwyer 1996) or for referents that are inferable from activated elements, for which the term accessible is sometimes used (cf. Lambrecht 1994).

One main aim here is to explore the relationship of the grammatical markers of focus in East Cushitic with the notions of given (activated) and new (unactivated). As is well known there has been a strong tendency in the literature to associate focus with the marking of new information (similarly topic is described as marking given/activated information). If I may take just two examples separated in time, in early generative grammar, this was reflected in the oppositional use of the terms *presupposition* and *focus* in for example Jackendoff (1972). In a different, more recent approach Vallduví and Engdahl (1996) make a similar distinction between *ground* (old or known information) and *focus* (new information).

- (3) (a) *presupposition* and *focus* (Jackendoff 1972)
 (b) *ground* and *focus* (Vallduví and Engdahl 1996)

Where relevant I'll incorporate Vallduví and Engdahl's terminology to help make a distinction between elements of focus structure on the one hand, and types of pragmatic functions, on the other. So I'll use the terms *ground* and *focus* for the linguistically marked partition of information structure and terms like *presupposing*, *asserting*, *questioning*, for pragmatic functions; as in (4a).

- (4) (a) *ground* and *focus* vs. *presupposing*, *asserting*, *questioning*, etc.
 (b) *link* and *tail*

I will discuss grammatical evidence for the relationship between presupposition and the ground in Somali focus structures.

The present discussion will say little about topics. We do need to distinguish between left detached and right detached positions (in RRG terms) or what Vallduví and Engdahl (1996) distinguish as *link* and *tail* (4b). Both occur in Somali and we can also accept their characterisation where the *link* is roughly the 'anchoring point' for the sentence. It is a kind of organisational clue to the hearer, indicating where the new information is to be fitted into the existing state of knowledge. The *tail* is further old information which helps explain how the new information is to interact with the previous knowledge state.

1.3 A tonal accent language

Somali has been described as a tonal accent language, which is an attempt to distinguish the tonal system from true tone languages like the West African languages Igbo or Ewe (and outside Africa, Chinese) on the one hand, and from pitch accent languages like Japanese on the other. Characteristic of the latter is the restricted number and placement of tonal prominences: at most one syllable in a word bears pitch prominence (in Japanese a HL pitch fall) and the location is restricted (we read for example that in Japanese nouns the position must be lexically stipulated; in verbs and adjectives it is the penultimate syllable).

Somali stands somewhat between the two types. Somali has a simple two system of two level tones HIGH (marked **á**) and LOW (marked **a**), as shown in (5).

- (5) Two level tones: HIGH (marked **á**) and LOW (marked **a**)

The tone bearing unit is the mora. Short syllables contain one mora and long vowels and diphthongs contain two moras. There are restrictions on the permutations of tones on words. With the exception of place names, basic words can only contain one high mora. There are in fact three basic accentual patterns, as shown in (6):

- (6) AP1: HIGH tone on the last mora
 AP2: HIGH tone on the penultimate mora.
 AP3: no HIGH tone

Phonetic divergences from these patterns are caused when two moras are realised on a long vowel or diphthong, e.g.:

- (7) high + low → falling [MARKED **ÀA**]
 LOW + HIGH → HIGH – HIGH (sometimes RISING) [marked **áa**]

Though these are predictable they are marked in examples here. As an example of varying phonetic realisations: Imperative forms of weak verbs have AP2, which has the exponents in (8):

- (8) Imperative forms of weak verbs have AP2:
 hádal! ‘Speak!’
 kèen! ‘Bring (it)!’
 áamus! ‘Be quiet!’

What distinguishes this type of system is the use made of the tonal distinctions. The tone patterns carry grammatical information, being characteristic of the category of a word, and signalling its grammatical information. So for nouns, for example, the tone pattern marks declension, gender, number, and case. Any lexical distinctions are ‘accidental’ so to speak following from grammatical distinctions. Some roots for example surface as either masculine or feminine nouns, distinguished only by the tone pattern:

- (9) ínán ‘boy’ inán ‘girl’
 wíyil ‘male rhino’ wiyíl ‘female rhino’

In some declensions of nouns the plural is marked tonally:

- (10) yèy ‘wolf’ yéy ‘wolves’
 Cárab ‘an Arab’ Caráb ‘Arabs’

In all nouns case is marked tonally:

- (11) talíye ‘commander’ absolutive case (object, isolation etc.)
 taliye nominative
 taliyé genitive
 táliye vocative

Another feature of this system is that there is no intonational marking of sentence type (or as we will see later focus):

- (12) English:
1. Ali went.
 2. Ali went?
- Somali:
3. *Cali wuu yimi.*
Ali waa+uu went
PF+he
'Ali went.'
 4. *Cali miyuu yimi?*
Ali ma+uu went
QM+he
'Did Ali go?'

No change of intonation on 3 can signal a question.

1.5 The focus morphemes

There are three types of focus morphemes identified for Somali, as listed in (13) and outlined below:

- | | | |
|------|----------------|---|
| (13) | Focus morpheme | Function |
| | 1. <i>bàa</i> | (a) narrow (NP) focus
(b) sentence focus |
| | 2. <i>waa</i> | predicate focus |
| | 3. <i>wáxa</i> | cleft narrow (NP) focus |

1.5.1 *Bàa (ayàa)*

The first type consists of the lexically empty morpheme *bàa* (variant *ayàa*). This is usually described as nominal focus marker, and follows the NP in focus, (see examples in (14) where the focused element is shown in square brackets, marked by a feature F). Examples of items focused by this morpheme are given in Appendix 1. It has two functions: the first is to mark narrow focus, typically on an NP. See for example the answer (a) in (14) where it focuses new information. The question in (14) identifies *inántii* 'the girl' as topic, and questions her location, focussing the question word. All the replies are grammatical but only (a) is an appropriate reply. As (14b) and (c) show, to focus the topic in the reply, or to use what we'll call in a moment predicate focus with *waa* would both be inappropriate. Replies (b) and (c) are appropriate to different questions: (b) to a question *Who is in that room?* and (c) to a question *Is the girl in that room?*

- (14) Q: *Inántii hálkày joogtaa?*
inán-tii hál-kée+bàa+ay joogtaa
girl-the place-which+NFOC+she stay
'[F Where] is the girl?', lit. 'The girl, [F which place] is she in?'

- A:(a) *(Inántii) Qólkáas bày kú jirtaa.*
inán-tii qól-káas bàa+ay in is
girl-the room-that+NFOC+she in is
'(The girl), She's in [F that room].'

- (b) #*Inántii* *bàa* *qólkáas* *kú* *jirtá*.
 girl-the NFOC room-that in is
 ‘[_F The girl] is in that room.’
- (c) #(*Inántii* *qólkáas*) *way* *kú* *jirtaa*.
 girl-the room-that *wàa*+she in is
 ‘The girl, that room, [_F she is in it].’

The use of this narrow focus for contrast can be seen in the proverb in (15):

- (15) *Libàax* *yee dháy* *iyó* *libàax* *aammusáy*, *libàax* *aammusáy* *bàa* *xún*
 lion roared and lion kept:silent lion kept:silent NFOC bad

‘(Of) a roaring lion and a silent lion, [_F a silent lion] is worse.’

The second function of this morpheme is to mark sentence focus, for example in all-new event, reporting sentences where there is no topic and any subject is not held to express topicality. These are sometimes called **thetic** sentences (e.g. Sasse 1996) and in Vallduví & Engdahl’s terms, they are **groundless**.

As an example we might take a scenario where a parent returns home to find chaos and asks a question like that in (16) below, assuming this to be the first utterance in an exchange and therefore carrying no information linguistically marked as activated. Of course the use of names like ‘Ali’ in this example means that the identity of the individuals has to be known. We rely here on the distinction made earlier between background knowledge and activation.

The replies in (16) report a new event: (a) is the pragmatically appropriate reply; (b) and (c) are inappropriate (again marked #).

- (16) Q: *Maxáa* *dhacáy?*
 what+NFOC happened
 ‘[_F What] happened?’
- A: (a) *Cáli* *bàa* *Fáarax* *kú* *dhuftay*.
 Ali NFOC Farah on struck
 ‘[_F Ali hit Farah].’
- (b) #*Cáli* *Fáarax* *bùu* *kú* *dhuftay*.
 Ali Farah NFOC+he on struck
 ‘Ali, he hit [_F Farah].’
- (c) #*Cali* *Fáarax* *wùu* *kú* *dhuftay*.
 Ali Farah *wàa*+he on struck
 ‘Ali, Farah, [_F he hit him].’

It seems that the normal information structure for this kind of event report where everything is new is for the subject to be focused: focusing the object or treating the nominals as topics and using *waa* to for predicate focus is pragmatically inappropriate.

Another type of thetic sentences discussed in the literature is weather sentences. Here again we find the same pattern in Somali. The normal way of saying ‘It’s raining’,

either unprovoked (if you look out the window, say) or in answer to a question ‘What’s the weather like?’ is:

- (17) *Ròob bàa dá’ayaa*
 rain NFOC is:falling
 ‘_[F] Rain is falling’ = English ‘It’s raining’

Here again focus falls on the subject nominal.

The fact that in all-new orthetic sentences focus falls on the subject, it seems to form a parallel to the strategy of subject accentuation inthetic sentences in European languages, discussed by Sasse (1996) in his review of the EURO TYP survey of this area (Theme group 1).

In these cases we can use Lambrecht’s terminology to say that while the focus is marked on the subject noun phrase, the focus domain is the entire sentence.

Having established these functions, it must be noted that the use of *bàa* focus is more restricted in negative sentences and in polar questions. In both of these *bàa* focus only has the contrastive function described above. We can compare the pair of negative sentences in (18), for example:

- (18) (a) *Cali má bixín.*
 Ali not left:NEG
 ‘Ali didn’t leave.’
 (b) *Cáli báan bixín.*
 Ali NFOC+not left:NEG
 ‘_[F] Ali didn’t leave.’

Sentence (18b) is typically used against the background of a presupposition ‘Someone left’, a context that (18a) does not require. Focus in (18b) marks a contrast between Ali and the presupposed person(s) who did leave. We find a similar contrast in polar questions like the pair in (19):

- (19) (a) *Cali má baxáy?*
 Ali QM left
 ‘Did Ali leave?’
 (b) *Ma Cáli bàa baxáy?*
 QM Ali NFOC left
 ‘Did _[F] Ali leave?’

Again (19b) is typically used against a presupposition that someone left and compares Ali to this person, asking if they are the same. Sentence (19a) does not require such a presupposition.

The negative polar question in (20) has an even more specific licensing context:

- (20) (a) *Ma Cáli báan bixín?*
 QM Ali NFOC+not left:NEG
 ‘Didn’t [_F Ali] leave?’
 (b) i. Someone left
 ii. The someone = Ali

Here in a typical context the speaker would be communicating the two presuppositions in (20b): ‘Someone left’ and ‘the someone = Ali’. The question asks for confirmation of this second presupposition, i.e. of the identity of Ali with the leaver. This functions something like the English cleft: *Was it not Ali who left?*

Thus *bàalayàa* focus has a narrower and more specific function in negative sentences and polar questions, requiring the support of more contextual assumptions. We will come back to this shortly.

1.5.2 *Waa*

The second focus morpheme is *waa*, which occurs before the verbal group and is usually identified as a predicate focus morpheme. In (21) *waa* marks new information in the predicate:

- (21) Q: *Baabùur-kíi sidùu yidhi?*
 car-the how+NFOC+he did
 ‘[_F What] did he do with the car?’ (lit. ‘[_F How] did he do with the car?’)
 A: *Wùu ibiyey.*
Waa+he sold
 ‘He [_F sold] it.’

A typical use of this is in positive replies to yes-no questions, where no nominal is focussed:

- (22) (a) *Gábadh-íi má timi?*
 girl-the QM came
 ‘The girl, has she arrived?’
 (b) *Hàa, wày timi.*
 yes *waa+she* came
 ‘Yes, she’s arrived’
 (23) (a) *Miyàanú sóo noqónayn?*
 QM+not+he VEN return:PROG:NEG
 ‘Isn’t he coming back?’, ‘Won’t he come back?’
 (b) *Hàa, wuu sóo noqónayaa.*
 yes *waa+he* VEN return:PRES:PROG
 ‘Yes, he’s coming back’.

In (22) and (23) all elements of the sentence are given (i.e. these are all ground sentences) and the speaker uses the *waa* sentence to affirm the predicate.

1.5.3 *Wáxa*

The third type of focus is a cleft-like structure where an expletive element *wáxa* occurs before the verb and focused elements occur after the verb. This morpheme, like *bàalayàa* is typically used with nominals and can also be used to introduce new

information and to provide contrastive focus. There are a number of differences between *wáxa* focus and our first type, which we will not go into here, but typically *wáxa* is used to postpose and focus long or ‘heavy’ constituents:

- (24) (a) *Maxáad* *dóonaysaa?*
maxáy+bàa+aad *doonaysaa*
 what+NFOC+you want:PROG
 ‘[F What] would you like?’
- (b) *Wáxaan* *dóonayaa* *koob* *shàah* *áh* *oo* *áan* *sonkór* *laháyn*
wáxa+I want cup tea be and not sugar have:NEG
 ‘I would like [F a cup of tea without sugar]’

Again, a characteristic list of constituents focused by *wáxa* is given in the Appendix.

These are the three types of focus morphemes that have been identified. Our discussion here will concentrate on the nominal focus morphemes *bàa* and *ayàa*, say less about predicate focus with *waa*, and even less about *wáxa* clefts.

It is important to note that as with the marking of sentence type, the use of these morphemes means that there is no intonational focus marking in Somali. See (25) below:

- (25) (a) *Cali* *wùu* *yimi.* = Predicate focus
 Ali *wàa+he* went
 ‘Ali, he [F went].’
- (b) *Cáli* *baa* *yimí.* = Narrow focus on NP
 Ali NFOC went
 ‘[F Ali] went’

No prosodic prominence on *Cáli* in sentence (a) or *yimí* in (b) will signal focus on the NP or predicate.

2. Focus and clause structure

I would like to make two points at the level of syntax. The first is to review the evidence that focus occupies a particular structural position in the clause; and the second is to suggest that the notion of focus domain might help explain a strong constraint against focus in subordinate clauses.

2.1. Discourse configurationality

Somali has been described as a ‘discourse configurational’ language, for example in Kiss (ed. 1995). This is of course because its word order, and phrase structure, cannot be described in terms of grammatical relations like subject, object, etc. but instead we must make reference to discourse notions like focus and topic. To take *bàa/àyaa* sentences for example, the order may be given as:

- (26) [TOPIC* FOCUS (other NP) V-COMPLEX TOPIC*]

See for example, numbers (5) and (2) in the Appendix.

One prominent feature of the sentence is the verbal complex (called the verbal group VGP in Saeed 1999), where a satellite of clitics occurs in a fixed order before the verb and basically contains the whole argument structure of the sentence. Its structure may be described by the template (27):

(27) [VC S PRO - O PRO I - ADP - ADV I - ADV II - O PRO II - V]

The elements of the template are given in (28) and an example in (29):

(28) VC elements

- S PRO: subject clitic pronoun
- O PRO I: object clitic pronoun - first series
- ADP: verbal adpositions
- ADV I: VENITIVE *sóo* or ALLATIVE *síi*
- ADV II: adverbials *wada* 'together' or *kala* 'apart'
- O PRO II: object clitic pronoun - second series
- V: main verb or infinitive and auxiliary verb

- (29) (a) *London bay iigá sóo iibsatay*
London bàa+[VC ay i + ú + ká sóo iibsatay]
 L. NFOC she me+for+from VEN bought
 'She bought it for me from [F London].'
- (b) [VC S PRO - O PRO I + ADP + ADP - ADV I - V]

Note that adpositions occur in the VC; and that it retains the SOV order that is usually proposed historically for Cushitic.

Looking at the basic *bàa/àyaa* focus, what is striking is that there is an absolute constraint against focused elements occurring post-verbally. In order to have a focus after the verb a speaker must employ a *wáxa*-cleft construction. Even here question words may not occur. This rigidity of focus structure (in the terms discussed by Van Valin 1999) contrasts with the flexibility of the grammatically unconstrained word order.

2.2 Structure of the clause

There are two sets of syntactic facts that have led linguists to propose some internal hierarchical structure to string of elements in (26). Firstly, there are two important differences between the topic and focus elements in (26):

- (30) (i) Topic nominals may have a coreferential clitic pronoun in the verbal group while focused elements may not do so;
 (ii) Topic elements can always be omitted to leave a grammatical sentence while deleting a focus element renders the sentence ungrammatical.

These differences have suggested to most observers that topics and focus elements have different phrase structure positions, with topics being outside some inner construction, corresponding to the main predication. Or schematically,

- (31) [_α TOPIC* [_β FOCUS (other NP) V-COMPLEX] TOPIC*]
 where α = sentence; β = clause

The second group of facts arises because attaching the focus morpheme to an element is not a syntactically inert process. We can see this most easily in examples where focus is attached to the subject of a sentence. Compare the pair:

- (32) (a) *Nimánkii wày yimaaddeen.*
nimán-kii wàa+ay yimaaddeen
 men-the VFOC+they came:PL
 ‘The men came.’
 (b) *Nimánkii bàa yimí.*
 men-the NFOC came:SG
 ‘[_F The men] came.’

The main differences are given in (33).

- (33) Features of focused subjects
 (a) A focused subject is not subject marked but occurs in the absolutive case.
 (b) A verb agreeing with a focused subject shows a much reduced set of agreement markers (Andrzejewski’s 1968 ‘restrictive paradigm’) and in positive paradigms a distinct accentual pattern, AP1.
 (c) A focused subject may not be doubled by a clitic pronoun in the verbal group.

Comparing the negative sentences in (34), we can add a further difference (35):

- (34) (a) *Nimánkii má imán.*
 men-the not came:NEG
 ‘The men didn’t come.’
 (b) *Nimánkii báan imán.*
nimán-kíi bàa+áan imán
 men-the NFOC+not came:NEG
 ‘[_F The men] didn’t come.’

- (35) Negative *bàa/ayàa* sentences employ the negative word *áan* ‘not’ rather than *má* ‘not’.

As has often been noted, this range of behaviours, while unusual for main clauses, is exactly paralleled by relative clauses where the head nominal is also subject of the clause, as we can see by comparing (36a-c):

- (36) (a) *buugágga ay nimánku keenàan*
 books-the they men-the bring:PL
 ‘the books which they the men bring’
 (b) *nimánka (*ay) buugágga keená*
 men-the (*they) books-the bring:SG
 ‘the men who bring the books’
 (c) *nimánkaan buugágga keenàyn*
nimán-ka+áan buugágga keenàyn
 men-the+not books-the bring:NEG
 ‘the men who don’t bring the books’

Given that it is in just these two contexts, relative clauses and focus, that we see such effects, it seems plausible to try to provide some structural account of the parallel. It seems reasonable to conclude, in particular, that the focused element, like the head of a relative clause, is outside some inflectional domain within which agreement processes operate. There have been basically three approaches to this in the literature:

- (37) Focus/relative clause parallelism
 (a) Historical: grammaticalization (Heine & Reh 1983)
 (b) Movement rule in syntax (Saeed 1984, Svolacchia et al. 1995)
 (c) Static, construction parallelism (Lecarme 1991, Mereu 1999)

Whatever about the details of individual accounts this suggests further structure for our string in (24), i.e.:

- (38) [α TOPIC* [β FOCUS [χ (other NP) V-COMPLEX]] TOPIC*]
 where α = sentence; β = clause; χ = core

We note again that focus may not occur post-verbally.

2.3 Focus and Subordinate clauses

There is another important connection between focus and syntax: focus is restricted to main clauses: it may not be used occur in subordinate clauses. For example if one tries to get a Somali to translate English examples where intonational focus falls on a nominal in a subordinate clause, the sentences will be restructured to allow focus in a main clause:

Example (39) has the whole of the subordinate clause in focus:

- (39) *Wúxuu* *íi sheegay* *ínuu Berberá* *tegáy*
wáxa+he *me+to* *told* *that+he* *B.* *went*
 ‘He told me that [_F he went to Berbera]’

If you try to trigger narrow focus within the subordinate clause (contrastive focus on *Berbera*) then a restructuring like (40) will occur, where the subordinate clause is recast as a main clause.

- (40) *Wúxuu* *igú* *yidhi* ‘*Berberàan* *tegáy*’
wáxa+he *me+to* *said* *Berbera+FOC+I* *went*
 ‘He said to me [_F ‘I’m going to [_F Berbera]]’

A similar example is in (41):

- (41) (a) *Sùuq-a* *ayày* *tegay* *ín-ay* *dhár* *sóo* *iibsato*
 market-the FOC+she went that-she clothes VEN buy
 She went to [_F the market] to buy clothes.
 (b) She went to the market to buy [_F clothes].
 (c) *Dhár* *ayày* *sùuq-a* *u* *sóo* *iibsánaysay*.
 clothes-the FOC+she market-the in VEN was:buying
 ‘She went shopping for [_F clothes] in the market.’

We may be able to propose an explanation for this constraint. As has been argued by a number of writers, including myself (Saeed 1999), complement clauses in Somali are in fact syntactically relative clauses, in this case on the bleached nominal *in* (NF) amount, thing'. Indeed all subordinate clauses in Somali are relative clauses on nominal heads.

This independently motivated fact means that a general constraint on focus domains proposed by Robert van Valin (1998) may provide us with an explanation for the subordinate constraint on Somali focus:

- (42) "The potential focus domain in complex sentences: A subordinate clause may be within the potential focus domain if it is a direct daughter of (a direct daughter of...) the matrix clause node." (Van Valin 1998: 11)

This constraint essentially predicts that a relative clause within a sentence will not form an independent focus domain. This prediction is borne out by the Somali facts.

A corollary of this for Somali is that question words, which must receive narrow focus, cannot occur in subordinate clauses. A question word may only be a main clause constituent coreferential with a subordinate clause argument as in (43) and (44):

- (43) *Naagtée ayày akhriseen bùuggi ay qortáy?*
 woman-which NFOC+they read book-the she wrote
 'Which woman did they read the book which she wrote?'
 (44) *Kumàad rumeysántahay hádalka áh ínuu imàankii*
 who+NFOC+you believe talk-the be that-he imam-the
lá kulmay?
 with met
 'Who do you believe the claim that he met the imam?'

As can be seen such questions are not then subject to a subjacency constraint.⁸¹

3. The semantic force of focus

3.1 Modal force

In addition to the marking of new information and contrast it seems that there are other semantic and pragmatic factors involved. It was noted in Saeed (1984, 1993), and supported by Ajello (1995), that the focus words seem to have an epistemic modal force. We can look at this with a fairly traditional analysis of a simple example of nominal focus in (45) below.

- (45) Q: *Maxàynu ráacaynaa?*
 what+NFOC+we travelling:by
 '[F What] are we travelling by?'

⁸¹ Note that Somali does not show weak-crossover effects for focus/Q:

<i>Kúma</i>	<i>hooyádiis</i>	<i>jecéshahay?</i>
<i>kúma+bàa</i>	<i>hooyó+dìis</i>	<i>jecéshahay</i>
who+NFOC	mother-his	love
'[F Who _i] does his _i mother love?']		

- (46) A: *Jèeb bàynu ráacaynaa.*
 jeep NFOC+we travelling:by
 ‘We are travelling by [_F a jeep].’

The information structure of the question Q in (45) can be seen to consist of two parts:

- (45’) a. Ground: we are travelling by (something)
 b. Focus: what?

We might conventionally take the pragmatic actions similarly to be divided into two:

- (45’’) a. Presupposes: we are travelling by something
 b. Asks: what is the something?

The information structure of the answer A in (46) can also be seen to consist of two parts:

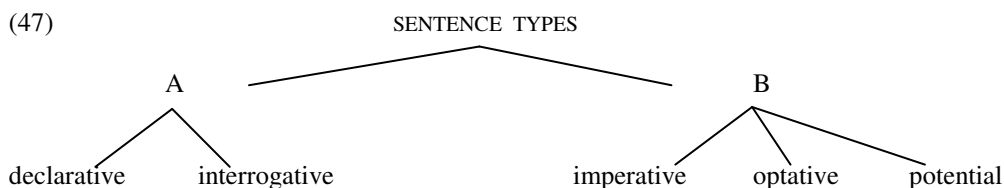
- (46’) a. Ground: we are travelling by (something)
 b. Focus: a jeep

and the pragmatic actions would similarly be divided into two:

- (46’’) a. Presupposes: we are travelling by something
 b. Identifies: the something is a jeep

Looking at the answer in (46) for a moment, what seems to be involved in the use of focus here is a double commitment from the speaker: to the commitment of the existence of an entity in the focused constituent, and to the factuality of the ground.

Recognising this factive element allows us to account for some constraints on the use of focus. The first is the distribution across sentence types. Somali sentence types fall into two main groups:



The distinction between the two groups is very clear in the grammar. The A-type sentences carry the full range of tense, aspect and mood (TAM) distinctions, so the verb may be marked for example for tense (past/present/future) and aspect (habitual/progressive), as in the examples in (48) below. The B-type sentences carry no TAM distinctions and occur in just one form; see the examples in (49).

- (48) TAM distinctions in A-type: declarative
- (a) *wùu sugay* Past perfective
waa+he wait:PAST:PERF
 ‘He waited’
- (b) *wùu sugaa* Present habitual
waa+he wait:PRES:HAB
 ‘He waits’
- (c) *wùu sugayaa* Present progressive
waa+he wait:PRES:PROG
 ‘He is waiting’
- (d) *wùu sugayayay* Past progressive
waa+he wait:PAST:PROG
 ‘He was waiting’
- (e) *wùu sugi donaa* Future (carries speaker certainty)
waa+he wait:INF will
 ‘He waited’
- (49) Lack of TAM distinctions in B-types:
- (a) *Súg/Súga!* Imperative
wait:IMP:SG/ wait:IMP:pl
 ‘Wait! (sg/pl)’
- (b) *Há sugo!* Optative (wishes, hopes, blessings)
 OM *wait:OPT*
 ‘May he wait!’
- (c) *Shòw sugée* Potential
 PM *wait:POT*
 ‘Perhaps he’ll wait, Maybe he’ll wait’

The semantic difference between the two types is that the B-types are contra-factive (to use a term from Lyons 1977) or *irrealis* types, while the A-types are either factive or non-factive, i.e. neutral for factivity, or *realis* types. The significant fact for our discussion is that focus cannot occur in contra-factive sentence types. So for example, nominals occur in optatives (as can be seen in the examples) but there’s no way to place focus on such nominals, i.e. no way to say ‘May ALI wait!’ to contrast with ‘May MOHAMED wait!’. I take this to be a consequence of a clash between the commitment in focus to the factuality of the ground with the contra-factive sentence.

