Matthias Hölzner, University Dortmund (Germany)

The syntax-semantic interface of German nouns

1. Introduction

The feature to select number and sort of the central phrases in a sentence ("valence"[1]) turns the verb into the syntactic nucleus on which all the other phrases depend. Valence of verbs is primarily a semantic phenomenom (because it refers to the arity of their meaning). In the following example, the verb *hoffen* 'hope' selects an EXPERIENCER- (which has to fulfill sortal defaults, e.g. to be animated: [+anim]) and an OBJECT-argument (which has to be abstract: [+abstract]):

(1) *Friederike*EXPERIENCER *hofft auf einen Erfolg*OBJECT.
     'Friederike hopes for a success.'

In dependency grammar, these correlations are visualized in "stemmata" like the following:

hofft

Friederike   *auf*

Erfolg

einen

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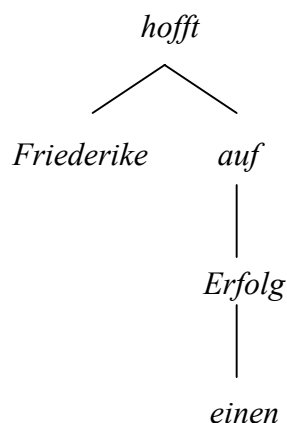
[1] The concept of "valence" was developed by Tesnière (1959); ideas on complementation (e.g. in Relational Grammar, Lexical Functional Grammar and in Generative Grammar post Government and Binding) have their forerunners in valence theory. The term "valence" is used in Role-and-Reference-Grammar explicitly. In other (e.g. generative) linguistic theories, terms like "subcategorization" or "argument structure" are used for the same phenomenom.

On the one hand, the effects of these semantic features on the syntactic structure (e.g. in active usage, the OBJECT-argument in (1) has to be realized as prepositional object with the preposition *auf*) can be interpreted as derivational relationship; from this point of view, the syntactic structure derives from the semantic structure.

On the other hand, these effects can be seen as systematical correspondences ("linking") of two independent structures. Role-and-Reference-Grammar (RRG; developed by Robert van Valin, cf. Van Valin/LaPolla 1997) offers both an onomasiological linking algorithm ("linking from semantics to syntax") and a semasiological linking algorithm ("linking from syntax to semantics").

Traditionally, valence has been claimed for verbs primarily. But some nouns (especially nominalizations) select their "complements" in a similar way as verbs do (nominal valence), e.g. the nominalization of *hoffen* 'to hope' in (1):

(2)   *Friederikes*EXPERIENCER $\boxed{Hoffnung}$ *auf einen Erfolg*OBJECT.
        'Friederike's hope for a success.'

$$Hoffnung$$

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              Hoffnung
               /    \
      Friederikes    auf
                      |
                      |
                    Erfolg
                      |
                      |
                    einen
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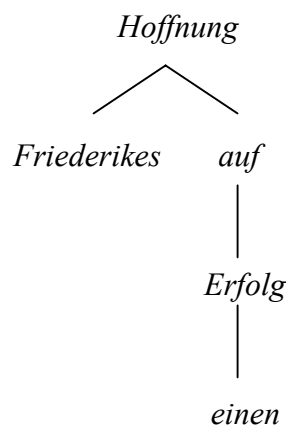
It is interesting to see that in the few cases, in which nominal valence is discussed, this is often – as in the above example (1)-(2) – in connection with verbal valence. Indeed, corresponding complementation patterns exist for many nominalizations. But despite the existence of such parallels there are good reasons to base the establishment of nominal valence not solely on verb (or adjective) valence:

1. Valence cannot be claimed only for nominalizations, but also for some non-derived nouns (e.g. *Attacke* 'attack', *Antwort* 'answer', …). Thus it seems inadequate to discuss nominal valence only in the context of nominalizations, as in von Randow (1986) or in the X-bar-approaches referring to Grimshaw (1990).
2. It is possible for nouns to possess "complements" that are not found with verbs or adjectives (e.g. *das Problem der Massenarbeitslosigkeit* 'the problem of large-scale unemployment').
3. Complements of nouns are not always derived from verbal structures in the same way, e.g.

verbs with dative complement		nominalization
ich danke dir 'I thank you'	↔	*mein Dank **an** dich* 'my thank to you'
ich vertraue dir 'I trust in you'		*mein Vertrauen **in** dich* 'my trust in you'

Thus nominal valence – at least in German – should be treated as a "system sui generis", as Teubert proposes[2]. Nominal valence in German being more an independent area in linguistics than e.g. in English might be justified by the fact that English gerundiv constructions are rule-guided in such a manner that there is no need for a systematic handling (e.g. in dictionaries).

In European linguistics, valence theory plays a special role – especially in German, but also in many eastern-european languages. It has – in spite of an intensive discussion about the nature of "valence"[3] – inspired a wealth of linguistic research and lexicographical work, often of a contrastive nature. But valence of nouns has received considerably less attention than the valence of verbs or adjectives: just a few publications can be found (e.g. Golonka 2002, Teubert 2003, Řezníčková 2003), furthermore some lexicographical applications (e.g. Sommerfeldt & Schreiber 1983, Bassola 2003/Hölzner 2004).

