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Abstract

This paper discusses a usage pattern with German *mit* 'with' that is labelled here as the German *mit*-predicative construction. The pattern has been mentioned in previous research, but a usage-based constructional account is still missing. A qualitative analysis shows that the construction is subject to a number of constraints that point to its function as a predicative construction. It is argued that its constructional meaning can be adequately captured through the semantic frames of *being in a category* and *having an attribute*. Through the application of Hierarchical Configural Frequency Analysis to a corpus-based sample of 356 instances of the *mit*-predicative, it is shown that the construction can be analyzed as a cluster of five subtypes that display different typical structural and semantic traits. Through the analysis, the paper offers a perspective on intra-constructional variation and how such variation can be exploited for the purpose of grammatical description. *

Keywords:

German, *mit*, predicative constructions, usage-based, frame semantics, hierarchical configural frequency analysis, variation

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The German *mit*-predicative construction

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1 Introduction

This paper presents the German *mit*-predicative construction, or *mit*-predicative, for short. In previous research and reference grammars of German the phenomenon is mentioned in passing (Rohdenburg 1972, Zifonun et al. 1997), but a usage-based account of this construction and its constraints is still missing. The construction can be illustrated with examples such as the following:

(1) Mit Ignatz Bubis starb ein deutscher Patriot.
with Ignatz Bubis died a German patriot
'The deceased Ignatz Bubis was a German patriot.'

(2) Mit dem Oetker-Konzern entstand einer der größten Nahrungsmittelhersteller Europas.
with the Oetker-group emerged one of.the largest food.producers Europe.GEN
'The Oetker group emerged as one of the largest food producers in Europe.'

(3) Der Höhepunkt des Abends folgte mit der Showtanzgruppe „Fire and Flames".
the highlight of.the evening followed with the dance company Fire and Flames
'The subsequent highlight of the evening was the dance company "Fire and Flames".'

Whereas many uses of German *mit* convey comitative meanings, thus concerning the co-presence of two entities, the *mit*-predicative construction does nothing of that sort. Instead, sentences such as the ones above establish the ideas of identity or category inclusion. In example (1), *Ignatz Bubis* is identified as belonging to the category of German patriots. Example (3) evaluates the performance of a dance company as the highlight of the evening, hence equating the two ideas. The starting point of this paper is hence the observation of a usage pattern with *mit* that appears unusual and merits further attention.

Just two paragraphs into the paper, there are already two implicit assumptions that some readers might find controversial. First, it might seem questionable to invoke the idea of a *construction* (in the sense of Goldberg 2006: 5) to account for the examples above. Could the examples not be explained through a special sense of *mit* that would render their meanings fully compositional? A second concern pertains to the label *predicative*. The given examples deviate in multiple respects from common cross-linguistic traits of predicate nominals (cf. Payne 1997: 114), so that further justification of the term for this construction is necessary. Section 2 addresses both of these questions through a preliminary analysis of the structural traits found with the *mit*-predicative, thereby motivating the terminological choices.

After these clarifications, this paper offers a discussion of the *mit*-predicative in terms of its semantic *frames* (Fillmore 1985, Petruck 1996, Ruppenhofer et al. 2006). It will be argued that the constructional meaning, i.e. the semantic import of the construction that is not predictable from the meaning of its parts, can be adequately captured with reference to the frames of *being in a category* on the one hand and *having an attribute* on the other. These frames are semantically distinct, but share certain traits that motivate their joint occurrence with the construction.

The paper closes with a characterization of the *mit*-predicative construction on the basis of usage data, which is meant to test the introspective judgments about the construction that were made in the earlier sections and to further elaborate the analysis. It will be investigated whether the observed constraints on the construction are fixed or gradient and how different instances of the construction can be differentiated into typical and marginal usages.

A question that will be addressed in this context is how speakers are able to identify an example of the *mit*-predicative construction as such. Examples such as (1) are structurally identical to comitative uses of *mit*, yet speakers have no trouble whatsoever understanding the correct, intended meaning. This is non-trivial, given that the construction displays considerable formal variation, as will be discussed in section 2. A multifactorial approach such as *Hierarchical Configural Frequency Analysis* (von Eye 1990, Gries 2008) can reveal that there are combinations of certain structural traits that typically co-occur within the *mit*-predicative. To illustrate, consider the structure of example (1). Sentences with initial *mit*, a following proper name, and an indefinite noun phrase in the subsequent main clause instantiate a schema that is highly typical of the *mit*-predicative. While this could be argued on the grounds of introspection alone, only a usage-based, quantitative analysis can determine whether there are additional schemas and whether the one mentioned above is more or less entrenched than competitor schemas.

In conclusion, this paper aims to illustrate how simultaneous attention to structural properties, frame semantics, and statistical tendencies in usage can result in a more complete understanding of grammatical constructions than any single perspective on its own would yield.

2 Why call this a predicative construction?

As was mentioned above, a linguistic usage with a seemingly unusual meaning presents the analyst with the question of how that meaning can be most adequately explained. To take a well-known illustration, the caused-motion meaning of example (4) could either be explained through a particular sense of the verb *sneeze* or through the assumption that the syntactic pattern [V NP PP] itself expresses the idea of caused motion.

(4) Sam sneezed the napkin off the table.

Goldberg (1995:9) argues that in this particular case, the polysemy of *sneeze* that would have to be assumed is simply implausible, so that the constructional view is to be preferred. Can a similar argument be made for the *mit*-predicative? Consider again an example.

(5) Er beging einen großen Fehler mit seinem Wechsel zu Lazio Rom
he made a big mistake with his change to Lazio Rome
'He made a big mistake changing to Lazio Rome.'

Example (5) categorizes an action as a mistake and thus clearly instantiates what we have called the *mit*-predicative. If we were to explain (5) through a sense of *mit* alone, we would have to stipulate an extension of *mit* conveying a meaning along the lines of 'namely' or 'by' (*He made a big mistake, namely changing to Lazio Rome*; *He made a mistake by changing to Lazio Rome*). Considering the fact that prepositions are rampantly polysemous, this explanation should not be dismissed out of hand. The German preposition *mit* is used in

different senses that express accompaniment, instrumentality, co-temporality, or manner, as illustrated in (6).

(6) a. mit Sahne ‘with cream’

b. mit einem Hammer ‘with a hammer’

c. mit Tagesanbruch ‘at dawn’

d. mit Sorgfalt ‘with care’

Further extensions of this polysemy network are easily found. Zifonun et al. (1997: 2136) actually propose a sense of *mit* which they label the *IST-Gebrauch* (identifying use) in order to account for examples similar to (5). While a polysemy approach is thus viable and has been taken in the literature, the following paragraphs will review pieces of evidence that illustrate the necessity of a constructional explanation.

In order to do so, let us first specify the parts that constitute examples such as (1-3) and (5). Trivially, there is a noun phrase headed by the preposition *mit*. Let us call this phrase the *mit*-NP. Apart from the *mit*-NP, there is a full main clause. Examples of the *mit*-predicative can thus be stripped off the *mit*-NP and still function as grammatical sentences. An obligatory element is of course the main verb of the sentence. If that verb is intransitive, the other obligatory part is the noun phrase that functions as the subject of the verb. These three parts are illustrated in (7).