3.2 Negation

This modal force also places constraints on the interaction of focus with negation. As I mentioned, focus is quite uncommon in negative sentences. This, we might assume, has something to do with the more restricted context for negatives than positive sentences generally: in one form of words, we might say that negative sentences often require more licensing presuppositions. Thus we find that a sentence like (50):

- (50) *Fáarax báan tegín.*
 Farah FOC+NEG went:NEG
 ‘[F Farah]didn’t go.’

has as its main use negative contrast: typically a presupposition of (a) above would be that someone went and the speaker uses this sentence to assert that it wasn't Farah. It would not be used simply to add new information to a discourse, instead the non-focus version (51) would occur:

- (51) *Fáarax má tegín*
 Farah NEG went:NEG
 'Farah didn't go'.

However there are extra constraints on the use of focus and negation which we can attribute to the modal force of the latter. See the examples in (52):

- (52) Q: *Kumàa yimí?*
kuma+bàa
 who+NFOC came
 '[F Who] came?'
 Ground: somebody came
- A: (a) *Cáli bàa yimí*
 Ali NFOC came
 '[F Ali] came.'
- (b) *Cidna má imán*
 no-one not came:NEG
 'Nobody came.'
- (c) *?Cidna báan imán*
 no-one NFOC+not came:NEG
 '[F Nobody] came.'
- (d) *?Waxáan imán cidna*
wáxa+not came:NEG no-one
 'There came [F nobody]' 'Who came was [F nobody]'

I've marked replies (52c) and (52d) as semantically ill-formed because there seems to be no context in which their use is appropriate, despite the grammatical parallel with (52a). This seems to be because the modal force of focus (acceptance/re-assertion of the ground) clashes with the negative nominal's denial of the ground.

It is interesting to compare this behaviour with the observation that has been made in several places that from the English evidence presupposition is too strong a notion to characterise the ground in information questions and their relevant answers. It has been pointed out that in examples like (53) below, since the reply denies the ground, it cannot be said to presuppose it (in the sense of accepting it as a belief):

- (53) Q: Who saw John?
 A: NOBODY saw John.
 Ground: someone saw John

The basic claim is that for English intonational focus, the ground merely has to be 'held in mind' rather than believed. In Relevance Theory, for example, (Sperber and Wilson 1995) what focus does, pragmatically speaking, is involve the ordering of implications, a weaker notion than presupposition. On the other hand cleft sentences do seem to presuppose the ground, hence the strangeness of:

- (54) Q: Who saw John?
 A: #It was NOBODY that saw John.
 Ground: someone saw John

As our examples above show, the situation with Somali focus is different from English prosodic focus. *bàa/ayàa* focus cannot be used to focus *nobody* in examples like these. This suggests that in this regard, Somali nominal focus parallels English clefts rather than prosodic focus.

3.3 Illocutionary force

As mentioned above, my identification of this modal force in Somali focus has been subsequently supported by other writers. Interestingly, it has been described by Ajello (1995) in terms of a speech act:

- (55) “il fenomeno della focalizzazione in generale abbia stretta affinità col concetto di modalità, e corresponda in tutte le sue manifestazioni ad un atto illocutivo di sottoscrizione della verità dell’informazione contenuta nell’enunciato. In altre parole, anche quando la focalizzazione verte su un sintagma nominale, essa rappresenta l’asserzione che un tale sintagma nominale non è virtuale, ipotetico, ma reale e che esse ha un certo ruolo all’interno della predicazione principale.” (Ajello 1975: 16)

‘the phenomenon of focus in general has a strong affinity with the concept of modality, and corresponds in all its manifestations to an illocutionary act of commitment to the truth of the information contained in the utterance. In other words, whenever focus falls on a nominal constituent, this represents the assertion that the nominal is not virtual, or hypothetical but real and that it has a certain role inside the main predication’

One way of falling in with this approach would be to say that the narrow use of nominal focus asserts or re-asserts the content of the ground.

We could then perhaps explain the sentence type constraint by saying that the preparatory conditions (in the sense of Searle 1969) for uttering commands, optative-type wishes and potential sentences for a proposition P would rule out cases where P is also being asserted (or in a weaker version: is already in the common ground) and therefore they would rule out focus in these sentence types.

4. CONCLUSION

Our discussion has identified a certain kind of focus system in Somali that is of interest typologically. It has, among others, the features in (56) below:

- (56) a. There is no prosodic marking of focus structure.
 b. Rigid focus structure contrasts with flexible grammatical word order.
 c. Subordinate clauses are relative clauses and do not form focus domains.
 d. Focus morphemes have an epistemic modal force that resembles clefts in other languages.
 e. As a result of (d), focus does not occur in contra-factive / *irrealis* sentence types.

More generally, it should be clear that basic clause structure cannot adequately be described without reference to focus structure. The two are intimately bound and I take this to be a validation of the RRG approach to these two axes of linguistic structure.

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Appendix

Examples of constituents focused by *bàal/ayàa* (adapted from Saeed 1999: 190-2). Focused elements in bold in Somali and in square brackets in English.

A. NPS ACTING AS ARGUMENTS OF THE VERB

These may be object (1,2,3) or subject (4) and may be indefinite (2,4) or definite (1,3). The focus is a question word in (2).

- (1) *Sayidkuna gabaygan ayuu ka tiriyey dilkaas Koofil*
 David-the-and poem-this NFOC+he about composed killing-that Corfield
 'And the Sayid_i, [F this poem] he_i composed about that killing of Corfield' [S1 27.12]
- (2) *Ismaaciil muxuu guuguulaha ugu sheegayaa?*
 Ismail what+NFOC+he hoopoe-the about saying
 'Ismail_i, [F what] is he_i saying about the hoopoe?' [S2 21.26]
- (3) *Cigaal baa geelodii la raaciyey.*
 Igal NFOC camels-their one sent:with
 '[F Igal] was sent along with their camels.' [S5 14.1]
- (4) *Ka dib abaar xun bàa dhacday*
 more after drought bad NFOC happened
 'Later [F a severe drought] occurred.' [SHS 79.3]

B. NPS ACTING AS PREDICATE NOMINALS

- (5) *Ninka reerka lihi deeqsi buu ahaa*
 man-the family-the had generous:person NFOC+he was
 'The man_i who had the family, he_i was [F a generous person]' [SHS 56.8]

C. NPS ACTING AS ADVERBIALS

- (6) *Arooska weyn had dhow baan dhigaynaa*
 wedding-the big time near NFOC+we arrange:PROG
 'The big wedding, [F soon] we will be arranging it.' [SHN 72.12]

D. THE INTENSIFIER (ADVERBIAL) *aad*

- (7) *Soomaalidu guurka aad bay u tixgelin jirtey*
Somalis-the marriage-the much NFOC+they ADP value used
'The Somalis_i, marriage_j, they used to value it_j [_F very highly].' [S2 1.12]

E. RELATIVE CLAUSES AS ARGUMENTS

- (8) *Markaana dad badan oo reer Masar ah ayaa qaatay*
time-that-and people many and nation Egypt be NFOC took
diinta islaamka
religion-the Islam-the
'And then [_F many Egyptians] converted to Islam.' (lit. 'And then [_F many people who were of the nation of Egypt] took the religion of Islam') [T4 22.16-17]
- (9) *Libaax oo ah boqorkii habardugaag baa beri bukooday oo*
lion and is king-the beasts NFOC day fell:ill and
awoodi kari waayey in uu ugaarsado
have:capacity be:able failed that he hunt
'One day [_F Lion, who is the king of beasts,] fell ill and lost the ability to hunt.' [SHS 83.13-14]

E. RELATIVE CLAUSES AS ADVERBIALS

- (10) *Inta qofku nool yahay ayuu awood leeyahay oo*
amount-the person-the alive is NFOC+he potential has and
wax qabsan karaa
thing take:MIDDLE:INF can [BCH 25.29-30]
'[_F As long as a person is alive], he has potential and can achieve something.'

F. *Ín* 'that' COMPLEMENT CLAUSES (8.4.1)

- (11) *Berri inuu soo fufi doono baan ku fekeraa*
tomorrow that+it VEN sprout will NFOC+I on think
'I reflect [_F that it will sprout back again] tomorrow.' [FS 41.8]

G. COMPLETE SENTENCES AS REPORTED SPEECH

- (12) *Gacaliso maxaad iga doonaysaa? - buu weydiyey*
dear what+you me+from want:PRES.PROG NFOC+he asked
yaxaaskii
crocodile-the [SHS 79. 24-5]
'“[_F Dear, what do you want from me?]” – he_i asked him, the crocodile_i.'

2. Constituents focused by *wáxa* (adapted from Saeed 1999: 194-5)

The typical use of a *wáxa(a)* construction is to place into focus a long noun phrase or a clause occurring after the verbal group. *Wáxa(a)*, unlike *bàalayàa*, is not used to focus question words (cf 2 above), nor the intensifier *aad* (cf. 7 above) and indeed does not generally focus shorter, non-clausal adverbials. As with *bàalayàa*, *wáxa(a)* may not focus the verb, or any element of the verbal group. The focused element may be a

subject (13 below), an object (14), a predicate nominal (15) or an adverbial (16). It may be a noun phrase (13), an *ín* ‘that’ clause (14), or a direct quotation (42):

- (13) *Waxaa keena uun aad u yar oo la yiraahdo ‘Fiirus’*
wáxaa brings creature INTENS ADP small and one calls ‘virus’
 ‘What causes it is [_F a very small organism called a virus]’ [BCH 10. 34-5]
- (14) *Waxa la wada ogsoonyahay nolosheenu in ay ku*
wáxa one together aware-is life-our that it to
xidhantahay roobka
 bound-is rain-the
 ‘It is well known to all [_F that our life is bound to the rain]’ [S2 19.29-30]
- (15) *Saahid Qamaan wuxuu ahaa nin gabayaa ah oo aad ugu*
 Sahid Qaman *wáxa*+he was man poet be and INTENS ADP+ADP
xeel dheeraa gabayada xikmadda, waanada iyo duurxulka
 cleverness deep-was poems-the wisdom, counsel and oblique:language
 ‘Sahid Qaman was [_F a poet who was very ingenious at the poetry of wisdom, counsel and of veiled language].’ [S1 12.3-4]
- (16) *Waxaa la doortay goortii Cismaan la dilay*
wáxaa one chose time-the Osman one killed
 ‘He was chosen [_F when Osman was killed]’ (lit. ‘*Wáxa* one chose him [_F the time when one killed Osman]’) [T4 27.5-6]
- (17) *Kii labaadna wuxuu yiri: “Aniguna waxaan rabi lahaa*
 the:one second-and *wáxa*+he said: “I-and *wáxa*+I like would
uubata badan oo arigaada marisa”
 wolves many and goats-your wipe:out
 “And the second one, what he said was: [_F “And what I would like is many wolves to wipe out your goats.” [FS 51.6-7]

DERIVED ENVIRONMENT EFFECT IN THE CASE MARKING SYSTEM: A CASE OF THE MITSUKAIDO DIALECT OF JAPANESE*

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Abstract

In the Mitsukaido dialect of Japanese, case-frames without nominative elements are permitted in the active and potential constructions. However, in passive constructions, nominative elements are obligatory. This situation can be regarded as an instance of the derived environment effect in case marking. This paper argues that this derived environment effect is a result of avoiding multiple marked case-role mappings.

1. Introduction

According to Nakamura's (1999) typology of case systems, accusative languages are classified into two classes, one requiring nominative obligatorily and the other where the nominative requirement is not obligatory. In the latter case, constructions without nominative are grammatical. Icelandic is a language of this type, where both active and passive permit case-frames without a nominative. On the other hand, in the languages requiring nominative obligatorily, such as Standard Japanese (henceforth, SJ), constructions without a nominative are ungrammatical in either active or passive.

The strength of the constraint requiring the presence of a nominative marked nominal in a sentence varies among languages. The classification of languages in terms of the obligatory or optional of the presence of the nominative contains a third type of language, i.e., the type where the nominative requirement is active only in certain constructions. In the Mitsukaido dialect of Japanese (henceforth, MD), spoken in the southwestern part of Ibaraki prefecture, the nominative requirement depends on construction types.

The examples from (1) to (3) illustrate that this dialect permits case-frames without nominative elements in active and potential constructions, but in passive constructions, nominative elements are required obligatorily.⁸²

- (1) Active without nominative
are-nganja ome-godo wagaN-me.
 3SG-EXP.TOP 2SG-ACC understand-may not
 'S/he may not understand you.'
- (2) Potential without nominative
 a. *are-nganja hadarag-e-ru.*
 3SG-EXP.TOP work-POT-PRES
 'S/he can work.'
 b. *ome-nganja jane-sa nobor-e-Q-ka?*
 2SG-EXP.TOP roof-DAT climb-POT-PRES-Q
 'Can you get on the roof?'

⁸² I will use the following abbreviations in this paper: ACC = accusative, COMP = complementizer, DAT = dative, EXP = experiencer case, FUT = future, GEN = genitive, INST = instrumental, LOC = locative, NEG = negation, NOM = nominative, PASS = passive, PL = plural, POSS = possessive, POT = potential, PRES = present, PROG = progressive, Q = question, SG = singular, TOP = topic.

(3) Passive, nominative is obligatory

- a. *mango ore-nge neNgazjo: oguQ-ta.*
 grandchild-NOM 1SG-DAT New year card-ACC send-PAST
 ‘My grandchild sent me a New Year card.’
- b. *ora mango-ni neNgazjo: ogur-are-da.*
 1SG.TOP grandchild-LOC New year card-ACC send-PASS-PAST
 ‘I was sent a New Year card by my grandchild.’

Nominative is generally assumed to be an unmarked case in accusative systems (Dixon 1979; Tsunoda 1981). In MD, the unmarked case, nominative, is obligatory only in certain derived constructions. The nominative requirement in SJ, MD and Icelandic can be schematized as in Table 1.

Table 1. *Nominative requirement in three types of languages*

	SJ	MD	Icelandic
Active (underived)	yes	no	No
Passive (derived)	yes	yes	No

The partial nominative requirement in MD can be regarded as parallel to the derived environment effect (Kiparsky 1973) in phonology because the unmarked structure is required only in a certain derived environments.

The aim of this presentation is to provide a Role and Reference Grammar (RRG) analysis for the derived environment effects of case marking in MD. Previous RRG analyses advocated for quirky case constructions (Van Valin 1991) and case typology (Nakamura 1999) cannot capture this partial obligatoriness of nominative elements. I will argue that the Local Conjunction of two general constraints on argument mapping enables us to provide an account for the derived environment effect in MD.

The structure of the paper is as follows. Section 2 presents a brief sketch of the relevant aspects of MD. The problem to be solved is clarified in Section 3. In Section 4, I will discuss the advantages and disadvantages of the previous RRG accounts applying them to MD data. I will propose a solution with optimality theoretic enhancement of RRG account in Section 5.

2. Brief sketch of MD case system and relevant fact

The area where this dialect is spoken is the southwestern part of Ibaraki prefecture, only fifty kilometers away from Tokyo. However, the case system of this dialect is quite different from Standard Japanese (hencefore, SJ). This dialect has an elaborate case system using a variety of particles where SJ makes use of single particle. See Table 2.

Table 2. Case system in the Mitsukaido Dialect and in Standard Japanese

	Mitsukaido dialect		Standard Japanese	
	Animate NP	Inanimate NP		
Nominative	NP- \emptyset		NP- <i>ga</i>	Nominative
Accusative	NP- <i>godo</i>	NP- \emptyset	NP- <i>o</i>	Accusative
Experiencer case	NP- <i>ngani</i>		NP- <i>ni</i>	Dative
Dative	NP- <i>nge</i>	NP- <i>sa, e</i>		
Locative	NP- <i>ni</i>		NP- <i>kara</i>	Ablative
Ablative	NP- <i>gara</i>			
Instrumental	NP- <i>de</i>		NP- <i>de</i>	Instrumental
Comitative	NP- <i>do</i>		NP- <i>to</i>	Comitative
Genitive	NP- <i>no</i>		NP- <i>no</i>	Genitive
Possessive	NP- <i>nga</i>			
Adnominal locative		NP- <i>na</i>		

The MD distinguishes among animate and inanimate goal, oblique subject and oblique agent in passive. The animate goals are case marked with the animate dative case particle *-nge* and the inanimate goals with the inanimate dative case particle *-sa*, as illustrated in (4) and (5) respectively.

- (4) *ora mango{-nge/*-ngani} kotske: jaQ-ta.*
 1SG-TOP grandchild{-DAT/*-EXP} pocket money-ACC give-PAST
 ‘I gave some pocket money to my grandchild.’
- (5) *are sengare-godo daengagu-sa ere-da.*
 3SG-NOM son-ACC university-DAT enter-PAST
 ‘S/he made her/his son go to the university.’

Oblique subjects in stative constructions are case marked with the case particle specific for experiencer arguments, namely experiencer case particle *-ngani*, as shown in (6).

- (6) *ore-nganja e:ngo wagaN-ne.*
 1SG-EXP:TOP English understand-NEG
 ‘I cannot understand English.’

The example (7) illustrates that the agent in passive is case marked with locative.

- (7) *ano kodomo sense:-ni igim-are-da.*
 that child-NOM teacher-LOC scold-PASS-PAST
 ‘That child was scolded by the teacher.’

The size of this paper does not allow a full account of the oblique case particles in MD. In this section, I would like to concentrate on the quirky case frames. The following subsections reveal that the oblique subjects are permitted in active and potential constructions while they are not permitted in passives.

2.1. Morphologically underived active constructions

Concerning the case frame of underived active constructions, two points should be mentioned. There is a class of 1 place and 2 place predicates that select no nominative element, exemplified in (8) and (9), respectively. In this respect, this dialect differs from SJ where nominative elements are required irrespective of valency. Oblique subject constructions are not found with 3 place predicates. The 3 place predicates in MD always take nominative subject as exemplified in (10).

- (8) Active: 1 place predicates
- a. canonical case frame (nom)

are hadarae-de-ru.
3SG-NOM work-PROG-PRES
'S/he is working.'
 - b. quirky subject construction

ore-ngani-mo komaN-be-na. (from 'Tsuchi')
1SG-EXP-too be embarrassed-FUT-particle
'I will be embarrassed, too.'
- (9) Active: 2 place predicates
- a. canonical case frame (nom-acc)

ano jaro ore-godo buQkurasj-ta.
that guy-NOM 1SG-ACC beat-PAST
'That guy beat me.'
 - b. quirky subject construction

are-nganja ome-godo wagaN-me.
3SG-EXP.TOP 2SG-ACC understand-may not
'S/he may not understand you.'
- (10) Active: 3 place predicates
- a. canonical case frame (nom-dat-acc)

mango ora-nge neNgazjo: oguQ-ta.
grandchild-NOM 1SG-DAT New year card-ACC send-PAST
'My grandchild sent me a New Year card.'
 - b. quirky subject construction, no

The second point to be noted is that the dative alternation or 3-to-2 advancement is generally ruled out in this dialect. That is, in this dialect, non-macrorole arguments are case marked with oblique cases in active constructions.⁸³ This property will be important later, in connection with the passive.

The transitive subject in this dialect shows syntactic properties listed in (11).

⁸³ There is a fixed expression that can be regarded as an instance of 3-to-2 advancement, illustrated in the examples (i) and (ii). However, this type of construction is limited to this expression and has no productivity.

- (i) *warra-nge mizime mise-te: kota:* (from 'Tsuchi')
2PL-DAT misery-ACC show-want COMP.TOP
'... that (I) want you to feel miserable'
- (ii) *uhe:-godo mizime mise-teN-no-ga* (from 'Tsuchi')
Uhei-ACC misery-ACC show-PROG.PRES-COMP
'... that (he) is making Uhei feel miserable'

- (11) Syntactic properties of transitive subject:
 Antecedent of reflexive pronouns, controller of missing subject in adverbial clause, correspondent to locative nominal in passive sentence, correspondent to cause in causative sentence, correspondent to dative expectee in *V-te mora*: construction, etc. For details of syntactic traits of subject prototype in MD see Sasaki (2001).

The experiencer case marked nominals share some of the properties listed in (11), as illustrated in the data given in (12). This list is not a complete one. For the fuller comparison of subject prototype and experiencer case marked nominal, see Sasaki (2001).

- (12) Subject properties of experiencer case marked nominals (partial):
- a. Antecedent of reflexive pronoun
are_i-nganja zibuN_i-no megada wagaN-me.
 3SG-EXP.TOP self-GEN weight-ACC understand-may not
 ‘S/he may not know her/his weight.’
- b. Controller of missing subject in nangara adverbial clause
are_i-nganja [e_i ame name-nangara] ojong-e-ru.
 3SG-EXP.TOP candy-ACC lick-while swim-POT-PRES
 ‘S/he can lick a candy while swimming.’

The experiencer case marked nominal and subject prototype are not completely the same in their syntactic behaviors. The experiencer case marked nominals cannot be modified by floating quantifiers. See the example (13).

- (13) **ano gakse:ra_i-nganja saNniN_i gaekogungo wagar-u.*
 that students-EXP.TOP 3 persons foreign language-ACC understand-PRES

This property is also found in other oblique elements (see Sasaki 2001 for the detailed description of the syntactic behavior of MD oblique elements). The experiencer case marked nominals share some properties with the subject prototype. They also share some properties with oblique elements. Taking into account this behavior, we may conclude that the experiencer case marked nominals behave as oblique subjects.

2.2. The passive constructions

The passive subject is case-marked with the nominative irrespective of whether it corresponds to the accusative or to the dative in the active construction. See examples in (14)-(16). In (14), the nominative subject in the passive constructions corresponds to the accusative object in the active constructions. The examples in (15) and (16) illustrate the dative-nominative correspondence between active and passive constructions. The pair (15a-b) is an example of the correspondence between an animate dative complement and a nominative subject. The pair (16a-b) is an example of the correspondence between an inanimate dative complement and a nominative subject.

(14) Acc → Nom

- a. *seNse: gakse:-godo igiN-da.*
 teacher-NOM student-ACC scold-PAST
 ‘The teacher scolded the student.’
- b. *gakse: seNse:-ni igim-are-da.*
 student-NOM teacher-LOC scold-PASS-PAST
 ‘The student was scolded by the teacher.’

(15) Dat → Nom

- a. *sengare ore-nge so:daN sj-ta.*
 son-NOM 1SG-DAT consult-PAST
 ‘My son consulted me.’
- b. *ora sengare-ni so:daN s-are-da.*
 1SG.TOP son-LOC consult-PASS-PAST
 ‘I was consulted by my son.’

(16) Dat → Nom

- a. *ano enu ore-nga suneQporo-sa kuQtsue-da.*
 that dog-NOM 1SG-POSS leg-DAT bite-PAST
 ‘That dog bit my leg.’
- b. *ore-nga suneQporo ano enu-ni kuQtsug-are-da.*
 1SG-POSS leg-NOM that dog-LOC bite-PASS-PAST
 ‘My leg was bitten by that dog.’

Dative arguments do not preserve their obliqueness when they promote to subject position in the passive and they are marked with nominative, not dative or other oblique cases. As mentioned before, in active constructions, the non-macrorole argument is case marked with an oblique case not with a direct case. However, in the passive, the promoted non-macrorole argument is case marked with the nominative. In this respect, this dialect is different from languages such as Icelandic where passive subjects preserve their oblique case. The examples in (17) are an illustration of the Icelandic preservation of oblique case in passive constructions.

(17) Icelandic examples (Zaenen, Maling & Thráinsson 1985)

- a. *Ég hjálpaði honum.*
 I helped him (dat) ((8a) in ZMT 1985)
- b. *Honum var hjálpað((1) in ZMT 1985)*
 him (dat) was helped
 ‘He was helped.’

With respect to passive subject case marking, MD falls into the same class with SJ. In SJ, non-macrorole arguments lose their oblique cases and they are case marked with the nominative when they promote to passive subject position. The nominative case marking for the non-macrorole argument in passive constructions found in SJ is illustrated in (18c).

- (18) SJ examples (Nakamura 1999)
- a. *John-ga Tom-ni kasi-o atae-ta.*
 John-NOM Tom-DAT cake-ACC give-PAST
 ‘John gave a cake to Tom.’
- b. *Kasi-ga Tom-ni atae-rare-ta.*
 cakes-NOM Tom-DAT give-PASS-PAST
 ‘Cakes were given to Tom.’
- c. *Tom-ga kasi-o atae-rare-ta.*
 Tom-NOM cakes-ACC give-PASS-PAST
 ‘Tom was given cakes.’

In passive constructions, subject properties can be found only in the derived subject. The oblique agent does not show any subject properties. See the example in (19). Being an antecedent of the reflexive pronoun is one of the subject properties in this dialect. In (19), the derived subject *are* ‘3SG-NOM’ is interpreted as the antecedent of the reflexive pronoun, while the locative agent is not a candidate for antecedent. Thus, passive agent loses pivotal status.

- (19) Distribution of subject properties in passive
 (Antecedent of reflexive pronoun: derived subject, not oblique agent)
- are_i odo:to_j-ni zibuN_{i/*j}-no heja-de ogos-are-da.*
 3SG-NOM brother-LOC self-GEN room-INST waken up-PASS-PAST
 ‘He was wakened up by his brother in his own room.’

There are no oblique elements functioning like subject in passives.⁸⁴ The elements functioning as subjects are always case marked with nominative in passives.

2.3. The potential constructions

In the MD potential constructions, the elements corresponding to active subjects are marked with experiencer case, as shown in (20).

- (20) a. *ome jane-sa noboQ-ta-ga?*
 2SG-NOM roof-DAT climb-PAST-Q
 ‘Did you get on the roof?’
- b. *ome-nganja jane-sa nobor-e-Q-ka?*
 2SG-EXP.TOP roof-DAT climb-POT-PAST-Q
 ‘Can you get on the roof?’

With respect to subject properties, the experiencer case marked nominals in potential constructions display the same behavior as the experiencer case marked nominals in underived constructions, i.e., they can be considered to be oblique subjects. As exemplified in (21), the experiencer case marked nominal exhibits subject properties.

⁸⁴ The indirect passives are exception for this point. However, the subject properties of oblique elements in indirect passives can be considered as a result from their biclausal nature. Thus, this exception is not relevant to the present discussion. For the detailed discussion for the indirect passive and the other biclausal constructions, see Sasaki (2004).

