



2. **polysemy accounts:** there is only one derived noun *observation*, which can be construed in any of the three senses above by means of a semantic shift in the lexicon (Bierwisch 1990), syntactic coercion (Harley 2009) or allosemy (Wood 2021)
- structural homophony accounts are particularly burdened by additional readings - they typically accommodate one larger and one smaller structure (two structures, two readings)
  - non-structural ('lexical') accounts potentially predict a '> 2' set of readings
  - a *structural* polysemy account, in which different interpretations derive from allosemy of a small set of functional heads in the syntactic structure, predicts a small (but '> 2') set of readings

German CCNs and their characteristic syntax of CP-complementation are best accommodated in a *structural polysemy* account of nominalization, here implemented in terms of allosemy of *v* and *n*.

Plan for this talk:

§2: Some background on (German) nominalizations

§3: Lessons from the content reading

§4: The syntax of German nominalizations

§5: Conclusions

## 2 Some background on (German) nominalizations

- What do we know about the ambiguity problem and its connection to syntax so far?
  - according to Grimshaw (1990), Complex Event Nominals (CENs) obligatorily take arguments, distinguishing them from simple event nominals, result nominals, passive nominals, and nouns that take clausal complements
  - this is implemented in the syntactic literature in the form of tying the event interpretation to more verbal structure in CENs (cf. especially Alexiadou 2001), which then also licenses arguments (cf. Alexiadou & Grimshaw 2008 for the argument that the lexical and syntactic analyses converge in empirical prediction)
  - because most nominalizations are at least one-way ambiguous, the argument rests on disambiguation: the internal argument becomes obligatory in the presence of material that disambiguates towards the CEN reading
- (3)
- a. The **frequent** expression \*(of one's feelings) is desirable. *'frequent'*
  - b. the translation \*(of the book) **in order to make it available to a wider readership** *purpose clause*
  - c. the total destruction \*(of the city) **in only two days** *aspectual modifier*

- this first set of facts translates more or less directly to German
- (4)
- Der häufige Ausdruck \*(der eigenen Gefühle) ist notwendig.  
the frequent express.NMLZ the.PL.GEN own feelings is necessary  
'The frequent expression of one's feelings is necessary.'
  - die Übersetz-ung \*(des Buches) um es einer breiteren Leserschaft  
the translate-NMLZ the.N.GEN book to it a wider readership  
zugänglich zu machen  
available to make  
'the translation of the book in order to make it available to a wider readership'
  - die völlige Zerstör-ung \*(der Stadt) in nur zwei Tagen  
the total destroy-NMLZ the.F.GEN city in only two days  
'the total destruction of the city in only two days'
- the flipside is disambiguation towards the result reading:
- (5)
- the assignments (\*of the problem) took a long time *plural*
  - the examination (\*of the patient) **was on the table** *object location*
- the first strategy, pluralization, has sparked some controversy for both English and German, may not totally work for repeatable events (cf. Ehrich & Rapp 2000, Wood 2021)
  - note in particular the confound in German that follows from the interpretative possibilities of the postnominal genitive:
- (6) Die Umdisposition-en des Dirigenten zogen sich über Tage hin  
the rearrangement-PL the.M.GEN conductor went REFL for days on  
'The conductor's rearrangements went on for days' (Bierwisch 1990)
- Bierwisch (1990) cites this as an example of a plural CEN, but the postnominal genitive is not interpreted as the theme, but as the agent of the event

### 3 Lessons from the content reading

- in this work I look at clause-embedding nominalizations in German that allow a *content* reading, such as *Beobachtung* ('observation'), *Hoffnung* ('hope'), *Annahme* ('assumption'), *Entdeckung* ('discovery')
- the syntactic literature on nominalization ambiguity has tended to focus on the ambiguity between the *event* reading and the *result* reading, with the latter serving (to a degree) as a grab bag category for readings in which the noun refers to a state resulting from the event, or alternatively to an abstract or concrete object or entity that comes about in connection to the event
- the non-event readings of nominalizations are usually taken to behave more or less like simple nouns, in the sense that they do not retain the properties of the verb in terms of argument and event structure