The aim of this paper is two-fold. On the one hand, a new (polydimensional) view on the valence of German nouns is established: Realization of nominal arguments (which differ from verbal arguments in many ways, cf. Kaufmann 2005) in the respective noun phrase ("intraphrastic argument realization") has a greater flexibility than it is suggested in most publications, especially in most familiar valence dictionaries (e.g. Sommerfeldt/Schreiber 1983, Bassola 2003). Hypothesis of "argument inheritence" cannot stand an empirical analysis obviously; but Ehrich & Rapp's "Nominal linking principles" and many other simple "rules" cannot be confirmed either.

On the other hand, it will be shown that in most cases nominal arguments are realized outside of the respective phrase („transphrastic argument realization"), either in the same sentence (as "Partnerwort im Satz") or in the context. So nominal argument positions are usually filled in texts.

The claim is based on a corpus analysis of nouns in German, including all types of nouns that might have valence: nominalized infinitives, which roughly correspond to English *ing*-nominalizations, nominalizations derived by nominal affixes (e.g., *-ung*), which correspond to English nominalizations derived by *-ation*, *-ment*, root or stem nominalizations such as *Hass* (verb stem: *hass*) 'hate', deadjective nominalizations (e.g. *Dankbarkeit* 'thankfulness') and non-derived nouns (e.g. *Attacke* 'attack').

The paper is organized as follows. Section 2 characterizes valence as a polydimensional property of some lexical entities and lays out the relevant properties of argument-taking nouns in German. Section 3 discusses the linking approaches submitted by Nunes (1993) for the English noun phrase (in the theoretical framework of RRG) and by Ehrich & Rapp (2000) for German *ung*-nominalizations. Section 4 deals with the generalizations which emerge from the corpus study and shows that argument realization of German nouns is determined by pragmatic (textual) conditions rather than by argument structural requirements.
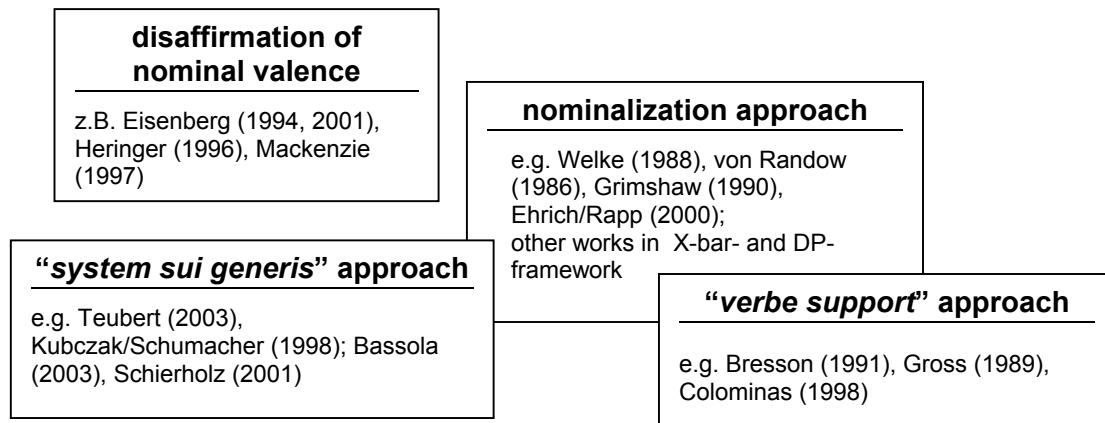
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[2] Teubert (2003:830)
[3] set off by the "Valenzmisere" 'valence misery', cf. Jacobs (1994)

2. A polydimensional valence model for nouns

2.1 Valence as a polydimensional phenomenon

Approaches to nominal valence are quite divergent. Some dependency grammarians even wonder if the phenomonom "nominal valence" exists at all; e.g. Mackenzie states "there are good functionalist reasons to propose, contrary to the position taken by various scholars, that both 'relational nouns' and nominalizations should be analyzed as avalent predicates"[4]. Other positions concede valence to nouns, but these concepts differ about the type of valence nouns have. In many approaches, only nominalizations are regarded as argument-taking nouns ("nominalization approach"); other conceptions, especially in French linguistics, evaluate nominal valence on the basis of support-verb-constructions ("*verbe support* approach", discussed in detail in Hölzner 2005c); finally you can find the position taken in this paper treating nominal valence as a "system sui generis":

disaffirmation of nominal valence

z.B. Eisenberg (1994, 2001), Heringer (1996), Mackenzie (1997)

nominalization approach

e.g. Welke (1988), von Randow (1986), Grimshaw (1990), Ehrich/Rapp (2000); other works in X-bar- and DP-framework

"*system sui generis*" approach

e.g. Teubert (2003), Kubczak/Schumacher (1998); Bassola (2003), Schierholz (2001)

"*verbe support*" approach

e.g. Bresson (1991), Gross (1989), Colominas (1998)

Jacob's *Kontra Valenz* (1994) introduced a new understanding of valence: the basic assumption of his polydimensional valence model is that the different syntactic and semantic aspects of valence are independent. These different aspects (dimensions) are represented separately in the lexical entry of a word. Morphosyntactic features of the complements required by the verb are specified by a case form, e.g.

