Towards a reconsideration of Constructional Schemas in RRG:
Are all constructions driven by "constructions"?

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1 Introduction: Argument realization in RRG

Lexical theories of argument realization generally seek to explain the syntax of sentences on the basis of the meaning of the verb. There has to be a "mapping" of the lexical-semantic properties of the verb with the syntax. One important question is, then, what facets of the meaning of verbs are relevant for the mapping from lexical semantics to syntax.

In the RRG approach to the syntax/semantics interface, the syntax of a construction is proposed to be based on certain aspects of the semantics of the verb, which include the distinctions between classes of verbs on the basis of features like telicity, punctuality, stativity and dynamicity. RRG distinguishes six classes, all of which have additional causative counterparts. The assignment of verbs to the classes is to be done by tests which are denominated "independent criteria" (Van Valin 2005:59), while it is admitted that some of the tests are either language-specific, do not apply in certain circumstances, or are misleading if different readings of verbs are involved. Thus, even though the author admits that the tests are "not perfect" (Van Valin 2005:40), these tests are supposed to be the basis of the entire RRG approach to argument realization and syntactic organization.

Verb class	**Logical Structure**
State	**predicate´** (x) or (x, y)
Activity	**do´**(x, [**predicate´** (x) or (x, y)])
Achievement	INGR **predicate´** (x) or (x, y)
Semelfactive	SEML **predicate´**(x) or (x, y)
	SEML **do´** (x, [**predicate´** (x) or (x, y)])
Accomplishment	BECOME **predicate´** (x) or (x, y)
	BECOME **do´** (x, [**predicate´** (x) or (x, y)])
Active Accomplishment	
do´(x, [**predicate$_1$´**(x, (y))]) & INGR **predicate$_2$´**(z, x) or (y)	
Causative	α CAUSE β; α and β are logical structures of any type.

Table 1: Lexical representation for *Aktionsart* classes (Table 2.3 in Van Valin 2005:45)

In many other theories of argument realization, a case frame (Fillmore 1968) or a theta-role-list (generative approaches) is associated with a verb in its lexical entry. These lists determine the thematic relation that the verb will be associated with. In RRG, however, thematic relations are not supposed to play a paramount role.

> "It is important to emphasize that in the system presented here, thematic relations play no direct role in lexical representation; the relevant semantic properties of the verbs are expressed by the decompositional logical structure representations, not by thematic relations. Thus even though a large number of role labels like agent, cognizer, theme and patient have been used in this discussion, they are merely mnemonics for argument positions in logical structure. They have no independent status." (Van Valin 2005:60).

The thematic relations are defined according to the argument positions in the decomposed logical structure representation (after Jackendoff 1976). Thus, the argument positions are given for each verb separately. At a later stage in the semantics-to-syntax-linking, these verb specific roles are generalized to Semantic Macroroles.

2 A Mismatch between basic logical structures and possible thematic relations

The thematic relations continuum (Fig. 2.3 in Van Valin 2005:58) lists the thematic relations that are possibly placed in the logical structure argument positions of the basic predicates. Agent and patient are presented as the endpoints of the continuum.

As thematic relations are posited according to logical structure positions of single verbs, it may seem that there are a lot of thematic relations. In fact, there are only five "relevant distinctions". These are the distinctions that fall out of the five possible argument positions in the logical structures of "activity" and "state" predicates, which are assumed to be basic. "Agent" is added as one of the thematic relations. It is ascribed only to verbs that lexicalize agency; for example *murder* as opposed to *kill.* DO signals agency in the logical structure.

Arg of DO:
AGENT

1st arg of do´(x, …:
EFFECTOR, MOVER, ST-MOVER, L-EMITTER, S-EMITTER, PERFORMER, CONSUMER, CREATOR, SPEAKER, OBSERVER, USER

1st arg of pred´ (x, y):
LOCATION, PERCEIVER, COGNIZER, WANTER, JUDGER, POSSESSOR, EXPERIENCER, EMOTER, ATTRIBUTANT

2nd arg of pred´ (x, y):
THEME, STIMULUS, CONTENT, DESIRE, JUDGMENT, POSSESSED, SENSATION, TARGET, ATTRIBUTE, PERFORMANCE, CONSUMED, CREATION, LOCUS, IMPLEMENT

Arg of state pred´ (x):
PATIENT, ENTITY

Fig. 1: Thematic relations continuum in terms of logical structure argument positions; after Van Valin (2005:58; Fig. 2.3)

Patient is listed as the single argument of a state predicate. It would be the argument of predicates like *crushed, killed* and *smashed.* The single argument of a state predicate, then, is something that displays the result of an action. The action that would be required to lead to this result is not listed, as it is not a basic logical structure. There is a mismatch between the assumption of basic logical structures and possible thematic relations. The so-called patient argument of **pred´** (x) would never occur alone in an active construction, as the basic logical structure seems to imply. The second argument of a result-implying verb like *smash* occurs as y, not as x, cf.

(1) logical structure of *smash* (Van Valin 2005: 66)
[**do´**(x, Ø)] CAUSE [BECOME [**smashed´** (y)]

Thus, the question is why PATIENT is listed among the thematic relations here, while RECIPIENT, which cannot be part of a simple logical structure either, is not.

There is a certain suspicion that the so-called basic logical structures have been formulated in the first place with respect to their usability in the AUH: The logical structures are designed to form a continuum, whose endpoints are agent and patient, respectively. Arg of **pred´** (x) is supposed to express an argument being in a state or condition that is the result of an action.