- (21) Subject property (antecedent of reflexive pronoun):
are_i-nganja zibuN_i-no kuruma naos-e-me.
 3SG-EXP.TOP self-GEN car-ACC repair-POT-may not
 ‘He may not be able to repair his own car.’

Quirkiness is not limited to transitive-based potential constructions but is also found in intransitive-based potential constructions as seen in (20b). In this respect, this dialect is different from Standard Japanese.

This dialect permits case-frames without a nominative in active and potential but not in passive constructions.

3. Problem to be solved

The nominative requirement is operative only in a certain type of derived construction, namely the passive. This situation seems to be parallel to the derived environment effect (DEE, Kiparsky 1973) in phonology. The DEE is a situation where a certain phonological process is active only in some derived environments.

Finnish assibilation (Kiparsky 1973) is a classic case of DEE. The data in (22) illustrate that underlying /t/ changes to [s] before [i] in derived environment, though it remains intact in the underived environment.

- (22) a. *halut-a* ‘want’ *halus-i* ‘wanted’ (derived environment)
 b. *koti* ‘home’ *tila* ‘place, room’ (underived environment)
 c. /t/ → [s]/__i, only in derived environment

The parallelism between Finnish assibilation and nominative requirement in MD is not perfect. There is a difference. Finnish assibilation applies to all types of derived environments, not only morphologically derived environments as shown in (22a), but also phonologically derived environments where the derived /t/ becomes [s] before [i] derived by word-final raising, e.g., *vesi* ‘water-NOM’ (*vete* → word final raising → *veti* → *vesi*).

The nominative requirement in MD is active only in a certain morphologically derived construction, namely the passive. It is not obligatory in potential constructions, another derived construction, or in underived constructions.

Any theory of grammar that attempts to account for the MD case system must explain the partial nature of the nominative requirement discussed above and why its obligatory application is limited to the passive.

- (23) Problem to be solved:
 Why are non-macrorole subjects case marked with nominative only in passives?

Previous accounts of RRG based case frame typology fail to solve this problem. Some modification of the theory is necessary.

4. Previous RRG accounts for quirky subject and typology of case systems

Van Valin (1991) is an RRG account for quirky case constructions and their interaction with voice in Icelandic. Icelandic is a language with quirky subject and object constructions. In this language, oblique objects promote to subject with their oblique case remaining intact in the passive formation.

On Van Valin's (1991) account, quirky case for core arguments (subject or object) is due to their non-macrorole status and subject properties of oblique experiencers result from the accessibility of pivot hierarchy proposed therein. Oblique case preservation for the passive subject is assumed to be the consequence of RRG characterization of passive and general case marking principles.

This account should be applicable to most types of quirky subject constructions in other languages, including MD. The case frame without nominative elements found in active and potential constructions in MD can be regarded as a consequence of the lexical feature of predicates that do not assign macrorole. Of course, modifications are necessary for the adaptation of this account to the MD quirky subject constructions. In RRG, dative is assumed to be an unmarked case for non-macrorole arguments. In MD, non-macrorole arguments are case-marked in two ways: dative (*-nge/-sa*), if the argument is goal or theme, and experiencer case (*-ngani*), if it is experiencer. This situation is easily handled with the addition of a condition, such as "assign experiencer case if the non-macrorole argument is experiencer, otherwise non-macrorole argument should be marked with dative."

The RRG (Foley & Van Valin 1984) characterization of passive has two parts: a non-actor is linked to the pivot, and the unmarked option is undergoer; the actor is linked to peripheral status or is omitted.

- (24) RRG characterization of passive (Foley & Van Valin 1984):
- a. ~Actor = Pivot (undergoer > other)
 - b. Actor = X (the actor is linked to peripheral status or is omitted)

The important point is the promotional aspect of the characterization. Icelandic permits not only the undergoer but also the non-macrorole arguments to be linked to the pivot in the passive. When a non-macrorole argument is promoted to pivot, it is marked with dative case because dative is an unmarked case for non-macrorole arguments. The cross-linguistic prediction derived from Van Valin's (1991) account is given in (25).

- (25) Predictions derived from Van Valin's account:
1. The passive subject is marked with the nominative, in languages where passive pivot is restricted to undergoer.
 2. The passive subject may be marked with oblique case (generally dative), in languages where not only undergoers but also non-macrorole arguments are permitted to be linked to passive pivot. Whether the passive subject is marked with the nominative or oblique case depends on whether it bears a macrorole or not.

The first part is undisputable. The second part of the prediction is valid at least for Icelandic and German but there are languages where the second prediction does not hold. French (Postal 1986), SJ (Nakamura 1999) and the MD under discussion are languages where the second part of the prediction does not hold. In these languages, non-macrorole arguments promoted to passive subject are marked with the nominative.

Classic RRG has no mechanism for blocking oblique case marking for non-macrorole arguments and cannot deal with nominative assignment to a non-macrorole subject derived in passive constructions. In languages where dative shift is found, nominative case marking of the recipient argument in passive subject position can be analyzed as a result of the variable undergoer assignment, namely the active counterpart of (26a) is not (26b) but (26c). If *Mary* in (26a) bears the macrorole undergoer,

nominative assignment to the passive subject can be regarded as a result from the general case assignment.

- (26) a. *Mary was given a present.*
 b. *(Someone) gave a present to Mary.* (Undergoer = a present)
 c. *(Someone) gave Mary a present.* (Undergoer = Mary)

However, in the languages like French, SJ and MD, where dative shift constructions are not found, the explanation with the variable undergoer assignment is not an available option. In these languages, oblique elements do not generally alternate their case marking with the accusative. If one assumes that the nominative recipient argument in passives like *Tom* in (18c) bears the macrorole undergoer, nominative case marking for the passive subject can be regarded as a result of the general case assignment rule. But this incurs another problem, namely that of the otherwise unmotivated recipient—undergoer mapping in these languages. Thus, the variable undergoer assignment cannot be a solution.

To solve this problem Nakamura (1999) proposed an RRG-OT typology of case systems. Nakamura's (1999) RRG-OT typology provides a solution for this nominative assignment to non-macrorole argument. Nakamura assumes four general constraints for case marking. The relevant constraints for nominative assignment to non-macrorole arguments are (27a) and (27b). I will refer to (27a) and (27b) as NOMINATIVE and DATIVE respectively.

- (27) Case Marking Constraints (Nakamura 1999)
 a. Some arguments receive NOMINATIVE case.
 b. Non-macroroles receive DATIVE case.
 c. Undergoers receive ACCUSATIVE case.
 d. Actors receive ERGATIVE case.

According to Nakamura (1991), nominative case marking of a non-macrorole subject in the passive is due to the undominated status of the constraint NOMINATIVE. This is the case of Standard Japanese. In languages, such as Icelandic, NOMINATIVE is ranked lower than DATIVE.

- (28) a. DATIVE >> NOMINATIVE (Icelandic)
 b. NOMINATIVE >> DATIVE (SJ)

The undominated status of NOMINATIVE enforces every sentence to have at least one nominative element. Nominative assignment to non-macrorole arguments in passive constructions can be regarded as a result from the avoidance of the violation of NOMINATIVE. Under the ranking in (28b), the general mapping requiring assignment of oblique cases to non-macrorole arguments fails in favor of the satisfaction of the higher ranked constraint NOMINATIVE. The constraint ranking (28b) is effective for the explanation of nominative assignment to non-macrorole arguments. However, this constraint ranking has a disadvantage when applied to the MD data.

As Woolford (2001) pointed out, the constraint ranking with NOMINATIVE rules out sentences lacking a nominative element. The ranking (28b) predicts that the active and potential sentences without nominative are ungrammatical. However, in MD, this is not the case.

- (29) Problem with Nakamura's (1999) account:
The undominated status of NOMINATIVE rules out not only passive oblique subjects but also the case frames without a nominative in the active and potential constructions.

Nakamura's OT-enhanced RRG account gives us a solution for nominative assignment to non-macrorole arguments in passives, but fails to capture the active and potential sentences without a nominative.

We need another solution. The next section provides an Optimality Theoretic solution with the enhancement of Local Conjunction (Smolensky 1995).

5. Proposal

In order to deal with the situation in MD, I would like to offer a constraint-based solution to the DEE in the MD case marking. I assume that Van Valin's account that non-macrorole specification results in oblique case marking is valid. But, a certain special factor blocks this general case assignment.

Notice that the passive construction with an oblique subject involves two marked mappings between case and role.

- (30) Marked situations
- a. Mapping actor to peripheral or oblique status is more marked than actor-pivot mapping at least in accusative case systems.
 - b. Oblique subject (pivot) is more marked than nominative pivot.

Assuming that a marked situation involves violation of some constraint, the partial DEE in MD case marking can be described as follows: passive with nominative subject incurs violation of the constraint responsible for (30a) but this violation is not regarded as fatal, the potential construction has an oblique subject and violate the constraint responsible for (30b) but this violation is not regarded as fatal. On the other hand, passive constructions with oblique subject incur multiple violations of the constraints behind (30a) and (30b). These multiple violations result in ungrammaticality. The situation is summarized in Table 3.

Table 3. *Constraint violation and grammaticality on case mapping in MD*

	Constraint Violation	Grammaticality
Passive with nom. Subject	single, (29a)	Grammatical
Potential	single, (29b)	Grammatical
Passive with oblique subject	multiple, (29a) & (29b)	ungrammatical

In order to capture the situation in (30), I assume the general constraints on case-role mapping in (31) and (32).

- (31) Align(θ , pivot): Align highest thematic role to pivot (abbreviated θ Pi).
- (32) *ObIPi: Avoid oblique pivot.

The constraint θ Pi is satisfied when the highest argument of a given predicate in the thematic hierarchy is aligned to pivot. This satisfaction is typically found in active constructions. The constraint *ObIPi is satisfied when the pivot is case marked with the nominative.

In passive constructions, the constraint $\wedge\theta\text{Pi}$ is violated because the highest thematic role, agent, is not a pivot. The constraint $*\text{OblPi}$ is violated in the oblique subject constructions where the oblique elements have pivotal status.

The constraints responsible for passive and potential formation are given in (33) and (34), respectively. The constraints in (33) are the OT translation of the RRG characterization of the passive.

- (33) Constraints behind the formation of passive constructions:
- a. $*\text{APi}$: Actor must not be a pivot.
 - b. $\text{Align}(\text{non-actor, pivot})$: Align non-actor to pivot (abbreviated NonAPi)
- (34) Constraint behind the formation of potential constructions:
 $\wedge\theta\text{Exp}$: The highest thematic role argument must be marked with experiencer case.

I assume that there is a faithfulness constraint that guarantees the cross-constructural identity of case marking for the argument of a given predicate.

- (35) Faithfulness constraint:
 $\text{Ident}(\text{case})$: Case category [direct/oblique] for a given argument must remain constant across constructions.
- (36) $*\text{APi}, \text{NonAPi}, \wedge\theta\text{Exp} \gg \text{Ident}(\text{case}) \gg * \text{OblPi}, \wedge\theta\text{Pi}$

The ranking (36) reflects the relative importance of various constraints in MD. Since the dialect has voice phenomena, constraints responsible for voice must be ranked higher than other constraints. There is a fairly high degree of cross-constructural identity of case. This indicates that the faithfulness constraint has a relatively high rank.

This ranking accounts successfully for the case mapping of the potential constructions and passive constructions from transitive clauses. The successful evaluation for these constructions is given in Tableaux 1 and 2. In these Tableaux, the constraints banning marked case—role mappings, i.e., $\wedge\theta\text{Pi}$ and $*\text{OblPi}$, play no crucial roles in the evaluations. These lower ranked constraints are violated in favor of the higher ranked constraints for voice specific mappings.

Tableau 1. Passive mapping (based on transitive)

V_t (agt, theme)-pass	*APi	NonApi	$\wedge\theta Pi$
agt(pivot), theme	*!	*	
☞ agt, theme(pivot)			*

Tableau 2. Mapping in potential constructions

V_i (agt(A), goal(NMR))-pot	$\wedge\theta Exp$	Ident(case)	*OblPi
a. NOM(agt), DAT(goal)	*!		
b. EXP(agt), NOM(goal)		**!	*
☞ c. EXP(agt), DAT(goal)		*	*

However, the ranking wrongly predicts that the non-macrorole elements should preserve their oblique case marking when promoting to passive subject position. This is the case of Icelandic, but not the situation found in MD. See the wrong evaluation in Tableau 3.

Tableau 3. Failed evaluation

V_{dtr} (agt(A), rec(NMR), th(U))-pass	*APi	NonApi	Ident(case)	*OblPi	$\wedge\theta Pi$
a. nom(agt), dat(rec), acc(th)	*!	*			
Actual b. nom(rec), acc(th), loc(agt)			**!		*
☞ c. dat(rec), acc(th), loc(agt)			*	*	*

A way out of this difficulty is provided by Local Conjunction. Local Conjunction is a mechanism deriving an undominated constraint on the basis of two lower-ranked constraints. In phonology, Lubowicz (2002) argues that the DEE is obtained when a markedness constraint is conjoined with a certain constraint violated by a process. We can apply the same thinking to the present situation. In this case, the relevant constraints are $\wedge\theta Pi$ and *OblPi. When these constraints are conjoined and the conjoined constraint is undominated, the lower ranked *OblPi is operative only when $\wedge\theta Pi$ is violated otherwise it is not operative. In other words, oblique subject avoidance or nominative requirement for subject is operative in the case of the passive where *APi enforces the violation of $\wedge\theta Pi$. The final constraint ranking and the evaluation of passive with oblique complement are illustrated in (37) and Tableau 4, respectively.

(37) [$\wedge\theta Pi \& *OblPi$] >> *APi, NonApi, $\wedge\theta Exp$ >> Ident(case) >> *OblPi, $\wedge\theta Pi$

Tableau 4. Nominative assignment to non-macrorole argument in passive

V_{ditr} (agt(A), rec(NMR), th(U))-pass	$[\wedge\theta\text{Pi}&*\text{OblPi}]$	*API	NonAPI	Ident(case)	*OblPi	$\wedge\theta\text{Pi}$
a. nom(agt), dat(rec), acc(th)		*!	*			
☞ b. nom(rec), acc(th), loc(agt)				**		*
c. dat(rec), acc(th), loc(agt)	*!			*	*	*

The undominated conjoined constraint in the left-most row rules out the candidate (c) with an oblique subject in the passive. The constraints responsible for voice rule out the candidate (a), the one with active mapping. The candidate (b) where the non-macrorole argument is marked with nominative case is the winner.

Now, we have the answer to the problem why the oblique subject is ruled out in the passive. Oblique subjects in active and potential constructions violate only one lower ranked constraint *OblPi. On the other hand, oblique subjects in passive constructions incur the violation of two lower ranked constraints and this multiple violation of constraints can be regarded as the source of the partial DEE in MD

The intuition behind Local Conjunction is that certain constraints can be violated separately but the simultaneous violation is ruled out in certain languages. The reranking of the constraints proposed for MD data enables us to account for the situation in the Icelandic passive. The difference between the two languages is that whereas the conjoined constraint is undominated in MD, it is dominated by the voice constraints. See Tableau 5. Thus our analysis can capture the cross-linguistic variation.

Tableau 5. Icelandic passive

hjálpa (agt(A), th(NMR))	*API	NonAPI	Ident(case)	*OblPi	$\wedge\theta\text{Pi}$	$[\wedge\theta\text{Pi}&*\text{OblPi}]$
a. nom(agt), dat(th)	*!	*				
b. nom(th), af dat(agt)			**!		*	
☞ c. dat(th), af dat(agt)			*	*	*	*

6. Conclusion

This paper proposed a solution for DEE in the MD case marking with Local Conjunction of two markedness constraints on case-role mapping, clarifying that the lower ranked *OblPi and $\wedge\theta\text{Pi}$ play crucial role for nominative case marking for non-macrorole subject in passive. The obligatory nominative case marking for passive subject (or the exclusion of oblique subject in passive constructions) is considered to be a result from the avoidance of multiple violations of the markedness constraints.

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THE LOGICAL STRUCTURE OF *VERB-TE-AR* ‘-LINKER-EXIST’ IN JAPANESE*

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Abstract

This paper discusses the *-te-ar* construction in Japanese, a type of resultative with a suppressed argument. It focuses on the discussion of its semantic representation, considering whether this construction should be captured as a locative existential logical structure (LS) or an induced state LS, and offering an argument in favor of the latter. This paper corroborates Hasegawa’s (1996) analysis that *-te-ar* involves a stativization process of the base verb, but differs from that analysis that *ar* is not analyzed as having a lexical entry of a locative existential predicate.

1. Introduction

This paper examines the meaning of the *-te-ar* construction in Japanese, which can be classed as a type of resultative. According to Nedjalkov and Jaxontov (1988: 6), the term resultative refers to “those verb forms that express a state implying a previous event.” They provide an example from Russian (1)(adapted from Nedjalkov and Jaxontov (1988: 6)).

- (1) Na stene povešena kartina
 On wall hung-PAST.PART-PASS picture
 ‘A picture is hung on the wall.’

The sentence in example (1) depicts the current condition of a picture while also implying that there existed an event sometime in the past in which someone hung the picture.

Japanese possesses a semantic parallel to this Russian construction which is exemplified in (2).

- (2) kabe ni e ga kake-te-ar-u
 wall DAT picture NOM hang-L-exist-NPST
 ‘A picture is hung on the wall.’

While the Russian example utilizes the passive morphology, the Japanese counterpart employs a complex predicate which consists of two verbal elements, the transitive base verb (e.g., *kake-* ‘hook’ in (2)), which appears in the linking form with *-te-* ‘linker’, and *ar-*, a verb that denotes existence of an inanimate entity when it occurs as an independent verb. An example of *ar*’s use as an independent verb is given in (3).

- (3) a. soko ni hon ga ar-u
 thereDAT book NOM exist(inanimate)-NPST
 ‘There is a book there.’
 b. * soko ni hon ga i-u
 thereDAT book NOM exist(animate)-NPST
 ‘There is a book there.’

In (3), the use of *ar* with an inanimate entity (a), but not an animate entity (b) is grammatical for denoting existence.

Typically, *-te-ar* is employed to specify how two physical entities (e.g., *e* ‘picture’ and *kabe* ‘wall’ in (2)) are in contact with each other (e.g., being hung), but it also can be used to depict a condition of one entity (4)(cf. Masuoka 1984, Hasegawa 1996).

- (4) iriguti ga hutatu-ni sikit-te-at-ta
 entrance NOM two-into separate-L-exist-PST
 ‘The entrance was separated into two.’

In (4), the condition of the single entity ‘entrance’ is shown as being separated into two with the use of *-te-ar* (cf. The last consonant of the verb root /r/ in *sikir-* ‘separate’ and *ar-* ‘exist’ changes into /t/ before *-te* ‘linker’ or *-ta* ‘past’ by assimilation as in *sikit-* and *at-*.)

A unique characteristic of this construction is that it involves valence reduction: namely, *-te-ar* is combined with a transitive verb, but it is the undergoer argument that appears in the nominative case (rather than the actor), and it is impossible for the actor to be realized within the sentence, regardless of its case (5).¹

- (5) * Hanako ni(/niyotte) kabe ni e ga kake-te-ar-u
 Hanako DAT(/by) wall DAT picture NOM hang-L-exist-NPST
 (intended) ‘A picture is hung on the wall by Hanako.’

In (5), the actor ‘Hanako’ cannot be realized within the sentence, even if given dative case. One controversy surrounding this construction is whether the base verb and *ar* are combined syntactically (Hasegawa 1996) or lexically (Toratani 2003). This disparity has ramifications for the semantic representation of the construction. Hasegawa posits a logical structure (LS) of a locative existence of (6a) (adapted from Hasegawa 1996: 91) and Toratani, an LS of an induced state of (6b).

- (6) a. **be-at'** (x, [**pred'** (y)])
 b. **do'** (∅, ∅)...**pred'** (y)

This paper contrasts (6a) with (6b) on the basis of Van Valin and LaPolla (1997) and shows that the representation of (6b) is more advantageous to capture the meaning of *verb-te-ar*. The treatment of: (i) the actor, (ii) the locative phrase, and (iii) *ar* ‘exist’ are all found to be better accounted for by the latter analysis. Novel data with the light verb with *si* also is found to make a case for (6b). In this paper, the two proposals are first briefly reviewed in Section 2. Next, Section 3 presents the three arguments in favor for the LS of (6b). Section 4 turns to the semantic domains where the arguments of the *verb-te-ar* reside, referring to Shibatani (2001). Finally, Section 5 offers concluding remarks.

2. Previous literature

Hasegawa (1996) hypothesizes that the base verb with the linker *-te* and the verb *ar* are syntactically combined. She rejects the possibility that this *verb-te ar* complex is lexically combined due to the observation that the sequence of *verb-te ar* does not exhibit the properties of a word such as a lexical compound verb of V-V exhibits.

Hasegawa then goes on to propose that the juncture-nexus type of *verb-te ar* is nuclear coordination based on operator occurrence (7).

- (7) a. tegami ga dasa- nai-de ar-u
 letter NOM send NEG-TE be-NPST
 ‘There is a letter which hasn’t been sent out.’ (Hasegawa 1996: 87)
- b. * tegami ga dasa- naku-te ar-u
 letter NOM send NEG-TE be-NPST
 ‘(intended) There is a letter which hasn’t been sent out.’

The nuclear negative operator *nai-de* can intervene between the predicate, as shown in (7a) but the core-level negative operator *naku-te* cannot (7b). Thus, Hasegawa concludes this is nuclear coordination.²

For the semantic representation, Hasegawa posits an LS of a locative existential predicate. Under her analysis, the logical structure of the base verb first undergoes the actor-removing operation, and then, the output **pred'** (y) is to fill the argument slot for the LS of the logical structure of *ar* (8).

- (8) a. TE-predicate : **do'** (x, ∅) CAUSE [BECOME **pred'** (y)] → **pred'** (y)
 b. *ar* ‘exist, be’ : **be-at'** (x, [LS]); x=LOCATIVE (ibid: 91)

In (8a), the *TE*-predicate has its actor removed to yield **pred'** (y). Then, in (8b), this **pred'** (y) is placed in the argument slot of LS in the logical structure of *ar*.

In contrast to Hasegawa, Toratani (2003) offered an argument for a lexical analysis on the basis of the assumption that failing to exhibit the morphological properties of a word does not automatically preclude lexical formation. First, it was pointed out that there is a co-occurrence restriction between the base verb and *-te-ar*. Specifically, only active accomplishment, causative achievement, and causative accomplishment verbs can serve as the base verb for *-te-ar* but not the verbs of other classes ((9), (10)).

- (9) a. tegami ga kai-te-ar-u [Active Accomplishment.]
 letter NOM write-L-exist-NPST
 ‘A letter is written.’
 a'. **do'** (x, [**write'** (x, y)]) & BECOME **exist'** (y)
- b. koto ga tut-te-ar-u [Causative Achievement]
 coat NOM hang-L-exist-NPST
 ‘A coat is hung.’
 b'. [**do'** (x, ∅)] CAUSE [INGR **hung'** (y)]
- c. hon ga oi-te-ar-u [Causative Accomplishment]
 book NOM place-L-exist-NPST
 ‘A book is placed (there).’
 c'. [**do'** (x, ∅)] CAUSE [BECOME **be-LOC'** (y, z)]

- (10) a. * kazaguruma ga mawasi-te-ar-u [Causative Activity]
pinwheel NOM spin-L-exist-NPST
'A pinwheel is spun.'
- a'. [**do'** (x, \emptyset)] CAUSE [**do'** (y, [**spin'** (y)))]
- b. * terebi ga mi-te-ar-u [2- place Activity]
TV NOM watch-L-exist-NPST
'A TV is watched.'
- b'. **do'** (x, [**watch'** (x, y)])
- c. * kodomo ga okot-te-ar-u [2-place Achievement]
child NOM scold-L-exist-NPST
'A child is scolded.'
- c'. INGR **angry'** (x, y)
- d. * yama ga konon-de-ar-u [2-place State]
mountain NOM like-L-exist-NPST
'A mountain is liked.'
- d'. **like'** (x, y)

Thus, in (9), the active accomplishment 'write' (9a), the causative achievement 'hang' (9b), the causative accomplishment 'place' (9c) can co-occur with *-te-ar*. However, causative activities like 'spin' (10a), activities such as 'watch' (10b), achievements such as 'scold' (10c) and states such as 'like' (10d) cannot. Given that the common feature in (9) but not in (10) is the co-presence of (i) an activity component and (ii) a telic component, it was proposed that *-te-ar* requires the base verb to contain the two aspectual components in its LS, [**do'** (x, \emptyset)] and BECOME/INGR **pred'** (y).

Toratani (2003) further argued that combining the base verb with *ar* ought to be lexical because the process (i) affects the canonical selection of the argument in the LS as a macrorole, and (ii) changes the Aktionsart class of the base verb (see Van Valin and LaPolla 1997: 389-92 for the discussion on the division between syntactic vs. lexical phenomena in RRG). The verb that combines successfully with *-te-ar* takes an 'effector' (Van Valin and Willkins 1996) argument. The effector argument would normally be the *x* argument of an activity **do'** (x, \emptyset), which under normal circumstances would select for the actor macrorole. However, attaching *-te-ar* blocks this canonical macrorole selection. Since the actor argument is not mapped into the syntax in this construction, in order to obey the Completeness Constraint (Van Valin and LaPolla 1997: 325), it cannot be that the argument is a full-fledged argument in the semantic representation. Nonetheless, it is postulated that the argument is present in the semantic representation because the *-te-ar* sentence always implies that some entity (with no specific referent) performed an action. This contrasts with the case of an intransitive verb which always lacks such an implication (see Section 3.1., cf. Example (15), for more on this point). Furthermore, some contexts permit a phrase which indicates the effector's intention to co-occur with *verb-te-ar* (11).

- (11) (isi o oi-te) wazato doa ga ake-te-ar-u
rock ACC put-L deliberately door NOM open-L-exist-NPST
'The door is opened deliberately (by placing a rock).'

In (11), the actor's intentions are indicated through the adverb *wazato* 'deliberately'. This supports an analysis of the actor being present in the semantic representation (See Harasawa 1994: 191 and Tawa and Nakayama 1995: 436 for further examples).

In order to represent a situation where a caused event is not syntactically realized but is semantically implied, Centineo (1996) marks the actor as 'Ø'. This analysis follows Centineo's proposal and represents the effector as 'Ø' in the LS of the *-te-ar* construction.

