

A Glue Semantics for Structurally Regular MEWs

Doug Arnold
University of Essex

Waszczuk and Savary (2015) (W&S) describe how the syntax of MWEs can be analysed using the descriptive apparatus of LFG. The goal of this poster is to extend this by providing an account of the semantics of idioms like *kick the bucket*, using the standard apparatus of LFG (so called ‘glue’ logic).

W&S’s approach to idioms like *kick the bucket* (‘die’) associates constraints with the head word, for *kick the bucket* these might be as in (1):

$$(1) \text{ kick} : V : (\uparrow \text{ OBJ PRED FN}) =_c \text{ ‘bucket’} \quad (\uparrow \text{ OBJ DEF}) = + \\ (\uparrow \text{ OBJ NUM}) = \text{sg} \quad \neg (\uparrow \text{ OBJ SPEC})$$

This is a specialisation of the normal entry for *kick*, whose direct object is required to be (a) headed by *bucket*; (b) definite; (c) singular; and to have no specifier (d) (I assume that the definite article is simply realised as the value of DEF, so there is no SPEC function associated with *bucket*). This entry captures the key syntactic constraints, explaining why the idiomatic interpretation disappears if any of these constraints is violated:

- (2) a. #Sam kicked the pail. b. #Sam kicked a bucket.
c. #They kicked the buckets. d. #Sam kicked her bucket.

However, it gives no account of the semantics of the idiom, and leaves unexplained a number of properties, for example the impossibility of clefting, relative clause formation, or pronominalisation:

- (3) a. #It was the bucket that Sam kicked. #What Sam kicked was the bucket.
b. #The bucket that Sam kicked (was unfortunate).
c. #Sam kicked the bucket, but Kim didn’t kick it.

This poster is intended to remedy this. In the standard version of LFG the syntax semantics interface is handled by so-called ‘glue logic’ (e.g. Dalrymple, 2001). This involves associating pieces of syntactic structure with semantic ‘resources’. Resources consist of a left-hand-side, which is a conventional semantic representation, and a right-hand-side, which is an expression indicating the combinatory possibilities. Glue proofs are generally represented as proof trees.

The literal interpretation of *Sam kicked the bucket* can be derived as follows, where s_σ abbreviates the semantic resource associated with the subject ($\uparrow \text{ SUBJ}$) and o_σ abbreviates the semantics associated with the object ($\uparrow \text{ OBJ}$). Notice that in this proof the resource associated with *the bucket* consumes that of the verb (this is standard, if *the* is associated with quantificational semantics).

$$\frac{\lambda y. \lambda x. \exists e. \text{kick}(e, y, x) : s_\sigma \multimap o_\sigma \multimap \uparrow_\sigma \quad \text{Sam} : s_\sigma}{\lambda x. \exists e. \text{kick}(e, \text{Sam}, x) : o_\sigma \multimap \uparrow_\sigma} \quad \frac{\lambda P. \text{the}(b, \text{bucket}(b), P(b)) : \forall H. [o_\sigma \multimap H] \multimap H}{\text{the}(b, \text{bucket}(b), \exists e. \text{kick}(e, \text{Sam}, b)) : \uparrow_\sigma}$$

To obtain the idiomatic interpretation, the idea proposed here involves associating the idiomatic reading of *kick* with a ‘manager’ resource which essentially discards the meaning associated with *the bucket*. This involves changing the type of *kick* so that it consumes the resource associated with the object. The idiomatic interpretation can be derived as follows:

$$\frac{\lambda y. \lambda Q. \exists e. die(e, y) : s_\sigma \multimap [[o_\sigma \multimap \uparrow_\sigma] \multimap \uparrow_\sigma] \multimap \uparrow_\sigma \quad Sam : s_\sigma}{\lambda Q. \exists e. die(e, Sam) : [[o_\sigma \multimap \uparrow_\sigma] \multimap \uparrow_\sigma] \multimap \uparrow_\sigma \quad \lambda P. the(b, bucket(b), P(b)) : \forall H. [o_\sigma \multimap H] \multimap H} \\ \exists e. die(e, Sam) : \uparrow_\sigma$$

This explains why the examples in (3) lack an idiomatic interpretation – they all involve some kind of discourse referent associated with *the bucket*, which the idiomatic reading does not supply. However, it does not explain why the idiomatic sense of *bucket* resists modification – why, e.g. *kick the unfortunate bucket* or *kick the bucket that awaits us all* cannot be interpreted as meaning ‘die’. The idiomatic meaning is derived by simply discarding the interpretation of the object, and there is nothing to stop this being arbitrarily complex. W&S suggest adding the constraint in (4), which simply forbids the object of *kick* to have adjuncts:

$$(4) \neg (\uparrow \text{ OBJ ADJ})$$

However, this will not do, since certain modifiers of *bucket* are compatible with the idiomatic sense, notable ‘emotives’ like *bloody* and ‘metalinguistic’ ‘manner of speech’ adjectives like *idiomatic* and *proverbial*:

(5) So that’s that [. . .] Another year or two and I’ll [kick the bloody bucket].

(6) Think of all the things that you want to do before you [kick the proverbial bucket].

However, it is reasonable to assume that emotive and ‘manner of speech’ adjectives do not have the same semantic type as normal attributive modifiers (which are $\langle et, et \rangle$). Following Potts (2005), emotives might have any type which ‘ends in *t*’ – the idea being that the emotional attitude they convey can be associated with, e.g. the whole proposition (type *t*) or the VP (type $\langle e.t \rangle$). Thus, we can exclude normal modifiers and allow these special types by making specific reference to the semantic type:

$$(7) \neg (\uparrow \text{ OBJ ADJ})_\sigma \langle et, et \rangle$$

It remains to explain why *kick the bucket* and similar idioms appear to resist passive, and why, despite meaning ‘die’ it does not accept modifiers like *slowly and painfully*:

(8) a. #The bucket has been kicked (by Sam).

b. #Sam kicked the bucket slowly and painfully. (cf. ‘died slowly and painfully’)

The second issue seems straightforward – both idiomatic and non-idiomatic senses of *kick* should have some indication of ‘instantaneousness’ as part of their semantics, but the issue of passive is more problematic. Notice, for example, that non-referential objects can be passivised (as in *it is now accepted by academics that. . .*). W&S assume that actives and passives simply have separate lexical entries, but this is somewhat controversial, and hence potentially problematic.

It also remains to be seen how far the approach can be extended to syntactically more flexible idioms (e.g. *spill the beans*), where the semantics of the object cannot be simply discarded. Space permitting, the poster will explore how far the ideas presented in Bargmann and Sailer (2015) can be expressed in this framework.

Bargmann, Sascha and Sailer, Manfred. 2015. The Syntactic Flexibility of Non-decomposable Idioms. Poster presented at the PARSEME meeting, 19-20 March 2015, Valletta, Malta.

Dalrymple, Mary. 2001. *Lexical Functional Grammar*. New York: Academic Press.

Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford: Oxford University Press.

Waszczuk, Jakub and Savary, Agata. 2015. Modeling Syntactic Properties of MWEs in LFG. Poster presented at the PARSEME meeting, 19-20 March 2015, Valletta, Malta.