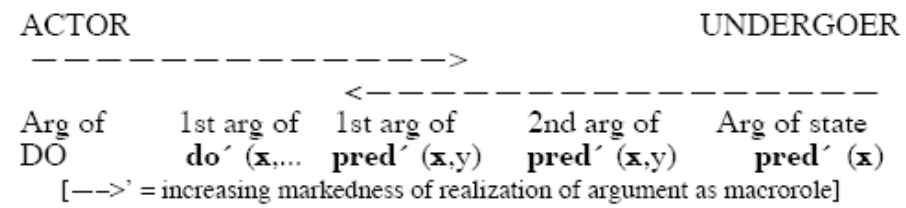


Fig. 2: The Actor-Undergoer-Hierarchy

3 Towards a criticism of the account of Macroroles

In RRG, two Macroroles, the two "Generalised Semantic Roles" are introduced. They are named "Actor" and "Undergoer". By definition, Actor and Undergoer are "the two primary arguments in a transitive predication, either one of which can be the single argument of an intransitive verb" (Van Valin 2005:60).

The concept of Macroroles resembles the concepts of "logical subject" and "logical object" semantically. The actor is the semantic counterpart of the traditional notion of "subject", as it is the most agent-like argument. The undergoer would seem to be the semantic counterpart of the direct object. It is the most patient-like argument. While the traditional labels for grammatical relations, subject and object, are not used in RRG, the theory establishes the macroroles, which refer to semantic relations. But the macroroles are not merely semantic; rather, they bridge the gap between semantic and grammatical relations.

„Macroroles are motivated by the fact that in grammatical constructions groups of thematic relations are treated alike." (Van Valin 2005: 60)

Thus, they can be considered to constitute the link from semantics to syntax in the syntax/semantics interface.

Note that here with the description of Macroroles, the thematic relations lists come back into play, which have been rejected before, in favour of the logical structures. Macroroles are generalizations across thematic relations. Actor is the subject of active clauses, and Undergoer is the subject of passive clauses.

The relation between macroroles and logical structures is presented in the Actor-Undergoer-hierarchy (AUH) as follows: "This double hierarchy says simply that given the logical structure of a transitive verb, the leftmost argument will be the actor and that the rightmost argument will be the undergoer." (Van Valin 2005:61)

Macroroles, thus, are foremost defined with respect to a) thematic relations, and b) constructions.

These are theory-internal problems that concern the definition and the prediction of the syntactic functions of argument positions with regular verbs. What about the following examples?

(2) It bores a hole in my head.

(3) (Frankfurter Allgemeine Sonntagszeitung, national weekly news magazine, 11-9-2008)

denn	es	sei	ungerecht,	dass	Frau Ypsilanti
as	3NsgNOM	be.KONJ	unfair	that	Mrs Y
„gescheitert	wurde".				
fail.PSTP	be.PAST3sg				

"It was supposed to be unfair that Mrs Y "was failed".

(4) (DFB-Semifinal Schalke 04 vs. Werder Bremen, ARD, 19.4.05)
er bekommt diese Aktion aber
3MsgNOM get/receive.PRES3sg DEMFsgACC action.sg but(PART)
abgepfiffen, weil ...
blow-the-whistle.PSTP because
(He gets/receives this action stopped (by the referee's whistle), because ...)

(5) http://www.spiegel.de/netzwelt/web/0,1518,596618,00.html, found 09.05.2009
Was twittert mir Spiegel Online?
whatNsgACC twitter.PRES3sg 1sgDAT SpiegelOnline (Name of the online magazine)
What is Spiegel Online twittering (to) me?

(6) (Common formulation among students at JLU Giessen):
Ich *bin* *eingeflext.*
1sgNOM be.PRES1sg flex.inPSTP
Lit.: I am flexed in.
The past participle *eingeflext* means: registered in the online grading system **Flex-**Now
I am registered in FlexNow.

In (2), the second argument, *hole*, is not required by the verb *bore* in its core meaning. *Bore* acquires a different semantics here. As people are very creative in using their language, this can happen with almost any verb; see Goldberg (1995) for more English examples. How would one predict the constructional possibilities that might exist for an intransitive verb?

In (3), a passive construction is used with the one-place verb *scheitern* ('to fail') in order to imply that the failure was not the responsibility of the person herself, but was probably caused by someone else.

(4) presents an emerging recipient passive construction that is formed with *bekommen* (to get, to receive) as auxiliary. It can be considered to be a passive "version" of the ditransitive active construction, as it is also used in situations that involve a recipient, benefactive or malefactive 3rd argument. It is very productive, and its use is even extended to two-place verbs, where a very abstract notion of benefaction or malefaction is possible. In this example, the event expressed by the construction can only be captured in its entire complexity when the context with the involved participants is included in the description. In the context of the rules of a football game and of this particular situation, the PSTP of the two-place verb, "abgepfiffen", means that the referee, who has the authority to do this, blew the whistle in order to interrupt the action of a player. The player appears as the subject of the *bekommen*-passive construction. He is presented as the malefactive of the "whistling-to-stop-action" event, as it means (and the audience of the football-show know this) that he cannot go on with what he was doing and the other team will have the advantage.

The first three examples show uses of constructions that have more argument positions than the valence of the verb would predict. In the next two examples, there isn't even a valence that speakers could resort to in order to pick the "correct" construction – the verb in (5) is a loan word (*twittern*); the verb in (6) is an invention based on the name of the grading system. It is obviously found to be useful for a group of speakers. So, with these verbs, there is, strictly speaking, no valence available in the lexicon.

With *twittern*, a ditransitive construction with the first person in the dative is chosen. Thus, construction-wise, *twittern* is treated like a verb of communication, as this is the principal meaning it is supposed to have in connection with the online service *Twitter*.

With *eingeflext*, a state passive is used, formed with the auxiliary *sein* ('be'). The participle *eingeflext* is a construction itself, formed with the name *Flex* as verb stem and the German participle affixes *ge-* and *–t*.
Note that these examples are not exceptions. Novel uses of verbs and constructions are everywhere. Thus, in a modern theory of argument realization, there should be a way to describe these phenomena.

It seems also that the combination of constructions is language-specific. So, Pennsylvania German allows a combination of the *bekommen*-passive with the *am*-progressive construction, while Standard German does not. Note that this is merely a matter of constructions, not of the semantics of the verb.