(7) [Mit Ignatz Bubis]$_{\text{MIT-NP}}$ [starb]$_{\text{V}}$ [ein deutscher Patriot]$_{\text{SUB}}$

with Ignatz Bubis died a German patriot

‘The deceased Ignatz Bubis was a German patriot.’

In this example, the subject denotes a category of which the *mit*-NP is a member. In other words, the referent of the *mit*-NP instantiates the subject category. Is this a general trait of the construction? A number of examples suggest that it is not. As pointed out by Rohdenburg (1972: 253), if the construction occurs with a transitive verb, the *mit*-NP may instantiate either the subject or the object, as shown in (8) and (9).

(8) [Mit Müller] $_{\text{MIT-NP}}$ [verließ] $_{\text{V}}$ [der beste Spieler] $_{\text{SUB}}$ [den Platz] $_{\text{OBJ}}$

with Müller left the best player the pitch

'Müller, the best player, left the pitch.'

(9) [Er] $_{\text{SUB}}$ [beging] $_{\text{V}}$ [einen großen Fehler] $_{\text{OBJ}}$ [mit seinem Wechsel zu Lazio Rom] $_{\text{MIT-NP}}$

he made a big mistake with his change to Lazio Rome

'He made a big mistake changing to Lazio Rome.'

Whereas example (8) equates the *mit*-NP with the subject, example (9) establishes a relation between the *mit*-NP and the object. To complicate matters even further, there are examples such as (10), in which the *mit*-NP corresponds to a structure that is not nominal, and which hence cannot instantiate a grammatical relation. Example (10) shows a relation between a *mit*-NP and an adverbial.

(10) [Mit 13 Jahren] $_{\text{MIT-NP}}$ [kam] $_{\text{V}}$ [Hans Sauter] $_{\text{SUB}}$ [relativ spät] $_{\text{ADV}}$ [zum Turnen] $_{\text{OBL}}$

with 13 years came Hans Sauter relatively late to gymnastics

'Hans Sauter entered gymnastics at age 13, which was relatively late.'

Similarly, there are examples in which the *mit*-NP establishes a relation with an adjectival element. In (11), the *mit*-NP paraphrases an attributive adjective that modifies a

head noun. Both the *mit*-NP and the adjective are syntactically integrated into the subject NP. Finally, the *mit*-NP can correspond to a prepositional phrase, as shown in (12).

(11) [der [mit bald zwei Lebensjahrzehnten]$_{\text{MIT-NP}}$ [hochbetagte]$_{\text{ADJ}}$ Wallach]$_{\text{SUB}}$
the with almost two life.decades geriatric gelding
'this geriatric gelding, which is almost 20 years old'

(12) [Die Teuerung]$_{\text{SUB}}$ [blieb]$_{\text{V}}$ [mit 3,4 %]$_{\text{MIT-NP}}$ [auf dem Niveau des Vormonats.]$_{\text{PP}}$
the inflation stayed with 3.4 % on the level of.the previous.month
'Inflation stayed at the level of the previous month, which was 3.4%.'

Hence, we need to define the construction as consisting of a *mit*-NP and a full main clause, which of course must comprise a subject and a verb, but can also contain additional segments. Within that material, there must be one element that can be construed as a predicate that applies to the *mit*-NP. For ease of reference, let us call this element the *pred*-phrase.

Analyzing the *mit*-NP, the verb, and the *pred*-phrase in turn, it can be shown that the construction as a whole is subject to constraints that would not fall out from an extended sense of *mit*. Starting with the *mit*-NP, it can be generalized that this constituent can be removed from an example without loss of grammaticality (13a-c). In cases such as (1) or (2), in which the *mit*-NP is sentence-initial, elements need to be rearranged to fulfil requirements of word order (13d).

(13) a. Er beging einen großen Fehler (mit seinem Wechsel zu Lazio Rom).
'He made a big mistake (changing to Lazio Rome).'

b. der (mit bald zwei Lebensjahrzehnten) hochbetagte Wallach

'this geriatric gelding (which is almost 20 years old)'

c. Die Teuerung blieb (mit 3,4%) auf dem Niveau des Vormonats.

'Inflation stayed at the level of the previous month (which was 3.4%).'

d. Ein deutscher Patriot starb.

'A German patriot died.'

Further, it appears that the *mit*-NP may not be indefinite, as evidenced by the contrast in acceptability of examples (14) and (15).

(14) Mit seiner neuen Platte präsentierte Westernhagen ein Meisterwerk.

with his new record presented Westernhagen a masterpiece

'Westernhagen presented his new record, which was a masterpiece.'

(15) ? Mit einer neuen Platte präsentierte Westernhagen ein Meisterwerk.

with a new record presents Westernhagen a masterpiece

Intended meaning: 'Westernhagen presented a new record, which was a masterpiece.'

This constraint is puzzling if one aims to explain the meaning of (14) exclusively through a special sense of *mit*, but it finds a very natural explanation on a constructional view. Predicate nominal constructions typically start with a specific, definite entity that is assigned a more general role (cf. *John is a doctor*; *I am German*). If example (14) is taken to be an example of a predicate nominal construction, then it makes sense for the *mit*-NP to be restricted to definite noun phrases.

The verb does not seem to have any constraints with respect to the types of predicates that may enter the construction. However, upon closer inspection it turns out that there is a quite fundamental constraint: The verb may not be separately negated in the construction.

(16) * Mit Müller verließ der beste Spieler nicht den Platz.

with Müller left the best player not the pitch

Intended meaning 'Müller, the best player, did not leave the pitch.'

(17) * Mit Ignatz Bubis starb ein deutscher Patriot nicht.

with Ignatz Bubis died a German patriot not

Intended meaning 'Ignatz Bubis, a German patriot, did not die.'

Again, this peculiarity only receives a satisfactory explanation through the assumption of a construction. If we recognize the *mit*-predicative as a construction in which a statement of identity or category inclusion takes center stage, it makes sense for the verb to represent backgrounded information that is taken for granted, and hence is not easily negated. This point can be illustrated with an adaptation of the *lie* test (Erteschik- Shir and Lappin 1979), which is designed to detect the pragmatic focus of a construction. The constructed exchange below gives an example.

(18) A: Mit Müller verließ der beste Spieler den Platz.

B: Das stimmt nicht. Seeler war besser. (*That's not true. Seeler was better.*)

B': Das stimmt nicht. Er blieb auf dem Platz. (*That's not true. He stayed on the pitch.*)

If a listener questions the truth of a *mit*-predicative, the most natural intent of that criticism is to state that the *pred*-phrase does not in fact match the *mit*-NP. The response in B is hence much more natural than the response in B'.

Another, related constraint on the verb is that it may not receive stress. As has been argued above, the fact that the information in the verb is presupposed background information explains why the verb does not easily lend itself to particular emphasis, be it through either negation or stressed pronunciation.