- that is challenged by the syntactic and semantic distribution of nominalizations in the *content* reading, illustrated again for German:

- (7) a. Die Beobacht-ung des Nachthimmels dauerte drei Stunden.  
 the observe-NMLZ the.M.GEN night.sky took three hours  
 ‘The observation of the night sky took three hours.’ *Event*
- b. Die Beobachtungen der Astronomin sind für immer verloren.  
 the observe-NMLZ-PL the.F.GEN astronomer are for ever lost  
 ‘The astronomer’s observations are lost forever.’ *Result*
- c. Seine Beobacht-ung, dass Planeten sich bewegen, veränderte die  
 his observe-NMLZ that planets REFL move changed the  
 Wissenschaft.  
 science  
 ‘His observation that planets move changed the science.’ *Content*

- the presence of a content interpretation does not depend on the presence of the *-ung* nominalizer

Verb	Noun	Result	Event	Content	
beobachten	Beobachtung	✓	✓	✓	observation
vermuten	Vermutung	✓	✓	✓	suspicion
entdecken	Entdeckung	✓	✓	✓	discovery
behaupten	Behauptung	✓	✓	✓	claim
gestehen	Geständnis	✓	✓	✓	confession
überzeugen	Überzeugung	✓	✗	✓	conviction
denken	Gedanke	?	✗	✓	thought
annehmen	Annahme	✓	✗	✓	assumption
meinen	Meinung	✓	✗	✓	opinion
erkennen	Erkenntnis	✓	?	✓	realization
ergeben	Ergebnis	✓	✗	✓	result
glauben	Glaube	✗	✗	✓	belief
hoffen	Hoffnung	✗	✗	✓	hope
✗	Gerücht	✓	✗	✓	rumour
etc.					

Table 1: Some German content nominalizations

- note: considerable nuance concerning the interpretative possibilities and other types of polysemy have to be considered, for instance, *Annahme* (‘assumption’) lacks an event reading, but *Annahme* (‘acceptance’) does not:

- (8) a. \*Seine Annahme der Lüge dauerte drei Minuten.  
 his assumption the.F.GEN lie took three minutes  
 ‘His assumption of the lie took three minutes’

- b. Seine Annahme der Medaille dauerte drei Minuten.  
 his acceptance the.F.GEN medal took three minutes  
 His acceptance of the medal took three minutes.

- ⇒ we are unlikely to find a good approach to their analysis by limiting the data to one nominalizer, or by precommitting to an implicational relationship between the readings under consideration
- characteristic for content nouns: a clausal complement that specifies the propositional content that the nominalization is identified with
- as we have seen, some argument-taking properties of the verb are maintained in nominalizations, this is also true of the ability to take a clausal complement

- (9) a. Der Kapitän beobachtete, dass Delphine sehr schnell sind.  
 the captain observed that dolphins very fast are  
 ‘The captain observed that dolphins are very fast.’  
 b. die Beobachtung, dass Delphine sehr schnell sind  
 the observe-NMLZ that dolphins very fast are  
 ‘the observation that dolphins are very fast’

- the noun *Beobachtung* (‘observation’) takes a clausal complement, just like the verb *beobachten* does, whereas the noun *Inspektion* (‘inspection’) does not, just as the verb *inspizieren* lacks this ability for no obvious non-arbitrary reason

- (10) a. \*Die Biologin inspizierte, dass Octopusse sehr klug sind.  
 the biologist inspected that octopuses very clever are  
 ‘The biologist inspected that octopuses are very clever.’  
 b. \*die Inspektion, dass Octopusse sehr klug sind  
 the inspection that octopuses very clever are  
 ‘The inspection that octopuses are very clever.’