The Aktionsart class of *verb-te-ar* is determined as state since *verb-te-ar* denotes the current state in its citation form. In Japanese, state is the only class that expresses present tense in its citation form, while other classes express future (cf. Teramura 1986). This indicates that affixing *-te-ar* changes the Aktionsart class of the base verb into stative. In light of these points, the function of *-te-ar* was proposed to both nullify the referentiality of the actor and also cancel the BECOME/INGR operator of a telic verb in order to create a stative predicate, which is specified as the lexical rule in (12).

(12) active accomplishment/causative achievement/causative accomplishment+ *-te-ar*
 → a state predicate preceded by an activity performed by an effector with no specific referent
do' (x, Ø)...INGR/BECOME **pred'** (y) + *-te-ar* → **do'** (Ø, Ø)...**pred'** (y)

Thus, in this proposal, *-te-ar* is posited as an element that introduces a lexical rule to derive a induced state from a telic transitive verb, and *ar* is not analyzed as an element that has a lexical entry of a locative existential predicate.

3. Logical structure of *verb-te-ar*

Having outlined the background, the two proposed logical structures can be examined. These logical structures are repeated below (13).

(13) a. **be-at'** (x, [**pred'** (y)]) (x=LOCATIVE)
 b. **do'** (Ø, Ø) ...**pred'** (y)

The discussion will examine the treatment of: (i) the actor, (ii) the locative phrase, and (iii) *ar* 'exist'.

3.1. Obligatory presence of the actor in semantics

The first point to be discussed is the treatment of the actor in the semantic representation. In Hasegawa's (1996) analysis, the valence reduction operation by *-te-ar* is performed by removing the activity component from logical structure of the base verb. An example is provided in (14).

(14) a. yasai ga kitte ar-u
 vegetable NOM chop-TE be-NPST
 'There are vegetables being chopped.' (Hasegawa 1996: 90)
 b. [**do'** (x, Ø)] CAUSE [**BECOME chopped'** (y)] → **chopped'** (y)
 c. *kitte ar-*: **be-at'** (x, [**chopped'** (y)])

Here, the logical structure of the transitive verb *kir* ‘chop’ first undergoes a stativization process as in (b), and then the resulting state predicate **chopped’** (y) is applied to the logical structure of *ar-* as in (c).

A crucial characteristic of this proposal is that the actor is not part of the semantic representation as seen in (14c). However, removing the actor completely from the representation is not an ideal solution, because it fails to provide a distinction from an intransitive counterpart. In Japanese, many transitive verbs have morphologically related intransitive forms (cf. Jacobsen 1992), as in *kake-* ‘hang (transitive)’ vs. *kakar-* ‘hang (intransitive)’. Often, both forms can be employed to depict a truth-conditionally identical situation (15).

- (15) a. e ga kake-te-ar-u
 picture NOM hang_{tran}-L-exist_(inanimate)-NPST
 ‘A picture is hung (there).’
 b. e ga kakat-te-i-u
 picture NOM hang_{intran}-L-exist_(animate)-NPST
 ‘A picture is hanging (there).’

Both sentences in (15) depict a scene of a hung picture but there is a slight difference in meaning. Example (a) implies that someone has hung the picture and it remains to be in the hung condition. However, example (b) neutrally depicts the current condition of the hung picture without implying that someone has hung it. Normally, it would be the case that a picture is hung by someone, but it is possible that it could have fallen there or been blown there by the wind. If the LS for (15a) follows from (13a), **be-at’** (x, [**hung’** (y)]) is obtained. This informally reads that there exists a y such that y is in a hung condition, and is located at x. However, this interpretation seems to represent (15b) equally well. In order to differentiate these two constructions, the presence of the implied actor needs to somehow be incorporated into the LS. If the structure of *-te-ar* provided in (13b) is assumed, this differences can be represented as in (16).³

- (16) a. *kake-te-ar-* (hang_{tran}-L-exist_(inanimate)-):[**do’** (∅, ∅)] CAUSE [**hung’** (y)]
 b. *kakat-te-i-* (hang_{intran}-L-exist_(animate)-): **hung’** (y)

Here, both constructions share the component **hung’** (y) but the *-te-ar* construction also contains the component **do’** (∅, ∅) implying the presence of an actor.

3.2. Non-obligatoriness of a locative phrase

Now, the question of whether LOCATIVE is an obligatory part of the logical structure of verb-*te-ar*, as in (13a) can be turned to. Hasegawa (1996) notices that *-te-ar* constructions result in an ambiguity (17).

- (17) a. ningyoo no kubi ga nuite aru
 doll GEN head NOM pull-out-TE be-NPST
 a’. ‘A doll’s head has been pulled out (of its socket).’ (ibid: 100)
 a”. ‘There (deictic) is a doll’s head which was pulled out (of its socket).’
 b. ningyoo no kubi ga soko ni nuite aru
 doll GEN head NOM there DAT pull-out-TE be-NPST
 b’. * ‘A doll’s head has been pulled out (of its socket) there.’
 b”. ‘There (deictic) is a doll’s head which was pulled out (of its socket).’

Under one reading (a'), the sentence in (17a) portrays the state of a headless doll (i.e., what the cognizer sees is just the body of the doll without the head). Under the other reading (a''), the sentence portrays the state of a bodiless head (i.e., what the cognizer sees is just the head of the doll without the body). Although Hasegawa does not provide an example sentence, she further states that adding a locative phrase to (17a) disambiguates the interpretation. Namely, a sentence like (17b) can only refer to the state of a doll's head being placed in front of the cognizer.

This suggests that when a locative phrase is present, the *-te-ar* construction can denote only the existence of the nominative-marked NP on the scene. However, there are cases where a *ni*-marked NP cannot co-occur with *verb-te-ar* (i.e., (17a) under the reading of (a')). If there are cases where the locative phrase cannot co-occur with *verb-te-ar*, it cannot be supported that LOCATIVE should be an obligatory part of the logical structure.

3.3. Predication of (locative) existence

Next, (locative) existential predication can be discussed. In this subsection, novel data with the light verb *si* (*~suru*) ('do' as a lexical verb) is used. This light verb *si* or its citation form *suru* can productively attach to a deverbal nominal (18).

- (18) a. soozi-suru cleaning-do 'to clean'
 b. insatu-suru printing-do 'to print'
 c. tyookoku-suru engraving-do 'to engrave'
 d. saiku-suru handiwork-do 'to work on'
 e. mizumaki-suru sprinkling-do 'to sprinkle water'

In (18), the entire sequence of deverbal nominal plus *si* (*~suru*) functions as a verb. It is well known that some transitive predicates with the light verb *si* allow for a case-marking alternation (Grimshaw and Mester 1988) as in (19).

- (19) a. Hanako ga niwa o soozi-si-ta
 Hanako NOM garden ACC cleaning-do-PST
 'Hanako cleaned the garden.'
- b. Hanako ga niwa no soozi o si-ta
 Hanako NOM garden GEN cleaning ACC do-PST
 'Hanako did the cleaning of the garden.'

In (19a), 'cleaning', the deverbal nominal, is part of the predicate, and the object of the cleaning 'garden' is accusative-marked. In (19b), 'cleaning' is an accusative-marked argument and 'garden' is genitive-marked. The combination of this complex light verb with *-te-ar* exhibits an analogous case-marking alternation as illustrated in (20).

- (20) a. niwa ga soozi-si-te-ar-u
 garden NOM cleaning-do-L-exist-NPST
 'The garden is in a cleaned state.'
- b. niwa wa (/ga/no) soozi ga si-te-ar-u
 garden TOP (/NOM/GEN) cleaning NOM do-L-exist-NPST
 'The garden is in a cleaned state.'

Example (20a) shows a pattern where the deverbal nominal is part of the *-te-ar* predicate. Example (20b) shows that the deverbal nominal is case-marked by *ga* ‘nominative’ leaving behind *si* as part of the predicate. Both sentences in (20) denote an identical condition of a garden being in a clean state. Moreover, the case-marked pattern of (20b) holds interesting repercussions.

Previous literature (e.g., Ezaki 2001, Hasegawa 1996, Masuoka 1984, Matsumoto 1990) has focused on discussing sentences that denote the current condition of a physical object such as *e* ‘picture’ and *yasai* ‘vegetable’. An example from Hasegawa (1996: 90-91), given in (14), is repeated below as (21).

- (21) a. *yasai* *ga* *kitte* *ar-u*
 vegetable NOM chop-TE be-NPST
 ‘There are vegetables being chopped.’
- b. [**do'** (*x*, \emptyset)] CAUSE [BECOME **chopped'** (*y*)] \rightarrow **chopped'** (*y*)
- c. *kitte ar-*: **be-at'** (*x*, [**chopped'** (*y*)])

When dealing with a physical object, the locative existential LS seems to reflect the meaning of the *-te-ar* sentence well. For example (21c), the LS would informally read as ‘there exists a *y* (*yasai* ‘vegetables’) such that *y* is in a chopped condition and *y* is located at *x*’. Though Hasegawa does not discuss *-te-ar* with the light verb *si*, an analysis based on (13a) for the LS of such a construction as in (20b) would look like **be-at'** (*x*, [**pred'** (*soozi*)]). If this is the correct representation, it would informally read as ‘there exists *soozi* ‘cleaning (of the garden)’ such that *soozi* is in a certain state and *soozi* is located at *x*. This does not seem to capture the meaning of the sentence (see the English translation in (20b)). This illustrates two points. First, the *-te-ar* construction does not necessarily denote presence of the nominative-marked argument on the scene. Second, the meaning of the *-te-ar* construction does not always encompass the meaning component of locative existence. These are illustrated in example (22).

- (22) a. * *niwa* *no* *soozi* *a* *ar-u*
 garden GEN cleaning NOM exist-NPST
 ‘Cleaning of the garden exists.’
- b. * *niwa* *ni* *soozi* *ga* *ar-u*
 garden DAT cleaning NOM exist-NPST
 ‘Cleaning exists at the garden.’

In (22a), *soozi* ‘cleaning’ is not a physical object, and hence cannot occur as an argument of *ar* ‘exist’. In (22b), a locative existence reading is not possible.

Alternatively, the hypothesis that *-te-ar* is a lexical device functioning to create an induced state is more advantageous to handle this case with the light verb, as it does not depend on the (locative) existential semantics of *ar*. Following Nunes (1993), it is assumed here that a deverbal nominal has an identical logical structure to its verbal counterpart. Thus, the LS of *soozi* ‘cleaning’ in (23a) is assumed to have the LS of (23b).

- (23) a. niwa no soozī ga si-te-ar-u
 garden GEN cleaning NOM do-L-exist-NPST
 ‘The garden is in a cleaned state.’
- b. *soozī* ‘cleaning’ / *soozī-si* ‘cleaning-do’ → *soozī* (x, y):
 [**do**’ (x, ∅)] CAUSE [BECOME **cleaned**’ (y)]

When the deverbal nominal is case-marked by *ga* ‘nominative’ as in (23a), the predicate *si-te-ar* is proposed to have the representation of (24).

- (24) (deverbal nominal-*ga*) *si-te-ar*: **do**’ (∅, ∅) ... **pred**’ ([deverbal nominal])

This is the logical structure of an induced state with an unspecified component **pred**’, whose semantic content is to be supplied by the deverbal nominal. This creates an LS (25a) for sentence (23a).

- (25) (‘The garden is in a cleaned state.’)
- | | | | | |
|--------|-----|----------|-----|-----------------|
| niwa | no | soozī | ga | si-te-ar-u |
| garden | GEN | cleaning | NOM | do-L-exist-NPST |
- ↑

UNDERGOER
- ↑

ACTOR
-
- a. **do**’ (∅, ∅) CAUSE **pred**’ (*soozī* (∅, *niwa*))
- b. where *soozī* (∅, *niwa*) : **do**’ (∅, ∅) CAUSE [BECOME **cleaned**’ (*niwa*)]
- c. **do**’ (∅, ∅) CAUSE **cleaned**’ (*niwa*)

The *soozī* (∅, *niwa*) component has the semantics in (25b) which causes (25a) to be reinterpreted as (25c). The representation of ∅, the first argument of **do**’ in (25a), ensures that it cannot be selected as the macrorole actor adhering to the Completeness Constraint, and *soozī*, being the sole argument of the state predicate can be selected as the macrorole undergoer, which can be linked to the nominative-marked argument in the syntactic representation. This proposal however requires a stipulation that the non-macrorole argument (i.e., *niwa* ‘garden’ in (25a)) is assigned genitive case *no* (or nominative *ga* --cf. (20b)).

To sum up, this section compared the locative existential LS with the induced state LS as a representation for *verb-te-ar*. These two proposals both posit that the *-te-ar* construction involves a stativization process. However, whereas the induced state LS analysis requires only the stativization of the base verb, the locative existential LS analysis entails both the stativization of the base verb and the composition into a complex LS.

4. Semantic dependency

Shibatani (2001) examines the semantic relation of the two NPs that belong to non-canonical constructions in Japanese.⁴ By non-canonical constructions, he refers to sentences with a stative predicate which takes [-NOM, -NOM] and [-DAT, -NOM]-

marked NPs, rather than the canonical marking of [-NOM, -ACC] as exemplified in (26)(examples are slightly modified from Shibatani (ibid: 308-309)).

- (26) a. Ai ga Ken ga suki da [-NOM, -NOM]
 Ai NOM Ken NOM like COP
 'Ai likes Ken.'
- b. Ai ni eigo ga hanaseru [-DAT, -NOM]
 Ai DAT English NOM can speak
 'Ai can speak English.'

Example (26a) has two nominative arguments. In (26b), a nominative and a dative argument occurs. These sentences are grammatical without the first NP (27).

- (27) a. Ken ga suki da
 Ken NOM like COP
 '(Someone) likes Ken.'
- b. eigo ga hanaseru
 English NOM can speak
 'English can be spoken.'

Shibatani argues that the sentences without the first NPs such as (27) sound 'elliptical' and whether they can be asserted without yielding awkwardness depends on the presence of the first NP which designates the semantic domain where the predication can be anchored. For example, (27a) requires information on who experiences the psychological state, or (27b) expects information on who the English-speaking attribute belongs to. Shibatani further notices that

- (28) [s]tative predicates entering the non-canonical constructions centre around specific semantic domains, most notably possession/existence, physiological states, mental states, and certain modal states. (Shibatani 2001: 349)

Although not discussed in Shibatani, *verb-te-ar* can be classed as a type of a non-canonical construction because *-te-ar* denotes state and takes two NPs which are case-marked non-canonically. Like (26), two case-marking patterns are possible: [-DAT, -NOM] and [-NOM, -NOM] (29).

- (29) a. kabe ni kooto ga tut-te-ar-u [-DAT, -NOM]
 wall DAT coat NOM hang-L-exist-NPST
 'A coat is hung on the wall.'
- b. sono ie ga (/wa /no) [-NOM, -NOM]
 that house NOM (/TOP/GEN)
- iriguti ga hutatu-ni sikit-te-ar-u
 entrance NOM two-into separate-L-exist-NPST
 'The entrance of the house is separated into two.'

In (29a), ‘wall’ is dative and ‘coat’ is nominative-marked. In (29b), both arguments are nominative-marked.

Interestingly, the two NPs in the *-te-ar* construction enter into an existential or a possessive relation adhering to Shitabani’s observation in (28): in (a), the coat exists on the wall, and in (b) the entrance is possessed by the house. However, (28) can be maintained only in a weak sense because the *-te-ar* predicate *per se* does not directly denote existence or possession. The clear instance to highlight this point is the use of *-te-ar* with the light verb, whose relevant example given in (23a) is repeated below as (30).

- (30) niwa no soozi ga si-te-ar-u
 garden GEN cleaning NOM do-L-exist-NPST
 ‘The garden is in a cleaned state.’

The nominative-marked argument provides the semantic content (e.g., *soozi* ‘cleaning’) but the predicate itself (*-si-te-ar*) does not contribute any semantically rich information. However, *-te-ar*’s arguments that denote physical objects do seem to enter into the existential or possessive relation irrespective of the predicate type (e.g., the garden is possessed by a type of building such as a house in (30) although it is not overtly mentioned.).

5. Concluding remarks

This paper examined the meaning of the *-te-ar* construction in Japanese. Two types of logical structures, a locative existential type and an induced state type, were considered. First, in order to ensure the presence of the actor in the semantics but prevent it from being selected as a macrorole, an LS with the actor marked as ‘Ø’ was supported. Next, because the locative argument is not a required part of the meaning of the *verb-te-ar*, it was not posited to be a part of the LS. *Ar* was shown to not function as a full-fledged lexical verb in this construction in terms of contribution of the meaning to the predicate as a whole. Thus, it can be considered ‘grammaticized’ (Hopper 1991).

The analysis presented here disfavored the analysis for locative existential LS, as proposed in Hasegawa (1996), but is founded upon Hasegawa’s insight that *-te-ar* is in essence a stativizer that operates on the LS of the base verb. Given that inherent stative classes are scarce in Japanese (Kindaichi 1976), a hypothesis that Japanese sanctions this type of stativization mechanism seems plausible. *-Te-ar*’s interaction with the information structure (Lambrecht 1994) was not explored in this paper. However, the *-te-ar* construction can function as a presentational sentence in narrative discourse. Future research must determine whether the LS for *-te-ar* should posit an existential component **exist**’ to ensure its ability to function as a presentational sentence following along the lines of the proposal made in Bentley (2004).

Notes

*This paper benefited greatly from the questions and suggestions from the audience, Delia Bentley and Kan Sasaki, in particular. I owe Ardis Eschenberg much gratitude for her comments and editorial suggestions. Any errors and omissions are due to the author. The following abbreviations are used in this paper: ACC=accusative, COP=copula, DAT=dative, GEN=genitive, L=linker, LS=logical structure, NEG=negative, NOM=nominative, NPST=non-past, PASS=passive, PAST.PART=past participle, PRED=predicate, PST=past and TOP=topic.

¹ There are cases where *-te-ar* construction does not involve case marking alterations as shown below (from Soga (1983: 135) with modifications).

- (a) watakusi ga sono okane o ginkoo ni azuke-ta
 I NOM that money ACC bank DAT deposit-PST
 ‘I deposited that money in the bank.’
- (b) watakusi ga sono okane o ginkoo ni azuke-te ar-u
 I NOM that money ACC bank DAT deposit-exist-NPST
 ‘I have deposited that money in the bank (and it is there now).’

Sentence (a) shows that the verb *azuke-* ‘deposit’ is a ditransitive verb taking nominative, accusative and the dative marked arguments. Sentence (b) shows that those arguments appear in exactly the same coding pattern despite the fact that the base verb is followed by *-te-ar*. This paper assumes that *-te-ar* in (b) is semantically, syntactically and functionally distinct from the *-te-ar* which involves a case marking alternation. This paper deals only with the *-te-ar* construction which involves a case marking alternation as in Example (2) in the main text.

² This diagnostic test necessarily yields an elliptical reading as illustrated in (a) below.

- (a) tegami ga dasa- nai-de (soko ni) ar-u
 letter NOM send NEG-TE there DAT exist-NPST
 ‘Without (someone) sending it, the letter is (there).’

In this sentence, a dative marked argument *soko* ‘there’ intervenes between the predicate *dasa-naide* ‘send NEG-TE’ and *ar* ‘exist’. *Soko* is an argument of *ar* ‘exist’ and not of *das* ‘send’. Since a nuclear of nuclear-level juncture does not take an argument of its own, obligatory presence of an extra argument *soko* ‘there’ shows that sentence (a) cannot be analyzed as nuclear coordination. Furthermore, the *nai-de* test should work regardless of the predicate type. However, an example with a light verb in (b) shows a result to the contrary.

- (b) *niwa wa (/ga/no) sooji ga si-nai-de ar-u
 garden TOP (/NOM/GEN) cleaning NOM do- NEG-L- exist-NPST
 ‘(intended) The garden hasn’t been cleaned.’

In (b), *nai-de* cannot occur with the light verb *si* ‘do’ despite the fact that there is no other reason why it should not, showing that the *nai-de* test is not a reliable diagnostic test. Hence, the analysis that the base verb and *ar* enter into nuclear coordination is untenable.

³ It is proposed in Toratani (2002) that a plain state (e.g., **hung'** (y)) in Japanese is derived from a plain achievement (e.g., INGR **hung'** (y)) or accomplishment verb (e.g., BECOME **melt'** (y)) via a lexical rule by utilizing *-te-i*.

⁴ The main claim made in Shibatani (2001) is that the non-canonical constructions are double-subject constructions, as schematized in (a) and (b) below. He analyzes the two NPs involved in the construction as ‘large subject’ and ‘small subject’.

- (a) [NP-NOM [NP-NOM PRED]]
 Large SUBJ Small SUBJ
- (b) [NP-DAT [NP-NOM PRED]]
 Large SUBJ Small SUBJ (ibid: 349)

Since grammatical relations of these NPs are not directly relevant to our current discussion, the use of the term ‘subject’ is avoided, and the two NPs are called ‘first NP’ (=large subject) and the ‘second NP’ (=small subject) whenever relevant.

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DEVELOPMENT OF CLEFT CONSTRUCTION IN IRISH*

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This paper examines a construction known as cleft in Irish diachronically. The construction in question synchronically behaves like the cleft, in a sense that it is syntactically marked, its frequency is low and its function is to assign focus to a particular phrase in a clause. This construction has existed from the Old Irish period or even earlier, but there emerge some problems: its frequency was reasonably high earlier. This violates the synchronic characteristics, in a sense that the high frequency entails that it was not really a marked construction and it was not used for the purpose of focus construction. So what is the cleft construction in the earlier period, then? We argue that the earlier construction was used for stativisation, based on the characteristics of the copula and substantive verbs as a residue of earlier Proto-Indo-European verbal system. This stativising construction became a cleft according to the change from topic-prominent language to subject-prominent one, which makes the earlier unmarked construction reanalysed as a focus construction.

1. Introduction

Among Indo-European (IE) languages, Celtic languages form the only branch which has verb initial (V-1) word order, i.e. VSO. Compare this with Germanic and Romance (SVO) or Slavic and Indo-Iranian (SOV). The main difference between the Celtic and other IE languages is the position of subject. As we will see shortly, the subject of the clause is often associated with the discourse topicality or salience and it means that Celtic languages do not posit the most salient entity in the clause initial. In this paper, an attempt is made to account for such differences as a part of diachronic formation of basic word order in Irish. As we will explain shortly, we base our arguments in two particular constructions, i.e. the choice of copula or copula-like verb and the change in topic-focus assignment system in older and newer Irish.

The organisation of this paper is as follows: first we analyse, both synchronically and diachronically, what is considered cleft in Irish in comparison with other languages. Then we focus on the use of copula and copula-like verbs, known as substantive verb, and identify their etymology and original function. This reveals a possible function in the earlier cleft construction. After this, we analyse the historical change of topic-focus construction in Irish. We particularly look at the construction in terms of topic- and subject-prominence. This illustrates how this construction came to possess the current function. Note that we often refer to older Irish with different periods, and the diachronic taxonomy is as follows: Old Irish (-900), Middle Irish (900-1600) and Modern Irish (1600-present).

* Abbreviations used in this paper: ACC, accusative; AUGM, augmentative; CONJ, conjunction; COP, copula; DM, declarative marker; FOC, focus; PAST, past; PERF, perfect; PRES, present; REL.PRON, relative pronoun; TOP, topic; VN, verbal noun.

2. Topicality/focus and cleft

Topicality or focus assignment in languages have been one of the often discussed topics in linguistics. Topic or topicality here refers to its traditional sense, i.e. an entity in a clause presented as already existing in the discourse and it is often the case that the rest of the clause is about such entities. Likewise, focus refers to an entity representing the most important new information in a clause and it can be used to make a contrast with some other entity. In a number of languages, topic and focus is assigned variously. This discourse factors can influence the basic clause structure: it is a well-known fact that the languages of the world can be divided into topic-prominent and subject-prominent languages (cf. Li and Thompson 1976). The topic-prominent languages overtly marked the discourse topic, which is not necessarily the grammatical subject. These languages tend to have relatively free word order, and the position of the clause, such as a clause initial position, is reserved for the most topical entity. Consider, for instance, the following example from Warao (language isolate). The canonical clause (1)a exhibit the OSV word order, but the focused entity can be shifted to the front of the clause without any modification (cf. (1)b and (1)c).

Warao (language isolate, Romero-Figeroa 1997: 34-35, basic order OSV)

- (1) a. *atono saba yasi yak-era tai nisa-te*
 Antonio for hat goodness-AUGM he buy-NON.PAST
 'He will buy a good hat for Anthony.'
- b. *tai atono saba yasi yak-era nisa-te*
 he Antonio for hat goodness-AUGM buy-NON.PAST
 'It is him who will buy a hat for Anthony.'
- c. *yasi yak-era atono saba tai nisa-te*
 hat goodness-AUGM Antonio for he buy-NON.PAST
 'A good hat is what he will buy for Anthony.'

Along with the word order change, special grammatical markers are often inserted, and such constructions are often known as a cleft clause. "A marked structure in which a focused constituent is extracted from its logical position and often set off with some additional material, including an extra verb (Trask 1993: 46)." So in Japanese, there are special topic marker *-ga* and focus marker *-wa*, which are added onto the subject as exemplified below in (2)a and (2), respectively. Japanese also allows the word order change, i.e. fronting of focused entity (e.g. (2)c), as well as cleft (e.g. (2)d).

Japanese (basic order SOV)

- (2) a. *Ani-ga ashita toukyou-ni ik-u*
 elder.brother-TOP tomorrow Tokyo-to go-PRES
 'My elder brother goes to Tokyo tomorrow.'
- b. *Ani-wa ashita toukyou-ni ik-u*
 elder.brother-FOC tomorrow Tokyo-to go-PRES
 'My elder brother goes to Tokyo tomorrow.'
- b. *Toukyou-ni ani-wa ashita ik-u*
 Tokyo-to elder.brother-TOP tomorrow go-PRES
 'Tomorrow, my elder brother goes to Tokyo.' (focus fronting)
- b. *Ani-ga ashita ik-u nowa toukyoui des-u*
 elder.brother-TOP tomorrow go-PRES CONJ Tokyo COP-PRES
 'It is Tokyo that my elder brother goes tomorrow.' (cleft)

Now let us turn to our main analysis, i.e. Irish. The focus construction in Modern Irish involves the cleft construction. As specifically for pronouns, there is a focus marker *fein* as in *me fein* ‘I myself’, *tu fein* ‘you yourself’, etc. or emphatic form of pronouns, i.e. *mise* ‘I myself’, *tusa* ‘you yourself’, etc. or the combination of the both, i.e. *mise fein*, *tusa fein*, etc. Modern Irish does not use the stress for the purpose of focus. In the subsequent discussion, we concentrate on the cleft construction.