(7) (Louden 2006):

Er	is	sei	Septic Tank	an
3MsgNOM	be.PRES3sg	POSS3MsgACC	Septic Tank	PREP

ausgebutzt	griege	heit.
clean.out.PSTP	get/receive.INF	today

He is getting his Septic Tank cleaned out today.

(8) ??

Er	ist	heute	sein	Auto
3MsgNOM	be.PRES3sg	today	POSS3MsgACC	car.sg

am	gewaschen	kriegen.
PREP	wash.PSTP	get.INF

He is getting his car washed today.

4 On constructions

In constructionist approaches, it is assumed that both the lexical semantics of the verb and the "construction" contribute to the actual argument structure expressed in a sentence. While the lexicon contributes a rich verb meaning with a "minimal valence" (Goldberg 1995, Michaelis and Ruppenhofer 2001, Fillmore and Kay 1997), the "linking construction" is the force that forms the actual sentence with its argument positions.

The arguments in favour of constructionist approaches are manifold.

- Human learning generally works according to gestalt perception, rather than according to rules of combining single entities to meaningful complexes. (cf. for example Tomasello 2006).
- The idea of constructions also makes sense with respect to the processing of syntactic structures. An incremental, „on-line" analysis of a syntactic structure requires an early projection of the emerging structure. The predictability of the emerging structure is achieved by the storage of recurring structural patterns (Auer 2006).
- One important argument in favour of constructions is the observation that idiomatic utterances like *Cry me a river* and *He sneezed the napkin of the table* (Goldberg 1995) exist, and that they are not exceptions, but very common in language use. These kinds of utterances are not decomposable into their parts. Their meaning cannot be explained with respect to the words that occur in the utterance. Construction Grammar describes these structures as having „sign value", and calls them „Constructions". A „construction" is a ‚conventionalized pairing of form and function' (Goldberg 2006:3).

RRG recognizes the importance of constructions by positing constructional schemas, but only for the "idiosyncratic, language-specific features of constructions" (Van Valin 2005: 132).

Thus, there are constructional schemas for passives, antipassives, conjunction reduction and wh-questions. These schemas are considered to be stored and applied in cases where the construction is not a direct consequence of the valence of the verb and the general argument realization principles applied in RRG. Accordingly, there are no constructional schemas for intransitive, transitive and ditransitive constructions.

5 A construction-based account for argument realization in RRG

Obvious advantages of a constructional approach include a new compatibility of RRG for the description of syntactic change and variation. Thus, a construction-based approach would facilitate the description of grammaticalization phenomena in RRG. The entire issue of spontaneity, change, novelty, and variation that has been missing in previous approaches to RRG, would be easily fitted into the theoretical framework without changing its major properties.

If the construction were to be considered to be responsible for the argument realization, this could lead to the abandonment of the problematic concept of Macroroles. At least, these would not have to be considered to be basic elements of the theory. Abandoning the concept of Macroroles would be a considerable change to the theory's principles, but, in my opinion, it would be adequate in the following respects:

- Many of the syntactic principles can be described without the help of macroroles. RRG is based on logical structures. Thematic relations are secondary.
- The definition of the Macroroles is based on argument positions in logical structures and their position with respect to each other. The correlation of argument positions and semantic relations is carried out on the basis of the thematic relations continuum. Thus, "1st arg and 2nd arg of" and "leftmost" and "rightmost" suffice to identify the arguments in the logical structure. The thematic relations continuum is necessary to give a semantic reference to the argument positions in the logical structure (see also Michaelis and Ruppenhofer 2001). The number of arguments and their syntactic realizations are provided by the construction. Macroroles are not necessary.
- The signification of argument hierarchies is to map the thematic relations with the syntactic relations that appear in a sentence. These syntactic relations, however, are defined as argument positions in monotransitive constructions.
- Recipients do not even appear in the AUH, even though they play a significant role in the syntax; for example, in recipient passives and secondative constructions (Diedrichsen 2008a, Haspelmath 2008). Still, the notion of a third macrorole is not accepted in RRG.
- Haspelmath (2008) shows that many syntactic processes like the omission of arguments can be described without referring to Macroroles.
- Nolan (2009) shows that Machine translation Arabic-English on an RRG account works perfectly fine without Macroroles as well.

While Haspelmath (2008) suggests 4 Macroroles for RRG, an extension of the idea of "constructional schemas" seems to me more promising, for the following reasons:

1. The constructional schemas are there already, they don't have to be introduced to the theory. What would be necessary, though, is to formulate constructional schemas for intransitive, transitive and ditransitive constructions.
2. With *constructions* as main contributors of argument structure, it would be possible to describe the PSA, for example, with respect to the construction.
3. The Macroroles have been one source of the identification of the PSA. With a constructional account, the Macroroles would be dispensable. As the previous discussion has shown, Macroroles are in deficit for many reasons. They don't suffice to describe

syntactic processes and phenomena, in particular with respect to ditransitive constructions.

4. It would be possible to treat constructions equally. Emerging constructions or spontaneous formations could be treated as constructions, not as mistakes or irregularities. This is especially important for the description of language change and variation. The fact that some constructions are more frequent than others would not be principally relevant for this description.

5.1 A Bonsai Construction Grammar for German argument realization constructions

In this section, I will concentrate on the steps of the semantics-to-syntax-linking that are of interest with regard to argument realization. Some constructional schemas for intransitive, transitive and ditransitive constructions will be introduced, and it will be shown where in the semantics-to-syntax-linking these constructional schemas should be inserted.

For the application of further details of the RRG-based semantics-to-syntax-linking, I refer the reader to Van Valin (2005), Van Valin and Diedrichsen (2006) and Diedrichsen (2009).

The Macrorole assignment principles, the Case assignment rules, the PSA selection principle and verbal agreement can be neglected, as all of this is ruled by the construction. There would however, have to be some statement about the cases that are distinguished in a language and the distribution of overt vs. non-overt case marking. I leave this out here as well; see Van Valin and Diedrichsen (2006) and Diedrichsen (2009).