- ⇒ it is sensible to speak about *verb-noun pairs* and their ability to take a clausal complement
- most such verb-noun pairs do not obligatorily take a clausal complement - they can usually take a PP or DP complement instead; these options are equally parallel in the nominalizations to the verbal domain

- (11) a. Sie hofft, dass es regnen wird.  
 she hopes that it rain will  
 ‘She hopes that it will rain.’ *CP complement*  
 b. ihre Hoffnung, dass es regnen wird  
 her hope that it rain will  
 ‘her hope that it would rain’  
 c. Sie hofft auf Regen.  
 she hopes on rain  
 ‘She is hoping for rain.’ *PP complement*

- d. ihre Hoffnung auf Regen  
her hope on rain  
'her hope for rain'
- e. \*Sie hoffte (den) Regen.  
she hoped (the) rain  
'she hoped rain' *no DP complement*
- f. \*Ihre Hoffnung des Regens  
her hope the.M.GEN rain  
'her hope of rain'

- some verbs and their nominalizations are picky with respect to the internal arguments that they allow

- (12) a. \*Sie behauptete die Lüge.  
she claimed the lie
- b. \*Ihre Behaupt-ung der Lüge  
her claim-NMLZ the.F.GEN lie
- c. Sie behauptete das Gegenteil.  
she claimed the opposite
- d. Ihre Behaupt-ung des Gegenteils  
her claim-NMLZ the.N.GEN opposite  
'Her claim of the opposite'

- it would be misleading to conclude from one ungrammatical example of a plausible internal argument with a nominalization that that nominalization is incapable of appearing with *any* internal argument
- here, the 'internal argument', in the verbal as well as nominal domain, is interpreted as the content of the claim, just as a CP complement would be
- recall: following Grimshaw (1990), the availability of the event reading is generally thought to be tied to the presence of an internal argument
- the specification of the *content*, on the other hand, allows but does not force the *event* reading
- however, the content specification does act as an internal argument in the sense that it becomes obligatory when the event interpretation is independently picked out

- (13) Ihre ständige Behauptung \*(des Gegenteils) nervt ihn extrem.  
her constant claim \*(the.N.GEN opposite) annoys him extremely  
'Her constant claim of the opposite is extremely annoying to him.'

- consider in this light a well-known set of counterexamples to the otherwise robust internal argument generalization :

- (14) a. the discussion of the data (was published in a journal) (Alexiadou 2001)  
b. the translation of the essay (was on the table) (Melloni 2010)  
c. Lisa's concoction of Cherry 7-Up and grain alcohol (Lieber 2017)

d. Die Bearbeitung der Sonate ist verschwunden  
 the arrangement the.F.GEN sonata is vanished  
 ‘The arrangement of the sonata has vanished.’ (Ehrich & Rapp 2000)

- what these examples have in common with the content noun examples is that post-nominal genitive or English *of*-phrase are identified with the content of the head noun (to some extent)
- ⇒ an explanation of the content reading potentially extends to these examples
- finally, a brief reflection on Mood -
- - in the verbal domain, the mood alternation in the following sentences seems to track tense

- (15) a. Lukas **behauptet**, dass er schon auf 50 Metallica-Konzerten gewesen  
 Lukas claims that he already at 50 Metallica-concerts been  
 ist/?sei  
 is.(IND/SUBJ)  
 ‘Lukas claims that he has been to 50 Metallica concerts already’
- b. Lukas **behauptet-e**, dass er schon auf 50 Metallica-Konzerten gewesen  
 Lukas claim-PST that he already at 50 Metallica-concerts been  
 ?ist/sei  
 is.(IND/SUBJ)  
 ‘Lukas claims that he has been to 50 Metallica concerts already’

- the indicative is preferred in the present, the subjunctive in the past tense
- once we turn to clausal embedding with the corresponding nominalization, we find that the mood distinction is preserved

- (16) a. Lukas’ **Behaupt-ung**, dass er schon auf 50 Metallica-Konzerten  
 Lukas claim-NMLZ that he already at 50 Metallica-concerts  
 gewesen ist/?sei, ist falsch.  
 been is.(IND/SUBJ) is false  
 ‘Lukas’ claim that he has been to 50 Metallica concerts already is false.’
- b. Lukas’ **Behaupt-ung**, dass er schon auf 50 Metallica-Konzerten  
 Lukas claim-NMLZ that he already at 50 Metallica-concerts  
 gewesen ?ist/sei, wiederholt er jeden Tag lautstark.  
 been is.(IND/SUBJ) repeats he every day loudly  
 ‘Every day Lukas loudly repeats his claim that he has been to 50 Metallica  
 concerts already.’

