

## On the Concept of Proforms

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**Summary.** This paper investigates the concept of proform from the perspective of the syntax-semantics interface. We show that the German Verb-Phrase (VP) proform *es* is a spell-out phenomenon as the interpretation of certain questions and comparatives requires a full-fledged syntactic structure with traces. Unlike its English counterpart *so*, it is thus not interpreted via the variable assignment function.

**Background.** Under certain conditions, English allows for VPs to undergo a deletion process or be replaced by a proform. The sentences in (1-a) and (1-b) differ in their Logical Forms (LFs), however. Only in the case of ellipsis is there additional structure at LF. In the case of the proform, interpretation proceeds via the assignment function (Heim & Kratzer 1998). Evidence for such a view comes from the fact that movement is only possible from ellipsis but results in ungrammaticality in the case of the proform (Hankamer & Sag 1976, Johnson 2001, Haddican 2007): Compare (2-a) and (2-b). As the assignment function cannot apply within an assignment, (2-b) is not a possible assignment. This analysis does not extend to German, however.

**Data.** German does not allow for VP ellipsis (Winkler 2005), as illustrated in (3-a). However, German, too, has a VP proform, *es*, in (3-b). Unlike in English, however, the proform is acceptable in two syntactic configurations that are not compatible with a pronominal analysis at LF: The proform may be used in the comparative clause, as in (4), and in coordinated questions, as in (5). Because of the presence of traces, both constructions require that the VP be structurally present at LF: Comparatives like (4) involve covert *wh*-movement in the degree relative clause (Beck 2011), which is incompatible with an analysis under which the proform receives an interpretation via the assignment function. This reasoning extends to the question in (5): It also contains a trace, which is co-indexed with a trace left by *wh*-movement in the first conjunct.

**Analysis.** In German, proform insertion is not a Deep-Structure process but rather a spell-out operation. The VP proform *es* is thus not present at LF, which provides the full VP structure for the purpose of interpretation. From the perspective of LF, there is thus more structure to certain proforms than meets the eye, an observation which has also been made for a number of other pronominal elements in the past decade (Elbourne 2005, Martí Martínez 2003, Beck 2007). The case of VP-proforms, however, also teaches us that how much structure there is to a pronominal element at LF is subject to crosslinguistic variation.

**Selected Short References.** BECK, S. (2011). "Comparison Constructions." In C. Maienborn et al. (eds.), *Semantics*. II: 1341–1389. ::: HADDICAN, B. (2007). "Verbal Pro-Forms." *LI* 38(3): 539–547. ::: HANKAMER, J. & I. SAG (1976). "Anaphora." *LI* 7(3): 391–428. ::: JOHNSON, K. (2001). "VP Ellipsis." In M. Baltin & C. Collins (eds.), *Syntactic Theory*, 439–479. ::: WINKLER, S. (2005). *Ellipsis in Generative Grammar*.

- (1) a. *John visited Mary and Peter did, too.*  
 $[IP_{\langle t \rangle} Peter_{\langle e \rangle} [I_{\langle e, t \rangle} [I \text{ past}] [VP [V \text{ visit}_{\langle e, \langle e, t \rangle}]] [NP \text{ Mary}_{\langle e \rangle}]]]]$
- b. *John visited Mary and Peter did so, too.*  
 $[IP_{\langle t \rangle} Peter_{\langle e \rangle} [I_{\langle e, t \rangle} [I \text{ past}] [VP \text{ so}_{1, \langle e, t \rangle}]]]$   
 $g(1, \langle e, t \rangle) = \lambda x_{\langle e \rangle}. \text{visit}(\text{Mary})(x)$
- (2) a. *I don't know whom John visited but I know whom Peter did.*  
 $[CP_{\langle st, t \rangle} \text{whom}_{\langle estt, \langle st, t \rangle \rangle} [I_{\langle e, \langle st, t \rangle \rangle} 2, \langle e \rangle [I_{\langle st, t \rangle} Q_{\langle st, \langle st, t \rangle \rangle}]] [IP_{\langle s, t \rangle} Peter [I [I \text{ past}] [VP_{\langle e, \langle s, t \rangle \rangle} [V \text{ visit}_{\langle e, \langle e, \langle s, t \rangle \rangle}]] t_{2, \langle e \rangle}]]]]]$
- b. \**I don't know whom John visited but I know whom Peter did so.*  
 $[CP_{\langle st, t \rangle} \text{whom}_{\langle estt, \langle st, t \rangle \rangle} [I_{\langle e, \langle st, t \rangle \rangle} 2, \langle e \rangle [I_{\langle st, t \rangle} Q_{\langle st, \langle st, t \rangle \rangle}]] [IP_{\langle s, t \rangle} Peter [I [I \text{ past}] [VP \text{ so}_{1, \langle e, \langle s, t \rangle \rangle}]]]]]$   
 $g(1, \langle e, \langle s, t \rangle \rangle) = \lambda x_{\langle e \rangle}. \lambda w_{\langle s \rangle}. \text{visit}(w)(g(2, \langle e \rangle))(x)$  ☠
- (3) a. \**Alex hatte Maria besucht und auch Peter hatte Maria besucht.*  
 Alex had Mary visited and also Peter had Mary visited  
 'Alex had visited Mary and Peter had, too.'
- b. *Alex hatte Maria besucht und auch Peter hatte es.*  
 Alex had Mary visited and also Peter had PRF.  
 'Alex had visited Mary and Peter had done so, too.'
- (4) a. *Maria kaufte ein schnelleres Auto als Peter es tat.*  
 Mary bought a faster car than Peter PRF. did  
 'Mary bought a faster car than Peter did.'  
 $[ [DegP [Deg \text{-er}]_{\langle dt, \langle dt, t \rangle \rangle} ] [PP [P \text{ als}] [CP_{\langle d, t \rangle} \text{wie}_{\langle covert \rangle} [2, \langle d \rangle] [IP \text{ Peter} [I [I \text{ past}]] [VP [ein]_{\langle dt, \langle dt, t \rangle \rangle} [AP t_{2, \langle d \rangle} [A \text{ schnell}]] \text{Auto}] \text{kaufen}]]]]]] ] [I_{\langle d, t \rangle} 1, \langle d \rangle] [IP \text{ Maria} [I [I \text{ past}]] [VP [ein]_{\langle dt, \langle dt, t \rangle \rangle} [AP t_{1, \langle d \rangle} [A \text{ schnell}]] \text{Auto}] \text{kaufen}]]]] ] ]$   
 $[ -er ] = \lambda D'_{\langle d, t \rangle}. \lambda D_{\langle d, t \rangle}. \text{MAX}(D) > \text{MAX}(D')$
- b. \**Mary bought a faster car than Peter did so.*
- (5) a. *Welche Tageszeitung hat Maria abonniert und Peter hat es auch?*  
 which newspaper has Mary subscribed and Peter has PRF. also  
 'Which newspaper does Mary subscribe to and Peter does, too?'  
 $[CP_{\langle st, t \rangle} [\text{which newspaper}] [I_{\langle e, \langle st, t \rangle \rangle} 1, \langle e \rangle [I_{\langle st, t \rangle} \dots]] [IP_{\langle s, t \rangle} \text{Mary} \dots [VP_{\langle e, \langle s, t \rangle \rangle} \text{subscribe } t_{1, \langle e \rangle}]]] \text{and } [IP_{\langle s, t \rangle} \text{Peter} \dots [VP_{\langle e, \langle s, t \rangle \rangle} \text{subscribe } t_{1, \langle e \rangle}]]]]]$
- b. \**Which newspaper did Mary subscribe to and Peter did so, too?*