Various elements in a clause (3) can be focused in a cleft as shown in (4) to (6). The actor is focused in (4), the destination in (5) and a particular time reference in (6).

- (3) *Chuaigh Liam go Doire inné*
 went William to Derry yesterday
 ‘William went to Derry yesterday.’
- (4) *Is é Liam a chuaigh go Doire inné*
 COPULA he William REL.PRON went to Derry yesterday
 ‘It was William who went to Derry yesterday.’
- (5) *Is go Doire a chuaigh Liam inné*
 COPULA to Derry REL.PRON went William yesterday
 ‘It was to Derry that William went yesterday’
- (6) *Is inné a chuaigh Liam go Doire*
 COPULA yesterday REL.PRON went Liam to Derry
 ‘It was yesterday that William went to Derry.’

What is common in the cleft is the use of copula *is* and the relative pronouns *a*. In Irish, as well as other Celtic languages, there are two copula-like verbs, i.e. *is* and *tá*. In descriptive grammar, *is* is known as copula and *tá* as substantive verb and we adopt this terminology here. In cleft, only the copula can be used and the substantive verb cannot. We return to the issue of the choice of verb in the cleft later in section 3.

Historically, the cleft already existed in Old Irish. However, the existence itself does not confirm the status of the cleft. It has been argued (e.g. Russell 1995: 286-287; Wehr 2002) that the cleft construction like (4) to (6) was very common in Old Irish. As Russell (1995: 286-287) puts it:

Cleft sentences are very common in the Old Irish glosses; ... Nevertheless, in some cases it is difficult to detect precise force of the fronting and there is always a suspicion that it is as much a stylistic device as a marker of focus. Cleft sentences remain common in all stages of the languages as the usual method of topicalization, particularly in the spoken language. It is possible that their frequency in the Old Irish glosses may reflect a different register of language from that presented in literary texts.

The problem the historical development poses is that the cleft is supposed to be the marked construction, in a sense that it is not used frequently. As Wehr (2002) claims, the cleft had already been highly frequent as early as in the oldest written record, Würzburg glosses (8th century). However, the earlier construction cannot be considered as the cleft, since the construction could not be used so frequently if it existed for

assigning focus on some specific entity. It seems obvious that there was reanalysis of the same construction from an unmarked to a marked cleft construction.

Wehr (1998, 2001) argues that the lack of stress in order to mark the focus forced the speakers to resort to the use of the cleft clause in Irish. This analysis has at least a couple of problems: first, the lack of the stress does not necessarily mean that the focus has to be expressed with the cleft. For example, Somali uses a focus marker *baa* or *ayaa* (cf. (7)a and (7)b, respectively), which can be considered similar to the topic or focus marker in Japanese in function (cf. (2) above). The difference between *baa* or *ayaa* is subtle, but the latter is considered more formal. Yet Somali uses the stress as a result of tonal difference in order to mark the focus (Saeed 1999: 17). To make the matter further complicated, Somali also uses the cleft, as shown in (7)c and (7)d.

Somali (Cushitic, Saeed 1999: 117-118, basic order SOV)

- (7) a. *Nimán baa yimí*
 men FOC came
 ‘Some men came.’
- b. *Nimán ayàa yimí*
 men FOC came
 ‘Some men came.’
- c. *Wáxa yimí waa baabùur*
 thing.the came DM truck
 ‘The thing which came was a truck.’ (cleft)
- d. *Wáxa yimí nimán*
 what/who came men
 ‘Who came as some men’ or ‘There came some men.’ (cleft)

This example shows that the stress is only one tactic to assign focus, but not the most important factor. Secondly, the focus was not expressed by the stress at any stage of Irish and the existence of the unmarked cleft-like construction in Old Irish, in our view, can hardly be considered a focus construction either. Does this mean that the earlier Irish lacked the focus construction? There were, as we will see shortly below, other ways such as the word order change to assign the focus in earlier Irish. So the lack of stress does not seem to explain why the cleft was given a new status of focus construction. In sum, the cleft construction itself has existed from earlier periods, and this does not explain why the lack of stress influenced the reanalysis of the cleft. There must have been some other factors which influenced the reanalysis of the cleft.

In the following several subsections, we analyse details of constructions or verbs relating to the Irish cleft, which, once viewed collectively, reveal us why the earlier cleft-construction was more frequent and later reanalysed as the cleft.

3. Copula and substantive verb

As we have seen, there are two types of copula-like verbs in Irish, i.e. the copula *is* and the substantive verb *tá*. There are various synchronic differences, and these are illustrated in the following section first in section 3.1, and then the historical origin is suggested in section 3.2.

3.1 Synchronic differences

These two verbs can be used for a classificatory and identificatory clause, e.g. in English *I am a teacher* and *I am the teacher*, respectively (Russell 1995: 97). However, each verb involves slightly different syntactic pattern: in classificatory clause, copula basically involves the order ‘copula + complement + subject’, e.g. 0, but when the subject is proper noun, not pronoun, then the pronoun is optionally inserted before the proper noun, e.g. 0. This is optional, since it depends on the dialect: in Donnegal, the copula is often omitted, but in Connacht and Munster, it is normally inserted (Russell 1995: 97). In addition, the word order in ‘complement + relative pronoun + *tá* ‘is’ + *i* ‘in’ + pronoun’ as in 0 below can also express the same meaning in Donnegal dialect. This construction may look like a cleft clause like (4) to (6) above with the copula deleted. Such deletion can happen regardless of dialect (cf. (13) below). When the substantive verb is used, the word order is ‘*tá* ‘is’ + subject + *i* ‘in’ + possessive adjective + classificatory noun’, e.g. 0.

- (8) *Is mac léinn mé*
 COPULA student I
 ‘I am a student.’
- (9) *Is mac léinn (é) Seamus*
 COPULA student he Seamus
 ‘Seamus is a student.’
- (10) *Mac léinn atá ionam*
 student REL.PRON.is in.me
 ‘I am a student.’
- (11) *Tá mé i mo mac léinn*
 is I in my student
 ‘I am a student.’

In identificatory clause, copula involves the word order ‘copula + pronoun/definite noun + pronoun/definite noun’, e.g. (12). This construction has a variation when the pronoun is so-called emphatic form, i.e. pronoun with emphatic markers, such as *mise* or *mé féin* ‘I myself’ for *mé* ‘I’. Such instance is shown in (13). The omission is only possible when the copula is used in present tense and when marked for the past tense, negation or interrogative, the omission does not happen. (12) is an example with the pronoun, but when a definite noun or a proper noun is used, the pronoun is inserted just like 0, e.g. (14). The difference in identificatory clause emerges when the third person pronoun is involved, i.e. when the pronoun in the clause second position is third person, it has to be repeated after the complement, as shown in (15). The use of substantive verb in the identificatory clause is rather limited, and it only appears in the following construction ‘*tá* ‘is’ + *ar* ‘on’ + definite noun’, e.g. (16).

- (12) *Is mé an mac léinn*
 COPULA I the student
 ‘I am the student.’

- (13) *(Is) mise an mac léinn*
 COPULA I.EMPHATIC the student
 ‘I myself am the student.’
- (14) *Is é Seamus an mac léinn*
 COPULA he Seamus the student
 ‘Seamus is a student.’
- (15) *Is é an mac léinn é*
 COPULA he the student he
 ‘Seamus is a student.’
- (16) *Tá sé ar an duine is sine acu*
 is he on the person the oldest at.them
 ‘He is the oldest among them.’

In Modern Irish, the substantive verb is extending its range of expressiveness and overtaking the copula, while the copula is losing its ground gradually (cf. Ó Siadhail 1983, 1989: 251-252). Such claim is also backed up by examples like (13), where the copula can be omitted. This does not happen with the substantial verb. Russell (1995: 96-97) also shows such tendency in terms of dialectal difference, based on examples like 0 to 0. This is shown in Table 1 below:

Table 1. Dialectal distribution of copula and substantial verb, adapted from Russell (1995: 97)

	0 and 0	0	0
Munster	(-)	+	-
Connacht	(-)	+	±
Donegal	+	+	+

This type of difference becomes more obvious as we look at more details below.

In addition to the above constructions, the substantive verb is primarily used for indicating other meanings such as existence (17), location/position (18) or state (19).

- (17) *Tá boird agus cupla cathaoir ann*
 is tables and a few chairs there
 ‘There are tables and a few chairs.’
- (18) *Tá coupla pota in aice leis an tine*
 is a.few pot besidest he fire
 ‘A couple of pots are besides the fire.’
- (19) *Tá Fionnuala iontach sasta*
 is Fionnuala wonderful happy
 ‘Fionnuala is very satisfied.’

The substantive verb also expresses a dynamic sense of ‘becoming’ along with a stative sense of ‘being’ (Ó Siadhail 1989: 226).

The substantive verb is also used to form a periphrastic aspectual constructions. Following examples (20) to (22) illustrate such cases. In some cases, the clause also

expresses modality apart from aspect: for example, (21) also expresses an implication of deontic modality ‘obligation’ (Ó Siadhail 1989: 296-297). Also, the substantive verb used in such constructions are often referred to as auxiliary. This is a matter of theoretical approach and particularly from diachronic perspectives, the auxiliaries are considered to have derived from the full lexical verb and there are varying degree of grammaticalisation. We do not pursue this issue here, but for details of characteristics of auxiliary, see Heine (1993: 22-24), who proposes 23 different properties of auxiliaries.

(20) *Tá mé ag péinteál an doras*
is I at paint.VN the door
‘I am painting the door.’ (progressive)

(21) *Tá mé leis an leabhar a léamh*
is I with the book PARTICLE read.VN
‘I am to read the book.’ (near future)

(22) *Tá mé tar eis an leabhar a léamh*
is I after the book PARTICLE read.VN
‘I have finished reading the book.’ (perfect)

Another major difference is the verbal paradigm, since the copula is a defective verb in Modern Irish and it only has present and past tense. Historically, however, both copula and substantive verbs used to have the full paradigm, but copula lost it. It requires an exhaustive list to illustrate the whole paradigm of both verbs in Old and Modern Irish, so we show only a part of it. For fuller version, see Strachan (1949: 68-73) or Thurneysen (1946: 483-494, 476-483). Earlier, these two verbs also conjugated according to the person and number. Table 2 and Table 3 shows the difference between Old and Modern Irish. (Strachan 1949: 68-73)

Table 2. Partial verbal paradigm of copula and substantive verb in Old Irish (based on Strachan 1949: 68-73)

	1SG	2SG	3SG	1PL	2PL	3PL
Present						
Copula	<i>Am</i>	<i>it</i>	<i>Is</i>	<i>ammi</i>	<i>adib</i>	<i>it</i>
Substantive	<i>attó</i>	<i>ataí</i>	<i>Attá</i>	<i>attaam</i>	<i>ataaid</i>	<i>attaat</i>
Preterite						
Copula	<i>basa</i>	–	<i>Ba</i>	–	–	<i>batir</i>
Substantive	<i>Bá</i>	<i>bá</i>	<i>Boí</i>	<i>bámmar</i>	<i>-baid</i>	<i>bátar</i>
Future						
Copula	<i>Be</i>	<i>be</i>	<i>Bid</i>	<i>bimmi</i>	–	<i>bit</i>
Substantive	<i>bia</i>	<i>bie</i>	<i>Bied</i>	<i>bemmi</i>	<i>bethe</i>	<i>bieit</i>

Table 3. Partial verbal paradigm of copula and substantive verb in Modern Irish

	<i>1SG</i>	<i>2SG</i>	<i>3SG</i>	<i>1PL</i>	<i>2PL</i>	<i>3PL</i>
Present						
Copula	<i>Is</i>	<i>is</i>	<i>Is</i>	<i>is</i>	<i>is</i>	<i>is</i>
Substantive	<i>Tá</i>	<i>tá</i>	<i>Tá</i>	<i>tá</i>	<i>tá</i>	<i>tá</i>
Preterite						
Copula	<i>Ba</i>	<i>ba</i>	<i>Ba</i>	<i>ba</i>	<i>ba</i>	<i>ba</i>
Substantive	<i>bhí</i>	<i>bhí</i>	<i>Bhí</i>	<i>bhí</i>	<i>bhí</i>	<i>bhí</i>
Future						
Copula	–	–	–	–	–	–
Substantive	<i>beidh</i>	<i>beidh</i>	<i>Beidh</i>	<i>beidh</i>	<i>beidh</i>	<i>beidh</i>

From these two tables, it is clear that copula even in Old Irish shows an earlier characteristics of defective verbs, lacking some paradigms in preterite and future. In Modern Irish, the conjugation is much simplified and copula is a defective verb, only possessing present and past tense form. Although the conjugation itself is simplified, the substantive verb is still used for every tense-aspect and mood.

In terms of semantics, the difference between two verbs is normally attributed to the difference in abstractness or concreteness, i.e. *is* is more concrete (time-durable) and *tá*, more abstract (non-time-durable). However, the difference is not always so clear. For example, consider the use of copula in the following phrase:

- (23) *Is maith liom an leabhar sin*
 is good with.me the book that
 ‘I like that book.’ (lit. ‘is good with me that book’)

In such phrases, the time-durability does not seem to matter much and the phrase is a mere idiom. So the abstractness or the concreteness seem to leave some ambiguous cases. Then what is it that characterise the difference? For this, we would like to refer to its etymology.

3.2 Diachronic development

Earlier Indo-European languages, as early as Proto-Indo-European (PIE), organised their grammatical structure based on the active-inactive nominal distinction. The active noun generally includes human and animate nouns, i.e. entities must be able to act on their own initiative. The inactive noun, on the other hand, refers to inanimate objects and they cannot initiate any activity. Note that there are some exceptions, where a single referent had both types of nouns, e.g. ‘water’ can be considered as animate **Hap^h*- ‘water, river, stream (as a moving element)’ and inanimate *wot’ort^h* ‘water (as a non-living element)’ (Gamkrelidze and Ivanov 1995: 238-239). In addition, active nouns often indicate ability of reproduction. The names of trees are often active, since they can bear fruits (a sign of productivity), while its fruits are inanimate, e.g. Latin *pirus* ‘pear tree’; *mālus* ‘apple tree’ (animate), while *pirum* ‘pear’; *mālum* ‘apple’ (as a fruit, inanimate) (cf. Meillet 1948: 211-229). Such an implication is still to this day noticeable in some features of Indo-European languages. For example, the use of neuter gender in words like ‘girl’ in German can be traced back to this distinction (cf. Toyota forthcoming). The verbal paradigm is also based on the active-inactive nominal distinction. So for example, the present tense was expressed based on the active nominal

distinction, but for the perfective aspect, the inactive nominal distinction was used. Likewise, the earlier copula has two forms, active and inactive, e.g. *b^huH-* ‘be’ and **es-* ‘be’, respectively (Gamkrelidze and Ivanov 1995: 254-267). In most modern Indo-European languages, the copula is often realised as a suppletive verb, i.e. the verbal conjugation consists of both earlier active and inactive partial paradigm. So for example, English use the inactive form *is* for present but the active form *be* for infinitive. Irish as well as other Celtic languages preserve the earlier active-inactive pattern of the copula verb and it is often a suppletive verb. So in addition to the abstractness or concreteness, we may add the trace of active-inactive characteristics to the copula and the substantive verb in Irish. So although it has not been noticed, there seems to be another developmental path, dating as far back as Proto-Indo-European.

One may wonder if there is a linkage between Proto-Indo-European and Irish in general, and this linkage shown above may appear to be rather arbitrary. There are other features, which are present both in Proto-Indo-European and Celtic languages, and this also illustrates the distinction in copula and substantive verb. Lehmann (1999) argues that the lack of verb *have* is another clue indicating how closely they are related. Proto-Indo-European developed into its daughter languages, and the first diversion is believed to have been Hittite branch, and then the chronology of diversion seems rather ambiguous. According to Lehmann, the similarities between Proto-Indo-European and Celtic languages indicates that Celtic branch diverted after Hittite branch, and he claims that the Celtic languages are the oldest living Indo-European languages. In support of his claim, Toyota (in prep.) claims that the lack of transitivity is another crucial piece of evidence indicating the linkage. Proto-Indo-European is believed to have possessed active alignment, which means that the language was not sensitive to transitivity but to aspectual distinctions. Looking at modern Indo-European languages, the transitivity plays an important role in the grammatical organisation. The only difference is whether it is a semantic one or syntactic one. Celtic languages do not express high sensitivity to the transitivity. As a proof, there are many verbs which are expressed in a verbal phrase, including perception verbs. Perception verbs are known to be less transitive semantically, but it is often expressed as transitive syntactically. Celtic languages use phrases such as ‘there is a knowledge at me’ to express a verb ‘know’, as exemplified below.

- (24) *Tá a fhios agam go bhfuil Seán ansin*
 is its knowledge at.me that is John there
 ‘I know that John is there.’
 (lit. ‘there is its knowledge at me that John is there’)

This example indicates that the Celtic languages have not developed much since the departure from the main stream Indo-European, and this is shown in various grammatical features.

Having claimed this, does the active-inactive distinction have some impact on the use of *is* in the cleft construction? First, the time-durability in *is* can be considered to have been derived from the earlier inactive nature of the verb, i.e. the lack of life cycle indicates that an object is consistently the same over the period of time. Note that according to Bader (1976: 108), some of PIE inactive verbs such as **es-* ‘be’ were originally inactive, but later shifted to active in various dialects of older Indo-European languages. Irish *is*, however, does not seem to have undergone this change. The earlier use of the copula and the substantive verb can be due to the aspectual distinction, i.e. the copula was more related to the state, and the substantive, the activity. So it may be

possible to consider the earlier cleft-like construction as a stative construction, which originate from the earlier active-inactive distinction in copula. The stative-dynamic distinction does not play an important role in the Irish grammar, and the presence of *is* as a stative marker is losing its ground. One of the obvious signs is the defective conjugation. In addition, *is* is increasingly associated with the idiomatic phrases and it is becoming less productive. One piece of evidence can be found in the dialectal comparison: constructions like 0, which may appear to be a type of cleft, is more frequent in the northern dialect, i.e. Donegal. This means that the Donegal dialect preserves the oldest pattern in comparison with other dialects. Such a claim requires further research, involving various aspects of historical comparison, but as far as the use of copula and substantive verb are concerned, the dialectal difference can indicate something significant in the use of these two verbs.

So it is obvious that *is* constructions were common earlier in Old Irish, but later became rarer. This may be the emergence of the cleft *is ... a ...* construction in Irish and the Old Irish period may be a transition period. However, when it was productive, i.e. prior to Old Irish, we argue that this construction was primarily used to stativise the clause, mainly based on the nature of the verb *is*. However, the semantic change of these two verbs alone does not explain why the cleft clause emerged. In addition to the change of copula and substantive verb, we need to look at the change in discourse topic and focus beyond the scope of these two verb. For this, we focus particularly on the word order change and various functional changes associated with it.

4. Word order change in Irish

It has been claimed (e.g. Lehmann,) that Proto-Indo-European had SOV basic word order. For the emergence of SOV word order and its change into VSO or SVO, Givón (1979: 271-309) argues that this is due to the cognitive salient of arguments, i.e. the sequence represents the order of salience or topic/focus nature of arguments at the earlier stage of human language. “SOV did not rise as pragmatic word order in the context of multi-functional discourse of the type currently evident in human language. Rather, it reflects the AGENT-OBJECT/GOAL lexicalization of an earlier stages” (ibid.: 308-309). However, Givón suggests that SOV is bound to change into VSO or SOV, since the environment of language use has changed. In his words, “[w]hatever evidence we have about the factors motivating the drift from SOV to VSO and SVO (Hyman 1975; Vennemann 1973; Stockwell 1977; Givón 1975, 1977) suggests that the factors are *discourse-pragmatic* in nature, involving various topicalisation and focusing movement rules. The AGENT-OBJECT-VERB may have been the most suitable word-order at the stage of monopropositional discourse, but somehow it seems that either SOV or V-first are more compatible with topic-oriented, multipropositional discourse. Such discourse involves recurrent (topical) agents as well as patients” (ibid.: 309, emphasis original).

William Croft (p.c.) claims that the best documented word order change is from SOV to verb initial or SVO. The dominant pattern of word order change, however, depends in part on how we view the human language. If one considers the modern human language is as recent as 50,000 to 100,000 years old, then it seems plausible to assume that the earliest human language had SOV. It is unfortunately hard to prove this view and it may be a historical accident of time. Also, it is important to note that it is less rigid SOV languages that moved to a freer word order and shifted to verb initial or SVO (cf. Hopper and Traugott 1993: 51). The opposite pattern of change, i.e. from SVO

to SOV, is not well-documented, although Mande languages in the Niger-Kordofanian family may have done so.

The Modern Irish basic word order is VSO, and this order can be considered a rigid word order, in a sense that the altered orders are always marked constructions. Historically, however, there are much variations. “Indeed it is difficult, except in the longer comments, to find any sentences with an initial finite verb” (Russell 1995: 287). Mac Cana (1973) illustrates variant order, such as the V-final order, particularly in verse. For example, out of 172 lines of a poem, Greene (1977: 21) claims that ten percent of the clause had the V-final order. Carney (1977-9: 430-431) also shows that there are numerous instances of SVO order in earlier Irish verses. So the word order was obviously at flux earlier, as illustrated below (taken from Stokes 1902: 310).

- (25) *Ro bíth oss la Tadc mac Céin*
 PERF slain deer with Tadc mac Céin
 V O OBL
Tadc mac Céin la oss ro bíth
 Tadc mac Céin with deer PERF slain
 O OBL V
la oss ro bíth Tadc mac Céin
 with deer PERF slain Tadc mac Céin
 OBL V O
Tadc mac Céin i rRoss na Ríg
 Tadc mac Céin in Ross na Ríg
 ‘A deer has been slain by Tadc mac Céin,
 Tadc mac Céin has by a deer been slain,
 by a deer has Tadc mac Céin been slain,
 Tadc mac Céin in Ross na Ríg.’

This example illustrates diversity in the word order in earlier Irish and the fronting of entity could be done more freely in earlier Irish than in Modern Irish. By the fact that the fronted entities are not necessarily the subject, we consider earlier Irish as a type of topic-prominent language. As we have mentioned earlier, languages can be divided into the topic- or subject-prominent languages. Li and Thompson (1976: 459) also identify intermediate stages, which makes the following four types:

- (i) languages that are subject-prominent; (ii) languages that are topic-prominent; (iii) languages that are both subject-prominent and topic-prominent; (iv) languages that are neither subject-prominent nor topic-prominent.

Once this classification is put in the diachronic perspective, they consider that languages shift types between type i and ii, involving intermediate stages type iii and iv. When, for example, a language develops a system of topic- to subject-prominence, the grammaticalisation of topics into subjects happens. Such developmental path can be found in PIE, as argued in Lehmann (1976: 450). However, Lehmann’s claim may require further comments: PIE seems to have been more topic-prominent language, but the change to subject-prominent type is better considered to have happened in its daughter languages. For example, Old Hittite seems to be still sensitive to topic prominence and it employs various conjunctions which indicate the topical relationship between sentences, i.e. “accented connectives and *-a-* mostly indicate continuity,

whereas *-ma-* indicates discontinuity; asyndeton has a position in between, and is found in specific contexts both with continuity and with discontinuity” (Luraghi 1990: 88).⁸⁵ Such grammatical devices are not likely to be found in, say older Germanic languages such as Old English, and this indicates that the topic-prominence is still present in PIE and as late as in Hittite but it was continuously losing its ground later.

Modern Irish has a fixed word order, and the subject and topicality seem to be identical. So by fixing the word order as VSO, Irish achieved a change from topic-prominence (ii) to subject-prominence (i). Various other IE languages have a fixed word order, normally SVO, e.g. Germanic, Romance. In spite of the difference in word order, these languages can be all considered the subject-prominent language. Consider, for example, Slavic languages. As we have stated earlier, Slavic have a basic order SOV, but it is still in flux and the change of clause constituents’ order can still function as focusing (compare this to a case of Japanese shown earlier in (2)). Consider the following example from a South Slavic language Serbo-Croatian:

Serbo-Croatian

- (26) a. *Je razbio vaznu*
is broken vase.ACC
‘He/she has broken the vase.’
- b. *On je razbio vaznu*
he is broken vase.ACC
‘It is he who has broken the vase.’
- c. *Vaznu je razbio on*
vase.ACC is broken he
‘It is the vase that he has broken.’ or ‘The vase was broken by him.’

Slavic languages in general are pro-drop language, and this makes (26)a the least marked construction in terms of the discourse topic or focus. (26)b, on the other hand, has an overtly expressed subject pronoun *on* ‘he’. The insertion of subject itself may function as a means of focus, but its position is important. This is made clear in (26)c, where the clause constituents are exactly the same as those in (26)b, but the order is different. The fronting of *vaznu* ‘vase’ alone can shift the focus on this noun. So Slavic languages are at least partially topic-prominent languages. The change from topic prominent- to subject-prominent languages in Celtic certainly influenced the reanalysis of the earlier cleft-like construction: the topicality or focus was earlier much more dependant on the position in a clause, but not the subject. So the cleft-like construction had less effect of focusing. It was only after the establishment of the rigid word order and the emergence of the subject-prominence that the marked structures functions their pragmatic purpose fully.

5. Conclusion: cleft in Irish

We have analysed the historical development of the cleft clause in Irish. Historically speaking, the same construction existed in Irish, but the environment where the construction was different in Old Irish and it was used as a stativising construction and not given the status of focus construction. We have given two main differences: first

⁸⁵ Luraghi (1990: 49-59) lists various conjunctions: additive conjunctions *nu*, *ta* and *su* (events follow naturally); adversative conjunction *-ma-* (discontinuity, contrary to expectation); *-a-* (weak counter expectation); coordinating conjugation *-(y)a-* (mere marker of syntactic relation or coordination); asyndon *-nu-* (strictly coordinated events).

one is the difference between the copula and the substantive verb, i.e. they are both residue of Proto-Indo-European active-inactive distinction in copula, and the use of *is* is a descendant of inactive type. This is considered as a stative counterpart of the copula *tá*. However, this difference does not explain the change of the cleft construction. Instead, this explains the earlier use of this particular construction. The construction started to function as the cleft after the change of word order and the shift from subject-prominent to topic-prominent language. The prominence change was in a way triggered by the word order change, and the subject position became reserved for special discourse effect. This explanation makes it possible to explain the grammatical status of cleft clause in Irish both synchronically and diachronically.