- What, if not tense, is reflected in this mood contrast?
- ⇒ the linguistic contexts in (16) favor different readings of the nominalization: the matrix predicate ‘is false’ in (16-a) picks out the *content* reading, while (16-b) refers to a repeated event

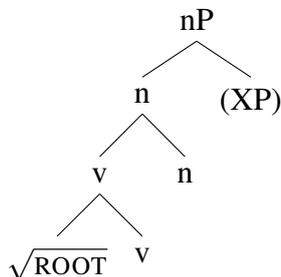
- in German, where one of the main uses of the subjunctive is in reportative contexts (cf. Fabricius-Hansen & Sæbø 2004), it is perhaps not surprising that the subjunctive is licensed when the noun refers to the actually instantiated act of claiming

**Summary:** Nominalizations under the content reading preserve various syntactic properties of their verbal counterparts, notably the ability to take clausal complements, including restrictions on their distribution as they exist in the verbal domain.

## 4 The syntax of German nominalizations

- the German data in general supports the conclusion that the realization of the internal argument and the interpretation of the noun do interact (pace eg. Pross 2019), albeit somewhat less straightforwardly than in English due to the greater flexibility in interpretation associated with the postnominal genitive
- German, like English, presents evidence that event nominalizations, as well as content nominalizations, do possess properties that we can make sense of when we see them as inherited from the verbal domain
- here: a polysemy account of the ambiguity in German nominalizations, building on Wood (2021)
- the application of the concept of allosemy to functional items is a relatively recent development in DM (see Marantz 2013) - the basic idea is that a single syntactic head can have different allosemes inserted in the process of semantically interpreting the structure (like allomorphy but on the meaning side)
- the crucial property of the structure in (17) is as follows: across all interpretations of the noun, the syntactic structure includes a *v* and a *n* head which combine with the root in that order

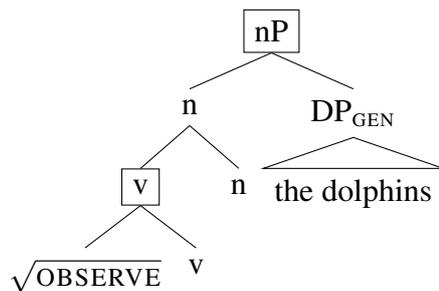
(17)



- *n* nominalizes the structure and contributes the noun syntax to the nP; the nominalized structure behaves outwardly like a noun for purposes of further syntactic operations, modification, and distribution
- DP arguments in the nominal domain receive genitive case

- $v$  serves as the initial categorizer of the Root; in this capacity it is able to introduce and make accessible verbal properties of the root, such as event and argument structure, as well as restrictions on the XP complement in (17)
- morphologically, as we have seen,  $n$  can have different exponents; semantically, different denotations for  $v$  and  $n$  can lead to different interpretations of the noun
- $\rightarrow v$  and  $n$  are subject to *allomorphy* and *allosemy*
- the advantage of this analysis is that it derives the dissociation of exponence and interpretation
- as Wood (2021) argues, the main difference between the *event* interpretation and the *result* interpretation of a nominalization is captured in an allosemy-based approach through nouns under the *event* interpretation having essentially verbal semantics, contributed by  $v$
- as an example, consider the derivation of the *event* interpretation of the phrase *Beobachtung der Delphine* ('observation of the dolphins')

(18)

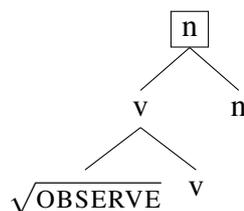


- the crucial boxed nodes have the following denotations:

