

Multiword expressions and lexicalism: the view from LFG

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Lexicalism & lexical integrity

- Lexical integrity principle: basic version simply ensures syntax is blind to morphology:

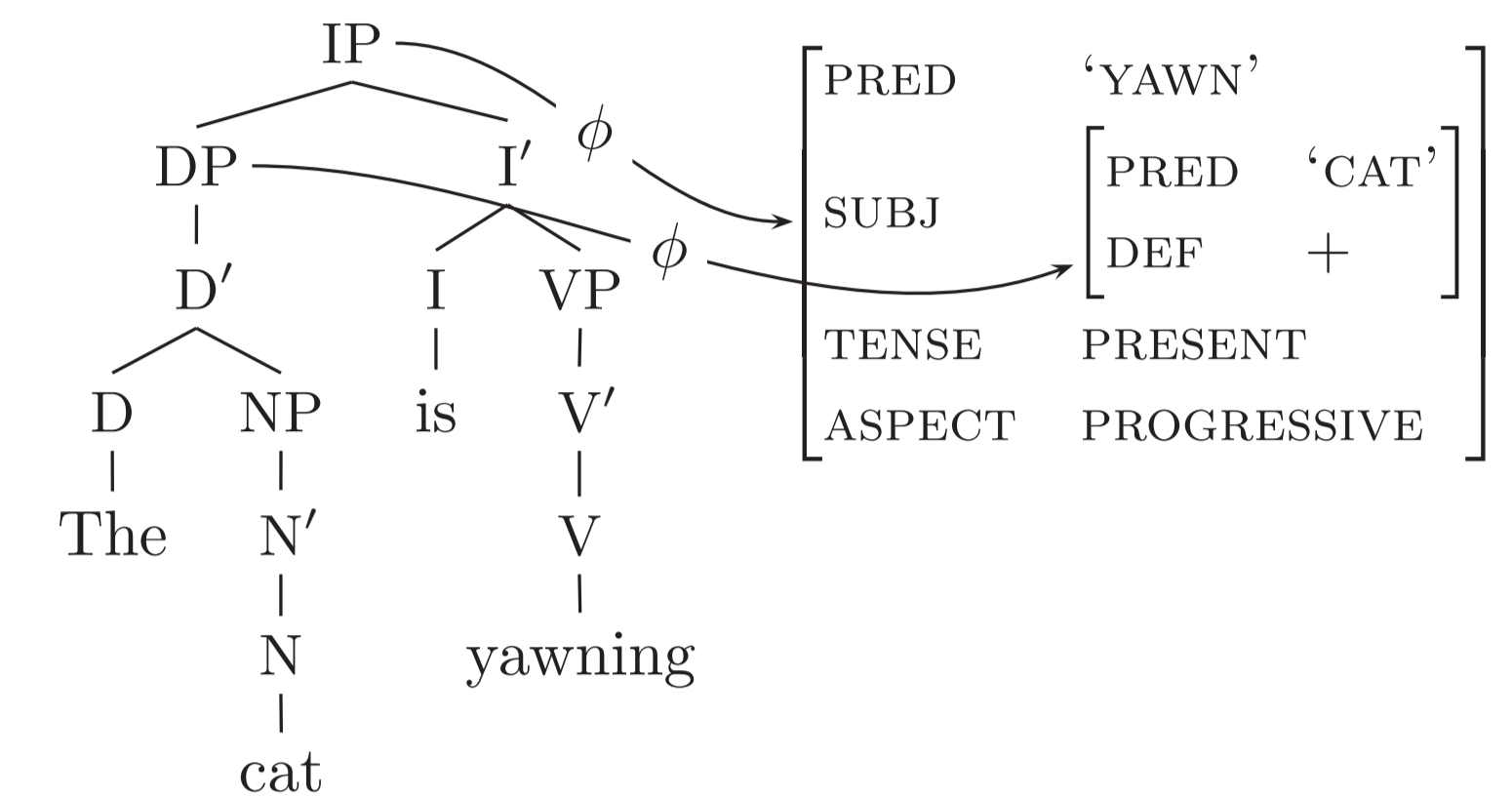
Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node. (Bresnan 2001:93)

