

Meaning in order. On SOURCE-GOAL asymmetries in German *werden*-copula constructions

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1 Selectional restrictions and linearization effects of *werden*

In most languages, copula constructions are probably one of the fundamental verbal expressions. Copulas admit a wide range of complements, and their syntactical pattern is usually rather simple.¹ The German semi-copula *werden* (engl. *become/get*) differs from the copula *sein* (engl. *be*) in two interrelated respects: it is subject to particular selectional restrictions on its predicative complements,² and it exhibits a striking but understudied linearization asymmetry with respect to SOURCE- and GOAL-denoting PPs. While previous accounts have addressed these phenomena in isolation, we argue that both follow from the same underlying source: the interaction of trope-based transition semantics, a comparatively weak argument structure in copula constructions, and independently motivated linearization preferences.

The German semi-copula *werden* exhibits selectional restrictions on its predicative complements that are not reducible to syntactic category.

- (1) Aaron war/wurde {panisch, Lehrer}.
Aaron was/became {panicky, teacher}
Aaron {was panicking/panicked, was/became a teacher}
- (2) a. Aaron war/*wurde {in Panik, ohne Mut, guter Hoffnung}.
Aaron was/*became {in panic, without courage, better hope}
Aaron was/*became {in panic, without courage, hopeful}.
b. Aaron war/*wurde {dort, im Garten}.
Aaron was/*became {there, in the garden}
Aaron was/got {there, in the garden}.
c. Aaron war/*wurde {nackt, tot, pleite}
Aaron was/*became {naked, dead, broke}
Aaron {was/got naked, was dead/died, was/became broke}.

Previous approaches focusing solely on event semantic aspects (cf. Musan 1999 and Steinitz 1999) or positing the relevance of an internal CONTROL-feature (cf. Härtl 2005, 2007) do not capture the combinatorics of *werden* convincingly. Recent approaches building on ontologically based restrictions are far more promising. Bücking and Scheifele 2021 relate the group of admissible predicative complements to expressions denoting particularized properties, i.e., tropes.³ Thereby, they describe the meaning of *werden* with the term given in (3).⁴

$$(3) \llbracket \textit{werden} \rrbracket = \lambda P_{\langle \text{BEARER}, \langle \text{TROPE}, T \rangle \rangle} \lambda x_{\text{BEARER}} \lambda e_{\text{EVENT}}. \exists r_{\text{TROPE}} [e : \text{become}'(P(x)(r))]$$

However, the LF term still contains the inscrutable and somewhat self-referential predicate 'become', in contrast to the claim of describing the meaning of *werden*, i.e., *become*. Therefore, the nature of the ascribed event is not characterized exhaustively.

In addition to these selectional restrictions, *werden*-constructions exhibit a less discussed but strikingly systematic linearization asymmetry. In particular, predicative PPs headed by *aus* ('from') and *zu* ('(in)to'), encoding SOURCE and GOAL respectively, show a strong tendency to occur in rather fixed positions. While German is usually claimed to have a relatively free word order, in copula constructions with *werden*, *aus*-PPs preferentially appear in the preverbal position, the prefield, whereas *zu*-PPs are typically realized postverbally. Crucially, however, these preferences do not correspond to hard grammatical constraints. Deviations from that pattern are possible by pragmatically strengthening the trope denoting GOAL, e.g., by contrastive focus/stress.

¹Cf. Arche, Fábregas, and Marín 2019 for a general overview, and Geist and Rothstein 2007 specifically for German.

²Cf. Rogler 2009 for a comprehensive descriptive overview of possible predicative complements.

³For overviews, cf. Maurin 2013, 2018; Moltmann 2009, 2013; Schaffer 2001.

⁴Cf. ex. (53) in their paper.