> *lernen* 'to learn'
> SYN-VAL: /Nom^1/Akk^2,

where the semantic argument places are specified by the semantic representation of the word (together with sortal restrictions):

> SEM-VAL: $\lambda x^1 \lambda y^2 \lambda s$[LERN y,x,s)

Every slot in the case frame is coindexed with exactly one argument place in the semantic representation; this "linking" is restricted by certain rules ("linking rules").

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[4] Mackenzie (1997:114); Eisenberg (2001) and Heringer (1996) deny nominal valence, too.
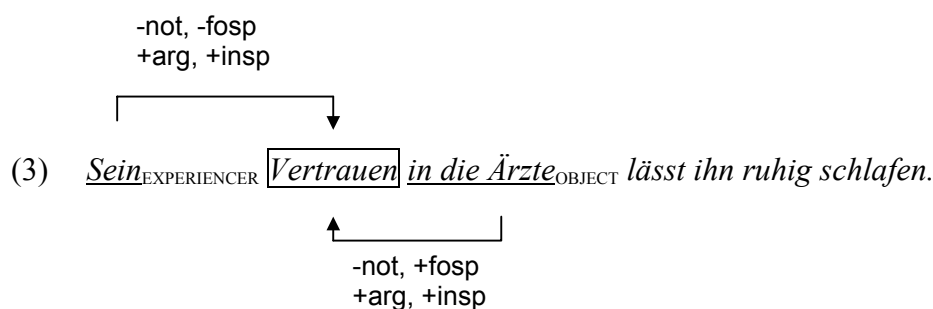
An application of these polydimensional valence model to nouns should distinguish four different aspects of valence – an attribute *X* is a complement of *Y* if one of the following facts is true:

semantic dimensions	*X* is an argument **(ARG)** of *Y*, i.e. it fills a slot in the meaning of Y.
	X is subject to a requirement by *Y* as to its semantic features **(INSP)** (e.g. concerning the feature [animate], cf. (2))
syntactic dimensions	X is obligatory **(NOT)** for Y, i.e. it fulfills a realization requirement by Y
	X is subject to a requirement by Y as to its formal features **(FOSP)**.

Figure 1. Dimensions of nominal valence

The distinction between [+FOSP] and [-FOSP] is far from clear cut in German and should be seen in terms of a cline. [-FOSP]-elements which are not "subject to requirement by the head noun as to its formal features" are often prepositional phrases denoting place or time such as *die Suche in der Nacht* 'the search in the night'. At the other end of the cline, prepositional phrases are typically bound to their heads as in *der Appetit auf Bratkartoffeln* 'appetite for fried potatoes'. Between these prototypical cases, the cline includes genitive complements (their form is not specific to a given noun, in German every noun can be combined with at least one genitive complement) and prepositional phrases (their form is highly predictable, e.g. *das Schneiden mit einem Messer* 'the cutting with a knife').

With this inventory on nominal valence relations (dimensions) and a polydimensional perception of the term "complement", nominal structures can be described more precisely than with the traditional complement-supplement-distinction:

-not, -fosp
+arg, +insp

(3)   *Sein*EXPERIENCER *Vertrauen in die Ärzte*OBJECT *lässt ihn ruhig schlafen.*

-not, +fosp
+arg, +insp

'His trust in the physicians lets him rest easy.'

2.2 Types of argument-taking nouns

It is obvious that not every noun can take arguments in the sense of (3); e.g. the noun *Haus* 'house' is typically avalent. So every valence theory has to adress the issue, which nouns have the capacity to take arguments. In the view taken in this paper, three types of argument-taking nouns are distinguished:

- eventualities,
- nouns denotating thematic arguments (e.g. *Regierung* 'government', because the thematic argument AGENT is the referential argument of *Regierung*) and
- nouns denotating several other relations (e.g. nouns denotating kinships).

These main classes fall into several subclasses; e.g. "Prozess-Substantive" (activity-nouns), "Ereignis-Substantive" (event-nouns) and "Zustands-Substantive" (state-nouns) constitute the eventualities class. These three types can be defined in terms of the three features which distinguish the "Aktionsart" types of verbs:

Subclass of Eventualities	"Aktionsart" type	static	telic	punctual
Activity-nouns	Activity	–	–	–
Event-nouns	Accomplishment	–	+	–
	Achievement	–	+	+
State-nouns	State	+	–	–

Figure 2. Subclasses of Eventualities – „Aktionsart" types cf. Van Valin/LaPolla (1997:93)

The following examples are representative for the above subclasses:

activity-noun
(4) *Während der **Vernehmung** kommt es zu Ungereimtheiten.*
    'During the interrogation it comes to inconsistencies.'

event-noun
(5) *Die **Fertigstellung** des Kuchens dauert 30 Minuten.*
    'The completion of the cake lasts 30 minutes.'

state-noun
(6) *Er war überrascht über die **Dankbarkeit** der Thailänder für die deutsche Hilfe.*
    'He was surprised at the thankfulness of the Thailanders for the German help.'