In the following, I will suggest constructional schemas for German intransitive, transitive and ditransitive constructions in turn. Note that the RRG-concept of syntactic templates with core slots is available, so the argument positions are to be understood as argument positions in the syntactic template, which involves a core, a periphery and a precore slot. They do not have to be derived from the semantics of the verb or the construction. The idea of the "semantics of the construction" (e. g. Goldberg 1995, Michaelis and Ruppenhofer 2001, Barðdal 2007) is a possible one, but it is not prevalent here.
All of the constructional schemas will be provided with examples for convenience.

I. The German intransitive construction

(9) Georg hat geschlafen.
G have.PRES3sg sleep.PSTP
Georg has slept.

(10) Die Wäsche ist getrocknet.
DETFsgNOM laundry be.PRES3sg dry.PSTP
The laundry has dried.

Table 2: Constructional Schema for German intransitive construction

CONSTRUCTION: German intransitive construction
SYNTAX: Template: 1 core argument; x; appears in the PrCS in V2-structures (cf. Diedrichsen 2008b) PSA [‘subject’]: The argument is subject by default Linking: The argument is nominative by default
MORPHOLOGY: Auxiliary in the perfect: haben (‚have’) or sein (‚be’), depending on semantics of the verb
SEMANTICS: PSA can be any thematic relation
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions

II. The German transitive construction

(11) David hat das Auto gewaschen.
D have.PRES3sg DETNsgACC car.sg wash.PSTP
David has washed the car.

Table 3: Constructional Schema for German transitive construction

CONSTRUCTION: German transitive construction
SYNTAX: Template: 2 core arguments; x, y; one appears in the PrCS in V2-structures PSA [‘subject’]: Highest ranking argument (default) Linking: Highest-ranking argument („agent“) will be nominative, lowest-ranking argument (patient) will be accusative (default)
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Auxiliary in the perfect: *haben* (default), sometimes *sein* with verbs of motion in a transitive use
SEMANTICS: PSA is instigator of state of affairs (default), other core argument is affected or effected (there may be deviations)
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

III. The German ditransitive construction

(12) Meine Eltern haben mir diesen
My.plNOM parents havePRES3pl 1sgDAT DEMMsgACC

Computer geschenkt
Computer give.PSTP
My parents gave me this computer.

Table 4: Constructional schema for German ditransitive construction

CONSTRUCTION: German ditransitive construction
SYNTAX: Template: 3 core arguments; x, y, z; one appears in the PrCS in V2-structures; one may appear in the Periphery (see below) PSA ['subject']: Highest ranking argument Linking: Highest-ranking argument („agent") will be nominative, lowest-ranking argument (patient/theme) will be accusative (default), second-highest ranking argument will be dative or in peripheral PP
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Auxiliary in the perfect: *haben*
SEMANTICS: PSA is instigator of state of affairs (default), lowest-ranking core argument is affected or effected; third argument is recipient, benefactive or malefactive
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

5.2 Linking semantics to syntax

The linking from semantics to syntax involves five steps in the original version (e.g. Van Valin 2005:129 ff.). It is a linking process from the semantic representation, which is the logical structure, of the verb, to the syntactic representation of the full sentence, where all of the syntactic features, like PSA selection, agreement, case marking, syntactic structure and word order are accounted for. Many of the steps in the linking process are considered to be universal, while the steps that involve syntactic features of a particular language, like case marking, are taken to be language-specific.

In the semantics-to-syntax-linking presented here, many of the steps involve the reference to a language-particular constructional schema. The benefit of this is, as argued before, that the system is able to account for varieties of uses of verb meanings, which is a considerable part of linguistic interaction and should not be neglected by a syntactic theory.

This new constructional perspective in RRG will require additional research to identify those universal constructional elements that, heretofore, have not been visible or taken into account because of the limiting lexical perspective.

While in the original version the arguments were assumed to be selected by the verb, it is now assumed that the *construction* selects the arguments. This also means that the constructional schema is the first position in any semantics-to-syntax-linking. It determines the semantic representation and also the selection of the template(s).

Modified versions of the Completeness Constraint and the Core syntactic template selection principle are given below:

(13) Completeness Constraint:
All of the arguments explicitly specified in the semantic representation of a sentence**, as determined by the construction**, must be realized syntactically in the sentence, and all of the referring expressions in the syntactic representation of a sentence must be linked to an argument position in a logical structure in the semantic representation of the sentence.

(14) Core template selection principles

a. Core syntactic template selection principle:
The number of syntactic slots for arguments within the core is equal to the number of distinct specified argument positions in the semantic representation of the core.

b. Construction-based specifications:
The number of distinct specified argument positions in the semantic representation of the core will be determined by the construction.

Note here that in b., the language-specific qualifications are replaced by "construction-based specifications". The particulars about the "minimum syntactic valence" and the fact that the passive reduces the number of core slots by one can be neglected, as these facts are all ruled by the construction. I would also hesitate to determine that the minimum syntactic valence be one, as there are constructions in English and German, called "inflectives", that do not require an argument (Schlobinski 2001). They are well-known from comics and internet chats. They appear with the bare verb stem:

(15) *Smash!*
(16) *Kreisch!*
scream.Ø
Scream!

In the following, I will give semantics-to-syntax linkings for four examples.
The first example is the simple transitive construction in (11).

(11 rep.)	David	hat	das	Auto	gewaschen.
	D	have.PRES3sg	DETNsgACC	car.sg	wash.PSTP
	David has washed the car.				

Table 3 (rep.): Constructional Schema for German transitive construction

CONSTRUCTION: German transitive construction
SYNTAX: Template: 2 core arguments: x, y; one appears in the PrCS in V2-structures PSA ['subject']: Highest ranking argument (default) Linking: Highest-ranking argument („agent") will be nominative, lowest-ranking argument (patient) will be accusative (default)
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Auxiliary in the perfect: *haben* (default), sometimes *sein* with verbs of motion in a transitive use
SEMANTICS: PSA is instigator of state of affairs (default), other core argument is affected or effected (there may be deviations)
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

Semantics-to-syntax-linking for (11): David hat das Auto gewaschen.