This type of development does not involve the grammaticalisation. Instead, the older construction was reanalysed as something new and given the new discourse function, or in other words, “the inherent property of the context is then attributed to the syntactic unit, and so the syntactic unit in question gains a new meaning or function” (Croft 2000: 126-127). This process has been given various names, including exaptation (Lass 1990: 98-99), regrammaticalisation (Greenberg 1991: 303) and hypoanalysis (Croft 2000: 126-130). Constructions that emerged through this process are often treated in several different ways in grammatical approaches. Another case like this is a periphrastic passive voice construction. This construction is particularly common in Indo-European languages (cf. Dryer 1982: 55; Haspelmath 1990: 29), because it was originally a tense-aspectual construction, expressing the perfective or resultative aspect, but the degree of grammaticalisation differs according to each language: English seems to exhibit the higher degree of grammaticalisation (cf. Toyota 2003), while Slavic languages, particularly South Slavic, e.g. Bulgarian, Macedonian, Slovene and Serbo-Croatian, still preserve the earlier tense-aspectual function and the passive voice is not expressed by the periphrastic construction in these languages (cf. Mustafovic and Toyota forthcoming). These examples show that the historical developmental path is often useful in deciding synchronically what a particular construction or function is and it deserves attention from researchers in various theoretical approaches.

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THE RETURN OF THE ACTOR: EFFECTS OF CONSTRUCTION-LEVEL GRAMMATICALISATION

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Abstract

This paper examines a seemingly anomalous construction in the voice system of Estonian. The construction is judged grammatical by native speakers but appears to conflate properties of two distinct constructions into a single construction with more arguments expressed in the syntactic structure than are available in the logical structure. The construction in question, the ‘impersonalised impersonal’, is related to both the personal passive and the impersonal, but is located at the margins of the grammar of the language. Where the impersonal perfect takes a non-agreeing, default 3SG auxiliary, the impersonalised impersonal adds an impersonal affix to the auxiliary. This gives the impression that an impersonal argument has been added to a construction in which all argument positions are filled. I analyse the construction as resulting from a process of construction-level grammaticalisation and semantic bleaching of the impersonal actor argument. As a result of the formal syncretism between the functionally distinct agentive impersonal perfect and the non-agentive passive, the impersonal construction has become semantically bleached of its actor argument. I conclude that the impersonalised impersonal constitutes an attempt to reestablish an actor into the impersonal perfect; the doubly marked impersonal functions as a sort of “agreement”, reestablishing or reasserting the weakened presence of the implicit impersonal actor.

1. Introduction: Voice in Estonian

Estonian is a language with a rich voice system. Speakers have various options for decreasing the valency inherent to a verb, including impersonals, personal passives, anticausatives and zero-person generic constructions. I have discussed elsewhere (Vihman 2004a) the varying interpretations of the demoted arguments in these constructions. Each demoted argument receives its interpretation from the construction in which it appears, rather than from its null grammatical encoding. A constructional approach such as that of Role and Reference Grammar (RRG) is particularly useful for capturing this relationship between the valency-demoting constructions and the interpretation of the implicit arguments.

In this paper, I focus on impersonals, passives and their interaction. Both of these constructions reduce the valency of the verb in the linking of semantic arguments to syntactic argument positions, and so are canonical voice constructions. A certain amount of syncretism between the impersonal and the passive has led to ambiguity in some contexts. This paper investigates one of the outcomes of this ambiguity, namely, the development of an alternative voice construction, the impersonalised impersonal. I give some evidence that the passive is likely to have developed from the impersonal diachronically. This perspective helps to make sense of the impersonalised impersonals, which have otherwise defied analysis.

2. Impersonals and passives

To begin the examination of impersonal and personal passive voice in Estonian (and the interactions between these two valency-modifying operations), I will first review some conventions for representing these constructions in the Logical Structure (LS) of a verb together with its arguments. The RRG representation for the transitive verb ‘sink’, a causative accomplishment, is given in (1), taken from Van

Valin & LaPolla (1997:108).

(1) [**do'** (x, Ø)] CAUSE [BECOME **sunk'** (y)]

If this is the structure of the basic transitive verb, how then are valency changes to be represented? On the basis of the various voice constructions in Estonian, we can argue that some of the voice constructions do not affect the logical structure, but rather depend entirely on the fully linked construction and its context for their interpretation. However, most valency changes have some effect on the arguments themselves as they appear in the argument structure, and so contain information that needs to be reflected in the LS as well as in the linking procedure.

It is not entirely agreed upon to what extent valency changes ought to be represented in the Logical Structure of a verb, and to what extent they should be left entirely to the linking operations. As the passive includes a position for the actor in the argument structure, but no identity for that actor, this information is contained in the LS (Van Valin & LaPolla 1997:327-29). As for the impersonal, it could be argued that this should also include a very basic piece of information on the level of the semantic representation regarding the implicit impersonal argument; again, the impersonal argument is present in the argument structure, but associated with an unidentified and generalised referent.

Again taking the transitive verb 'sink' as our basic example, (2a) shows the impersonalisation of 'sink', and a proposed LS is given in (2b). The implicit impersonal argument is unspecified, but it always takes a macrorole argument and makes a semantic contribution to the construction, and so I represent it with a capital letter, in this case A, to indicate some semantic content for the actor macrorole.

- (2) a. laev uputati
 ship.NOM.SG sink.CST.IMP.PST
 the ship was sunk /people sank the ship
 b. IMPERSONAL: [**do'** (A, Ø)] CAUSE [BECOME **sunk'** (*laev*)]

In (3a), the verb 'sink' is passivised, and the LS of this is given in (3b), with the actor argument demoted to Ø.

- (3) a. laev oli uputatud
 ship.NOM.SG be.3SG.PST sink.CST.2PTC
 the ship was sunk
 b. PERSONAL PASSIVE: [**do'** (Ø, Ø)] CAUSE [BECOME **sunk'** (*laev*)]

The following two sections describe these two constructions in greater depth, which form the focus of this paper.

2.1 Impersonals

Estonian impersonals have no overt subject and do not promote the patient. The impersonal argument is expressed with inflectional morphology. Impersonal verbal inflection is distinct from active morphology. The implicit argument is prototypically interpreted as having a human, agentive, plural, and generalised referent, which receives its identification exophorically. Inherent verbal semantics are not changed with impersonalisation. The implicit argument is always interpreted as a

core argument, and it can act as controller in some constructions, though it does not seem to act as a pivot, as reference to an impersonal referent depends entirely on impersonal verb inflection. There is no way to drop the impersonal morphology and still successfully refer to an impersonal referent. Example (4) shows that both intransitive (4a) and transitive (b) verbs happily occur with impersonal inflection. The impersonal is very broadly acceptable in Estonian, applying equally to modals, copulas and even unaccusative verbs.

- (4) a. juu-akse ja laaberda-takse⁸⁶
 drink.IMP.PRS and cause-mayhem.IMP.PRS
people drink and act rowdy
 b. kadunud auto lei-ti kraavist⁸⁷
 lost.1PTC car.NOM.SG find.IMP.PST ditch.ELA.SG
the lost car was found in a ditch

The impersonal has been analysed both as a primarily active construction (Erelt 2003, Blevins 2003, Rajandi 1999, Vihman 2004b) and as a passive construction (Erelt et al. 1997; on Finnish, Manninen & Nelson, in press). The implicit argument exhibits variability in its interpretation, ranging from generalised, universal referents to specific, existential referents, as well as varying between actor and undergoer macroroles, and more and less agentive referents (Koenig 1999, Cabredo Hofherr 2003, Chierchia 1995, Shore 1988, Nelson & Vihman 2004). However, it is always associated with humanness, and hence has a certain amount of semantic content. Similarly, it can be anaphorically referred to with reflexives and reciprocals, for instance (Vihman 2004a), and shows other evidence of being present and making some salient contribution to the discourse semantics of the construction.

2.2 Personal Passives

The personal passive is a demotional operation wherein the actor is reduced to Ø. This can only apply to transitive verbs, and bears many similarities to the well-known Germanic passives. It is a periphrastic construction, and the verb is expressed with an auxiliary *olema* ‘be’ and a past passive participle (formed with *-tud*) of the transitive lexical verb. The undergoer is promoted to subject, as shown by nominative case, auxiliary verb agreement, and syntactic PSA behavior. This is shown in example (5). The demoted actor can optionally be expressed in an oblique phrase.

- (5) a. aare oli tõesti hästi peide-tud⁸⁸
 treasure.SG.NOM be.PST.3SG really well hidden.PST.PRTC
 the treasure was really well hidden
 b. trellid olid peide-tud puust aknaraamide sisse⁸⁹
 bar.PL.NOM be.PST.3PL hidden.PST.PRTC wooden window-frame.GEN.PL into
 metal bars were hidden inside the wooden window frames

The personal passive gives rise to a highly resultative and stative interpretation, focussing on the result-state of an event. However, it is a verbal

⁸⁶ www.sisalik.ee/~janek/raffas/ihuhing.html

⁸⁷ *Postimees* 27.05.99

⁸⁸ www.geopeitus.ee/aarded/oovahi.html

⁸⁹ *Eesti Ekspress*, 28.01.04

passive, as can be shown not only by the option of expressing the actor in various kinds of oblique phrases, but also by temporal and manner adverbials which can be adjoined to the passive and which refer to the event rather than only to the result state of the undergoer.

2.4 Distinguishing Impersonals and Passives

A certain amount of syncretism is found in the impersonal and personal passive paradigms in Estonian, as can be seen in Table 1. The periphrastic forms (simple tenses in the passive paradigm and perfect tenses in the impersonal) can be identical. This syncretism leads to ambiguity in some cases, particularly with a nominative singular undergoer argument, where the impersonal default-marked (3SG) auxiliary can be interpreted as an agreeing auxiliary instead, leading to the analysis of a promoted undergoer argument and a personal passive construction. But there are clearly marked differences as well.

The inflectional paradigms shown in Table 1 are distinct, although certain cells (marked in boldface) are morphologically identical. However, there are differences even in the syncretic cells. As the personal passive exhibits concord, no ambiguity arises with first or second person undergoers. The impersonal retains the default third person singular auxiliary, whereas the passive exhibits first or second person agreement in auxiliary verb inflection. An idiosyncrasy of Estonian morphology which contributes to ambiguity, however, is that in the present tense, the 3SG and 3PL are identical in form for the auxiliary *olema*. This means that a

	Impersonal	Passive
Pres.	lehed loe-takse papers read.IMP.PRS	lehed on loe-tud papers.NOM be.PRS.3PL read.PPP
Past	lehed loe-ti papers read.IMP.PST	lehed olid loe-tud papers.NOM be.PST.3PL read.PPP
Prs.Perf.	lehed on loe-tud papers be.PRS.3SG read.2PTC	lehed on olnud loe-tud papers be.PRS.3PL be.APP read.PPP
Pst.Perf.	lehed oli(d) loe-tud papers be.PST.3 read.2PTC	lehed olid olnud loe-tud papers be.PST.3PL be.APPTC read.PPP

Table 1: Inflectional Paradigms

large number of examples contain no clear clues for disambiguation between the passive and the impersonal. Nevertheless, it has been established that these two constructions are not identical or overlapping, but merely ambiguous in form (Rajandi 1999, Pihlak 1993, Vihman 2004b, Erelt et al. 1993). Rajandi (1999) comprises a thorough analysis of the two constructions in Estonian, and demonstrates convincingly that these are two distinct constructions, using such evidence as syntactic behavior (case-marking under negation, ability to co-occur with agentive adverbials of various kinds) and verb types amenable to the two valency-reducing operations.

3. Diachronic Development

Although it has been established that these are two distinct constructions, it is still open to debate whether or not they are diachronically related. In this section I present some evidence that the passive is likely to have developed from the impersonal perfect tenses (the syncretic cells). The present paper does not allow time or space for a more rigorous diachronic analysis, but I intend to pursue this question in the future.

3.1 The diachronic primacy of the impersonal: some evidence

It is clear that the impersonal is an older form in Finnic in general, and in Estonian in particular. Compound verb forms in Finnic are innovations (Laakso 2001:190), and while the simple past and present of the impersonal are synthetic, the entire personal passive paradigm is periphrastic. Additionally, the impersonal is attested throughout Finnic. As far as I know, no other Finnic languages have a personal passive construction (Viitso 1998:111-13). With the lack of unified terminology and consensus regarding definitions in this field, it is not always easy to determine these categories. Finnish may be currently in the process of acquiring a personal passive construction (Nelson & Manninen, in press), and the Estonian passive construction is quite stative, though it can be shown to retain verbal passive characteristics. The older impersonal verb form has acquired a number of additional functions in Finnic. For example, standard colloquial Finnish uses the impersonal for first person plural, along with with the 1PL pronoun (Shore 1988, Laakso 2001)⁹⁰, and Karelian, Veps, Votic, and Ingrian are reported to use the impersonal for third person plural (Laakso 2001:189).⁹¹

Estonian dialects show older forms of a synthetic impersonal with a full paradigm of person agreement (e.g. *anti* 'I-am-being-given', *antit* 'you-are-being-given', *antime* 'we-are-being-given', Pihlak 1993:24). The contemporary non-agreeing impersonal is reported to have grown out of that older agreeing form. Some confusion in the diachronic literature has resulted from referring to this as a passive.⁹²

Both German and Russian have had a historical influence on Estonian. Compared to other Finnic languages, German has had a larger and longer influence on Estonian. German, of course, has a periphrastic passive on which the Estonian personal passive could have been modelled, and this would go some ways to explaining its emergence in Estonian so much earlier than in Finnish, for instance.

Finally, it should be pointed out that impersonals are an attested source for passives cross-linguistically (Haspelmath 1990:49). The semantic relationship between them makes this development quite a natural one, as discussed in the next section.

3.2 Semantic similarity

⁹⁰ Note the similarity to French, where the "impersonal pronoun *on*... shows a tendency to be used in the 1pl sense." (Haspelmath 1990:50)

⁹¹ Haspelmath (1990) argues for the unidirectional development of a passive from the 3pl. The use of an impersonal verb form for 3pl might provide a counterexample to his hypothesis. However, Haspelmath does not include impersonals (or 'desubjectives', Haspelmath 1990:34) under passivization.

⁹² Kont, for instance, seems to argue that the development was in the other direction from what I am arguing for in this paper: that the passive developed into an impersonal (1963:166-67). However, this comes from precisely this same confusion of terminology. Kont's passive is not the personal passive under discussion here. The passage in question discusses, rather, the synthetic impersonal form which used to agree with the patient. This older form has nothing to do with the current personal passive.

The perfect impersonal and the personal passive are semantically quite close. The primary shared characteristic between these two constructions is that of resultativity (Nedjalkov 1988:17). The perfect tense is related to completedness and a perspective on an event which has been brought to an end. This in turn relates to the endpoint of a process. “The resultative expresses both a state and the preceding action it has resulted from” (Nedjalkov 1988:6). The impersonal focuses on the preceding action, but the passive shifts to the resulting state. In this way, they divide the labor of the resultative construction, so to speak.

The impersonal actor of a transitive verb is already reduced to a verbal inflection, and so the step from an impersonal perfect with its suppressed actor to an actorless personal passive is a very small one. “It is probably no coincidence that of the ambipersonal [impersonal] forms, the perfect – and especially the perfect of result – is most naturally interpreted as a prototypical passive, and the object, which was the patient of the action,... as a subject” (Tommola 1993:78-79). This seems to be what has taken place in Estonian, and indeed what may be taking place currently in Finnish.

4. Interactions among constructions

Valency alterations are operations, and hence, if certain conditions are met, they can be applied successively. This is one reason for including information about the demoted argument in the semantic representation of the construction: if the information regarding demotion were only contained in the fully linked structure, then it would be hard to explain the reiteration of valency alterations. Indeed these have puzzled analysts before: Keenan refers to the impersonalised passives discussed in the following section, and attested also in Irish, as “boggling” (1985:276), but in fact this property is not uncommon in languages with both impersonal and passive voice.

4.1 Impersonalised passives

A passive takes a nominative undergoer subject, which of course can have a mass human referent, as in (8a). That human referent can be generalised by impersonalising the auxiliary, as shown in (8b), identical to (8a) except that the impersonal replaces the subject and verbal agreement. I call this construction an impersonalised passive.

- (8) a. **rahvas** **on** valitsuse poolt paljaks tehtud⁹³
 population.NOM be.3SG.PRS govt.GEN.SG by bare.TRL make.2PTC
the people have been robbed by the government
- b. **ollakse** valitsuse poolt paljaks tehtud
 be.IMP.PRS government.GEN.SG by bare.TRL make.2PTC
one has/ the people have been robbed by the government

Impersonalised passives have been discussed as part of the grammar of Estonian by various authors (Blevins 2003, Pihlak 1993, Rajandi 1999). It has been shown that the passive can “feed impersonalization” (Blevins 2003:476) also in other languages which have both constructions, such as Irish (Noonan 1994) and Polish (Kibort 2001). Pihlak classifies this as one of five distinct voice constructions, calling it the ‘Static Suppressive’ (1993:37-38). However, I maintain that the impersonal and

⁹³ Examples (8a) and (8b) both from Pihlak (1993:38)

personal passive are basic, and that this construction is best seen as a straightforward impersonalisation of the passive. Another example of this is given in (9).

- (9) oldi rahvaste kaupa sisse seatud:
 be.IMP.PST by-nationality in.ILL arrange.P.PRTC
- ühes toas poolakad, teises bulgaarlased⁹⁴
 one.INE room.INE Pole.NOM.PL other.INE Bulgarian.NOM.PL
- people were arranged by nationality: Poles in one room, Bulgarians in another...*

The impersonalised passive can be represented in a straightforward manner, as shown in (10). The passive demotes the actor to \emptyset (10a). The impersonal (10b) satisfies the remaining argument position, which could also be realised with a full NP or pronoun and an agreeing verb.

- (10) a. **pred'** (x, y) \longrightarrow **pred'** (\emptyset , y)
 b. **pred'** (\emptyset , U)

The capital U stands for undergoer, and again simply represents the fact that there is a degree of suppression of the identity of the undergoer, but that the impersonal inflection also contributes some semantic content to that undergoer referent, giving rise to the interpretation that it is human and generalised.

4.2 Impersonalised impersonals

Far less straightforward to represent is the construction I describe as an impersonalised impersonal. Example (11) gives a series of constructions similar to one another, but with crucial differences in the morphological expression of the arguments and in their argument structure.

- (11) a. teda_y oli pildistatud_x IMPERSONAL PAST PERFECT
 3SG.PAR be.3SG.PST photograph.P.PRTC
s/he was (had been) photographed
- b. oldi_y pildista-tud_x IMPERSONALISED PASSIVE
 be.IMP.PST photograph.P.PRTC
people were photographed
- c. teda oldi pildistatud COMBINATION OF (a) & (b)
 3SG.PAR be.IMP.PST photograph.P.PRTC
's/he was photographed'

The impersonal perfect is shown in (11a), with a non-agreeing, default 3SG auxiliary. The actor argument has an impersonal referent, whereas the undergoer is expressed by a (partitive) third person singular (gender-neutral) pronoun. Example (11b) is an impersonalised passive. Here, the actor is demoted to \emptyset , and the undergoer is impersonalised: the construction has an entirely unidentified actor and a human, generalised undergoer. The “impersonalised impersonal” is introduced in the attested example in (11c). This is structurally almost the same as the impersonal perfect in (a), but it has an “additional” impersonal affix on the auxiliary.

⁹⁴ www.cl.ut.ee (literature, stkt0048)

The construction in (11c), though it looks similar to both (11a) and (11b), is clearly not the same as (11b), as the overt pronominal undergoer is in partitive case. This marks the undergoer as not promoted, and marks the construction as unambiguously impersonal rather than passive. Moreover, (11c) is *only* acceptable with a partitive undergoer, not with a nominative one. Compare (11c) with the ungrammatical example in (d), below.

d. *tema	oldi	pildistatud
3SG.NOM	be.IMP.PST	photographed.2PTC

Impersonalised impersonals have been claimed to represent incorrect usage (Pihlak 1992, Aavik 1936) or colloquial speech (Erelt 2003:103), but to my knowledge have not been analysed in the literature. However, native speakers consistently judge the construction to be acceptable. According to various native speakers I have interviewed, the interpretation of the impersonal affix in (c) is agentive, not patientive. Those who claim it contributes semantic information attribute an added notion of plurality to this ‘extra’ impersonal affix.

5. Argument Structure

The impersonalised impersonals introduced above raise some crucial questions regarding argument structure: the examples in (11a) and (11b) have all argument positions satisfied, and yet (11c) is also attested. The impersonal affix has generally been analysed as introducing an argument referent to the discourse and satisfying an argument position in the argument structure. How can these facts be reconciled? I first attempt to address this question using argument structure.

One conceivable solution is the following: the impersonal affix does not express an argument (in these cases). This could be maintained by saying that the impersonal is “associated” with an argument position like Grimshaw’s (1990) agentive by-phrases in passives. However, there are difficulties with this approach. First of all, there is no morphological difference between the impersonal as an argument or as an oblique (unlike the oblique actor in passives, for instance). Hence, there does not seem to be any justification for drawing this sort of distinction between certain instances of impersonalised auxiliaries and any other instances of impersonalised verbs (either auxiliaries or lexical verbs). It is also preferable not to stipulate a new function for the impersonal affix in the absence of any external motivation for doing this. Additionally, it is odd in Estonian for a non-argument to be expressed through verbal marking. This is contrary to the general grammatical system, and seems to suggest that an alternative analysis ought to be sought out and, all else being equal, preferred.

Another possible solution using argument structure could be that the argument structures of the auxiliary and the lexical verb are in some fashion separate and distinct. Instead of being part of one verb phrase with a common argument structure, perhaps the auxiliary here is functioning halfway between a copula-like element and an auxiliary. A separation between the actors in the LS of the two verbs, as shown in (12), might resolve the mismatch.

(12)	teda _y	[ol-di _z]	[pildista-tud _x]
	3SG.PAR	be.IMP.PST	photograph.2PTC
	<i>s/he was photographed</i>		

This solution is appealing because the (ordinarily default) auxiliary is used here as an argument post – an empty slot to attach the impersonal to. However, there are difficulties with this analysis as well. First of all, the separate argument structures still need to be related to each other, as their interpretation is not that of two distinct phrases, or two distinct clauses, and it is not evident how the two would be related. The thematic role of the argument of the auxiliary is marked by the participial verb, and so at some point the actor of the auxiliary (z) must be identified with the actor of the lexical verb (x); there is no obvious mechanism for achieving this reunification.

Finally, the main problem still stands. Even if a satisfactory analysis can be presented to account for the argument structure of the impersonalised impersonal, the primary question remains unanswered: why is the impersonal affix used in a construction where all the arguments are satisfied without it? I believe the answer to this question lies in the diachronic background of the current voice system of Estonian.

6. Semantic Bleaching

With the development of the personal passive and its structural similarity to part of the impersonal paradigm, the impersonal perfect forms have become semantically bleached to some extent. It is irrelevant to this point whether the passive developed from these perfect forms or from a different source, as the synchronic coexistence of these two forms could give rise to the same bleaching effects without having the same diachronic source, though it is possible that if they did develop from the same source diachronically, the bleaching would be stronger. I am arguing here for grammaticalisation on the level of the construction, rather than a lexical item (Wiemer, forthcoming; Campbell 1991). Neither the auxiliary nor the participle are semantically bleached on their own; rather, the *combination* of 3SG auxiliary + passive participle is bleached.

The traditional elements of semantic bleaching seem to be relevant to this case of the Estonian impersonal and passive. First of all, a certain amount of semantic generalisation must take place in order to use the same elements for a personal passive as for the impersonal perfect. Rather than expressing a demoted actor and a particular voice, now the same grammatical elements are used to express more than one voice and more than one type of demoted actor. The construction has an increased semantic generality.

Second, the verb in these constructions will have to have undergone decategorialization. In the impersonal, the verb is still a member of a full category (verb); even in the periphrastic perfect, the participial verb is used in contrast to synthetic verbs. In the periphrastic passive, however, the lexical verb is immobile and does not bear contrastive inflection. It has been decategorialised to the secondary category of participle.

Third, the passive participle also exhibits semantic reduction. Whereas the unambiguous impersonal contributes semantic content regarding the actor argument referent to the LS of the construction, the passive bears no information about the actor. Hence, the passive participle, which participates in both constructions, is only sometimes semantically associated with an impersonal actor (or any actor). The semantics expressed by this participial verb, then, are reduced, and desemanticized (Heine 1993).

In sum, as the passive participle develops uses other than the impersonal one, so the impersonal perfect tenses become less imbued with impersonal semantics. With the lessened sense of the impersonal actor also comes ambiguity, where it is unclear whether there is an impersonal actor or no actor expressed. In (13), I repeat the earlier example of a personal passive (from 3a), where we can now see that this particular example could be given either interpretation: that of an impersonal (13b) or a personal passive (13c).

- (13) a. laev oli uputatud
 ship.NOM.SG be.3SG.PST sink.CST.2PTC
 the ship was sunk
- b. IMPERSONAL: [**do'** (A, Ø)] CAUSE [BECOME **sunk'** (*laev*)]
- c. PERSONAL PASSIVE: [**do'** (Ø, Ø)] CAUSE [BECOME **sunk'** (*laev*)]

These two LSs differ only in their actors. If two constructions with such similar logical structures are syncretic, then that impersonal actor will inevitably lose some of its force. Nevertheless, the impersonal affix itself (as used in the simple impersonal) is still a strong indicator of an impersonal actor. For the perfect tense, then, using the impersonal affix is a way to reinstate the bleached presence of the impersonal actor without compromising information about tense. The impersonal affix is reinserted into a construction which originally included that information, but where this information has weakened.

This may be reminiscent of the earlier proposal that the impersonal affix might not independently introduce an actor, but in fact the claim is just the opposite: the impersonal introduces an actor, but the construction itself is ambiguous regarding the presence or absence of an actor. In this sense, then, the construction is rescued from having too many arguments. This looks very similar to agreement: in the next section I claim that it does amount to a type of agreement.