(19) ? Mit Müller VERLIESS der beste Spieler den Platz.
with Müller left the best player the pitch
'Müller, the best player, LEFT the pitch.'

(20) ? Mit der "FunFactory" ÖFFNETE kürzlich eine Discothek der Superlative.
with the Fun Factory opened recently a disco of superlative
'The Fun Factory, an outstanding disco, OPENED recently.'

Turning to the *pred*-phrase, it becomes apparent that this constituent must be a full lexical phrase. Changing attested examples through a replacement of a lexical phrase with a pronominal expression renders those examples ungrammatical.

(21) * Mit Ignatz Bubis starb er / einer / jemand.
with Ignatz Bubis died he / someone / someone

(22) * Mit Müller verließ er / einer / jemand den Platz.
with Müller left he / someone / someone the pitch

(23) * Mit seiner neuen Platte präsentierte Westernhagen es.

with his new record presented Westernhagen it

Also this constraint can receive a constructional motivation: The predicate in predicative constructions generally presents new information – if we are told that *John is a doctor*, John's occupation is news to us. Consequently, a predicate nominal in which the predicate is instantiated by a pronoun is pragmatically odd and can only be saved by a heavily scaffolding context (*You need a doctor? John is one.*)

Since these constraints would be hard to explain with reference to a special sense of *mit* alone, the available evidence points towards a construction, rather than towards an account in terms of polysemy.

Apart from the fact that observable constraints of the construction seem to converge rather well with the idea that what we are looking at is a predicative construction, is there any independent evidence to suggest this? Rohdenburg (1972: 253) offers a paraphrase of one example in terms of a German predicative construction with *als* 'as':

(24) Mit ihm würdigte man den tüchtigsten Vertreter seines Berufsstandes.

with him honored one the most.capable representative of.his profession

'He was recognized as the most capable representative of his profession.'

(25) Man würdigte ihn als den tüchtigsten Vertreter seines Berufsstandes.

one honored him as the most.capable representative of.his profession

'He was recognized as the most capable representative of his profession.'

A second piece of evidence concerns the fact that the *mit*-predicative can express both category inclusion and equation, which are the two main functions of predicate nominals cross-linguistically (Payne 1997: 114). The former identifies an entity as a member of a category (*John is a doctor*), the latter points out that two entities are one and the same. We have already seen both of these functions in earlier examples above. Example (1) illustrates category inclusion; example (3) illustrates equation.

Finally, while the *mit*-predicative undeniably deviates from proper predicative constructions in occurring with full lexical verbs rather than a copula, it can be noted that the construction appears with a range of semantically light verbs in combinations such as *einen Fehler begehen* 'make a mistake' (cf. 9), *eine Niederlage beziehen* 'suffer a loss', or *einen Hit landen* 'have a hit'. In these collocations, the verb has little semantic content of its own and merely serves as a vehicle for the noun to enter a verbal expression.

(26) Mit 0:3 bezogen die Bayern eine Niederlage.
with 0:3 received the Bavarians a defeat
'The Bavarians suffered a loss with 0:3.'

(27) Bill Haley landete einen Riesenhit mit „Shake, rattle and roll".
Bill Haley had a huge.hit with „Shake, rattle and roll"
'Bill Haley had a huge hit with "Shake, rattle and roll".'

Based on these pieces of evidence, it is suggested that the label 'predicative' is at least not a blatant misnomer for the construction under investigation.

3 The frames of the *mit*-predicative

It is one of the basic observations within Construction Grammar that the meanings of utterances are often non-compositional, such that what is conveyed by an utterance cannot be reduced to the meanings of its component parts (Goldberg 1995). The component meanings are still integral to the resulting meaning, but beyond that there is a *constructional semantics* – some semantic import that is not predictable from the component meanings and that motivates the recognition of a construction as a symbolic unit.

As was mentioned in the introduction, it will be argued in this paper that the constructional meaning of the *mit*-predicative is captured best with reference to two semantic frames (Fillmore 1984, Petruck 1996, Ruppenhofer et al. 2006), namely *being in a category* and *having an attribute*. These frames are semantically distinct, but as will be explained in more detail below, they share certain traits that motivate their joint occurrence with the construction. The central claim of the argument is that the non-compositional meaning of the *mit*-predicative, i.e. the meaning that cannot be derived from the meaning of its component parts, is present in these frames. The idea that constructions evoke frames and can be semantically characterized in terms of frames is not new. To give only three examples, Goldberg (1995) makes the point that constructions such as the English ditransitive construction or the caused motion construction evoke basic experiential scenes; Tomasello (2006) shows that children's early constructions represent such scenes; and the Berkeley FrameNet project (http://framenet.icsi.berkeley.edu) currently establishes a catalogue of constructions and their evoked frames. What the present study aims to show is that the seemingly unusual meaning of examples such as (1-3) is in fact the product of the combined lexical meanings on the one hand, and the frame-semantic constructional meaning on the

other. All that has to be assumed is that the construction, by means of cues in the structure of the examples, evokes the frame that allows the construction of a meaningful interpretation.

The first frame that is of importance to the *mit*-predicative is the frame of category membership. The FrameNet database includes such a frame, which is labelled *being_in_category*. Figure 1, which is adapted from the FrameNet database entry, presents a table with a definition of the frame, a list of so-called *frame elements*, i.e. the conceptual bits and pieces of the frame, and an example sentence from English.

A basic idea within frame semantics is that lexical units such as nouns and verbs evoke frames and their frame elements. Regarding the example in Figure 1, a verbal expression such as *count as* evokes the frame of category membership and the frame elements of an item which is placed in a category. While most efforts in the FrameNet project have focused on particular lexical items and their frames, it stands to reason that also constructions can evoke frames. The claim is that for instance example (1), repeated here for convenience, evokes the frame of category membership and assigns the roles of *item* and *category* to its parts as shown in (28).

FIGURE 1 ABOUT HERE

Figure 1: being in a category (adapted from FrameNet frame report for *being_in_category*)

(28) [Mit Ignatz Bubis]$_{\text{ITEM}}$ starb [ein deutscher Patriot]$_{\text{CATEGORY}}$

with Ignatz Bubis died a German patriot

'The deceased Ignatz Bubis was a German patriot.'

The lexical meanings of this example allow the listener to understand that a German patriot died, which is what is expressed in the main clause of the example. The constructional

meaning allows the listener to integrate the *mit*-NP into the picture and identify the person of Ignatz Bubis as an instantiation of the class of patriots. A fair question to ask of course is how the construction accomplishes this. It is current practice of the FrameNet construction annotation project to define a frame-evoking element, i.e. an element that unambiguously characterizes the construction as such. In certain cases this is fairly straight-forward (*let alone*, *the Xer the Yer*, cf. Fillmore et al. 1988), whereas in other cases no element of the construction immediately suggests itself, so that even a construction in its entirety may be a frame-evoking element. The reader is asked to keep this problem in mind, as we will come back to it in section 4.2, in which usage traits of the *mit*-predicative are analyzed.