Step 1.

a. Construct the semantic representation of the sentence, based on the construction and the predicator.
do´ (x, [**wash´** (x, y)]

b. Determine the value of the operators to be expressed. (For the sake of ease of presentation, this will not be carried out here).
c. Select the referring expressions to fill the variable positions in LS, according to the activation statuses of the referents (for this procedure, see Diedrichsen 2009).
The following activation statuses are distinguished:

Active=ACV: actively under consideration in the discourse by means of direct mention.
Accessible=ACS: not actively under consideration, but readily recognized by the addressee due to world knowledge or occurrence in the situation.
Inactive=INA: previously mentioned but not actively under consideration, not assumed by the speaker to be recognized by the addressee.
Brand-new anchored=BNA: not previously mentioned but related to something already mentioned or accessible.
Brand-new unanchored=BNU: not previously mentioned or related to anything previously mentioned (Van Valin 2005:79 f., Prince 1981, Chafe 1987).

do´ (David, [**wash´** ($David_{ACS}$, $Auto_{ACS}$)]

(In step two, the determination of the actor and undergoer assignment is carried out in the original model. As it is argued here that the argument realization is determined by the construction, this step is obsolete here).

Step 2.
Determine the morphosyntactic coding of the arguments on the basis of the constructional schema.
a. PSA: Highest ranking argument
b. Highest-ranking argument („agent“) will be nominative, lowest-ranking argument (patient) will be accusative (default). The case marking is subject to RP type and declension class.
c. Agreement marking: Finite verb agreement is always with the PSA.

Step 3.
Select the syntactic template(s) for the sentence, according to the general rules from Van Valin and Diedrichsen (2006) and Diedrichsen (2009). For the core template, follow the core template selection principles and the specifications in the constructional schema.

Step 4.
Assign LS elements to positions in the syntactic representation, according to the general word order rules for German from Van Valin and Diedrichsen (2006) and Diedrichsen (2008b). These will not be changed for the argument structure construction.

Semantics-to-syntax-linking for (5):

(5)

Was	twittert	mir	Spiegel Online?
whatNsg	twitter.PRES3sg	1sgDAT	SpiegelOnline (Name of the online magazine)

What is Spiegel Online twittering (to) me?

Table 4 (rep.): Constructional schema for German ditransitive construction

CONSTRUCTION: German ditransitive construction
SYNTAX: Template: 3 core arguments; x, y, z; one appears in the PrCS in V2-structures; one may appear in the Periphery (see below) PSA ['subject']: Highest ranking argument Linking: Highest-ranking argument („agent") will be nominative, lowest-ranking argument (patient/theme) will be accusative (default), second-highest ranking argument will be dative or in peripheral PP
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Auxiliary in the perfect: *haben*
SEMANTICS: PSA is instigator of state of affairs (default), lowest-ranking core argument is affected or effected; third argument is recipient, benefactive or malefactive
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

Semantics-to-syntax-linking for (5): Was twittert mir Spiegel Online?

Step 1.

a. Construct the semantic representation of the sentence, based on the construction and the predicator.
   do´ (x, twitter) CAUSE BECOME [**know´** (y, z)]
b. Determine the value of the operators to be expressed.
c. Select the referring expressions to fill the variable positions in LS, according to the activation statuses of the referents.
d. **do´** (Spiegel Online$_{ACS}$, *twitter*) CAUSE BECOME [**know´** (ich$_{ACV}$, was$_{BNU}$)]

Step 2.

Determine the morphosyntactic coding of the arguments on the basis of the constructional schema.

a. PSA: Highest ranking argument
b. Highest-ranking argument („agent") will be nominative, lowest-ranking argument (patient) will be accusative (default), second-highest ranking argument will be dative. The case marking is subject to RP type and declension class.
c. Agreement marking: Finite verb agreement is always with the PSA.

Step 3.

Select the syntactic template(s) for the sentence, according to the general rules from Van Valin and Diedrichsen (2006) and Diedrichsen (2009). For the core template, follow the core template selection principles and the specifications in the constructional schema.

Step 4.

Assign LS elements to positions in the syntactic representation, according to the general word order rules for German from Van Valin and Diedrichsen (2006) and Diedrichsen (2008b).

Semantics-to-Syntax-linking for (4):

(4) (DFB-Semifinal Schalke 04 vs. Werder Bremen, ARD, 19.4.05)

er	bekommt	diese	Aktion	aber
3MsgNOM	get/receive.PRES3sg	DEMFsgACC	action.sg	but(PART)

abgepfiffen,	weil ...
blow-the-whistle.PSTP	because

(He gets/receives this action stopped (by the referee's whistle), because ...)

The construction is a recipient passive. It is a passive version of a ditransitive active structure, whose LS includes the base predicate CAUSE [BECOME **pred´**] as a three-place structure, which means that it takes three arguments, while one (the agent) can be unspecified.

Table 5: Constructional Schema for German recipient passive (cf. Diedrichsen 2008a)

CONSTRUCTION: German passive (recipient)
SYNTAX: Template: 3 core arguments; x, y, z; one appears in the PrCS in V2-structures; one may either appear in the Periphery or be omitted (see below) PSA ['subject']: Second-highest-ranking argument of a ditransitive structure Linking: Non-default; Second-highest ranking argument will be nominative; lowest-ranking argument (patient/theme) will be accusative (default), highest-ranking argument („agent") omitted or in peripheral *von*-PP
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Verb: past participle Auxiliary (nuclear): *bekommen, kriegen, erhalten* (latter more restricted than the other two)
SEMANTICS: PSA is not instigator of state of affairs but is recipient, benefactive or malefactive of it (default)
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

Semantics-to-syntax-linking for (4): Er bekommt diese Aktion abgepfiffen

Step 1.

a. Construct the semantic representation of the sentence, based on the construction and the predicator.
   do´ (x, blow-the-whistle) CAUSE BECOME [**stopped´** (y, z)]