- (19)
- $\llbracket nP \rrbracket = \lambda e . \text{observe}(e) \ \& \ \text{theme}(\text{dolphins})(e)$
  - $\llbracket v \rrbracket = \lambda x \lambda e . \text{observe}(e) \ \& \ \text{theme}(x)(e)$

- $n$  is semantically vacuous in the *event* interpretation, with the result that the verbal denotation is passed up and can combine with the internal argument
- that does not mean that  $n$  should be omitted from the *syntactic* structure - as we have discussed, event nominalizations behave syntactically and morphologically as nouns
- in contrast,  $v$  is semantically vacuous in the *result* interpretation
- the noun will be unable to take an internal argument that saturates an argument position semantically - it does not have such a position as part of it

(20)

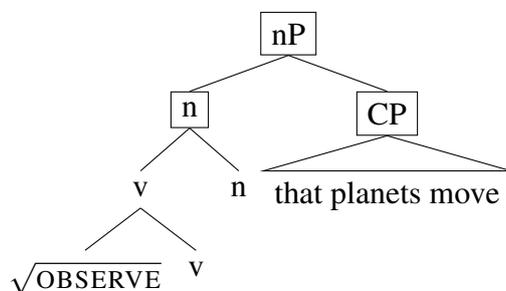


- on the result interpretation, the alloseme of *n* introduces the result (denotation from Wood 2021)

(21)  $\llbracket n \rrbracket = \lambda x \exists e. \text{observe}(e) \ \& \ \text{result}(x, e)$

- returning now to the analysis of the content reading and its CP complements, note that there is a disconnect between the assumptions that are typically made about complement clauses in the verbal and nominal domain, respectively (also see Djärv 2019 for discussion)
- in the verbal domain, complement clauses are usually taken to be relatively argument-like - they do not get case, but are in complement position and have the ability to essentially saturate an argument position (although cf. Kratzer 2006)
- in the nominal domain, complement clauses are usually taken to be adjuncts (going back to Stowell 1981) and combine by some version of Predicate Modification (eg. Zimmermann 2019) or Restrict (Moulton 2013)
- CP complements, under this view, are implicitly or explicitly treated as relative clauses (Arsenijevic 2009, Krapova & Cinque 2016, see references and discussion in deCuba 2017)
- $\Rightarrow$  semantically, that has the advantage of deriving the identification of noun and propositional content of the complement clause
- but syntactically, the relative clause analysis does nothing to derive the *distribution* of complement clauses
- CP complements are (mostly) restricted to appear with nouns that derive from verbs with the same selectional restriction
- the allosemy analysis of nominalizations allows us to work towards reconciling this tension
- consider how the approach can be applied to *die Beobachtung, dass Planeten sich bewegen* ('the observation that planets move')

(22)



- to achieve the identification of the content of the CP and the content that the noun refers to, I adopt the proposal developed in Kratzer (2006), Moulton (2013), Zimmermann (2019) that the CP and the noun combine by Predicate Modification

- following Zimmermann, the CP is taken to have undergone a type shifting operation to be of type  $\langle e, t \rangle$
- (23)
- $\llbracket n \rrbracket = \lambda x \exists e . \text{observe}(x)(e) \ \& \ \text{content}(x)$
  - $\llbracket CP \rrbracket = \lambda x . \text{the content of } x \text{ is 'that planets move'}$
  - $\llbracket nP \rrbracket = \lambda x \exists e . \text{observe}(x)(e) \ \& \ \text{the content of } x \text{ is 'that planets move'}$
- the *content* interpretation is like the *result* interpretation in the sense that it depends on an alloseme of *n*, not *v*
  - unlike in the result interpretation, where the presence of *v* is only clearly diagnosed when a verbalizer is morphologically overt, the content interpretation shows that *v* is *syntactically* active

## 5 Conclusions

- nominalizations under the content reading preserve various syntactic properties of their verbal counterparts, challenging the view that only event nominalizations are syntactically complex and include verbal structure
- in a structural polysemy account, implemented in terms of allosemy of *n* and *v*, the nominalizations of a given a Root have the same syntactic structure, but vary in interpretation according to the different allosemes that are employed

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