- (4) a. Aus Angst wurde Wut.
From fear became fury
'Fear turned into fury.'
- b. ?? Wut wurde aus Angst.
Fury became from fear
'Into fury, fear turned.'
- c. WUT wurde aus Angst (und nicht Mut).
FURY became from fear and not courage
'It was fury, the fear turned into (but not courage).'
- (5) a. Angst wurde zu Wut.
Fear became to fury
'Fear turned into fury.'
- b. ?? Zu Wut wurde Angst.
To fury became fear
'Into fury, fear turned.'
- c. Zu WUT wurde Angst (und nicht (zu) Mut).
Into FURY became fear and not (into) courage
'It was fury, the fear turned into (but not courage).'

We argue that this asymmetry is not accidental, but follows from the interaction of (i) trope-based transition semantics, (ii) a relatively weak argument structure in copula constructions, and (iii) general iconicity mappings between information structure and linearization.

2 Transition between tropes

On the semantic side, *werden* has been analyzed as expressing an event, in which the logical subject 'becomes' the bearer of a particularized property, a trope (cf. Bücking 2012; Bücking and Scheifele 2021). However, it is unclear what 'become' expresses in particular. We will thus give a HPSG formalization refining the analysis in Bücking and Scheifele 2021 by claiming *werden* inherently depicts an event of change (cf. Hengeveld 2010, 35ff.), more precisely, a transition between tropes. We propose that *werden* demands both the SOURCE and the GOAL to denote relations to tropes, and expresses the transition of the logical subject from bearing one trope, the SOURCE, to bearing another, the GOAL. This analysis is supported by constructions that realize the SOURCE element overtly as a *von*-PP:

- (6) Aaron wurde vom Kind zum Mann.
Aaron become from child to man
'Aaron grew from a child into a man.'

The subject *Aaron* initially bears the SOURCE trope denoted by *Kind*, and transitions to bearing the GOAL trope *Mann*.⁵ Note that the SOURCE depicting element can also be implicitly given, as, e.g., in (1), where the initial situation is one in which the subject does not already bear the trope (i.e., *Aaron is not panicky/not a teacher*). Thus, tropes can also be of 'negative' nature: The implicit initial SOURCE in (1), a state describable by '*Aaron is not a teacher*', can be understood as *Aaron* bearing the particularized property of not being a teacher (but potentially something else).

Standardly, *werden* requires that the grammatical subject *Aaron* is the logical subject of the nonverbal predicates of both SOURCE and GOAL, a simultaneous linking indicating *werden* as a raising verb, which the 'regular' copula *sein* (*be*) is also claimed to be a case of (cf. Moro 1997; Müller 2009, 2013). However, some *werden*-constructions are asymmetric with respect to the syntax-semantics interface. Namely, constructions with predicative *aus*-PPs such as in (4a.) exhibit the peculiarity of form and meaning falling apart structurally by deviating from the standard pattern of *werden*, where grammatical subjects house the logical subject and (implicitly) depict the SOURCE, and predicates depict the GOAL. In contrast, in these *aus*-constructions the grammatical subject is associated with the GOAL, while the PP is linked with the SOURCE argument. The logical subject coincides with the NP inside the PP, but

⁵Note that (societal, temporal) roles, such as denoted by these nouns, are exemplary for tropes, cf. Zobel 2017.

not with the grammatical subject, which is the logical predicate. For all other kinds of predicative complements, the logical subject, connected with the SOURCE element, coincides with the grammatical subject, while the predicative GOAL element can appear in various shapes, e.g. APs, *zu*-PPs, or NPs. Across all types of predicatives, *werden* describes a directed, temporally oriented transition between tropes. This directionality is represented by the standard order following $\text{SOURCE} < \textit{werden} < \text{GOAL}$ in finite declaratives. Notably, this directionality holds across syntactic categories, with the consequence that the logical subject may not coincide with the grammatical one, as in the case of predicative *aus*-PPs.

3 Iconic interpretation in small clauses and complex predicates

Notably, the sensitivity to linearization in (4) and (5) is not a particular property of SOURCE and GOAL arguments in German, but can be observed more generally in small clauses and complex predicates, and copula constructions specifically. In German, full lexical verbs expressing directed motion such as *gehen* (engl. *go*) or *kommen* (engl. *come*) do not exhibit very rigid ordering preferences and flexibly allow deviations from the pattern of preverbal SOURCE arguments and postverbal GOAL arguments if only one of these arguments is present.