   Note that here, basing the semantic representation only on the predicator would not lead to this attested structure, as *blow-the-whistle-to-stop* in the sense expressed here is bivalent.
b. Determine the value of the operators to be expressed. (For the sake of ease of presentation, this will not be carried out here).
c. Select the referring expressions to fill the variable positions in LS, according to the activation statuses of the referents.
d. **do´** (x, blow-the-whistle) CAUSE BECOME [**stopped´** (er_{ACV}, diese $Aktion_{ACV}$)]

Step 2.
Determine the morphosyntactic coding of the arguments on the basis of the constructional schema.

a. PSA: Second-highest ranking argument
b. Highest-ranking argument („agent“) omitted or in peripheral *von*-PP. Second-highest ranking argument will be nominative, lowest-ranking argument will be accusative. The case marking is subject to RP type and declension class.
c. Agreement marking: Finite verb agreement is always with the PSA.

Step 3.
Select the syntactic template(s) for the sentence, according to the general rules from Van Valin and Diedrichsen (2006) and Diedrichsen (2009). For the core template, follow the core template selection principles and the specifications in the constructional schema.

Step 4.
Assign LS elements to positions in the syntactic representation, according to the general word order rules for German from Van Valin and Diedrichsen (2006) and Diedrichsen (2008b).

Semantics-to-Syntax-linking for (7):

(7)

Er	is	sei	Septic Tank	an	ausgebutzt
3MsgNOM	be.PRES3sg	POSS3sgM	Septic Tank	at	clean.out.PSTP

griege	heit.
get/receive.INF	today

He is getting his Septic Tank cleaned out today.

In this example from Pennsylvania German, a combination of the *bekommen*-passive with the *am*-progressive construction occurs. Both constructions are well known and frequent in Standard German as well, but a combination of them would sound weird to a speaker of Standard German (see above). The possibility to combine those two constructions is thus not a matter of the semantics of the verb. Note that the preposition *am* occurs as *an* in Pennsylvania German, but this does not affect the description of the construction as a whole.

For this construction, it has to be assumed that the syntactic representation is built from two constructions. Their constructional schemas will be given in turn.

Table 6: Constructional Schema for German *am*-Progressive

CONSTRUCTION: German *am*-Progressive construction
SYNTAX: Template: 1-3 core arguments, one appears in the PrCS in V2-structures PSA [‘subject’]: The highest ranking argument is subject by default Linking: The highest ranking argument is nominative by default
MORPHOLOGY: RPs: Case marking subject to noun type and declension class General configuration: Auxiliary *sein* + preposition *am* + infinitive of any verb (but see semantic specifications below) *Am* occurs in the position in front of the nucleus. Auxiliary in the perfect: *sein* (‚be’)
SEMANTICS: Denotes ongoing processes, mostly activities or active accomplishments. PSA is the only argument in the sentence or is instigator of state of affairs. Hardly possible with non-duratives, in Standard German never heard with Passives.
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions

Table 5 (rep.): Constructional Schema for German recipient passive

CONSTRUCTION: German passive (recipient)
SYNTAX: Template: 3 core arguments; x, y, z; one appears in the PrCS in V2-structure; one may either appear in the Periphery or be omitted (see below) PSA [‘subject’]: Second-highest-ranking argument of a ditransitive structure Linking: Non-default; Second-highest ranking argument will be nominative; lowest-ranking Argument (patient/theme) will be accusative (default), highest-ranking argument („agent“) omitted or in peripheral *von*-PP
MORPHOLOGY: RPs: Case marking subject to noun type and declension class Verb: past participle Auxiliary (nuclear): *bekommen, kriegen, erhalten* (latter more restricted than the other two)
SEMANTICS: PSA is not instigator of state of affairs but is recipient, benefactive or malefactive of it (default)
PRAGMATICS: Illocutionary force: Unspecified Focus structure: No restrictions; PSA = topic (default)

Semantics-to syntax linking for (7): Er is sei Septic Tank an ausgebutzt griege heit.

Step 1.

Combine the constructional schemas.

a. Construct the semantic representation of the sentence, based on the construction and the predicator.
   do´ (x, Ø) CAUSE BECOME [**cleaned´** (y, z)]
b. Determine the value of the operators to be expressed. The preposition *am* (here: *an*) is an imperfective aspect marker, so it links to the operator projection as a nuclear operator.

c. Select the referring expressions to fill the variable positions in LS, according to the activation statuses of the referents.
do´ (x, Ø) CAUSE BECOME [**cleaned´** (er_{ACV}, sei Septic $Tank_{INA}$)]

Step 2.
Determine the morphosyntactic coding of the arguments on the basis of the constructional schema for the recipient passive.
a. PSA: Second-highest ranking argument
b. Highest-ranking argument („agent“) omitted or in peripheral *von*-PP. Second-highest ranking argument will be nominative, lowest-ranking argument will be accusative. The case marking is subject to RP type and declension class.
c. Agreement marking: Finite verb agreement is always with the PSA.

Step 3.
Select the syntactic template(s) for the sentence, according to the general rules from Van Valin and Diedrichsen (2006) and Diedrichsen (2009). For the core template, follow the core template selection principles and the specifications in the constructional schemas.

a. As it is a declarative clause with an adjunct in the postcore slot, select the clause template with PrCS and PoCS (cf. Van Valin and Diedrichsen 2006).
b. For embedded clauses, select the subordinate clause template: d.n.a.
c. For the core template, follow the core template selection principles and the specifications in the constructional schemas. In a passive declarative, one of three core arguments occurs in the PrCS, one is omitted. One is left in the core. Thus, select a 1-place core.
d. Select the nucleus template.
e. For the RPs, select a pronoun template and a common noun template.
f. Select a periphery template for the adjunct modifier.