Overall there are the following types of argument taking-nouns in German:

Argument taking nouns	
Eventualities	
Activity-nouns	*Belagerung* 'siege'
	Herstellung 'manufacturing'
Event-nouns	*Besuch* 'visit'
	Fahrt 'journey'
State-nouns	*Härte* 'hardness'
	Angst 'fear'
Nouns denotating thematic arguments	
Result-nouns	*Erfindung* 'invention'
	Absperrung 'barrier'
Agent-nouns	*Teilnehmer* 'participant'
	Prüfer 'examiner'
Patient-nouns	*Prüfling* 'examinee'
	Beschuldigter 'accused'
Instrument-nouns	*Verkleidung* 'fancy dress'
	Lüftung 'airing'
Nouns denotating several relations	
	Bruder 'brother'
	König 'king'

Figure 3. Types of Argument-taking nouns

One and the same noun can belong to miscellaneous subclasses of argument-taking nouns. E.g. the nouns *Bemalung* and *Verunreinigung* can occur as activity-noun, as event-noun, as state-noun or as result-noun (cf. 3.2).

While Grimshaw (1990) states that nouns cannot assign thematic roles (unless they are derived CENs and inherit the argument structure of their basis verb) other approaches to noun valence (e.g. Teubert 2003 and the position taken in this paper) assume that every relation between a predicate and an argument is a thematic one. Common thematic roles for nominal arguments are the following: AGENT, COUNTER-AGENT, EFFECTOR, EXPERIENCER, INSTRUMENT, PATIENT, THEME, BENEFACTIVE, RECIPIENT, OBJECT, GOAL, SOURCE, LOCATION, RELATOR, SUBSTANCE. The last two roles are noun-specific ones:

(7)   *Friederikes*_{RELATOR} *Vater*
       'Friederike's father'

(8)   *die Nützlichkeit <u>von E-Mails</u>*_{SUBSTANCE}
       'the usefulness of e-mails'

Some theories provide algorithms that predict the grammatical relation or the morphosyntactic realization of arguments from their thematic relations (*linking theories*). In RRG, the different ranking of thematic relations with respect to the choice of syntactic positions and the application of other syntactic rules is reflected by thematic hierarchies .
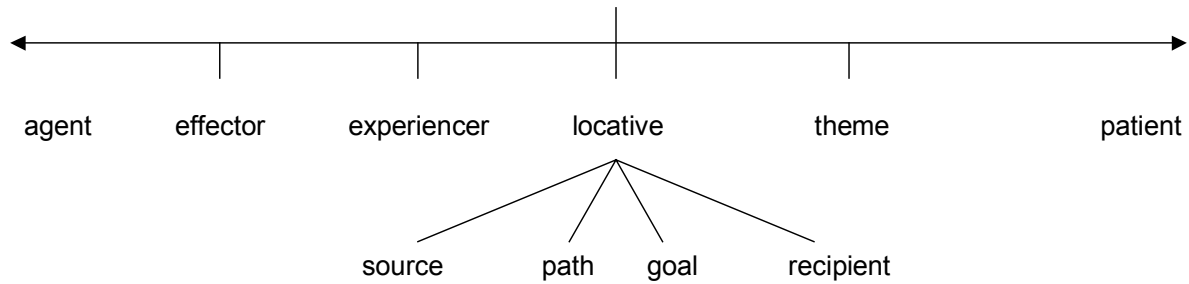
Figure 4. Semantic continuum of thematic relations (cf. Van Valin 1993:41)

Thematic relations that are nearer to the left end of the above continuum are more AGENT-like: They represent "the willful, volitional, instigating participant". Thematic relations that are nearer to the right end share more properties with the PATIENT: They represent "the nonwillful, noninstigating, maximally affected participant"[5]. The "macrorole" ACTOR (A) is assigned to the highest ranking thematic relation in a thematic structure and the macrorole UNDERGOER (U) is assigned to the he lowest ranking thematic relation.
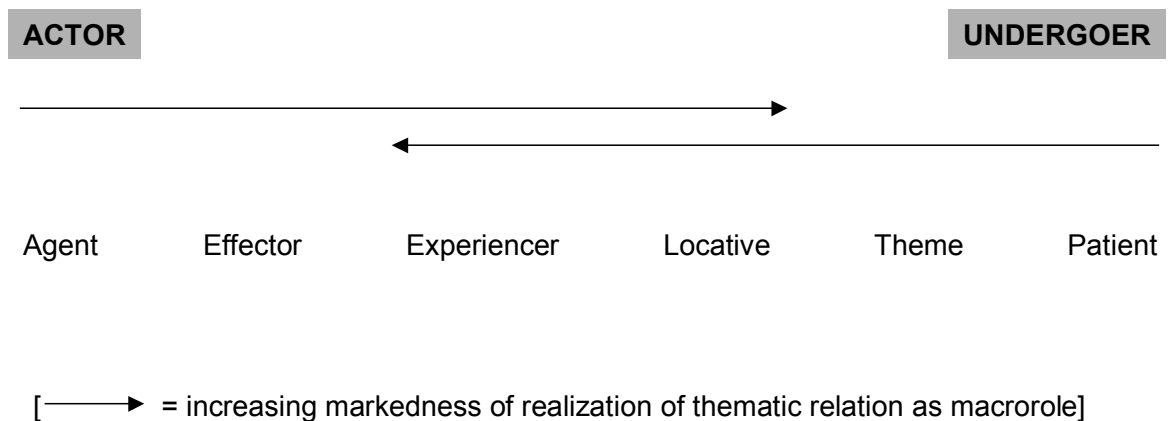

Figure 5. Actor-Undergoer-Hierarchy (cf. Van Valin 1993:44)

In the following section, the mapping of nominal thematic relations to syntactic relations in two different approaches will be discussed, firstly Nunes' (1993) RRG-approach and after this the linking-approach for German *ung*-nominalizations by Ehrich & Rapp (2000).