The second frame that regularly occurs with the *mit*-predicative concerns having an attribute. Figure 2 gives the information that is part of this frame.

FIGURE 2 ABOUT HERE

Figure 2: having an attribute

Again, let us consider an example of the *mit*-predicative to see how the frame elements map onto the parts of the construction. Example (8) is repeated here as (29).

(29) [Mit Müller] $_{\text{ITEM}}$ verließ [der beste Spieler] $_{\text{ATTRIBUTE}}$ den Platz.
with Müller left the best player the pitch
'Müller, the best player, left the pitch.'

What can be understood from the lexical elements is that the best player left the pitch; what is added by the construction is the identification of Müller as the best player.

What motivates the fact that both of these two frames regularly occur with the *mit*-predicative? It is probably fair to say that the frames share at least some of their structure. Both involve an element that is characterized as having a certain role, either in terms of its category membership or in terms of its individual attributes. Both reflect scenarios that can be expressed in more canonical predicative constructions such as predicate nominals and attributive clauses. Both frames implicitly involve a cognizer that establishes the relation between the item and its role. It seems therefore quite natural to find both frames associated with the *mit*-predicative construction. With this conclusion in place we can go on to ask more detailed questions: How is the construction used in naturally occurring data and what can statistical tendencies in usage tell us about the construction that introspection cannot? The next section addresses these issues.

4 The *mit*-predicative in usage

While previous treatments of *mit* have mentioned the *mit*-predicative in passing (Rohdenburg 1972, Zifonun et al. 1997), a usage-based account of this construction and its constraints is still missing. This section will approach the construction from a quantitative, corpus-based perspective in order to refine our characterization of the construction from sections 2 and 3. Section 4.1 details the methods of data gathering and organization; section 4.2 explains the workings of a Hierarchical Configurational Frequency Analysis (HCFA) and its application to the data at hand; and section 4.3 summarizes and discusses the results.

4.1 Gathering the data

A corpus-based analysis of the *mit*-predicative faces several obstacles. First of all, the construction is not very frequent, necessitating inspection of a large body of data. Fortunately,

the IDS Mannheim (http://www.ids-mannheim.de/cosmas2) provides access to corpora of German that are adequately sized. For the present purposes, a corpus of written German, consisting largely of newspaper texts, was chosen (LIMAS and Mannheimer Morgen 1991, 1994-96, ~20 million words). This choice is motivated by the practical reason that written resources are larger than available corpora of spoken German, but also by the consideration that the *mit*-predicative appears largely confined to the written modality. A defining trait of the construction is that it involves at least two full lexical phrases. In spoken discourse, utterances tend to be limited to one full lexical phrase; the co-presence of such phrases represents a strongly dispreferred and marked pattern (DuBois 2003). It would hence be surprising to find many instances of the *mit*-predicative in spoken interaction, and indeed searches in the Pfeffer and Freiburg corpora (http://dsav-oeff.ids-mannheim.de) yielded no instances of the construction. We fully subscribe to the view that spoken spontaneous discourse represents the most natural variety of language there is, but since Construction Grammar aims to account for all grammatical constructions regardless of their affinity to certain genres or modalities, we hold that the construction is still worthy of investigation.

A second and more serious obstacle is that there is no straight-forward method to extract all examples of the *mit*-predicative, and only those, from a chosen corpus. The construction is structurally homonymous with other uses of *mit*, such that there are no tell-tale signs that would allow easy extraction. The preposition *mit*, as a closed class item, is also very frequent. In order to arrive at a representative sample of the construction, the basic method of data gathering was to collect corpus examples of *mit*, which were then manually searched for instances of the *mit*-predicative. A random sample of 25,000 instances of *mit* was extracted from the corpus. Examples of the *mit*-predicative were identified manually as such on the basis of the following pre-defined criteria.

First, to count as an example of the construction, the instance of *mit* must be followed by a nominal expression. This step excludes all instances in which *mit* is followed by punctuation (*Mach mit!* - 'Join in!') or by a prepositional phrase (*mit am Start* – 'also at the start') and thereby ensures that the example has a proper *mit*-NP.

Second, the *mit*-NP must correspond to another constituent of the example sentence. This requirement excludes examples (30) and (31), which may at first sight appear to instantiate the construction.

(30) Mit 22 Siegen ist Bayern Spitzenreiter.
with 22 wins is Bavaria league.leader
'Bavaria is the league leader with 22 wins.'

(31) Mit 26 ist sie die jüngste Kandidatin.
with 26 is she the youngest candidate
'Aged 26, she is the youngest candidate.'

The crucial difference between these examples and instances of the *mit*-predicative is that the *mit*-NP does not refer to an entity that is expressed by another constituent in the main clause. '22 wins' is not synonymous with 'league leader'; it is merely the case that the league leader happens to have 22 wins.

Finally, the *mit* of the *mit*-NP must not be part of a phrasal verb expression. Many German phrasal verbs include *mit* in expressions such as the following.

(32) Die Polizei bezifferte den Schaden mit 5000€.

the police numbered the damage with 5000€

'The police reported the damage to be 5000€.'

(33) Die Qualität wurde mit „mangelhaft" bewertet.

the quality was with poor judged

'The quality was rated as poor.'

In these examples, the *mit*-NP could be seen as instantiating a category that is denoted by another constituent (damage equalling 5000€, quality being poor). However, the interpretation of the *mit*-NP is in these cases a function of the verbal argument structure of *beziffern* and *bewerten*, not a function of the constructional semantics. In examples of the *mit*-predicative, omission of the *mit*-NP results in a fully grammatical main clause. If the *mit*-NP of the above examples is omitted, the sentences are rendered ungrammatical (? *Die Polizei bezifferte den Schaden*).

Application of these criteria led to a pool of 356 examples that could be used for further analysis. Expectedly, the construction is not very frequent, accounting for merely 1.4% of the retrieved usages of *mit*.

4.2 Analyzing the data

What now can we learn from a representative sample of the *mit*-predicative construction? Inspection of the example sentences can give us an intuitive understanding of how the construction is used; and we can even qualify some claims that were made on the basis of introspection. For instance, it was observed that an indefinite *mit*-NP was grammatically

unacceptable in example (15). The collected data confirm that indefinite *mit*-NPs are indeed rare, but there are a few exceptions to this tendency, as illustrated below.

(34) Der Verein hatte 1987 mit einem zweiten Platz seinen größten Erfolg.
the club had 1987 with a second place its biggest success
'The club had its biggest success in 1987 coming in second.'

Further, it was argued that the *pred*-phrase had to be a full lexical phrase, not a pronoun. Again, the data present us with scattered counterexamples to this generalization. In example (35), the *pred*-phrase *weitere* 'more' anaphorically refers back to *Sensation*.

(35) Dieser Sensation ließ er mit ‚Les Miserables' und ‚Phantom der Oper' weitere folgen.
this sensation let he with Les Miserables and Phantom of the Opera more follow
'He followed up this sensation with other ones such as Les Miserables and Phantom of the Opera.'