Step 4.
Assign LS elements to positions in the syntactic representation, according to the general word order rules for German from Van Valin and Diedrichsen (2006) and Diedrichsen (2008b). Take into account the design of the *am*-construction, where *am* (here: *an*) has to occur in front of the nucleus and the nucleus is never finite.

a. Assign the predicate to the nucleus.
b. Join the operator projection template to the nucleus and attach the morphemes expressing operators to it. The preposition *am* (here: *an*) expresses an aspect operator in this construction.
c. Since the nucleus is non-finite, assign it to the last position in the core. Place the finite auxiliary before the first slot in the core.
d. Link the argument in the nominative case *er* to the PrCS.
e. Link the accusative argument to the remaining core position. Link the adjunct *heit* to the periphery and the PoCS.

Completeness Constraint satisfied.

6 Conclusion

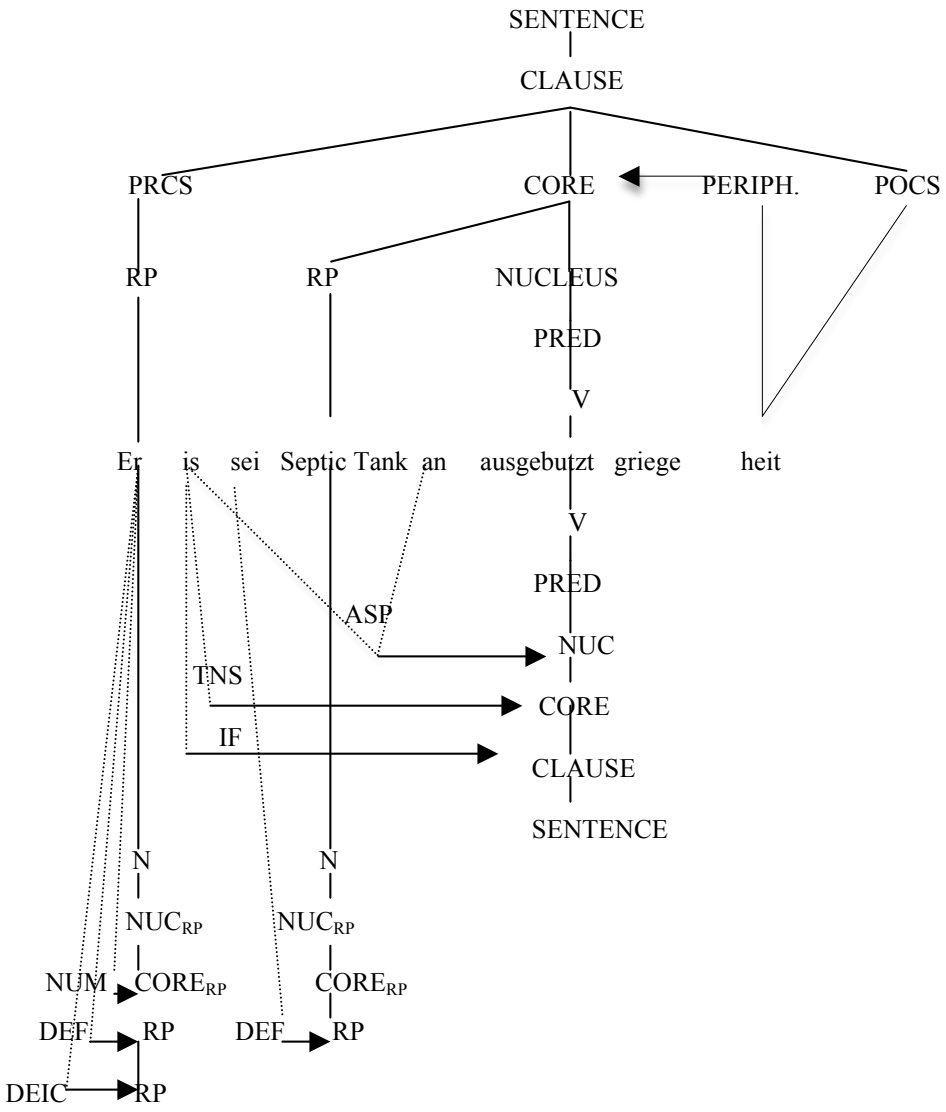
It is possible to create an account of argument realization using a combination of the RRG apparatus and the modern idea of „constructions“ found in Construction Grammar. The RRG framework provides the basic elements, which are mainly the syntactic templates and the constructional schemas, but also the logical structures with the argument positions.

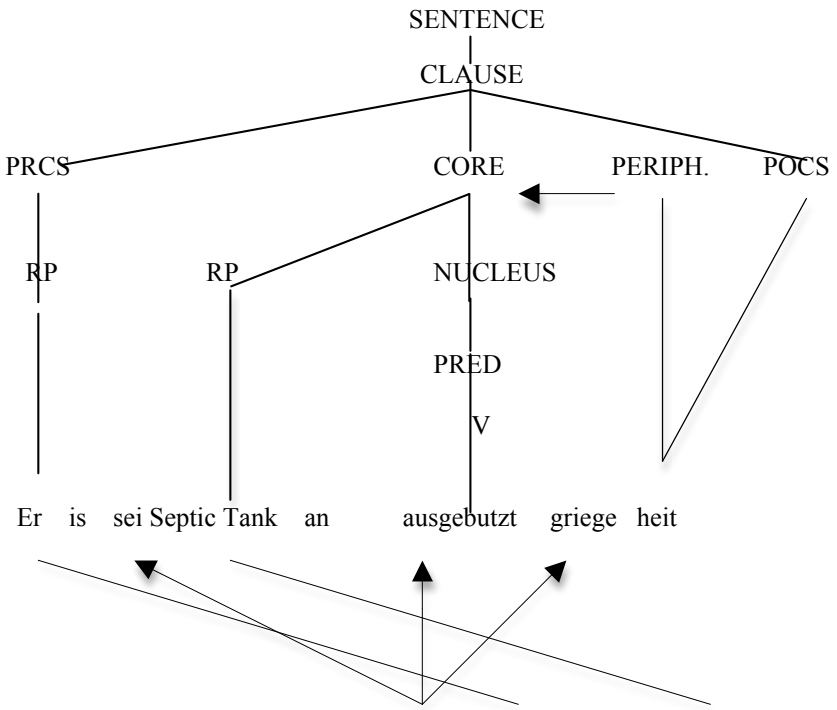
With this account, the syntax/semantics interface is built on constructions, while the concept of Macroroles has been found to be not sufficient for the description of many important phenomena, on the one hand, and gratuitous for the aims of the theory, on the other hand.