One final point should be made, however, regarding these impersonalised impersonals. The semantic bleaching account is compelling for its explanation of why the “additional” impersonal affix is used at times, but it leaves a few questions unanswered. It is still a mystery why this construction is only acceptable with intransitives or transitive verbs with undergoers in partitive case. Though the ambiguity between personal passives and impersonal perfects has spread to a general weakening of the semantic presence of the impersonal actor in perfect tenses, the original site of ambiguity was with the impersonals with nominative case-marked undergoers, rather than those with partitive undergoers.

However, it would appear, from cursory reviews of the data, that the two constructions are drifting. The nominative undergoers tend to be interpreted as passives, focussing on the result of a completed telic event, as nominative case in impersonals does signify a totally affected object: these retain the unmarked auxiliary and are interpreted as exhibiting subject-verb concord. The impersonals with partitive undergoers are the ones that need to be reestablished as impersonals in the face of a widening tendency to interpret periphrastic constructions as passives. The impersonalised impersonals, therefore, are restricted to the constructions with partitive undergoers.

7. Agreement

In effect, the impersonal affix is used in order to reintroduce an impersonal actor into a clause where information about that actor has weakened or bleached. Once this is established, the impersonal affix can then be interpreted as agreement with the passive participle which (in some contexts) is still seen as being marked for an impersonal argument referent. Under that analysis, the impersonal affix does not introduce an argument here, but acts to reinforce the impersonal argument already encoded. In whichever direction this is seen to function, it begins to look like agreement: either the participle is the controller with the impersonal affix on the auxiliary acting as the target of agreement, or else the impersonal is the controller and the participle is the target, in the sense that it receives an interpretation of impersonalisation which it has lost without the additional presence of the impersonal auxiliary. Currently, the construction is marginal and optional, but the way it is interpreted is in line with an agreement analysis. As Rajandi points out, “this sort of fluctuation in concord is no rarity in Estonian syntax” (1999:77).

In fact, a very similar analysis is given to a similar construction in Finnish by Karlsson (1977:365). In Finnish, the impersonal verb form is used for 1PL, and so is more frequent in colloquial speech than the Estonian equivalent. An optional construction similar to the impersonalised impersonals has emerged in Finnish colloquial speech, wherein the impersonal affix is attached to the ordinarily default (3SG) auxiliary in perfect tenses. The Finnish and Estonian examples have in common not the personal passive, but the processing difficulty resulting from a non-agreeing adjacent noun and verb. This adjacency can have one of two results. On one hand, there is awkwardness arising from a plural noun and the nonagreeing singular verb. Attraction errors are well documented to result from interference from the marked element of a pair, e.g. plural over singular (Eberhard 1997, Bock & Miller 1991). The marked plural noun demands an agreeing verb, and before the construction is reanalysed as an impersonal, there is the jarring effect of a mismatched noun and verb.

On the other hand, the construction can also result in misleading grammatical information from a singular noun and seemingly agreeing singular verb. The singular noun and singular verb are most easily interpreted as subject and agreeing verb, and this can cause communicative difficulties. A mechanism for blocking this interpretation can prove quite helpful in easing access to the right interpretation of an impersonal construction (or 1PL, in the case of Finnish) rather than an interpretation of undergoer noun-verb concord.

If semantic bleaching accounts for why this form comes about, then concord accounts for why it is easily accommodated and accepted, and how it is interpreted. Because demoted arguments receive their interpretation from construction-level information, ambiguity on the level of the construction can cause communicative difficulties. The personal passive marks absence or irrelevance of an actor, and the impersonal requires the semantic presence of an actor. The impersonal affix on the auxiliary restores an actor to the construction where it has become bleached, in the cases where the presence of that actor is required for successful communication. It facilitates the interpretation of an impersonal actor, and helps avoid an actorless interpretation.

8. Summary

Various implicit arguments receive very different interpretations, depending on the degree and type of demotion. I have argued elsewhere that the implicit

argument derives its interpretation from the construction in which it occurs. If this is the case, then ambiguity between constructions will present problems for processing or even establishing the presence of that implicit argument. The processing difficulty arises in the impersonal perfect because of the development of a (sometimes) syncretic passive construction.

This coexistence has bleached the strength of the implicit impersonal actor from the interpretation of the impersonal perfect forms. The impersonalised impersonal is a construction which reestablishes the actor into the impersonal perfect, using the default unmarked auxiliary as a post for this additional semantic information. The doubly marked impersonal functions not to add a third argument to a transitive structure, but rather as a sort of agreement with the passive participle, reinforcing the implicit impersonal argument referent. The addition of the impersonal inflection on the auxiliary reestablishes the weakened presence of the implicit impersonal actor, as well as reestablishing a distinction between the impersonal perfect and its passive (actorless) counterpart.

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NUMBER IN NPS OF BEJA (AFRO-ASIATIC): MORPHOLOGY AND LAYERED STRUCTURE

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Abstract

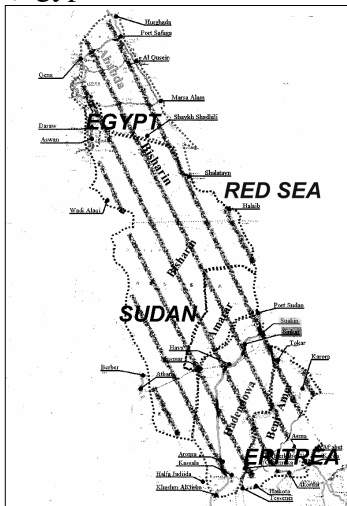
The paper has three parts. (1) The first section deals with the rich morphology of nominal plurals. (2) The second section highlights some consequences of the fact that participles are nominals, and that for this reason undergoers are "possessors" of participles - with a surprising plural morphology. (3) In the last section, the nominalizations from verbs of different "Aktionsarten" will be considered with a view to their plural morphology.

For each of the decisive features, the forms of the lexical entry as well as the RRG rules for derivational processes need to be fully specified. Given the large size of each of these noun classes, such rules may need to be accommodated in the lexicon.

The Language

Beja - in IPA transcription [biɖɑ:wɨjɛ:t] / [tuʁb'ɖɑ:wɨ] "Beja / "the-Beja language" - is the only language classified as "North Cushitic". But some doubts have been raised about this co-ordination with "East" and "South" Cushitic (not to speak of the former "West Cushitic", now re-classified as "Omotic"). In some sense, Beja is *the* "Afro-Asiatic" language par excellence, both with a view to its geographic location, where Africa and Asia meet - and with a view to its verb system, where both Semitic and Cushitic features are represented to about the same extent.

The groups which consider themselves "Beja" live across the borders of three countries (Egypt, Sudan, and Eritrea). In the North, most members of the Ababda-Beja group still consider themselves Beja, but their language has shifted to Arabic. In the South, most members of the Beni Amir group speak Beja, but ethnically they have strong links to Tigre.



Within the Beja language, there are some systematic dialect differences. Two of the most striking ones are actually related to the plural morphology. (1) Front shifting of "tonal stress" is one of the morphological indicators of plural. But in the North, in the Bishari-Beja dialect spoken north of Aswan this signal is no longer used. (2) The second difference lies in the article prefixes: While certain article prefixes like u- / tu- "definite article m/f singular" and i- / ti- "definite article m/f plural" are commonly used to differentiate singular and plural,

speakers in the South i.e. in the Hadendowa-Beja and the Beni Amir groups tend to use i- / ti- throughout, both for singular and plural.

It should be stressed, however, that differences such as these present no problem of communication across the various Beja dialects, and most of the statements about plural are true for the entire language from Egypt to Eritrea.

1 Plural morphology of count nouns, mass nouns, collectives and singulatives

The first section presents an overview of the plural morphology of Beja nouns.

Beja has a rich plural morphology, as Zaborski has already pointed out.⁹⁵ In this overview, the nouns will be presented in their citation form, which is the object or accusative case unless otherwise stated.⁹⁶

1 External plurals

1.1 Article prefix

For many nouns, "singular" and "plural" have the same form; but in certain contexts the definite article will resolve potential ambiguities.

Singular	Plural	Gender	Gloss
o- di	ee- di	m	<i>the- root(s), accusative</i>
w- halk ^w i	y- halk ^w i	m	<i>the- monkey foal(s)</i>

The examples of 1.1 show that for nouns like "root" and "foal" the definite article is the only indication that these nouns are in the plural. (Since the Beja article has various allomorphs, the number distinctions are as follows: For the accusative of monosyllabics the articles are o- / ee- "sg. / pl.", and for nouns with initial glottal consonants they are w- / y- "sg. / pl." The details will be listed elsewhere.⁹⁷)

1.2 Plural suffix

The most common plural marker is the suffix -a "plural".⁹⁸ This probably is the most productive plural marker - but it is not the only one that is productive.

Aagir	aagir-a	f	<i>virgin(s)</i>
san	san -a	m	<i>brother(s)</i>

2 Internal plurals

2.1 Shortening of stem vowels

The last stem vowel may be shortened to express the plural.

Din	din	m	<i>thorn(s)</i>
Kaamt	Kamt	f	<i>she-camel(s)</i>
Kaam	Kam	m	<i>camel(s)</i>

There is no Beja plural with the inclusive denotation "camels"; if any female camel (naga) is included in a group of camels, both genders have to be specified. Thus "camels (including females)" would be kam-wa kamt-wa, literally "he-camels-and she-camels-and". This usage is significantly different from the Arabic usage - also true for Beja with other nouns - where simply the masculine plural is employed as soon as one male is included in a group of mixed genders.

⁹⁵ See Zaborski 1986. Some data of his publication refer to pre-systematic transcriptions of 80 to 120 years ago and they have been revised for this presentation.

⁹⁶ The transcription employed here is as follows: ∅ = zero, double letters = length, **bold** letters = pitch accent or tonal stress, apostrophe ' = [ʔ] glottal stop, y = IPA [j], sh = IPA [ʃ]. This paper uses the official orthography which was established and tested at the Eritrean Ministry of Education over the last few years. Pitch accent however is not written in the official orthography.

⁹⁷ Wedekind, forth.

⁹⁸ To be more exact: In the indefinite citation form, the plural is -aab / -aat "masc. / fem."

2.2 Ablaut

Shortening may result in ablaut or apophony. This is always the case with the vowels ee and oo, because these two vowels don't have short counterparts.

Singular	Plural	Gender	Gloss
m ee k	M a k	m	<i>donkey(s)</i>
b oo k	B a k	m	<i>buck(s)</i>
' oo r	' a r	m	<i>boy(s)</i>

2.3 Shift of tonal stress

For a large class of nouns, plural is expressed by shifting the tonal stress to the left. It has already been said that speakers of the Bishari dialect (esp. north of Aswan) no longer use this plural form.

had' a ab	had' a ab	m	<i>sheikh(s)</i>
had' a at	had' a at	f	<i>sheikha(s)</i>

This plural formation - i.e. shifting the stress to the "left" - is also used for all participles, such as "*he having given*" sg. / "*they having given*" pl., or "*she having given*" sg. / "*they fem. having given*", as the following examples show.

hiy a ab	Hiy a ab	m	<i>given sg. / pl.</i>
hiy a at	Hiy a at	f	<i>given sg. / pl.</i>

2.4 Combinations of various plural morphologies

In many cases, several morphological changes will work together to express the plural, e.g. stress shift and shortening may express the plural together, as in the following examples.

ad' i ir	ad' i ir	m	<i>handle(s)</i>
k ^w il e el	k ^w il a al	m	<i>foot ring(s)</i>

3 Asymmetrical plurals

3.1 Singularia tantum

Some nouns are used in the singular only. The explanation seems obvious for nouns such as "earth" or "neck" (as opposed to body parts which come in pairs), but it is not always obvious.

Singular	Plural	Gender	Gloss
bu u r	-	f	<i>earth</i>
mo o k	-	m	<i>neck</i>

3.2 Pluralia tantum

Some nouns are used in the plural only. This includes non-countable nouns like liquids.⁹⁹

-	a a t	f	<i>milk (lit. milks)</i>
-	y a m	m	<i>water (lit. waters)</i>

⁹⁹ The two loans for another liquid, namely "*coffee*" - jabanaat (Ethio-Semitic) and buun (Arabic) - seem to be exceptions. This may be the case either because of the recent integration of these loans into the Beja language, or because with coffee, it is the cups which count: they have to be three.

Again: In some cases the use of the plural has specific logical or cultural explanations which are not at all obvious for the outsider. This is the case, for instance, with "saddle(s)", a noun which in most Beja dialects is only used in the plural.

Singular	Plural	Gender	Gloss
-	bhali	m	language (lit. words)
-	mhallaga	m	pecuniae (lit. moneys)
-	Koor	m	saddles, northern dialects

3.3 Suppletive plurals

A few nouns use different stems for the singular and the plural. Thus the Beni Amir dialect has a suppletive singular for "saddles".

n ⁱ is	Koor	m	saddle(s), southern dialects
takat	m'a	f	woman / women
tak	Da	m	man / men

3.4 Collectives and Collective Plurals

Collective nouns include terms for professions, animals, plants, and tools. The collectives tend to have singulatives and singulative plurals. In the case of "sword", there also is a term for the plural of the collective.

Singular collective	Plural collective	Gender	Gloss
kaar	Kar	m	swords (in general)
aashu	-	m	fish (in general)
kajar	-	m	soldiers (in general)

3.5 Singulatives and Singulative Plurals

The singulative suffix has a plural form which uses vowel shortening - i.e. the same plural formation which is also found with a large number of underived nouns (see 2.1 above).

Singular singulative	Plural singulative	Gender	Gloss
kaar ⁱ yaay	kaar ⁱ yay	m	single sword(s)
aash ^o oyaayt	aash ^o oyayt	f	single soldier(s)
kajart ^a y	kajart ^a y	m	single sword(s)

4 Adjective plurals

A few adjectives use reduplication to express plural. Beja adjectives are not true nouns, and they are mentioned here only for completeness' sake: As a subclass of Beja nominals they follow their own syntax.

Singular	Plural	Gender	Gloss
d ⁱ st	dad ⁱ st	f	small sg. / pl.
w ⁱ n	waw ⁱ n	m	big sg. / pl.

5 Verbal noun plurals

5.1 Verbal nouns in the singular (Morphology based)

Certain verbal nouns are only used in the singular. The verbal nouns which behave in this way can be defined by their morphological and phonological shape. In the process of dictionary making - where it was decided to include the "infinitives" of verbs - it was a

surprise to see that there are two groups of de-verbal nouns which have a strong statistic preference for the singular:

(1) Derivations from the morphological class of "weak verbs" (also called "class 2 verbs" or "suffix verbs") such as *tam-* "to eat".

(2) Derivations from strong verbs (also called "class 1 verbs" or "prefix verbs") especially the strong, non-derived transitive verbs of the phonological pattern *ciCiC-* such as *dirig-* "to kindle a fire".

Examples of these two verb classes and their nominal derivations are listed here below.

Singular	Plural	Gender	Gloss
u- t amti	-	m	<i>the eating (weak)</i>
oo- druug	-	m	<i>the kindling of a fire (strong)</i>

5.2 Verbal nouns in the plural (Aktionsart based)

Certain verbal nouns are only used in the plural. It seems that most or all verbal nouns which behave in this way can be defined by their "Aktionsart". They include especially derivations from iterative activity verbs. These are derived from strong verbs of the phonological pattern *CaaCiC-*. An example is *faayid-* "to laugh", which only allow for the plural derived noun *ee-fyad* lit. "the laughings". With reference to "other" Semitic verb systems, the existing descriptions of Beja classify these derived verbs as "intensive" - but the nominal derivation seems to bring out their "iterative" or "repetitive" character, as opposed to the "basic" or even "semelfactive" Aktionsart of the basic form.

Singular	Plural	Gender	Gloss
-	ee -fyad	m	<i>the "laughings"</i>
-	ee -foor	m	<i>the "fleeings"</i>

5.3 Verbal nouns in singular and plural

Certain verbal nouns are used both in the singular and the plural. In the singular, they convey a "basic" or "semelfactive" meaning, and in the plural they convey an "iterative" or "repetitive" meaning. This again includes the activity verbs and their derivations.

Singular	Plural	Gender	Gloss
w-ar i diti	y-ar i diti	m	<i>the slaughtering(s)</i>
oo-raab	i-ma r ab	m	<i>the refusal(s)</i>
tu-naakb oo y	i-me e enkib	f / m	<i>the pursuit(s)</i>

5.4 Implications for RRG rules

In the above tables, only 2 or 3 examples have been presented for each class of nouns. But in actual fact, these examples represent dozens or hundreds of members.

All regularities that have been noted must be accommodated in lexical rules and derivation rules. Obviously, the relevant phonological shapes and the plural usage of the different classes will have to be specified for the rules.

2 Plural of "me": undergoers as possessors

Different languages have different perspectives on the various phenomena of "plural", and the phrase "plural of me" is an attempt at capturing this. To emulate the perspective on object suffixes which, possibly, represents the perception of Beja speakers, it is worthwhile to apply the following test which employs some crude illustrations.

Compare (a) "He saw me." and (b) "They saw me." as illustrated here below.



The question is whether in some intuitive way the "me" in (b) feels different from the same pronoun "me" in (a). In (b), the undergoer is, after all, the object of the attention of many people - rather than just one. The question could be asked why the "me" in (b) does not exhibit a different morphology. The same is true for the negation.

Compare (c) "He didn't see me." and (d) "They didn't see me." as illustrated here below.



Beja does actually employ different morphological forms for "me" in (c) and (d), and this will be shown further below.

It is true that in their logical structures, the two statements "He saw me" and "he didn't see me" are very similar to each other: The only difference is the positive and negative value of the "STATE" operator. Compare the logical structures which represent the four sentences (1) he saw me, (2) they saw me, (3) he did not see me (lit. seen SG mine isn't), and (4) they did not see me (lit. "seen PL mine-PL are-not"):

- (1) <I.FORCE DECL <TENSE PAST<STATE POS (see' (he, me))>>>
- (2) <I.FORCE DECL <TENSE PAST<STATE POS (see' (they, me))>>>
- (3) <I.FORCE DECL <TENSE PAST<STATE NEG (see' (he, me))>>>
- (4) <I.FORCE DECL <TENSE PAST<STATE NEG (see' (they, me))>>>

However, the syntactic structure trees do look very different indeed. The analysis of these items follows here below.

First consider the positive statement: Beja is a head marking language, and the syntactic structure has two arguments (ARG) which are the pronoun suffixes.

In "he saw me", -iya/-iyaan "he / they" represents the agent, and the accusative pronoun suffix -heeb "me" the undergoer.

Positive

(2a) rh -**í**ya -**hé**eb.

see -(PAST)3MSG -me

"he saw me."

(2b) rh -**í**yaan -**hé**eb.

see -(PAST)3MPL -me

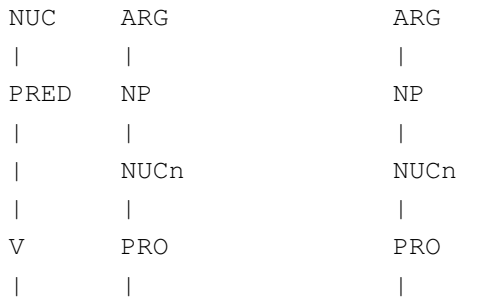
"they saw me."

CLAUSE

|

CORE

|



rh	-íya	-héeb.
see	-(PAST)3M	-me
rh	-íyaa -n	-héeb.
see	-(PAST)3M -PL	-me

|

| : :

V NUCn <....QNT

|

:

CLAUSE <...TNS

Then it should be considered that participles indicate the plural by shifting the tonal stress to the left (in the same way as certain noun classes do; cf. point 2.3 above). This is the case in the examples (1a) and (1b) here below.

Negative

(1a) hiy -áab -Ø kí-i- k -i.
given -PTCP -him not-(PRES)3M- be -SG
"he did not give it to him."

(1b) híy -aab -Ø kí-i- k -een.
given -PTCP -him not- (PRES)3M- be -PL
"they did not give it to him."

The examples (4a) and (4b) show that the possessive pronoun "my" has two variants, -u for sg. items and -i for pl. items.

(4a) had'áay -u kí-i- k -i
sheikh -my not-(PRES)3M- be -SG
"He is not my sheikh"

(4b) hád'aay -i kí-i- k -een
sheikhPL -my not-(PRES)3M- be -PL
"They are not my sheikhs"

Compare sentences (3) and (4): The participle uses the same morphology as the noun, and for a plural item, the possessor pronoun has the plural allomorph.

So in the negative sentence, the undergoer is represented as the possessor of the participle. However, the accentual difference between the singular and plural forms of the participle suffix **-aay** is hard to notice, or non-existent in quick speech.

(3a) rh -**áay** -u k**í**-i- k -i.
see -PTCP -my not-(PRES)3M- be -SG
"he did not see me."

(3b) rh -**áay** -i k**í**-i- k -een.
see -PTCP PL -my not-(PRES)3M- be -PL
"they did not see me."

				CLAUSE	
				CORE	
ARG			ARG	NUC	
NP			NP	PRED	
CORE					
NUC	ARG				
N	NUCn		NUCn	V	
	PRO		PRO		
rh - áay	-u	k í -	i-	ki.	
see -PTCP	-my	not-	(PRES)3M-	be	
rh - áay	-i	k í -	i-	kee	-n.
see -PTCP PL	-my	not-	(PRES)3M-	be	-PL
	:	:	:		:
	:	:	:		:
NUCn	<.....:NUM	:	NUCn	<....NUM	
	:	:	:		
NP	<.....DEF	STA.....>		CLAUSE	
	:				
	TNS.....>			CLAUSE	

3 Plural of "infinitives": nominal aspects of de-verbal nouns

During the selection of dictionary entries for verbs it was found that for the de-verbal nouns of certain verbs, the "unmarked", "normal" citation form was the plural form -

while for the vast majority of verbs, it was the singular. Thus most of the "infinitives" would be given in the singular - but about 5% of them in the plural.¹⁰⁰

The following conversation illustrates the use of such "plural" infinitives. The items of interest have been underlined.

Sample conversation

The sister (host) says:

1 Anaa san-u!
you! brother-my!
"You, my brother!"

2 u-sikkaaay hasam-ti-yoon-hoob,
the-way pass-you-us-when,
"When on your way you pass by (us),"

3 d-hoon tar-a!
for-us detour-IMPERAT M.
"make a detour to us!"

4 Ee-rh-eek aree-nay-ay.
the(PL)-seeings-yours(SG) love-we (PRES)-because.
"because we enjoy seeing you (SG)."

The brother (guest) replies:

5 Ani-han batee-yee-kna ee-rhi winneet minniim-ani.
I-also you F-GEN-PL the(PL)-seeings strongly desire-I (PRES)
"I also desire very much to see you (F PL)."

6 Allaa tankwiikw-eek,
Allah agree (PRES)-if
"if Allah agrees,"

7 fajir fajir d-hookna tar-tiit,
morning morning for-you PL detour-and
"every morning I will make a detour to you and"

¹⁰⁰ In the process of dictionary making, the decision was made to have "verb" entries both in the traditional 3rd ps. m. form لَعَف (which is commonly used in Semitic dictionaries) - as well as in the "infinitival" derivations (which is commonly used in Cushitic dictionaries).

8 d**a**baaysal**a**am-i-h**o**okna **a**n-di.
greet-FUT-you PL I (PRES)-mean
"I will greet you."

Note line 5 of this conversation, with the form ee-rhi *"The plural- seeing(s)"*.

In a first analysis of this form, the reason for choosing the plural of the verbal noun *"seeings"* may appear to be the plural undergoer *"you PL"*. But in line 4, in ee-rh-
 eek, translated as *"to see you sg."*, the undergoer is a singular: *"you SG"*, and the verbal noun still is in the plural. The clue is fajir fajir *"every morning"* which suggests a repetitive activity.

In the next table, the tree structure of the clause is compared with its nominalization.

The clause is *"We see you PL"* [implied: **every** morning], and its semantic structure can be abbreviated as follows:

<I.FORCE DECL <TENSE PRES <ASPECT REP do' (I, [see' (we, (you))])>>>

(a) The clause with (implicitly) repetitive activity verb

CLAUSE

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CORE

|

NUC

ARG

ARG

|

|

|

V

PRO

PRO

|

|

|

rh -**i**nay -h**o**ok.

see -(PRES)we -you SG

(b) Its nominalization in the plural

NP

|

CORE

|

NUCn

ARG

|

NP

NP

NUCn

|

|

N

PRO

|

|

ee- rh -**e**ek

the PL- seeings -yours(SG) [implied: our seeing]

:

|

:

DEF...>

NP

:

:

|

:

QNT...>

NP <.....DEF

Nominalizations of iterative (repetitive) verbs

It has been pointed out that for certain activity verbs, the de-verbal noun is a plural noun, and that this is especially true for nouns derived from verbs of the phonological type CaaCiC which represent repetitive activities. Traditionally, the verbs of this subclass have been termed "intensive". As has been said above, with a view to their plural derivations it seems appropriate to consider CaaCiC verbs "iterative" or "repetitive".

The next table displays the verbs of this subtype. Where the cells are empty, the respective data have not been found or they actually are never used.

Table: Basic vs. iterative verbs and their de-verbal nouns

Gloss	Basic V	de-verbal N	Iterative V	de-verbal N
Initial non-glottal cons.				
Forget	-		baaḏina	i- meebḏin PL
gird one's loins	diyida	oo- dyuud SG	daayida	
Laugh	-		faayida	ee- fyad PL
listen to	-	tu- meeswooy SG	maasiwa	-
plait hair, plait strings			yaawida	
ponder (Ar. loan)			gaayisa	
Pursue	-	u- nakbooy SG	naakiba	i- meenkib PL
separate, split	bitika	oo- btuuk SG	baatika	
tell a lie / tell lies	g ^w isira	oo- g ^w suur SG	g ^w aasira	
tie a camel / tie camels tail-head	kitira	oo- ktuur SG	kaatira	
tie, close	hak ^w ira	w- hak ^w uur SG	haak ^w ira	
Trade	diliba	oo- dbuul SG	daaliba	
treat (medically)			daawira	
untie, divorce	fidiga	oo- fduug SG	faadiga	
Initial glottal cons.				
draw lines / draw a line	'alima	w- 'aluum SG	'aalima	t- 'aalmam ?
spend time, spend a day			'aayima	t- 'aaymam PL
decide, also sew	hayida	w- hayuud SG	haayida	

With most of these verbs, the "repetitive" or "iterative" Aktionsart is obvious - such as with "draw lines, plait hair, tie camels tail to head", even "laugh". With others - such as "spend the day" - some cultural cues would probably be needed for a full understanding of the nature of the Aktionsart.