- However, a stronger version is often assumed, such that there is a one-to-one mapping between 'words' and phrase-structure tree terminal nodes, what Ackerman et al. call the Principle of Unary Expression (PUE):

In syntax, a lexeme is uniformly expressed as a single morphophonologically integrated and syntactically atomic word form. (Ackerman et al. 2014:326)

Lexical Functional Grammar (LFG)

- Constraint-based lexicalist theory.
- Declarative, not transformational: sentences must simultaneously satisfy constraints at multiple levels of representation.
- Separates superficial syntactic information (linear order, constituency) from more abstract, functional information.
- The former is represented as a phrase-structure tree, called a *c-structure*.
- The latter is represented as an attribute-value matrix called an *f-structure*.
- They are connected by a function, ϕ .



- Either way, MWEs pose a challenge to the spirit of lexicalism: information about a single expression (/lexeme/listeme/...) is spread across multiple lexical items.

Lexical ambiguity

Problems

	Literal	Idiomatic
<i>pull</i>	<i>pull'</i>	<i>exploit'</i>
<i>strings</i>	<i>strings'</i>	<i>connections'</i>

Formal

- What about non-decomposable idioms?
 - Idiomatic mirroring (Lichte & Kallmeyer 2016)?
- Arbitrary choice for host of meaning.
- Proliferation of homophones.
 - Instead of having to expand the lexicon by as many entries as there are MWEs, we have to expand it by as many entries as there are *words in MWEs*.

Empirical

- Psycholinguistic findings suggest *en bloc* insertion rather than word-by-word processing: idiomatic meanings are processed faster and in preference to literal ones (e.g. Swinney & Cutler 1979, Estill & Kemper 1982, etc.).

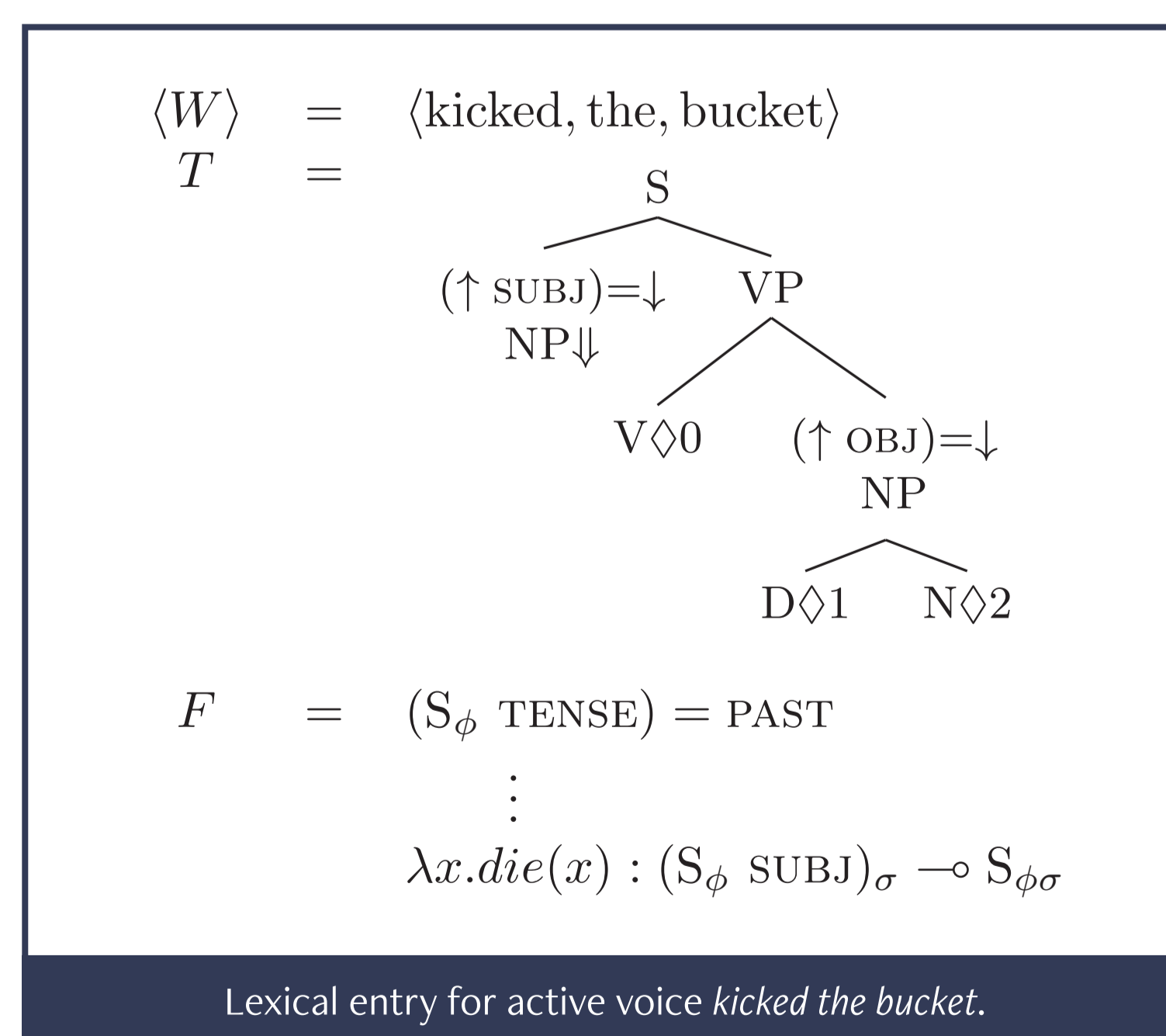
HPSG Sailer (2000)
LFG Arnold (2015)
SBCG Kay et al. (2015)
LTAG Lichte & Kallmeyer (2016)

