

Modeling syntactic properties of MWEs in LFG [WG2]

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Introduction

- ▶ Preliminary investigations on how to model syntactic properties of different types of MWEs within LFG.
- ► Motivation: which types of MWEs can be described at the level of the lexicon and which (if any) require corresponding descriptions at the level of LFG phrase-structure rules?

Structurally regular MWEs

Constructions which can be successfully **handled by productive grammar rules**.

Agreement

F-description for the expression *NP vider DET sac* 'to express NP's secret thoughts', lit. 'NP empty DET bag', assigned to the head *vider*:

(↑ OBJ PRED FN) =_c 'sac' (↑ OBJ SPEC POSS) = f(f PERS) = g (f NUM) = h(↑ SUBJ PERS) = g (↑ SUBJ NUM) = h

Modifiers

- ▶ Syntactically flexible to spill the beans 'to reveal a secret': verb entry extended with (\uparrow OBJ NUM) = $_c$ pl and lexical constraints (and nothing more).
- ► French **fixed expression** *NP casser sa pipe* 'to die, lit. NP break his/her pipe': ¬(↑ OBJ ADJUNCT) ensures that object is not modified.

Passivization

- ► An expression may **lose its idiomatic meaning when passivized**, e.g. a *bucket kicked by him*.
- ► LFG posits separate active and passive verb entries.

References

Abeillé, A. and Schabes, Y. (1989). Parsing Idioms in Lexicalized TAGs. In *Proceedings of the Fourth Conference on European Chapter of the Association for Computational Linguistics*, EACL '89, pages 1–9, Stroudsburg, PA, USA. Association for Computational Linguistics.

Asudeh, A., Dalrymple, M., and Toivonen, I. (2013). Constructions with lexical integrity. *Journal of Language Modelling*, 1(1):1–54.

Attia, M. A. (2006). Accommodating Multiword Expressions in an Arabic LFG Grammar. In *Proceedings of the 5th International Conference on Advances in Natural Language Processing*, FinTAL'06, pages 87–98, Berlin, Heidelberg. Springer-Verlag.

Mahowald, K. (2011). An LFG Account of Word Order Freezing. In Butt, M. and King, T. H., editors, *Proceedings of the LFG11 Conference*, *Hong Kong*, pages 381–400, Stanford, Ca. CSLI Publications.

Patejuk, A. (2014). Handling MWEs in walenty, a new valence dictionary for Polish. Poster presented at the 2nd PARSEME general meeting, 10–11 March, Athens, Greece.

Structurally idiosyncratic MWEs

Constructions which require corresponding descriptions at the level of phrase-structure rules.

Verb-particle constructions

- ▶ Should not be handled by productive grammar rules only **specific pairs**, e.g. *look up* 'search for a reference' but not *look at*, can be **interpreted as verb-particles**.
- English ParGram: a standard, transitive VP rule accepts a particle either before or after the direct object of the verb.
- Verbs linked with particles through unification (= and $=_c$) over a dedicated PRT_FORM feature.

Correlative conjunctions

- Constructions such as either _ or _ and both _ and _
- ► Handled similarly as verb-particles: unification over a dedicated COORD-FORM feature.

Phrasal configuration

Swedish traversal construction, e.g. *Sarah armbågade sig genom mängden* 'lit. S. elbowed SELF through crowd.DEF':

- ► Consists of a verb, a weak reflexive (coindexed with the subject), and a directional PP.
- ► The particle follows the direct object of the verb, while normally it would adjoin to the verb.
- ► Most elegantly modeled by a dedicated c-structure rule (Asudeh et al., 2013).

Word-order preferences

- ▶ Polish doręczyć NP do rąk własnych 'deliver NP as hand delivery, lit. deliver NP to hands own' vs. doręczyć NP do własnych rąk 'lit. deliver NP to own hands'.
- ► A particular **word order** can be **blocked** with the help of an *f-precedence* operator.
- ▶ No satisfying solution for modeling soft, quantitative word-order preferences seems to exist.

'Ungrammatical' constructions

- Irregular structure not recognized by productive grammar rules.
- ► Such as all of a sudden 'suddenly' idiomatic expression.
- 'Ungrammatical' constructions are typically fixed and thus can be handled as words-with-spaces. This will sometimes lead to input segmentation ambiguities.
- ▶ Idioms can lead to phrasal template. Polish nie wszystko złoto co się świeci 'what seems ideal is not necessarily so, lit. not everything gold which shines' in which the main verb is missing could be handled by S → nie wszytko NP co się VP.