Importantly, inspecting a representative sample can give the analyst an idea of the inherent variation with which a construction occurs. To illustrate, we learn that a substantial number of examples have a *mit*-NP that instantiates the proper name of a person. Many examples occur with a *pred*-phrase that has the form of an indefinite noun phrase. A first analytical step is thus to annotate the examples with regard to a number of variables that are judged as potentially revealing by the analyst. In the case of the data at hand, the following four variables were annotated: 1) type of *mit*-NP, 2) position of *mit*-NP, 3) type of *pred*-phrase, and 4) aktionsart of the verb in the main clause. Each of these is discussed below.

First of all, it emerges that the *mit*-NP occurs with a restricted set of referent types. As was mentioned above, proper names of persons, as seen for instance in (1) or (8), are frequently found. We also find numerical expressions, as illustrated below.

(36) Die D- Mark erreichte in Mailand mit 1031,75 Lire einen Höchststand.
the German Mark reached in Milano with 1031.75 Lira a record.high
'The Deutschmark reached a record high in Milano at 1031.75 Lira.'

The examples were therefore annotated for the observed type of *mit*-NP. This categorical variable was implemented with three levels: proper names, numerical expressions, and remaining cases. Table 1 shows the distribution of these types across the data. Numerical expressions are by a wide margin the most frequent type. This is interesting because earlier research does not mention this variant of the *mit*-predicative.

TABLE 1 ABOUT HERE

Table 1: *mit*-NP types

Second, it was discussed earlier that the *mit*-NP can appear in different positions relative to the main clause. Examples such as (1) and (8) illustrate sentence-initial occurrence; examples (3) and (5) show a sentence-final *mit*-NP; and example (36) just above has the *mit*-NP in sentence-medial position. Again, we thus have a categorical variable with three levels. Table 2 gives the frequencies for each level. It emerges that final *mit*-NPs are quite rare and that medial *mit*-NPs are most frequently found.

TABLE 2 ABOUT HERE

Table 2: *mit*-NP position

Turning now to the *pred*-phrase, example (9) already established that this constituent may take different forms. Whereas many examples have a nominal *pred*-phrase, this element may also be instantiated by an adverbial, an adjective, or by a prepositional phrase. Within the nominal cases of the *pred*-phrase, there is another parameter of variation. If this element is instantiated by a noun phrase, that noun phrase can be either definite, as in (3), or indefinite, as in (1) and (2). Table 3 shows the distribution of *pred*-phrases across four different types. Nominal constituents are most frequent; of these, indefinite nominal phrases are more than twice as frequent as definite nominals.

TABLE 3 ABOUT HERE

Table 3: *pred*-phrase type

Besides the syntactic category of the *pred*-phrase, it is also instructive to consider its grammatical relation. It was discussed above that the *pred*-phrase could function as the subject or object of the main clause, but that it could have other, typically adverbial functions. Naturally, subjects and objects are typically nominal constituents, so that the remaining types listed in Table 3 cannot assume these grammatical relations. It is therefore clear that syntactic form of the *pred*-phrase and grammatical relation of the *pred*-phrase are not independent from one another. Table 4 therefore presents a more fine-grained overview of *pred*-phrase types. It splits up the first two columns of Table 3 into subject and object instances and leaves the other two columns unchanged. It becomes apparent that indefinite objects are the most common *pred*-phrase type.

TABLE 4 ABOUT HERE

Table 4: *pred*-phrase grammatical function

A final variable that is used here for the quantitative analysis concerns the verbs of the main clause that are found in the *mit*-predicative. Table 5 below lists the twenty most frequent types that are attested in the construction.

TABLE 5 ABOUT HERE

Table 5: Most frequent verb types in the *mit*-predicative

A brief note is in order regarding the verb *stellen*, which has the basic meaning 'put', but is glossed here as 'provide', which is the only sense that occurs in the retrieved data. This sense is found in expressions such as *Die SPD stellt den Außenminister* 'The SPD provides the foreign minister'.

Given the set of verbs seen in Table 5, what distinctions are of potential interest for a description of the *mit*-predicative construction? The present analysis focuses on the lexical aspect, or aktionsart, of the verbs (Comrie 1976) because of an intriguing asymmetry in the data. The most frequent types *sein* 'be', *liegen* 'lie', *haben* 'have', *bleiben* 'stay' and *stehen* 'stand' are all durative verbs that denote states or unbounded activities. Among the less frequent types are also accomplishment and achievement verbs that denote actions with inherently specified start or end points. Following Langacker (1987: 21), these two types will be distinguished into *imperfective* verbs and *perfective* verbs. Table 6 shows that on the whole, the two types are distributed fairly evenly across the data, even though the six most frequent types were all found to be imperfective.

TABLE 6 ABOUT HERE

Table 6: Lexical aspect of the main verb

Of course, isolated tabulations of these four variables only yield limited insight into the usage of the construction. It would be of interest to see whether there is some interaction between these variables. For instance, do definite subject *pred*-phrases occur more often than expected with *mit*-NPs that instantiate proper names or with *mit*-NPs that instantiate numerical expressions? Is there a *mit*-NP type that occurs preferentially in a certain position in the sentence? How do all the variables interact?

An analytical procedure that can address these questions and can hence give us a better understanding of the *mit*-predicative construction goes by the name of *Hierarchical Configural Frequency Analysis* (von Eye 1990, Gries 2008: 249f). A HCFA is commonly used as an exploratory device to find structures in a body of data. For instance, medical researchers might be interested in the co-occurrence of certain symptoms that would allow the distinction of different syndromes. In such a case, the data consists of a pool of observations, each of which is annotated for a set of variables, which is exactly parallel to what we have described above. Each observation comes with a set of values for selected variables. The basic logic of a HCFA is that it determines whether certain values have a tendency to co-occur with one another, i.e. whether there are certain *configurations* of values that occur more or less frequently than would be expected by chance. To stay with our fictional medical example, the method would test whether patients who report sleep problems are also likely to report itchy skin, or whether these two symptoms only co-occur at the level of chance. HCFA is of course not limited to the pairwise comparison of variables. Its value lies precisely in the ability to detect interactions between several different variables, which is something that tends to escape human intuition. So, the method might determine that sleep problems and itchy skin are completely unrelated problems, but that the former commonly co-occurs with feelings of anxiety, hot flashes, and elevated blood pressure. Technically, this is done with exact

binomial tests that are corrected for the testing of multiple hypotheses at the same time. The general null hypothesis is that the variables are independent of each other, so that for instance sentence-initial *mit*-NPs occur at random with the different *pred*-phrase types. Since the HCFA tests all possible combinations of variables, i.e. all pairs, triplets, and the set of all four, the null-hypothesis of independence is tested several times. Such repeated testing calls for an adjustment of the significance level at which the hypotheses are being tested (such as the Bonferroni correction or the Holm-Bonferroni method).