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[5] Van Valin (1993:42)

3. Argument linking in nominals

3.1 Nunes' RRG-approach to English derived nominals

In RRG, crucial aspects of vNP (verbally derived nominal) structure can be discribed in terms of the layered structure of the clause. Nunes (1993) introduces some fundamental aspects of the English vNP-analysis in RRG. Terms of a "nucleus", a "core", and a "periphery" can be used in analyzing NP-structures as well as in analyzing clauses (cf. figure 6).
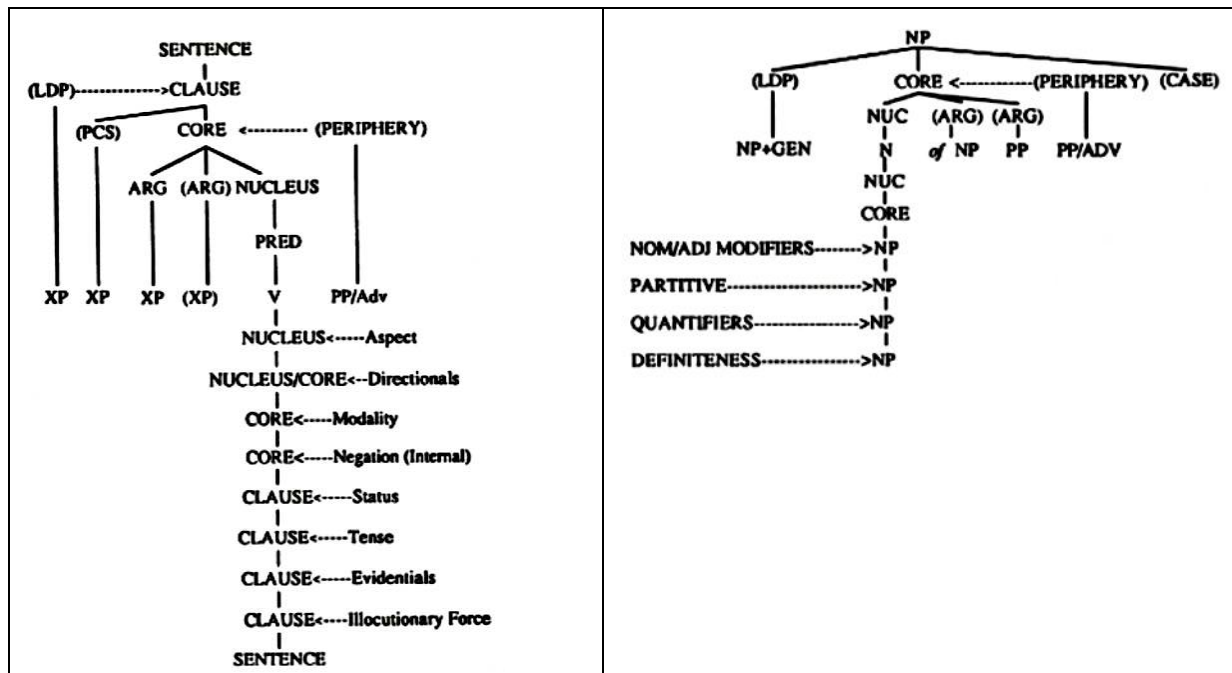

Figure 6. The Layered Structures of the Clause and the Noun Phrase (cf. Nunes 1993:382f.)

Nunes points out the following similarities and differences between clause and NP structure[6]:
-   In both structures, you can find a nucleus (a verbal or a nominal one) and direct and indirect arguments.
-   In the clause, direct arguments can be distinguished from obliquely-marked indirect arguments; in the NP, there is never more than one direct core argument ("inherent intransitivity of nominals"): the single direct core argument position follows the nuclear vN and is marked by *of*.
-   The position occupied by the "saxon genitive" (prenominal genitive) cannot be discussed in terms of clause-internal units.
-   Clause and NP have a modified layering in constituent structure and a pure layering in operator structure.
-   The ordering of elements is not universally ruled but differs language-specifically.
-   Only some operators have scope over the entire clause, all of the NP operators have scope over the entire NP.

