

An LFG approach to nested dependencies in Dutch

Marjolein Poortvliet

University of Oxford

Dutch embedded clauses have an OV word order, in which verbs form a verb cluster at the end, preceded by a noun cluster of nouns. The arguments and verbs of both clusters are ordered in two successive arrays: [NP1 NP2 NP3 etc] [V1 V2 V3 etc]. These constructions are called ‘cross-serial dependency structures’, and have a long tradition of receiving attention in the literature (e.g. Bresnan et al 1982, Bach et al 1986, Rentier 1994, Kaan and Vasic 2004). Dutch is often contrasted with German in only using cross-serial dependencies, but not nested dependencies. In this talk, I discuss a construction that suggests that Dutch has nested dependency structures and explore how this behaviour can be captured in LFG. My proposed analysis builds on Zaenen and Kaplan (1995, henceforth ZK) and Kaplan and Zaenen (2003, henceforth KZ) on cross-serial dependencies in Dutch.

Dutch cross-serial dependency structures are interesting in that the ‘elements that are syntactically closely dependent on each other are in string positions separated by ‘extraneous’ material’ (ZK:215). In contrast, German is known for its nested serial dependency structures. This difference is captured in (1) and (2).

1. *dat Jan Marie ziet zwemmen*
that Jan Marie sees to-swim
-
- ‘that Jan sees Marie swim’

2. *dass Jan Marie schwimmen sieht*
that Jan Marie to-swim sees
-
- ‘that Jan sees Marie swim’

However, it appears that nested dependencies are also possible in Dutch. Consider the example in (3). In this construction, the NP *we* ‘we’ is linked to the verb *zagen* ‘saw’, while the NP *een lammetje* ‘a lamb’ is linked to the main verb of the verb phrase *gevoed worden* ‘to be fed’.

3. *dat we een lammetje gevoed zagen worden*
that we a lamb fed saw to-become
-
- ‘that we saw a lamb being fed’

This construction is less common than the cross-serial constructions, as it is highly constrained: it can only occur 1) with passive constructions in the complement of the verb; 2) with a specific set of main verbs (e.g. perception verbs and the causative *to let*); 3) with the past participle in a fixed position next to the NP it is linked to. This nested construction is thus different from that in (4), which is not a true nested dependency as its past participle can appear in any place within the verb cluster (5).

4. *dat Jan een liedje gezongen zal hebben*
that Jan a song sung will to-have
-
- ‘that Jan will have sung a song’

5. *dat Jan een liedje (gezongen) zal (gezongen) hebben (gezongen)*
 that Jan a song sung will sung to-have sung
 ‘that Jan will have sung a song’

In this talk, I explore how the nested construction in (3) can be accounted for in LFG, capturing the fact that it is a different construction from that in (4): the past participle in (3) is in a fixed position, whereas the past participle in (4) can appear in three positions. In order to achieve this, I argue for a small but important revision to ZK’s and KZ’s analyses. Specifically, a fixed past participle is added to their VP rule and a constraint on the optional past participle is added to their V-bar rule. This creates the modified rules given in (6) and (7):

6.
$$\text{VP} \rightarrow \text{NP}^* \quad (\text{V}) \quad \text{V}' \quad (\text{VP})$$

$$(\uparrow\text{XCOMP}^*(\text{COMP})\text{NGF})=\downarrow \quad (\downarrow\text{VFORM})=\text{cPART} \quad (\uparrow\text{XCOMP}^*\text{COMP})=\downarrow$$

$$(\uparrow\text{XCOMP})=\downarrow$$
7.
$$\text{V}' \rightarrow (\text{V}) \quad [\text{V} \ , \quad (\text{V}')]$$

$$(\downarrow\text{VFORM})=\text{PART} \quad (\uparrow\text{XCOMP})=\downarrow$$

$$(\uparrow\text{XCOMP}^+)=\downarrow \quad (\uparrow\text{XCOMP}^+\text{NGF})\neg<_f(\uparrow\text{NGF})$$

$$\neg(\uparrow\text{PASSIVE})$$

The rule in (6) states that the VP will have zero or more NPs that are assigned to some nominal function NGF that can be reached on a path consisting of zero or more XCOMPs or possibly a COMP for extraposed VPs, a newly introduced potential V constrained to a past participle that is the head of the XCOMP, a V-bar, and a potential VP (to account for extraposed complements). The rule in (7) states that the V-bar will consist of one V and a potential V-bar, whose head is the head of the XCOMP, and whose nominal function cannot precede the nominal function of a higher predicate. The V can appear to the left or right of the V-bar. KZ add a potential past participle V to the V-bar rule to allow a past participle to appear to the left of the verb cluster. I show that the extra constraint $\neg(\uparrow\text{PASSIVE})$ needs to be added to the leftmost V in the V-bar rule, with the assumption that the auxiliary *worden* ‘to-become’ in (3) will add [PASSIVE = +] to the XCOMP. This constraint is necessary to ensure that the past participle under V-bar cannot be passive. This will correctly disallow the past participle in (3) to appear in the three possible positions of *gezongen* ‘sung’ in (5).

It appears that the past participles in passive complements share their fixed position in the VP with adjectives such as in (8). A preliminary suggestion is that this position is reserved for *resultative participles* (Kibort 2004).

8. *dat Jan de winkel gesloten zag zijn*
 that Jan the store closed saw to-be
 ‘that Jan saw that the store was closed’

References

- ★ Bach, E., C. Brown, and W. Marslen-Wilson. (1986). ‘Crossed and nested dependencies in German and Dutch: A psycholinguistic study’, *Language and Cognitive Processes*, 1: 4, 249 - 262. ★ Besten, H. den, J. Rutten, T. Veenstra and J. Veld. (1988). *Verb Raising, extrapositie en de derde constructie*. Manuscript, UvA. ★ Bresnan, J., R. Kaplan, S. Peters and A. Zaenen. (1982). ‘Cross-Serial Dependencies in Dutch’. *Linguistic Inquiry* 13, 613-635. ★ Kaan, E. and N. Vasic. (2004). ‘Cross-serial dependencies in Dutch: Testing the influence of NP type on processing load.’ *Memory and Cognition*, 32 (2): 175-184. ★ Kaplan, R and A. Zaenen. (2003). ‘West-Germanic verb clusters in LFG’. In *Verb constructions in German and Dutch*, Pieter Seuren and Gerard Kempen (eds.), pp. 127-150. John Benjamins Publishing Company, Amsterdam, The Netherlands, 2003. ★ Kibort, A. (2004). *Passive and Passive-like Constructions in English and Polish*. Ph.D. thesis, University of Cambridge, Cambridge. ★ Rentier, G. M. (1994). ‘Dutch Cross Serial Dependencies in HPSG’. In: *Proceedings of COLING 94*, 818-822. Kyoto, Japan. ★ Zaenen, A. and R. Kaplan. (1995). ‘Formal devices for linguistic generalizations: West Germanic word order in LFG’. In: *Linguistics and Computation*, CSLI Lecture Notes, number 52. Stanford University: CSLI Publications. Reprinted in Dalrymple et al. (editors), *Formal Issues in Lexical-Functional Grammar*. CSLI, 1995.