Configurations of values that occur more frequently than expected are called *types*, and they can be thought of as templates for sentences that instantiate exemplars, or prototypical instances of the construction under investigation. Conversely, there are also *antitypes*, i.e. configurations that occur less often than would be expected by chance. The focus of the discussion in this paper will however be on the prototypical *types*. The notion of a prototype might be taken to mean that there is one single instantiation of the construction that is the best or most central example. This is however not presupposed by the method. Depending on the data, it could turn out that there are in fact two or more highly typical configurations. This in turn would suggest that the *mit*-predicative has sub-constructions that follow their own unique usage patterns, and that would merit separate descriptions.

Why now would it make sense to subject our data of the *mit*-predicative to such an analysis? In the case of the *mit*-predicative, we have established that we are looking at a construction with certain structural and semantic properties. We have also seen that the data exhibits variation along a number of different parameters. Instead of leaving the discussion at a mere acknowledgment of that variation, we can actually use the existing variation to find out more precisely how the construction appears in authentic usage. The next section details the results of the HCFA.

4.3 Results and discussion

The calculations for the present analysis were performed with HCFA 3.2 (Gries 2004), a script written for the statistical software package R (R Development Core Team 2006). The analysis establishes that there are several interactions between the variables that are statistically significant. In particular, the analysis determines five types that represent exemplar-like instances of the *mit*-predicative. Table 7 gives an overview of the results; a more comprehensive summary of the results is given in the Appendix. The four left columns represent the variables that were entered into the analysis. The six columns to the right list the observed frequency of each type, the corresponding expected frequency, a chi-square value, the corresponding Holm-corrected p-value, the decision that the result is indeed significant, and the so-called coefficient of pronouncedness Q, in which a higher number represents a more entrenched configuration. The following sections discuss the types of Table 7 in turn.

TABLE 7 ABOUT HERE

Table 7: Types of the *mit*-predicative

4.3.1 *mit*-predicatives with numerical expressions

The HCFA determines two types of *mit*-predicatives with numerical expressions that only differ in the type of *pred*-phrase that is preferred. Starting from the upper left corner of Table 7, it can be seen that numerical *mit*-NPs show a significant tendency to occur sentence-medially. They also tend to co-occur with imperfective verbs. What distinguishes the two types is that the first, more frequent one occurs with adjectival *pred*-phrases, whereas the

second one takes prepositional *pred*-phrases. Examples (37) and (38) illustrate the respective types.

(37) TYPE 1: Der Zinssatz blieb mit 5,25% unverändert.
the interest.rate stayed with 5.25% unchanged
'Interest rates remained unchanged at 5.25%.'

(38) TYPE 2: Der Gewinn liegt mit 215 Mio. DM wieder auf Vorjahreshöhe.
the profit lies with 215 M DM again at previous.year.level
'Profits are at the level of the previous year at 215 M Deutschmark.'

In order to further characterize the usage of numerical *mit*-predicatives, we can turn to the results of some other interactions between *mit*-NP type and the remaining variables. First of all, there is a simple interaction with the position of the *mit*-NP. As the results in Table 7 suggest, numerical expression *mit*-NPs show a significant tendency to occur sentence-medially. Beyond that, they are significantly opposed to occurring sentence-initially. Examples such as (39) are grammatically possible, but they are comparatively rare in actual usage (observed 18, expected 47.9).

(39) ATYPICAL: Mit 5,25% blieb der Zinssatz unverändert.
with 5.25% stayed the interest.rate unchanged
'Interest rates remained unchanged at 5.25%.'

Table 7 further allows the inference that numerical *mit*-predicatives do not commonly occur with nominal *pred*-phrases that instantiate the grammatical relations of subject and object. This is basically true, but the HCFA detects that numerical *mit*-NPs only occur

significantly less often than expected with indefinite nominal *pred*-phrases, not definite ones. Whereas example (40) is thus atypical (observed 41, expected 64.4, **), example (41) would be less unusual (observed 28, expected 30.3, ns).

(40) ATYPICAL: Mit 70,000 Kostümen hat Paris eine der größten Sammlungen.
w*ith 70,000 costumes has Paris one of.the largest collections*
'The Paris collection of 70,000 costumes is the largest one.'

(41) OK: Der Niederschlag war mit 434 mm der höchste nach 1965.
the precipitation was with 434 mm the highest after 1965
'At 434 mm, this was the highest precipitation since 1965.'

On the whole, numerical *mit*-predicatives show no preference with regard to the lexical aspect of the main verbs, despite the preference for imperfective verbs that was observed with the two types in Table 7.

A summarizing characterization of numerical expression *mit*-predicatives would be that this subtype of the construction is typically used in order to present a 'numerical' topic (interest rates, the result of an election, or rate of precipitation), associate that topic with a currently relevant value in the *mit*-NP (5.25%, 434 mm), and finally to give an assessment of that value in the *pred*-phrase (unchanged, the highest since 1965, at the level of the previous year, a disappointment, etc.).

4.3.2 'other' *mit*-predicatives

The analysis determines one type of the *mit*-predicative that involves a *mit*-NP that is neither a numerical expression nor a person name. So far, our discussion of these examples has been rather limited, so it is necessary to go into some more detail here. Example (42) illustrates the third type, which has the *mit*-NP in initial position, a *pred*-phrase that instantiates an indefinite object, and a perfective main verb.

(42) TYPE 3: Mit dem Programmpaket R/3 hat SAP einen Volltreffer gelandet.
with the program.package R/3 has SAP a direct.hit landed
'SAP's program package R/3 was a huge hit.'

While the category label 'other' may lead to the impression that this *mit*-NP type represents a broad and heterogeneous array of entities, the data suggest otherwise. Out of the 107 examples, 51 *mit*-NPs capture the name that a commercial product or a work of art has been given. In this sense this category is similar to the *mit*-NP type of person names, and it is therefore predicted by the principle of maximized motivation (Goldberg 2006: 218) that the distribution of 'other' *mit*-NPs should be quite similar as well. Indeed, both categories show a preference for initial position, and both show a preference for indefinite nominal *pred*-phrases, which sets them in opposition to numerical expression *mit*-predicatives. Adverbial *pred*-phrases as in example (43) occur very rarely (observed 3, expected 24.4, ***), prepositional *pred*-phrases are not found in the data at all.

(43) ATYPICAL: Sie hat mit der Verweisung des Bedürftigen nicht fehlerhaft gehandelt.
she has with the dismissal of.the needy not faultily acted
'Dismissing the needy was not a spurious action.'

The combination of a medial *mit*-NP and an imperfective main verb is grammatically possible with 'other' *mit*-NPs, but examples such as (44) still occur less frequently than expected (observed 21, expected 37.0, *).

(44) ATYPICAL: Die neue E-Klasse hat mit dem AMG E50 einen 347-PS-Renner.
the new E-class has with the AMG E50 a 347-PS-racer
'The new E-class model AMG E50 is a 347-horsepower racer.'

The analysis suggests that 'other', or more aptly, 'title' *mit*-predicatives typically introduce the title of a product in a sentence-initial *mit*-NP, then name the creator of that project in the subject slot of the main clause, and finish by categorizing the product in the indefinite object phrase of the main clause. The following examples illustrate this particular pattern, which is already instantiated by example (42).