Both in analyzing the clause and in analyzing the NP, the semantic macroroles can be utilized for the semantic-syntactic linking of arguments. Because there is never more than one direct

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[6] cf. Nunes (1993:381ff.)

core argument in nominals, only one argument may be linked via a macrorole to this position. The argument for the direct core argument position is not randomly selected, but the selection is predictable – the

    (9)   "Direct-Core-Argument Linking Hierarchy $\mathbf{U > A}$"[7].

is deduced. This hierarchy predicts the following transformations[8]:

Aktionsart of the related verb and the number of macroroles	Example (clause)	Example (vNP)
STATE (2)	*Sara$_A$ knows French$_U$.*	*the knowledge of French$_{CL-U}$* (*the knowledge of Sara$_{CL-A}$*)
ACHIEVEMENT (1)	*Sam$_U$ died.*	*the death of Sam$_{CL-U}$*
ACHIEVEMENT (2)	*Joe$_A$ inherited the ring$_U$.*	*the inheritance of the ring$_{CL-U}$* (*the inheritance of Joe$_{CL-A}$*)
ACCOMPLISHMENT (2)	*The enemy$_A$ destroyed the city$_U$.*	*the destruction of the city$_{CL-U}$* (*the destruction of the enemy$_{CL-A}$*)
ACTIVITY (1)	*The dog$_A$ barked.*	*the barking of the dog$_{CL-A}$*
ACTIVITY (2)	*Sherlock$_A$ investigated the murder$_A$.*	*the investigation of Sherlock$_{CL-A}$*

Figure 7. Predicted transformations according to Nunes (1993:385)

Furthermore, Nunes' framework explains the linking of arguments to the prenominal LDP (cf. figure 6) in terms of the following hierarchie:

    (10)   "LDP-NP$_{arg}$ Linking Hierarchy: EXP > PAT > A[-exp] "[9].
                                     (A/U)   (U)

Nunes points out, that this hierarchy can be

> explained in terms of the topical function of the nominal's LDP, a function which in English appears to relate to argument affectedness (as defined by principles of RRG theory) and animac (broadly associated with NP arguments linked to the A macrorole and by definition associated with NPs bearing the EXP thematic role).[10]

3.2 Ehrich & Rapp's linking approach to German ung-nominalizations

In Ehrich & Rapp's (2000) approach to German *ung*-nominalizations, nouns have an argument structure as verbs do. They observe the following differences regarding argument selection with nominals:

(i)   Nominal arguments are always optional.
(ii)   Thematic and event structure of nouns determine the nominal argument structure as the thematic and event structures of verbs do.

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[7] Nunes (1993:384)
[8] cf. Nunes (1993:384f.). "CL-U" = "clausal U", "CL-A" = "clausal A"
Note for the last example: The linking hierarchy predicts that the direct core argument of vNP derived from only As taking activity verbs is the argument associated with the A.
[9] Nunes (1993:410). EXP and exp respectively = EXPERIENCER; PAT = PATIENT.
[10] Nunes (1993:423)

(iii)   With respect to event-denoting nominals, nominal linking favors the state part of the lexicosemantic structure over the DO part.

Ehrich & Rapp state the following two rules governing argument linking with *ung*-nominalizations[11]:

Argument Structure of ung-*nominalizations*
(a)   If and only if the lexical semantic structure contains no change of state part, all thematic arguments appear in the argument structure, otherwise
(b)   the nominal argument structure is restricted to the lowest affected argument of the lexical semantic structure.

Nominal linking
(a)   Each thematic argument of the argument structure may be realized as a postnominal NP_{GEN}
(b)   No thematic argument has to be realized.

The way these rules work can be shown as follows:

Verfolgung $(\lambda y)\,(\lambda x)\,\lambda r\,[DO\,((x, y)\,r)]$
'trailing'

Verehrung $(\lambda y)\,(\lambda x)\,\lambda s\,[POSS\,((x, y)\,s)]$
'admiring'

With activity-nominalizations (e.g. *Verfolgung*) and state-nominalizations (e.g. *Bewunderung*) all arguments of the lexicosemantic structure are also part of the noun's argument structure. Apart from the optionality of arguments the nominal argument structure is congruent with the argument structure of the corresponding verbs.
With event-nominalizations the linking properties of verbs and nouns are characterized by systematic differences: arguments of the DO predicate remain implicit, only arguments embedded under BEC may appear in the noun's argument structure (e.g. *Vollendung*). If the predicate BEC embeds a two-place predicate (e.g. *Erreichung*), only the lowest argument becomes part of the noun's argument structure:

Vollendung $(\lambda y)\,\lambda e\,[DO\,((x, y)\,r)\,\&\,BEC\,((BE\,((y)\,s))\,e)]$
'completing'

Erreichung $(\lambda y)\,\lambda e\,[BEC\,((APPL\,((x, y)\,s))\,e)]$
'reaching'

If nominal argument structure is derived in this way, the right predictions for the interpretation of genitive complements can be made in many cases: Only activity-nominalizations and state-nominalizations are ambigous between an intepretation as "genitivus subjectivus" and as "genitivus objectivus":

die Verfolgung des Gegenspielers
'the trailing of the opponent'

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[11] cf. Ehrich/Rapp (2000:276)

> *die Bewunderung des Sportlers*
> 'the admiration of the sportman'

With event nominals, the interpretation of genitive complements is unambiguous: In this account, only the lowest affected argument of the lexicosemantic structure can appear as genitive complement, cf.