- (7) [Nach Italien]_{GOAL} gehe ich eigentlich jedes Jahr.
'I usually go [to Italy]_{GOAL} every year.'
- (8) Neun Kinder kamen [aus dem Klassenzimmer]_{SOURCE}.
'Nine kids came [out of the class room]_{SOURCE}.'

However, for constructions involving both a SOURCE and a GOAL, the linear structure seems to mirror the iconic structure of the motion with the SOURCE preceding the GOAL. Apart from *werden*-constructions, further evidence for this structure can be found in small clauses of the form $[S_1 S_2]$. The identification of the first element S_1 with a GOAL and the second element S_2 with a SOURCE is rather marked with a broad QUD (9). Instead, the 'reversed' pattern is only/more acceptable with a narrow QUD (10).⁶

- (9) What kind of trip did you plan?
 - a. From Germany to Norway.
 - b. # To Norway from Germany.
- (10) Starting from Germany, what kind of trip did you plan?
 - a. From Germany to Norway.
 - b. To Norway from Germany.

Note that the acceptability of (10b) improves further by pragmatically strengthening the fronted GOAL, e.g., by stress ('to NORway'), or an intonation pause between the small clause constituents S_1 and S_2 . Thus, the linear pattern $\text{SOURCE} < \text{GOAL}$ seems to be the unmarked default, applicable in both broad and narrow focus, while the deviation from that pattern can only be licensed through a narrower context, e.g., focus on alternatives. This matches the observation that linear order in NP-NP small clauses generally seems to support cognitive processing by interpreting the first constituent as the entity the proposition is about (cf. Yablo's concept of aboutness linked to QUDs): While (11a) is a proposition about an entity individuated by *my husband*, the reverse (11b) is about the entity depicted by *the culprit*.⁷

- (11) a. [My husband] [the culprit]? (No, he isn't guilty!)
- b. [The culprit] [my husband]? (No, I don't know the alleged criminal personally!)

⁶I thank a reviewer for pointing this out to me.

⁷This also applies to allegedly symmetric uses of *be* such as in *Cicero is Tully*, which are never purely symmetric according to Adger and Ramchand 2001. Interpretation based on linearization is also found in accusative predicatives, cf. Hartmann 2019.

- (i) a. Aus Versehen nannte er meinen Ehemann den Schuldigen.
'By accident, he called my husband the culprit.'
- b. Aus Versehen nannte er den Schuldigen meinen Ehemann.
'By accident, he called the culprit my husband.'

Therefore, we propose that linear order in small clauses and cognitive structure are inherently related, especially since there is no other possibility of structuring into a hierarchy of thematic roles. In canonical argument structures, constituents occupy well-defined argument slots with morphosyntactically encoded roles. This subcategorization of different roles/case markings typically relate to an asymmetry between arguments and allow, in languages like German, considerable freedom in constituent order without loss of interpretability. In contrast, small clauses lack this mechanism.⁸ They neither assign case nor thematic roles and thus are, under broad QUDs and with standard intonation patterns, bound to rely on linear order for interpretation. This translates over to the complex predicate formed by small clause and copula. Just like small clauses, copulas, often described as semantically empty or 'light', do not provide an argument structure allocating morphosyntactically encoded thematic roles. Again, it is then the linear order that supports interpretation.^{9,10} Compared to lexical (motion) verbs also usually exhibiting a cognitively fixed order of arguments, the underdetermination of copulas w.r.t the argument structure and their weak semantics creates additional pressure for linear order to support interpretation that the complex predicate alone cannot provide straightforwardly. In the case of the directed copula *werden*, which expresses a semantically asymmetric transition between a SOURCE and a GOAL trope, this pressure is particularly acute. The predicate itself does not rigidly encode constituents as the initial and the resulting state, but unlike the more symmetric *sein* (*be*), the asymmetric *werden* needs to map constituents onto the cognitive structure of the transition. To resolve this mapping, linear order thus emerges as an interface strategy.