TAG-LFG

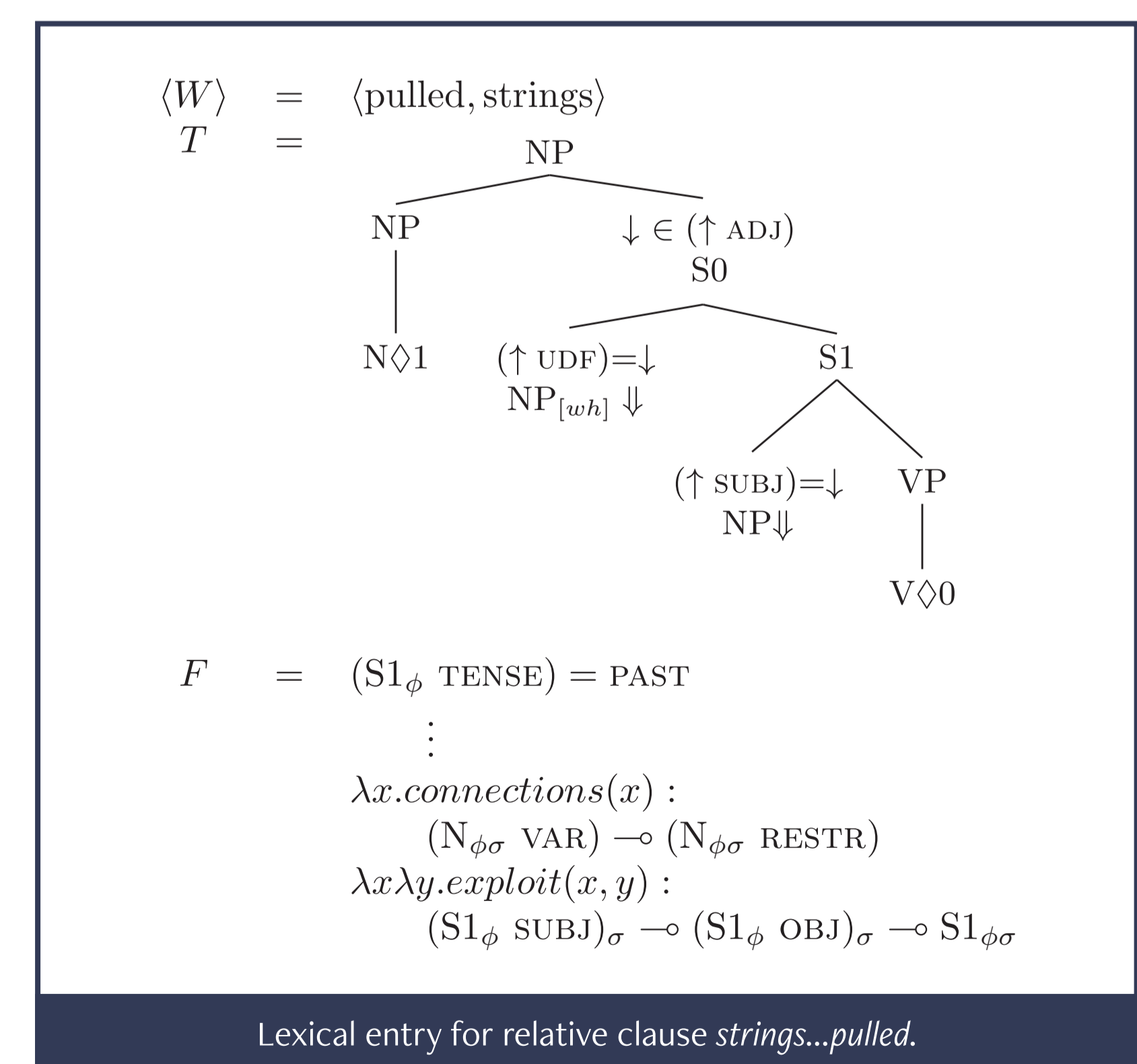
- Proposal: Use a Tree Adjoining Grammar as the c-structure component of LFG.
- MWEs are represented as multiply anchored elementary trees (Abeillé 1995):
 - They are therefore single lexical items, just like single-word expressions.