> *die Erreichung des Gipfels*
> 'the reaching of the summit'

> **die Erreichung der Bergsteiger*
> 'the reaching of the climbers'

> *die Vollendung eines menschlichen Klons*
> 'the completion of a human clone'

> **die Vollendung des Wissenschaftlers*
> 'the completion of the scientist'

So the only interpretation for a post-nominal genitive complement of event-nominalizations based on two-place predicates seems to be the object interpretation. But in contrast, genitive complements of event nominals based on one-place predicates always get a subject interpretation:

> *die Erstarrung der Lava* $(\lambda x)\ \lambda e\ [BEC\ ((BE\ ((x)\ s))\ e)]$
> 'the fossilizing of the lava'

As outlined above, some nouns offer a whole range of sortal interpretations. Especially accomplishments exhibit up to four different readings (the example *Bemalung* is taken from Ehrich & Rapp 2000:267):

> *Bemalung* (**activity-noun**) $(\lambda y)\ (\lambda x)\ \lambda r\ [DO\ ((x,\ y)\ r)]$
> *Er ist bei der Bemalung der Wand vom Stuhl gefallen.*
> 'while painting the wall, he has fallen down a chair'

> *Bemalung* (**event-nouns**) $(\lambda y)\ \lambda e\ [DO\ ((x,\ y)\ r)\ \&\ BEC\ ((APPL\ ((z,\ y)\ s))\ e)]$
> *Nach der Bemalung der Wand mit Farbe sind die Kinder weggelaufen.*
> 'after the painting of the wall with paint have the children run off'

> *Bemalung* (**state-noun**) $(\lambda y)\ \lambda s\ [DO\ ((x,\ y)\ r)\ \&\ BEC\ ((APPL\ ((z,\ y)\ s))\ e)]$
> *Die Bemalung der Wand besteht unverändert fort.*
> 'the painting of the wall continues unchanged'

> *Bemalung* (**result-noun**) $(\lambda y)\ \lambda z\ [DO\ ((x,\ y)\ r)\ \&\ BEC\ ((APPL\ ((z,\ y)\ s))\ e)]$
> *Der Hausmeister hat die Bemalung der Wand entfernt.*
> 'the janitor has removed the painting of the wall'

Recapitulating, Ehrich & Rapp (2000) state the following crucial difference of the linking properties of nouns and verbs: whereas verbs seem to favor the DO part over the change of state part of the predicate (indicating the dynamic aspect of verbs) the argument structure of

event nominals indicates that deverbal nouns rather focus the change of state part in their lexical semantic structure.

In Ehrich (2002), some more "rules" are found concerning the argument realization of other types of argument-taking nouns than *ung*-nominalizations. She points out that e.g. "implicit derivations (zero-conversations) even restrict [the genitive] position to the AGENT argument"[12]:

> **der Tritt <u>des Sacks</u>*OBJECT
> 'the kick of the sack'
>
> *der Tritt <u>des Pferds</u>*AGENT
> 'the kick of the horse'

4. Argument realization of German nouns

This section lays out the patterns of argument realizations found for nouns in German. The examples are taken from the German newspaper *Tagesspiegel* (1.1.2002 – 30.4.2004); so the corpus the analysis is based on is composed of 156,199 articles and around 45,000,000 words.

4.1 Data

In the following, I will point out three aspects concerning the structure of nominals in German.

1. Nunes assumes that the single direct core argument in English vNP follows the nuclear vN and is marked by *of* (cf. 3.1). The English postnominal *of*-marked phrases (*of*-genitives) and the German genitive attributes accord as direct argument position[13]. The table in figure 8 shows the thematic roles of genitive complements occuring with some of the analyzed nouns:

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[12] Ehrich (2002:75)

[13] In German, some constructions are in opposition to the assumption genitive attributes follow the nuclear vN. E.g. the NP *das Zentrum für Studienangelegenheiten der Universität Dortmund* is not conform to the so-called „Adjazenzprinzip".

Noun	Frequency	Arguments	Number of realizations via genitive attributes
Eroberung 'conquest'	227	AGENT OBJECT	3 173
Verlassen 'quitting'	159	AGENT SOURCE	- 157
Hass 'hate'	1118	AGENT/EXPERIENCER OBJECT	7 240
Bedürfnis 'need'	759	EXPERIENCER OBJECT	99 1
Einverständnis 'accordance'	239	EXPERIENCER OBJECT	69 -
Attacke 'attack'	739	AGENT OBJECT	109 1
Frustration 'frustration'	124	EXPERIENCER OBJECT	19 1

Figure 8. Nominal arguments and their realization as genitive attribute – examples from the corpus study

These examples show the heterogeneity of genitive interpretation: The first three nominalizations in (13) *Eroberung, Verlassen, Hass* realize the UNDERGOER macrorole (OBJECT / SOURCE) as direct core argument, according to Nunes' linking hierarchy (cf. 3.1), whereas the nominalization *Bedürfnis* acquires the direct core argument position for the ACTOR macrorole (EXPERIENCER/AGENT) and realizes the UNDERGOER argument as prepositional phrase in most cases – here, the "Direct-Core-Argument Linking Hierarchy U > A" in (9) cannot predict the right genitive interpretation. The deadjectival noun *Einverständnis* and the non-derived nouns *Attacke* and *Frustration* occur in a similar way as *Bedürfnis* does.