4 Thinking linearly

We have seen that linear order is mirroring the cognitive structure of the inherent direction of predicates, especially when the argument structure does not encode clear thematic hierarchies. Thus, it is not generally the grammatical subject associated with the topic position in unmarked default, but the constituent associated with the element most prominent according to cognitive structure. For the case of SOURCE-GOAL-constructions more specifically, we propose the following tendencies: 1., elements encoding SOURCE states are preferentially aligned with topic-like positions, and 2., elements encoding GOAL states are preferentially aligned with comment-like, i.e., non-topic positions. Initial states related to the SOURCE provide a natural anchor for the interpretation of a transition and therefore tend to function as the discourse anchor of the predication. Importantly, these are preferences rather than hard constraints, which explains why marked orders can be licensed under appropriate discourse conditions (e.g. contrastive focus). However, the preference bears extra importance in the case of constructions with a weaker hierarchy between constituents such as in copula constructions. This matches the observations in (4)-(5), where *aus*-PPs tend to appear preverbally, i.e. in the topical prefield, while *zu*-PPs appear postverbally, as they usually do not depict topics, but a comment about the subject, i.e., the SOURCE. Unlike other grammatical theories, constraint-based approaches such as HPSG not only allow discriminating grammaticality as a binary concept, but can also model preferences by adding individual weights to constraints. We propose a defeasible iconicity constraint that assumes SOURCE arguments in topic positions, assuming information structuring as in Kuthy 2002. It is these SOURCE arguments that are identified with logical subjects, but not necessarily with grammatical subjects. Associating the constraint with a weight allows it to be overridden by 'heavier' conditions such that SOURCE arguments can also appear in non-topic

⁸It is only the nonverbal predicate that subcategorizes for any additional elements, while the copula merely raises the subject.

⁹Interestingly, this does not only apply to NP-NP configurations. The sequentially prominent topical PPs in PP-NP copulas corresponds to the availability of a PP-subject reading available that the reverse NP-PP configuration does not provide as straightforwardly under general broad focus, cf. Campbell 1996.

- (i) Under the table is a good place to hide.
 - a. 'There is a space under the table which is a good place to hide.' *locative PP reading*
 - b. 'The space denoted by *under the table* is a good place to hide.' *subject PP reading*
- (ii) A good place to hide is under the table.
 - a. 'There is a good place to hide and it is under the table.' *locative PP reading*
 - b. ? 'A good place to hide can be identified with the space denoted by *under the table*.' *subject PP reading*

¹⁰I thank one of the reviewers for indicating that other complex predicates, namely serial verb constructions, exhibit similar linearization effects (cf. Durie 1997). Here, it is not the cognitively plausible order of semantic arguments, but the iconic sequence of (sub-)events determining the linear order. Iconicity generally seems to play a decisive role in linearization, as it is even able to override general predominant word orders (cf., e.g., Goldin-Meadow et al. 2008).

positions, e.g., for narrow QUDs as in (10). Moreover, this aligns with the observation that constructions with weak(er) arguments structures such as small clauses and copula constructions are more prone to using linearization strategies, thus, the weights bears greater importance for these cases.

(12) **SOURCE topicality**

$$\left[\begin{array}{c} \text{SS|LOC|CONT} \left[\begin{array}{c} \text{HOOK|LTOP} \quad \boxed{1} \\ \text{RELS} \quad \left\langle \begin{array}{c} \text{motion-rel} \\ \text{LBL} \quad \boxed{1} \\ \text{SOURCE} \quad \boxed{2} \end{array} \right\rangle, \dots \end{array} \right] \end{array} \right] \Rightarrow \left[\text{SS|LOC|INF-STR|TOPIC} \quad \langle \boxed{2} \rangle \right]$$