(45) Mit dem 'Besuch der alten Dame' hatten sie sich kein einfaches Stück ausgesucht.
with the 'visit of.the old lady' had they self no easy play selected
'They had selected "The visit of the old lady", which is not an easy play.'

(46) Mit Hindemiths Quodlibet wagte sich das Ensemble an eine bahnbrechende Musik.
with Hindemith's quodlibet dared self the ensemble at a groundbreaking music
'The ensemble dared to take on Hindemith's quodlibet, a groundbreaking piece.'

The 'object name' *mit*-predicative construction is thus a grammatical device to mention a product and its creator, and to simultaneously offer more information by categorizing that product. It shares with numerical expression *mit*-predicatives the assessment that is represented by the *pred*-phrase: the numerical cases typically assess a value relative to

some standard; the title cases quite similarly assess an entity as successful, difficult, or groundbreaking relative to an implicit standard.

4.3.3 Person name *mit*-predicatives

Two of the five types in Table 7 involve *mit*-NPs that instantiate proper names. The first of these is a combination of an initial *mit*-NP, an indefinite object *pred*-phrase, and a perfective verb. Example (47) gives an illustration.

(47) TYPE 4: Mit Hunold hofft man einen würdigen Nachfolger gefunden zu haben.
with Hunold hopes one a worthy successor found to have
'It is hoped that Hunold will be a worthy successor.'

The same configuration with imperfective verbs is also attested, but examples such as (48) are fairly rare in absolute terms and do not occur with more than chance frequency (observed 2, expected 2.0, ns)

(48) Mit Schwab hätte das Nationaltheater einen 'Manager-Intendanten'.
with Schwab had the national.theater a 'manager-director'
'Schwab would be a manager-type director for the national theater.'

The fifth and final type established by the HCFA combines a person name *mit*-NP in sentence-initial position with an indefinite subject *pred*-phrase. The lexical aspect of the verb is not relevant in this context, the type occurs equally frequently with both perfective verbs, as in (49), and imperfective verbs, as in (50).

(49) TYPE 5, P: Mit Ignatz Bubis starb ein deutscher Patriot.

with Ignatz Bubis died a German patriot

'The deceased Ignatz Bubis was a German patriot.'

(50) TYPE 5, I: Mit Jun Märkl steht ein erfahrener Operndirektor an der Spitze.

with Jun Märkl stands an experienced opera.director at the top

'The current leader Jun Märkl is an experienced opera director.'

On the whole, person name *mit*-predicatives rarely have medial *mit*-NPs (observed 23, expected 38.4, *), and there are no occurrences with adjectival or prepositional *pred*-phrases. Person name *mit*-predicatives thus share fewer properties with numerical *mit*-predicatives than with title *mit*-predicatives.

In general terms, person name *mit*-predicatives present a human being of some importance or current relevance in the *mit*-NP and associate that person with a particular attribute or category in the *pred*-phrase. Most examples refer to politicians, musicians, actors, or athletes. This could be dismissed as an effect of the chosen genre, as newspaper texts are mainly about events that happen in the public domain. However, as was pointed out earlier, the construction as such seems very much restricted to just newspaper German. Further, the examples typically report on a positive achievement or characteristic – which is not necessarily always the case in newspaper articles. There is a positive semantic prosody (Sinclair 1990) inherent to the construction: The semantic prosody of a linguistic form is commonly defined as its tendency to occur with attitudinal meanings, which usually convey positive or negative connotations. In the case of the *mit*-predicative, the semantic prosody of the construction gives the referent of the *mit*-NP an aura of benevolent interest or at least the

potentiality of such interest. To illustrate this with a contrast between constructed examples, consider (51) and (52).

(51) ? Mit Schnuffi besitze ich einen Rauhaardackel.
with Schnuffi own I a dachshund
'My dog Schnuffi is a dachshund.'

(51) Mit Schnuffi besitze ich den ältesten Rauhaardackel der Welt.
with Schnuffi own I the oldest dachshund of.the world
'My dog Schnuffi is the oldest dachshund in the world.'

Owning a dachshund is not particularly newsworthy in itself, whereas owning the oldest specimen of its kind would justify some interest from the German public. Hence, speakers of German should find (52) relatively more acceptable than (51). Informal questioning suggests that this is in fact the case.

The semantic prosody of person name *mit*-predicatives can actually motivate why writers use this construction instead of a simple copular predicative construction. The choice of the construction contributes an honorific meaning to the sentence that would not be present in alternative predicative constructions. As such, the *mit*-predicative allows a denser packaging of meaning, which makes it particularly suitable for newspaper writing.

5 Conclusions

This paper has argued for the recognition of the so-called German *mit*-predicative construction as a unit of German grammar in the written modality. A usage-based analysis of

the construction and its constraints was presented. The analysis of corpus data yielded that the construction is most frequently used with *mit*-NPs that are numerical expressions, which is a subtype of the construction that is not discussed in previous treatments (Rohdenburg 1972, Zifonun et al. 1997). Other frequent uses of the construction involve predications about human referents from the public domain and titles of commercial products or works of art.

Through the application of Hierarchical Configural Frequency Analysis to a sample of 356 example sentences, it was shown that the construction can be analyzed as a cluster of five subtypes. These five types share the feature of functioning as predicative constructions, that is, the semantic frames of *being in a category* and *having an attribute* lie at the heart of their constructional meaning. Beyond that, the five types differ with regard to their typical structural and semantic traits. Numerical expression *mit*-predicatives usually locate an observed value on a particular scale, using either an adjectival or a prepositional phrase to express that scale. Object name *mit*-predicatives are concerned with products and their creators and assign a certain quality to the product. Person *mit*-predicatives are commonly used for laudatory purposes; human referents are presented as having a special and laudable role.

Besides describing previously uncharted grammatical territory, the present paper also makes the theoretical point that constructions may exhibit a large amount of internal variation that the analyst needs to cope with. Such variation presents itself in constraints that appear to hold for some examples of the investigated construction but not for others. It further presents itself in probabilistic constraints that do not yield a clear-cut distinction between grammatical and ungrammatical examples, but may only take effect in a particular constellation of circumstances. It is hard, if not impossible, to interpret this kind of variation on the basis of intuition alone. Given a collection of examples with annotation for a set of variables, a

quantitative analysis can detect local regularities that would remain opaque to the human observer. Once these configurations are identified however, they are amenable to further analysis as sub-schemas of the construction under investigation. Analyses of these sub-schemas allow a simultaneous acknowledgment of the existing variation while yielding specific characterizations of the different uses of the construction. As the Construction Grammar enterprise opens up to further dimensions such as diachronic, social and genre variation, it surely stands to profit from such analyses.