2. *Eroberung* and *Lieferung* are typical German *ung*-nominalizations (frequency in the analyzed corpus: 226 and 479). As the examples in (11)-(12) show, eventive *ung*-nominalizations (in Ehrich & Rapp's terms: "ER-NOMs") are *not* restricted to the OBJECT interpretation of the postnominal genitive, contrary to what is predicted by the nominal linking principles in Ehrich & Rapp (2000):

(11) *Der quadratische Palastkoloss (...) ist erst nach der **Eroberung** der Spanier*_{AGENT} *auf den roten Hügel gesetzt worden und dient heute als prominente Bühne.* (18.5.2003)
'The square palace was set on the red hill after the conquest of the Spaniards and is used as prominent stage today'

(12) *Die **Exportlieferung** der israelischen Firma PAD*_{AGENT} *wurde nach israelischen Medienberichten genehmigt, weil als Zielort Thailand angegeben war.* (30.8.2002)
'According to Israeli press reports, the export shipment of the Israeli company PAD was passed because Thailand was specified as destination.'

The interpretation of those noun phrases (disproportioned to Ehrich & Rapp's principles) seems to be unproblematic, and they are far from being ungrammatical.
The genitive complement realizes the OBJECT argument in the majority of the cases. But there are exceptions, authorized by the following two aspects. First, genitive complements of event nominalizations can be interpreted as AGENT very well, if the object argument is mentioned in the immediate context. In (11), the context is that Granada's Alhambra turns into a stage for

musik and dancing in festival times. The high topicality of the participant 'Granada' is preserved by the mentioning of Granada in the paragraph preceding the NI, so that the relevant argument of *Eroberung* 'conquest' can be identified as Granada. Second, the lexical filling of the genitive complement clarifies its interpretation unambiguously. In (12), it is obvious, that *not* the Israeli company PAD has been delivered, because the prototypical action of the company PAD is to deliver something.

Furthermore the corpus study shows that Ehrich's assumptions on implicit derivations (cf. 3.2) are not universally valid, cf. the following example:

(13) *Nationalismus liegt in der Ausgrenzung und im **Hass** <u>des Anderen</u>*_{OBJECT}. (27.11.2003)
'Nationalism means exclusion and hate of the others.'

3. Entries of valence dictionaries suggest that every argument of an argument-taking noun is of the same importance. E.g. in Bassola (2003), the deverbal noun *Zweifel* 'doubt' is registered as follows:

A1		A2
jemandes	Zweifel	an etwas
		über etwas
		dass
		daran / darüber, dass
		(daran / darüber), ob
		daran, w-[14]

But in real language use, argument-taking nouns are typically found with one intraphrastic realized argument. In most cases, the contingent of noun phrases including exactly one intraphrastic realized argument rises above 50 % (in the other cases there are only more noun phrases with no intraphrastic realized argument).

In this account, I assume that with nouns one argument is "focussed" (e.g. in figure 8: OBJECT-argument of *Eroberung*, SOURCE-argument of *Verlassen*…) and thus the argument is intraphrastically realized mostly. All the other arguments don't occur in the noun phrase in most cases, they are transphrastically realized or an indefinit ellipsis can be stated.

So in nominal valence, gradations of argument importance are to be made; information about these gradations should be annotated in valence dictionaries and in grammaticography.

Furthermore, the corpus study shows that nominal arguments (espacially the not-"focussed" ones) which are left unrealized in the NP are realized transphrastically in the majority of the cases, either as so-called "Partnerwort" in the same sentence or in the immediate context: The table in figure 9 (examples from figure 8) shows that there are significant less indefinite ellipsis than transphrastic argument realizations. Thus nominal valence is an important factor to establish text coherence (for details cf. Hölzner 2005b).

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[14] Bassola (2003:175)

Noun	Arguments	Number of realizations			Number of indefinite ellipsis
		…via "Partnerwort" in the same sentence	…in the context	Σ	
Eroberung 'conquest'	AGENT	92	68	160	25
	OBJECT	6	18	24	11
Verlassen 'quitting'	AGENT	98	47	145	14
	SOURCE	2	-	2	-
Hass 'hate'	AGENT/EXPERIENCER	284	326	610	318
	OBJECT	99	310	409	265
Bedürfnis 'need'	EXPERIENCER	274	178	452	115
	OBJECT	21	59	80	8
Einverständnis 'accordance'	EXPERIENCER	42	35	77	9
	OBJECT	76	80	156	14
Attacke 'attack'	AGENT	177	248	425	79
	OBJECT	198	219	417	61
Frustration 'frustration'	EXPERIENCER	32	36	68	17
	OBJECT	20	58	78	23

Figure 9. Number of transphrastic argument realization vs. number of indefinite ellipsis

4.2 Conclusion

The aim of this paper was to investigate the argument realization of German nouns in the context of nominal linking accounts. I have argued that nominal valence should be treated as a polydimensional phenomenom; several types of argument-taking nouns can be distinguished (cf. 2.1 and 2.2). Furthermore, the relevant conditions of argument linking are discribed in terms of Nunes (1993) and Ehrich & Rapp (2000). I have proposed that for German NPs neither the approach in Nunes elaborated for English derived nouns (vNs) nor Ehrich & Rapp's nominal linking linking principles allow an allembracing prediction on the direct core argument position. Finally, I have tried to show that nearly every argument-taking noun has a marked argument (a "focussed" argument) which is realized considerably more often intraphrastically than transphrastically – this is contrary to valence discriptions in valence dictionaries or grammaticography.

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