The table is not symmetrical: There are holes. For some verbs such as "to listen", no repetitive verbal noun has been found, and for some of these verbs, they may not exist. As usual, the sets of lexical derivations contain some surprises.

Summary and Conclusions

In the *first* section it has been shown that Beja plural has a rich morphology. For each of the morphological classes, only two or three examples were presented; but it should be noted that they represent sizeable classes. Therefore, the phonological mechanisms of plural formation as well as the lexical redundancy must be accommodated in RRG lexical rules.

In the *second* section, the nominal aspects of various noun classes have been presented. This included count nouns, mass nouns (e.g. liquids), and collectives (e.g. plants, tools, professions and animals). It was shown that the collectives tend to have singulative derivations - which again can have their own singulative plurals. Obviously, each of these subclasses demand a particular plural morphology.

In the *last* section it was noted that all weak verbs as well as strong verbs of the shape CiCiC have de-verbal nouns in the singular. This seems to be a categorization based on purely morphological criteria of the phonological shape of verbs. However, the *verbal aspect* or the "Aktionsart" of a verb obviously is a decisive feature: With a view to plural de-verbal nouns, the distinction between *basic* or *semelfactive* verbs on the one hand, and *repetitive* or *iterative (intensive)* verbs on the other hand was shown to be essential.

To conclude: obviously a set of lexical and derivational rules needs to be created to accommodate the plural morphology for these subclasses of verbs. The phonological and morphological features presented above are some of the features which need to be marked in the RRG lexicon, and they need to be visible to the derivational machinery in order to ensure the proper output of plural NPs.

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APPLICATIONS OF RRG IN DIACHRONIC SYNTAX

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The workshop addresses two topics. The first one pursues to bring together descriptive work on diachronic syntax which has been done in the RRG framework up to day. Hopefully, a comprehensive overview of such work can be delivered in connection with the workshop, since – as far as I know – so far not much has been undertaken in this direction.

The second, and central, topic of the workshop aims at highlighting in which way RRG is able to contribute substantially to the examination (maybe also explanation) of processes occurring diachronically in the (morpho-)syntax of diverse languages (or language groups). If we take a look at the global “algorithm” reflecting the linking mechanism between semantic and syntactic representation in RRG (see Fig. 4.9 in Van Valin&LaPolla 1997: 177), we notice that diachronic changes in the grammar (i.e. morphosyntax) of languages can be captured only by the language-specific part of this algorithm and the role played by the Actor-Undergoer-hierarchy (because grammatical rules refer only to macroroles). Languages differ as to the range of specific semantic roles which can be treated as an Actor or an Undergoer (and this is reflected in language-specific linking rules and morphosyntactic coding). We might therefore ask how such language-specific constraints in the treatment of argument positions come about and what triggers them.

Actually we may reformulate this: diachronic changes affect the lexicon—morphosyntax interface; what we need to capture, then, is the relationship between the Layered Structure of the Clause (as representing language-specific manners of coding) and the structure of lexical entries. For example, alternations of morphological cases and/or of prepositions and diachronic changes affecting such alternations must be examined from the point of view of whether it is the lexicon which is under change or rather the rules of the linking mechanism. From this angle, among questions that seem imaginable for the workshop we might name the following ones:

- Is “exceptional case marking” really exceptional, or is it eventually subject to rules? From the diachronic viewpoint, must we treat it as relics of earlier stages of the language, where the respective case marking occurred due to a more transparent and productive rule, or is it to be judged as the beginning of a new pattern? If the latter is true, does it spread only by analogy among lexical items of the same syntactic category (part of speech), or are other cognitive mechanisms involved? How can we formalize these changes in the most comprehensive and cross-linguistically valid way in terms of RRG?

As far as I can see, there have been no RRG attempts at describing the increase or decrease of “quirky case marking” in diachrony, although there have been a few such studies like Michaelis (1993). These, however, have not looked at developments in time, but analysed historically attested stages of ancient languages from a basically synchronic point of view.

- How can discrepancies between syntactic and semantic (in)transitivity be generalized? How can they be explained from a diachronic viewpoint? E.g., the fact that in many (most?) languages there seem to be a couple of verbs whose lexical entries need to be marked as exceptional with regard to their macrorole-properties (e.g., English *to belong*, which has two arguments, but only one macrorole and is therefore to be marked as [MR1] in the lexicon). To which degree can such cases be generalized cross-linguistically? How can cross-linguistically observable parallels in “exceptional macrorole assignment” be explained in order to avoid *ad hoc*-stipulations?

Another focus of the workshop should be put on the grammaticalization of constructions, since it is basically the interface between semantic and pragmatic relations and the syntactic organization (the Layered Structure of the Clause; LSC) which is central to the whole theory. To a large extent, the grammatical status of constructions is measured by the notion of ‘restricted neutralizations’, centering around ‘Privileged Syntactic Arguments’ (pivots and controllers). For this reason, grammatical (language-specific) constructions such as passives (or, correspondingly, antipassives) should be a basic topic, since they give a paradigm example of how restricted neutralizations work. Therefore, possible guiding questions for the workshop might be such ones like the following:

- How do passives arise (and with them restricted neutralizations)? What are the diachronic relationships between foregrounding and backgrounding (= “impersonal“, “spontaneous“) passives? Although from a systematic and typological viewpoint the foregrounding passive almost always seems to presuppose the backgrounding passive, from the diachronic viewpoint it is by no means clear whether a backgrounding construction really needs to precede a foregrounding passive.
- How are passives related (systematically and/or diachronically) to topicalizing and focus constructions? Do they precede them, follow them, or do all of them evolve rather independently of each other?

As far as I see, after some sketchy notes on this subject in Foley&Van Valin (1984: 134-148) on the basis of Philippine languages there have not been any attempts at elaborating on these points in RRG terms. (For Slavic and Baltic cf. Wiemer, to appear.)

- In which way do passives (i.e. a switch-function device) interact with switch-reference and other reference-tracking mechanisms discussed in Van Valin&LaPolla (1997: 285ff.)? This question is important, since there are languages which have developed several collaborating (or competing?) reference-tracking devices in parallel (e.g., Lithuanian, which has an entirely productive passive beside switch-reference via participial clause linkage and a kind of obviation based on a contrast between different paradigms of demonstrative pronouns). It is the question how these devices arose and whether their evolution is in any way mutually connected.

An intriguing question relating passives and the structure of lexical entries concerns the origin of oblique Actor-phrases (e.g., with *by* in the English passive):

- Oblique Actor-phrases are no part of the Core (in terms of LSC), but they are part of the logical structure of the respective predicate (verb). They are an exception to the rule that macroroles are housed by components of the clause. Thus, how does this peculiar status of oblique Actor-phrases happen to be established: has such an adjunct-phrase – in diachronic terms – been incorporated into the logical structure of the predicate? How should we model this in RRG terms? Or, conversely, is its adjunct status diachronically secondary, compared to the Actor coded as PSA (in the active)? From the viewpoint of empirical diachronical studies, this is by no means a trivial question.

Similar questions concerning diachronic development and formalization in RRG terms ought to be asked with respect to other syntactic properties resp. constructions characteristic of PSAs, namely: agreement on the verb, control of reflexives, Equi-NP-deletion, participial relativization, ellipsis of coreferential coordinative arguments.

With regard to grammaticalization, the following general question could be added:

- Are certain types of changes in grammatical constructions unidirectional (or tend to be so)?

Another part of languages' grammar which can easily underlie changes is the morphosyntactic coding of non-universal components of the LSC, namely: of extra-core positions and detached phrases. In the framework of RRG hardly ever have questions like the following been asked:

- How does a former extra-core slot develop into a part of the Core and, thus, become more tightly integrated into the language's syntax?

Among the phenomena which remain to be described synchronically and explained diachronically in RRG terms we can indicate object-doubling in languages like Italian or Bulgarian (and other Balkan languages). In languages like English a pronominal copy of a coreferential NP indicates that the NP is only a left-detached phrase and outside of the clause (see ex. 1). Contrary to this, in Bulgarian and Macedonian clitic doubling is in many cases obligatory (see ex. 2-3), even if the whole syntactic unit is pronounced without a prosodic break. The question arises, therefore, how to treat the "dislocated" NP: is it still in the Periphery or has it actually been included into clausal syntax? Obviously the latter seems to be the case. We may assume that data such as the Bulgarian and Macedonian ones represent a late stage in a diachronic development, in which formerly peripheral elements of the sentence get gradually integrated into clausal syntax. For this process to be adequately described additional properties, first of all referentiality, ought to be accounted for:

(1) *The flowers_i, no, I haven't bought them_i, yet.*

(2) *Nego_i go_i *poznavam* *ot* *universiteta*. Bulgarian
him.ACC.TONAL him.ACC.CLITIC know.1.SG.PRS from university
'I know him since university'*

(cf. Avgustinova 1997: 96).

3a) *M_i* *i_k* *dadov* *knigata_k* *na Petar_i*. Macedonian
 him.DAT it.ACC give.1.SG.PRT book.ART to Petar

(3b) **M_i* \emptyset_k *dadov* *knigata_k* *na Petar_i*.
 him.DAT give.1.SG.PRT book.ART to Petar
 'I gave the book to Petar'

(cf. Dimitrova-Vulchanova 1999: 104).

Questions concerning the integration of linguistic material from outside the universal components of the LSC (Core and Clause) into the syntax of the Clause or even the Core have actually been investigated, for instance, by Givón and other researchers in their contributions to grammaticalization studies. RRG, being a lexicalist model of syntax whose main strength can be seen in capturing constructional properties of languages and their cognitive underpinnings, should thus be capable of reflecting results of such work by integrating them into its model. On this background it is astonishing how tiny the amount of work done in this field within RRG is. It should be an aim of the workshop to diminish this shortcoming. Together with this the following question might be asked:

- In which way does the gradual integration of material from the Periphery and extra-core positions into clausal and core-syntax correlate (and change) with the projection of focus structure?

Finally, an intriguing question concerns the cross-linguistic comparison and diachronic development of focus structure. Although there is probably no direct equivalent of restricted neutralizations in the organisation of information structure, languages clearly differ in terms of what RRG calls the 'potential focus domain', i.e. of those constituents which may be focussed narrowly. English, for instance, does not show any restrictions in this respect, whereas many other languages do not allow at all for a prenuclear focus, or they allow only for WH words to be focussed narrowly before the nucleus (predicate) (cf. Van Valin&LaPolla 1997: 211-213). The question arises whether the (total or partial) presence vs. absence of constraints on using constituents (or parts thereof) in prenuclear focus position could not be interpreted as an equivalent of restricted neutralizations in the domain of information structure. In any way, language-specific differences in (narrow) focus structure can be subjected to diachronic investigation, for which RRG should be able to render a descriptive framework. One may further ask whether it is possible to establish an implicational hierarchy as for the type of constituent being allowed to appear in prenuclear focus position. Obviously, WH words are the least constrained word class. It would therefore be sensible to search for the way marked prenuclear focus positions arise; we may assume that they arise diachronically via WH words, which, as it were, open the door for other word classes or constituents to occupy this position.

These deliberations may be subsumed in the following way:

- Can we formulate something like restricted neutralizations for information structure (focus constructions)?
- How do prenuclear focus positions arise? Are the first entities to occupy this position always WH words? (Analogous questions could be put regarding other positions of the LSC.)

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ALTERNATIVE UNDERGOER-MARKING BY ACC VS. GEN

– WHERE ARE THE RULES TO BE DESCRIBED ?

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<http://www.uni-konstanz.de/FuF/Philo/Sprachwiss/slavistik/wiemer/index.htm>**Abstract**

The ACC-GEN alternation as a means of marking the Undergoer of transitive verbs, which is a prominent areal feature of Lithuanian, East Slavic and Polish with a long history, is a typologically rare phenomenon, insofar as it cannot be sufficiently captured by the semantic distinction of total vs. partial objects alone (cf. Koptjevskaja-Tamm/Wälchli 2001:650-666). See the examples below.

This kind of case alternation with two- and three-place verbs has so far not been uptaken in RRG, and it is not clear how it should be captured by the semantic↔syntax linking algorithm, since its nature is totally different from other case alternations described in RRG (and other theories), as, for instance, the ‘spray-paint’ alternation, the Activity—Active accomplishment alternation or ‘quirky case marking’. First of all, the ACC-GEN alternation does not affect the Undergoer status of the lower-ranking argument and, thus, the verb’s transitivity. The nature of criteria (or rules) responsible for the choice of ACC vs. GEN is manifold, especially in Russian, where no ultimately reliable predictions can be made (cf. Timberlake 1986). The choice cannot always be given in terms of ‘possible’ vs. ‘impossible’ (an ‘either-or’ decision), but very often must be understood in terms of ‘(more or less) appropriate’, with a complex interplay of factors. Despite various attempts of unifying approaches (one of the latest being Bogusławski 1998), these rules have resisted to be managed in an algorithmic way for all cases. Beside this, the weight of the criteria is variable if we compare the three languages mentioned above.

I. Comparison with other kinds of case alternations and similar variation in morphosyntactic coding

1. ‘spray-paint’

(1a) *The workers loaded the hay onto the truck.*(1b) *The workers loaded the truck with hay.*

[do' (workers, Ø)] CAUSE [be-on' (truck, hay)]

Russian

(2a) *Rabočie pogruzili seno na gruzovik.*
 workers.NOM load.PAST.PL hay.ACC on(to) truck.ACC
 ,The workers loaded the hay onto the truck.’

(2b) *Rabočie zagruzili gruzovik senom.*
 workers.NOM load.PAST.PL truck.ACC hay.INS
 ,The workers loaded the truck with hay.’

2. Activity-Active accomplishment(3a) *They ate spaghetti (for five minutes).*(3b) *They ate a plate of spaghetti (in five minutes).*

[do' (3PL, [eat' (3PL, spaghetti)]) & BECOME consumed' (spaghetti)]

Lithuanian

(4a) *Svečiai (penkias minutes) valgė makaronus.*
Guests.NOM five.ACC minutes.ACC eat.PAST.3 spaghetti.ACC.PL
,The guests ate spaghetti (for five minutes).'(4b) *Svečiai (per penkias minutes) suvalgė makaronus.*
Guests.NOM through five.ACC minutes.ACC PREF.eat.PAST.3 spaghetti.ACC.PL
,The guests ate up the spaghetti (in five minutes).'**3. "quirky" case marking**

Polish

(5a) *Komisja sprzyjała nowicjuszowi.*
commission.NOM favour.PAST.3.SG.F newcomer.DAT.SG
'The commission favoured the newcomer.'(5b) **Nowicjusz był sprzyjany (przez komisję).*
do' (komisja, [favour' (komisja, nowicjusz)]) [MR1]
favourable' (komisja, nowicjusz) [MR1]

compare English

(6a) *The commission favoured the newcomer.*(6b) *The newcomer was favoured (by the commission).***4. ACC-GEN**

Russian, e.g. with clausal negation

(7a) *Brat ne čitaet stixi.*
brother.NOM NEG read.PRS.3.SG verse.ACC.PL
,My brother doesn't read (these) verses.'(7b) *Brat ne čitaet stixov.*
brother.NOM NEG read.PRS.3.SG verse.GEN.PL
,My brother doesn't read (any) verses.'
[do' (brat, ¬ [read' (brat, stixi)])]

Polish, GEN obligatory with clausal negation

(8a) *Przyjąłem twoją propozycję.*
accept.PAST.1.SG your.ACC.SG.F proposal.ACC.SG.F
,I accepted your proposal.'
[do' (1SG, [accept' (1SG, propozycja)])](8b) *Nie przyjąłem twojej propozycji.*
NEG accept.PAST.1.SG your.GEN.SG.F proposal.GEN.SG.F
'I didn't accept your proposal.'
[do' (1SG, ¬ [accept' (1SG, propozycja)])]

Lithuanian, e.g. 'pseudo-partitive'

(9a) *Sūnus suvalgė (visus) ledus, kuriuos buvau jam nupirkęs.*
son.NOMPREF.eat.PAST.3 all.ACC.PL.M ice-cream.ACC.PL.M
,The son ate up (all) ice-cream, which I had bought for him.'(9b) *Sūnus suvalgė ledų.*
son.NOM PREF.eat.PAST.3 ice-cream.GEN.PL
,The son ate up (some) ice-cream.'
[do' (sūnus, [eat' (sūnus, ledai)]) & BECOME consumed' (ledai)]

The compared alternations from the viewpoint of semantics→syntax linking

	involves lexical rule (\supset affects PSA selection)	occurs during mapping into syntax	affects Undergoer choice	affects M-transitivity	number of Core arguments
ACC—GEN	—	(+)	—	—	2-3
'spray-paint'	+	—	+	—	3
Activity—Active accomplishment	+	—	d.n.a.	+	1-2
"quirky" case marking	?	?	d.n.a.	?	2-3

Remarks:

d.n.a. "Does not apply" because such predicates are to be considered M-intransitive (with the sole role being an Actor) if they behave like Activity predicates resp. their non-Actorarguments do not map into "canonic" object cases (ACC or GEN).
 (+) Depends on the degree to which the alternation can be ascribed grammatical status.
 ? If we accept that only Macroroles may become PSAs and that Macroroles are always "canonically case-marked".

(27) Lexical rules are not pertinent for the ACC-GEN alternation, because the LS does not change.

(28) PSA selection principles remain intact; cf.
 Polish, e.g. PSA selection with passivization

(10a) *Komisja przyjęła propozycję.*
 commission.NOM accept.PAST.3.SG.F proposal.ACC.SG.F
 'The commission accepted the proposal.'

(10a') *Propozycja_i została przyjęta (przez komisję)*
 proposal.NOM.SG.FAUX.PAST.SG.F accepted.NOM.SG.F by commission
i ∅_i wywarła duży wpływ na dalszy bieg wydarzeń.
 and produce.PAST.3.F big.ACC.SG.M influence.ACC.SG.M
 'The proposal_i was accepted (by the commission) and (it_i) had a big influence on the further course of events.'

(10b) *Komisja nie przyjęła propozycji.*
 commission.NOM NEG accept.PAST.3.SG.F proposal.GEN.SG.F
 'The commission accepted the proposal.'

(10b') *Propozycja_i nie została przyjęta (przez komisję)*
 proposal.NOM.SG.F NEG AUX.PAST.SG.F accepted.NOM.SG.F by commission
ani ∅_i nie wywarła dużego wpływu ...
 neither NEG produce.PAST.3.F big.GEN.SG.M influence.GEN.SG.M
 'The proposal_i was not accepted (by the commission), neither did it_i have a big influence on the further course of events.'

Lithuanian, e.g. object controlling highest-ranking argument of infinitival complement

(11a) *Brol_i paprašė ∅_i atnešti vandens.*
 brother.ACC PREF.ask.PAST.3 bring.INF water.GEN
 'They asked the brother to bring some water.'

- (11b) *Brolio_i neprašė* \emptyset_i *atnešti* *vandens.*
 brother.GEN NEG.ask.PAST.3 bring.INF water.GEN
 ‘They didn’t ask the brother to bring some water.’

- The choice of ACC vs. GEN can be located as occurring on the interface between macrorole assignment and (morpho)syntactic encoding if the conditions of this choice have grammatical status. In general, this means that
 - (a) the choice is made more or less automatically (obligatorily)
 - (b) for an as large amount of verbs (predicates) as possible, and/or that
 - (c) it is semantically (functionally) significant (no free variation).
- All three conditions make the choice predictable.
- Notice that conditions (a) and (c) do not depend on each other: if only condition (a) is fulfilled the choice could be meaningless and restricted to some purely syntactic condition (e.g., GEN after negated transitive verbs in Polish); if only condition (c) applies there would be no reliable rule (e.g., the facultative ‘pseudo-partitive’ GEN in Polish and Russian) and the choice would be (more or less highly) marked.
- Anyway, there remain a couple of more or less selective (or totally idiosyncratic) cases which must be treated as belonging to the lexicon (lexical entries), but do not affect M-transitivity. We must therefore ask where these lexical properties are to be located.

The following types should be distinguished:

1. GEN replaces ACC not automatically (i.e. almost entirely irrespective of the verb’s semantics), but depending on some more specific (and facultative) semantic characteristic of the lexical item.

1.1. “temporarily restricted usage”, e.g.

Pol. *pożyczyć* ‘to borrow, lend’, *dać* ‘to give’

Lith. *gauti darbo*.GEN ‘to get some kind of work (for a time)’ (vs. *gauti darbą*.ACC ‘to get a stable place for a working’), *Duok trintuko* ‘Give (me your) rubber.’, *Paskolink kirvio* ‘Lend (me your) axe.’

2. GEN is required by some lexicalized semantic feature of the verb. Here the speaker does not have any choice!

2.1. In Slavic such verbs are typically prefixed by *na-*, in Lithuanian by *pri-* (or also by the circumfix *na-STEM-RM* in Slavic resp. the double prefix *pri-RM-STEM* in Lithuanian). E.g.

Russ.

nabrat ‘(vody) ‘to accumulate’, *nabrat’sja* (*xrabrosti*) ‘to take courage’, *nakolot* ‘(drov) ‘to chop wood’

Lith.

pri(si)vogti ‘to steal (a certain amount of things for oneself)’, *prikasti* ‘to dig (out)’, *prisodinti* ‘to plant’, *pripilti* ‘to pour, fill (with)’, *prikimšti* ‘to stuff, cram with’ and other

Compare also a very restricted group of Polish verbs prefixed with *do-* and indicating an increase of a quality named by the object:

dolać/dolewać wody (do garnka) ‘to pour some (additional) water (into a jug)’,
dorzucić/dorzucnąć kamyczków (na grządkę) ‘to throw some (additional) small stones
(onto the garden patch)’ etc. (cf. Holvoet 1991:105f.)

Analogously for couple of Lithuanian verbs prefixed with *pa-*:

paragauti (pyrago) ‘to taste (a cake)’, *pasemti (vandens)* ‘to scoop up (some water)’,
pabarstyti ‘to strew, sprinkle’ and other (cf. Šukys 1998:103f.)

In such cases we may speak of morphologically specified verbs (with still some degree of productivity). All these verbs (resp. the affixes mentioned above) specify the feature [+ indeterminate quantity], i.e. they imply incremental objects (substances or countable things) with no clear absolute limit (“parametric verbs”).

2.2. Various lexical groups (without any unified affixal marker)

2.2.1. Verbs denoting demands (requirements)

Russ. *trebovat’* ‘to demand, require’

Pol. *wymagać, żądać* ‘to demand, require’

Lith. *reikalauti* ‘to demand, require’, *prašyti* ‘to ask’, *klausti* ‘to ask, request’

2.2.2. Verbs implying negation

Russ. *izbegat’* ‘to avoid’

Pol. *odmawiać* ‘to refuse’, *unikać* ‘to avoid’, *zabronić* ‘to forbid’, *zakazać* ‘to forbid’

Lith. *atsižadėti* ‘to renounce, retract (from)’, *vengti* ‘to avoid’, *kratytis* ‘to get rid of’, *atsisakyti* ‘to refuse’, *pasigesti* ‘to notice the lack of sb/sth’

2.2.3. Verbs of volition (longing, striving and similar)

Russ. *želat’* ‘to wish’,

Pol. *chcieć* ‘to want’, *pragnąć* ‘to desire, long for’, *życzyć sobie* ‘to wish’

Lith. *norėti* ‘to want’, *geisti* ‘to desire, long for’, *ilgtis* ‘to long for’, *linkėti* ‘to wish, convey wishes’, *siekti* ‘to strive, aspire to; to try to reach, acquire’

2.2.4. Verbs of (controlled) perception, cognition, emotion

Pol. *dotknąć* ‘to touch’, *stuchać* ‘to listen’, *pilnować* ‘to guard, watch’, *strzec* ‘to guard, watch’

Lith. *žiūrėti* ‘to look after’, *klausyti* ‘to listen’, *laukti* ‘to wait for’, *bijoti* ‘to ear, be anxious of’

2.2.5. Miscellanea

Russ. *dostič’* ‘to reach’

Pol. *bronić* ‘to defend’ (only ipf., since *obronić* goes with ACC), *użyć* ‘to use’, *dostarczyć* ‘to supply’, *dochować (tajemnicy)* ‘to keep a secret’, *dotrzymać (słowa)* ‘to keep one’s word’, *próbować* ‘to try’, *nabrać* ‘to acquire, accumulate’.

! Please note !:

1. Neither of these two kinds of verbs (with or without morphological specification of indeterminate quantity) render a really reliable basis for the lexically required assignment of GEN vs. ACC. For there are verbs with *na-*(RM) in Slavic resp. *pri-*(RM) in Lithuanian implying the notion of incremental objects which nonetheless do not normally require their object to be encoded in the GEN (e.g. Pol. *nagromadzić*

(*bogactwa, różne rzeczy*) ‘to compile, gather, collect (riches, different things)’. And there are many verbs which are semantically akin (or even belong) to the lexical groups listed in 2.2, which *mutatis mutandis* do not require the GEN either (e.g. Russ. *zapretit’* ‘to forbid’).

2. The lexical groups named in 2.2 are not mutually exclusive.

Two further points:

3. With many verbs GEN is only facultative (and has been becoming successively archaic), e.g.

Russ. *prosit’* ‘to ask, request’, *ždat’* ‘to wait for’, *oždat’* ‘to expect’

Pol. *prosić* ‘to ask, request’, *nabyć* ‘to acquire’

4. Often alternative object marking (either by ACC or by GEN) resembles free variation, since this alternation does not seem to correlate with any clear difference in function. E.g., Pol. *dozorować* ‘to watch’, *zapytać* ‘to ask for’, *spytać* ‘to ask for’ (cf. Buttler et al. 1971:305). As a rule, the GEN can be regarded as the more archaic variant (with many verbs it has become obsolete).

- The linking rules (semantics→syntax) state that (on step 5) we “assign the Core arguments the appropriate case markers” (Van Valin/LaPolla 1997:326). Where do we get the information from what “appropriate” means in every particular case?

Proposals for a solution (concerning Russian):

- 1) algorithm for at least a part of phenomena involved („deterministic“), e.g. Bogusławski (1998) on the direct object after negated predicate
 - No real solution. It works at best only for a part of the involved phenomena, and it suffers from the typical withdraws of any approach to define a “Gesamtbedeutung” for linguistic forms (paradigms).
- 2) hierarchization of partially correlating features (“stochastic”), e.g. Timberlake (1986)
 - Timberlake (1986) shows that in Russian – which probably demonstrates the most complicated situation w.r.t. the ACC-GEN alternation – the factors influencing the case choice can be subsumed under referentiality and indeterminate quantity.

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