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Appendix: All significant interactions from the HCFA analysis

mit-NP	position	*pred*-phrase	aktionsart	Obs	Exp	χ2	Obs-exp	P,adj,Holm	Dec	Q
person name	initial			30	12.95	22.44	>	0.0002	***	0.050
person name	medial			23	38.41	6.18	<	0.0209	*	0.049
person name		adjectival		0	12.06	12.06	<	0.0001	***	0.035
person name	medial	adjectival		0	8.74	8.74	<	0.0070	**	0.025
person name	initial	indef obj		13	4.26	17.96	>	0.0207	*	0.025
person name		indef sub		22	7.00	32.17	>	0.0001	***	0.043
person name	initial	indef sub		16	1.71	119.42	>	0.0000	***	0.040
person name		prepositional		0	5.36	5.36	<	0.0452	*	0.015
person name	initial		perfective	20	6.73	26.16	>	0.0005	***	0.038
person name	initial	indef obj	perfective	11	2.21	34.91	>	0.0030	**	0.025
person name	initial	indef sub	perfective	8	0.89	56.91	>	0.0007	***	0.020
person name		indef sub	imperfective	13	3.34	27.92	>	0.0022	**	0.027
person name	initial	indef sub	imperfective	8	0.82	63.19	>	0.0004	***	0.020
other	initial			39	26.15	6.32	>	0.0429	*	0.039
other		adjectival		3	24.35	18.72	<	0.0000	***	0.064
other	medial	adjectival		2	17.64	13.87	<	0.0001	***	0.046
other		indef obj		51	35.17	7.13	>	0.0424	*	0.049
other		prepositional		0	10.82	10.82	<	0.0002	***	0.031
other	medial	prepositional		0	7.84	7.84	<	0.0173	*	0.023
other	initial		perfective	27	13.59	13.24	>	0.0159	*	0.039
other		adjectival	perfective	1	12.65	10.73	<	0.0019	**	0.034
other	medial	adjectival	perfective	0	9.17	9.17	<	0.0145	*	0.026
other		indef obj	perfective	35	18.27	15.31	>	0.0107	*	0.050
other	initial	indef obj	perfective	14	4.47	20.35	>	0.0322	*	0.027
other	medial		imperfective	21	37.03	6.94	<	0.0461	*	0.050
other		adjectival	imperfective	2	11.63	7.97	<	0.0307	*	0.028
numerical	initial			18	47.90	18.66	<	0.0000	***	0.097
numerical	medial			172	142.04	6.32	>	0.0055	**	0.140
numerical		adjectival		78	44.60	25.02	>	0.0000	***	0.107
numerical	medial	adjectival		69	32.32	41.63	>	0.0000	***	0.113
numerical		indef obj		41	64.42	8.51	<	0.0055	**	0.080
numerical	initial	indef obj		3	15.74	10.31	<	0.0045	**	0.037
numerical		indef sub		7	25.88	13.77	<	0.0001	***	0.057
numerical	medial	indef sub		6	18.75	8.67	<	0.0222	*	0.038
numerical		prepositional		36	19.82	13.21	>	0.0051	**	0.048
numerical	medial	prepositional		31	14.36	19.27	>	0.0032	**	0.049
numerical	initial		perfective	6	24.89	14.34	<	0.0001	***	0.057
numerical		indef sub	perfective	3	13.45	8.12	<	0.0301	*	0.030
numerical	medial		imperfective	98	67.83	13.42	>	0.0016	**	0.105
numerical		adjectival	imperfective	51	21.30	41.43	>	0.0000	***	0.089
numerical	medial	adjectival	imperfective	47	15.43	64.57	>	0.0000	***	0.093
numerical		indef obj	imperfective	15	30.76	8.07	<	0.0412	*	0.048
numerical		prepositional	imperfective	30	9.46	44.55	>	0.0000	***	0.059
numerical	medial	prepositional	imperfective	25	6.86	47.98	>	0.0000	***	0.052
	initial	adjectival		5	19.79	11.06	<	0.0011	**	0.044
	initial	indef sub		24	11.49	13.63	>	0.0113	*	0.036
		prepositional	perfective	6	18.71	8.63	<	0.0090	**	0.038
	medial	adjectival	imperfective	49	28.03	15.68	>	0.0057	**	0.064
		prepositional	imperfective	30	17.19	9.54	>	0.0424	*	0.038
	medial	prepositional	imperfective	25	12.46	12.62	>	0.0482	*	0.037

Figure 1: being in a category (adapted from FrameNet frame report for *being_in_category*)

Definition:	An Item belongs to a Category, as (often implicitly) conceived of by a cognizer.	
Frame Elements:	Item	identifies the entity which is an instance of a particular Category
	Category	expresses a general type or class of which the Item is considered an instance
Example:	[This book] $_{\text{ITEM}}$ counts as [fiction] $_{\text{CATEGORY}}$	

Figure 2: having an attribute

Definition:	An Item has an Attribute, as (often implicitly) conceived of by a cognizer.	
Frame Elements:	Item	identifies the entity whose Attribute is specified
	Attribute	the role or characteristic that the Item occupies
Example:	[Paul] $_{\text{ITEM}}$ is [Mary's favourite author] $_{\text{ATTRIBUTE}}$	

Table 1: *mit*-NP types

proper names	numerical expressions	other	TOTAL
53	196	107	356

Table 2: *mit*-NP position

initial	medial	final	TOTAL
87	258	11	356

Table 3: *pred*-phrase type

indefinite nominal	definite nominal	adjectival / adverbial	prepositional phrase	TOTAL
164	75	81	36	356

Table 4: *pred*-phrase grammatical function

indefinite subject	indefinite object	definite subject	definite object	adjectival / adverbial	prepositional phrase	TOTAL
47	117	20	55	81	36	356

Table 5: Most frequent verb types in the *mit*-predicative

Verb	Gloss	Tokens	Verb	Gloss	Tokens
sein	*be*	31	gehen	*go*	6
liegen	*lie*	28	stellen	*provide*	6
haben	*have*	22	bringen	*bring*	5
bleiben	*stay*	14	finden	*find*	5
stehen	*stand*	13	ausfallen	*turn out*	4
erreichen	*reach*	9	gewinnen	*win*	4
erzielen	*achieve*	9	halten	*hold*	4
notieren	*note*	9	landen	*land*	4
geben	*give*	8	machen	*make*	4
erhalten	*receive*	6	starten	*start*	4

Table 6: Lexical aspect of the main verb

imperfective	perfective	TOTAL
171	185	356

Table 7: Types of the *mit*-predicative

mit-NP	*mit*-NP pos	*pred*-phrase	aktionsart	obs	exp	$\chi 2$	p.adj.Holm	dec	Q
numerical	medial	adjectival	imperfective	47	15.4	64.56	2.98E-09	***	0.093
numerical	medial	prepositional	imperfective	25	6.9	47.98	7.50E-06	***	0.052
other	initial	indefinite obj	perfective	14	4.5	20.35	3.22E-02	*	0.027
person	initial	indefinite obj	perfective	11	2.2	34.91	2.97E-03	**	0.025
person	initial	indefinite sub	-	16	1.7	119.42	2,11E-09	***	0.043