Lexical entries	
Standard LFG	(<i>Word form, Category, Functional description</i>)
TAG-LFG	((<i>Word form(s)</i>), <i>Tree, Functional description</i>)

Expressive power: TAG is mildly context sensitive, whereas LFG c-structure is context free. But f-structure and functional uncertainty push LFG as a whole outside the mildly context-sensitive space (Berwick 1982), so there is no increase in complexity to the whole system.



- As many *meaning constructors* (Dalrymple 1999; Asudeh 2012) as there are decomposable elements.
- Decomposable idioms can be stored in a single place, but still retain their ability to be internally modified, and their syntactic flexibility gets the usual TAG treatment.



Anne Abeillé. 1995. The flexibility of French idioms: A representation with Lexicalized Tree Adjoining Grammar. In Martin Everaert, Erik-Jan van der Linden, André Schenk, and Rob Schreuder (eds.), *Idioms: Structural and psychological perspectives*. Lawrence Erlbaum. • Farrell Ackerman, Gregory T. Stump, and Gert Webelhuth. 2011. Lexicalism, periphrasis, and implicative morphology. In Robert D. Borsley and Kersti Börsjars (eds.), *Non-transformational syntax: Formal and explicit models of grammar*, 325–358. Wiley-Blackwell. • Doug Arnold. 2015. A Glue Semantics for structurally regular MWEs. Poster presented at the PARSEME 5th general meeting, 23–24th September 2015, Iași, Romania. • Robert C. Berwick. 1982. Computational complexity and Lexical-Functional Grammar. *American Journal of Computational Linguistics*, 8:97–109. • Joan Bresnan. 2001. *Lexical-functional syntax*. Blackwell. • Mary Dalrymple (ed.). 1999. *Semantics and syntax in Lexical Functional Grammar: The resource logic approach*. MIT Press. • Robert B. Estill and Susan Kemper. 1982. Interpreting idioms. *Journal of Psycholinguistic Research*, 11(6):559–568. • Paul Kay, Ivan A. Sag, and Daniel P. Flickinger. 2015. A lexical theory of phrasal idioms. Unpublished ms., CSLI, Stanford. • Timm Lichte and Laura Kallmeyer. 2016. Same syntax, different semantics: A compositional approach to idiomaticity in multiword expressions. In Christopher Piñón (ed.), *Empirical Issues in Syntax and Semantics 11*. Colloque de Syntaxe et Sémantique à Paris (CSSP). • Manfred Sailer. 2000. Combinatorial semantics and idiomatic expressions in Head-Driven Phrase Structure Grammar. Doctoral dissertation, Eberhard-Karls-Universität Tübingen. • David A. Swinney and Anne Cutler. 1979. The access and processing of idiomatic expressions. *Journal of Verbal Learning and Verbal Behaviour*, 18:523–534.