The big advantage of a constructional account is seen in the possibility to describe structures with an unusual verb/construction combination. These are commonly found in everyday language, and they illustrate language creativity, spontaneity and variation. They can also be indicators of syntactic innovation in the sense of grammaticalization. For these reasons, they should not be ignored by a modern syntactic theory.

Further investigations on the RRG/constructions framework will be necessary to give a more detailed account of the principles behind the combinations of constructions. There has to be a thorough examination of the pragmatic factors behind the selection of constructions as well. As for the cross-linguistic aspects, a comparison of constructional schemas in different languages would be a very promising field of study.

Fig. 3: Structure with constituent and operator projections for (7).





do´ (x, Ø) CAUSE BECOME [**cleaned´** (er_{ACV}, sei Septic $Tank_{INA}$)]

Fig. 4:
Simplified linking from semantics to syntax for (7).
The arrows point to the three verbal elements of the combination of *am*-construction and recipient passive.

7 References

Auer, P. (2006): Construction Grammar meets Conversation: Einige Überlegungen am Beispiel von „so"-Konstruktionen. In Günthner, S. and Imo, W. (eds.): *Konstruktionen in der Interaktion.* Berlin, New York: De Gruyter, 291-314.

Barðdal, J. (2007): The semantic and lexical range of the ditransitive construction in the history of (North) Germanic. *Functions of Language* 14:1, 9-30.

Chafe, W. (1987): Cognitive constraints on information flow. In: R. Tomlin (ed.): *Coherence and grounding in discourse.* Amsterdam: John Benjamins, 21-51.

Diedrichsen, E. (2008 a): The grammaticalization of the *bekommen*-passive in a RRG-perspective. Kailuweit, R., B. Wiemer, E. Staudinger, R. Matasovic (eds.): *New applications of Role & Reference Grammar: Diachrony, grammaticalization, Romance languages.* Cambridge: Cambridge Scholars Publishing, S. 87-145.

Diedrichsen, E. (2008 b): Where is the precore slot? Mapping the layered structure of the clause and German sentence topology. Van Valin, R. D. Jr. (ed.): *Investigations of the Syntax-Semantics-Pragmatics Interface*. Amsterdam/Philadelphia: John Benjamins, Studies in Language Companion Series, 203-224.

Diedrichsen, E. (2009): Exploring the role of pragmatics in the interface: On the interrelations between activation status, choice of RP and syntax. Guerrero, L., S. Ibáñez Cerda, V. A. Belloro (eds.): *Studies in Role and Reference Grammar.* Universidad Nacional Autónoma de México, México, D.F., 143-177.

Fillmore, C. (1968): The case for case. In Bach, E. and R. Harms (eds): *Universals in linguistic theory.* New York: Holt, Rinehart and Winston, 1-88.

Fillmore, C. and P. Kay (1997): Construction Grammar. Available from: http://www.icsi.berkeley.edu/~kay/bcg/ConGram.html

Goldberg, A. E. (1995): *Constructions. A construction grammar approach to argument structure.* London and Chicago: UCP.

Goldberg, A. E. (2006): *Constructions at Work: The nature of generalization in language.* Oxford: OUP.

Haspelmath, M. (2008): Ditransitive constructions: Towards a new Role and Reference Grammar account? In Van Valin, R. D. (ed.): *Investigations of the Syntax-Semantics-Pragmatics Interface.* Amsterdam/Philadelphia: John Benjamins, Studies in Language Companion Series, 75-100.

Jackendoff, R. (1976): Toward an explanatory semantic representation. *Linguistic Inquiry* 7:89-150.

Levin, B. and Rappaport Hovav, M. (2005): *Argument Realization.* Cambridge: CUP.

Louden, M. L. (2006): Pennsylvania German in the 21st Century. In: Berend, N. und E. Knipf-Komlósi (eds.): Sprachinselwelten – The world of Language Islands. Frankfurt am Main et al.: Lang, 89-107.

Michaelis, L. A. and J. Ruppenhofer (2001): *Beyond alternations: A construction based approach to the applicative pattern in German.* Stanford: CSLI Publications.

Nolan, B. (2009): *UniArab: An RRG Arabic-to-English machine translation software*. RRG2009 Conference, University of California, Berlekey.

Prince, E. (1981): Toward a taxonomy of given-new information. In: P. Cole (ed.): *Radical pragmatics.* New York: Academic Press, 223-256.

Schlobinski, P. (2001): knuddel – zurueckknuddel – dich ganzdollknuddel: Inflektive und Inflektivkonstruktionen im Deutschen. *Zeitschrift für germanistische Linguistik* 20-1, 192-218.

Tomasello, M. (2006): Acquiring Linguistic Constructions. In Damon, W., Lerner, R. M., Kuhn, Siegler, R. S. (eds.): *Handbook of Child Psychology, Volume 2, Cognition, Perception and Language,* 6th edition, 255-298.

Van Valin, Robert D., Jr. (2005): *Exploring the syntax-semantics interface.* Cambridge: Cambridge University Press.

Van Valin, R. D., Jr. (2007): Review of Goldberg (2006). *Journal of Linguistics* 43:1, 234-240.

Van Valin, R. D., Jr. and LaPolla, R. J. (1997): *Syntax: Structure, meaning and function.* Cambridge: CUP.

Van Valin, R. D., Jr. and E. Diedrichsen (2006): *A Bonsai Grammar for German*. Available on the RRG web page: http://linguistics.buffalo.edu/people/faculty/vanvalin/rrg/BonsaiGrammarGerman.pdf