The constraint ensures that all signs with LTOP being a relation of motion including a SOURCE have this argument in topical position. Therefore, this constraint also applies to *werden* which depicts the directed transition from SOURCE-trope to GOAL-trope. We propose the following lexical entry for *werden*:

$$(13) \quad \left[\begin{array}{c} \text{PHON} \quad \langle \text{werden} \rangle \\ \text{SS|LOC} \left[\begin{array}{c} \text{CAT|ARG-ST} \quad \langle \boxed{1} \oplus \boxed{2} \rangle \circ \left[\begin{array}{c} \text{LOC} \quad \text{CAT} \left[\begin{array}{c} \text{HEAD} \quad \left[\begin{array}{c} \text{PRED} \quad + \\ \text{SUBJ} \quad \boxed{1} \text{NP} \boxed{4} \end{array} \right] \\ \text{COMPS} \quad \langle \boxed{2} \rangle \end{array} \right] \\ \text{CONT|HOOK|LTOP} \quad \boxed{3} \end{array} \right] \end{array} \right] \\ \text{CONT} \left[\begin{array}{c} \text{HOOK} \quad \left[\begin{array}{c} \text{IND} \quad \boxed{5} \\ \text{LTOP} \quad \boxed{6} \end{array} \right] \\ \text{RELS} \quad \left\langle \begin{array}{c} \text{werden-rel} \\ \text{ARG0} \quad \boxed{5} \text{event} \\ \text{LBL} \quad \boxed{6} \\ \text{L-SUBJ} \quad \boxed{4} \text{ref} \\ \text{SOURCE} \quad \boxed{7} \text{trope} \\ \text{GOAL} \quad \boxed{8} \text{trope} \end{array} \right\rangle, \left[\begin{array}{c} \text{trope-bearer-rel} \\ \text{LBL} \quad \boxed{3} \\ \text{BEARER} \quad \boxed{4} \\ \text{TROPE} \quad \boxed{7} \vee \boxed{8} \end{array} \right], \left[\begin{array}{c} \text{trope-bearer-rel} \\ \text{BEARER} \quad \boxed{4} \\ \text{TROPE} \quad \boxed{7} \vee \boxed{8} \end{array} \right], \dots \end{array} \right] \end{array} \right] \end{array} \right]$$

Following the analysis in Müller 2009, 2013, *werden* is analyzed as a raising the subject $\boxed{1}$ out of the nonverbal predicate into the matrix clause,¹¹ potentially together with the complement $\boxed{2}$ of the nonverbal predicate (e.g., a NP[GEN] for *überdrüssig*, engl. *weary of*). Both the subject and the predicative denote relations of the logical subject with the index $\boxed{4}$ bearing a trope ($\boxed{7}$ or $\boxed{8}$). In the case of the predicative *aus-PP*, the TROPE in the predicative *trope-bearer-rel* with the LBL $\boxed{3}$ is identified with the value $\boxed{7}$. For all other types of predicatives, the *trope-bearer-rel* with the LBL $\boxed{3}$ is identified with the GOAL trope $\boxed{8}$. Token-identity between the referential subject index $\boxed{4}$ and both *trope-bearer-relations* ensures that it is one and the same individual going through the transition of bearing the tropes. Notably, the *werden-rel* should be understood as a subtype of *motion-rel*. Thus, the constraint in (12) applies.

In summary, *werden*-constructions semantically depict an iconic structured transition (between tropes), along with a weakly encoded argument structure. This constellation creates a pressure for other strategies supporting interpretation. Linearization preferences emerge as a reflex of this pressure, but disambiguation is also possible with information structural processes. Semi-copulas such as *werden* thus provide a paradigmatic example of linguistic phenomena cross-cutting layers, which is why monostratal theories such as HPSG provide a particularly suitable framework for analyzing these patterns.

¹¹ A reviewer pointed out that the congruent case (nominative for (semi-)copulas and accusative for predicates like *nennen* (engl. *call*)) is challenged by the case distribution in *lassen* (engl. *let*), where subject and predicative do not show congruent case in the copula construction.

- (i) Lass mich dein Tanzpartner sein.
 Let me.ACC your dance partner.NOM be.
 'Let me be your dance partner'

However, *lassen* does not seem fit as a counter example, as it has been argued to be a (rare) case of a raising-to-object verb in German (cf. Reis 1973), where the raised element surfaces in the case the raising predicate subcategorizes for, e.g., ACC for German *lassen* or DAT for English *believe*.

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