Can the bucket be kicked by him? 

The Processing of Passivized Idiomatic and Literal Sentences

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Introduction

Idioms like "kick the bucket" hold a special status in sentence processing, since their meaning cannot be constructed from the meaning of the individual parts. Hence, some studies assume that the idiomatic meaning must be stored as a fixed (noncompositional) lexical entry (e.g. Cauberghe & Taboens, 1987; Cacciari & Tabossi, 1988; Levett & Kambhampati, 1979). Others hold that the idiomatic meaning is assembled from the joint activation of the single words (e.g. Smolka, Rabanus, & Rösler, 2007). Idioms are assumed to be semantically fixed, since single words cannot be exchanged, as in “We punched the bucket” (e.g., Gibbs & Gonzales, 1985). However, we have recently shown that participants recognized the idiomatic meaning, even when single words were exchanged with semantic associations, as in “She always reached for the planets.” These findings indicate that idioms are not as semantically fixed as previously assumed. (Smolka & Dörre, 2012).

In addition to being semantically fixed, idioms are assumed to be syntactically fixed, since most idioms cannot be subjected to all syntactic transformations (e.g. Nunberg et al., 1994). For example, the sentence “He kicked the bucket” loose its idiomatic meaning when it is passivized, as in “The bucket was kicked by him”, or when it is modified, as in “He kicked the blue bucket.” It is generally assumed that the literal meaning is kept in passivized literal sentences. The question is (in contrast to literal sentences) whether the idiomatic meaning is recognized in passivized idiomatic sentences.

The complexity of the argument structure was found to affect the processing of literal sentences: Less complex transitive sentences were processed more easily than more complex dative idioms (e.g., Thompson et al., 1997). In this study we asked whether the complexity of the argument structure has an impact on the processing of idiomatic sentences.

The present study examined the syntactic fixness of ambiguous idiomatic sentences (i.e., idioms with both a figurative and a literal meaning): 1) Idiomatic versus Literal: Is the idiomatic meaning processed differently than the literal meaning? If the idiomatic meaning is assembled similar to the literal meaning, we expect similar processing times for idiomatic and literal sentences.

2) Transitive versus Ditransitive: If argument structure affects the processing of idiomatic meaning, we expect transitive idiomatic sentences to be processed more easily than dative idiomatic sentences.

3) Passive versus Active: Is the idiomatic meaning recognized in passive sentences? If idioms are syntactically fixed, idioms in passive voice will be harder to process than idioms in active voice.

Methods

Material

- 52 ambiguous idiomatic sentences were paired with 52 literal sentences
- Sentences of the same pair were completed by the same target verb (see Figure 1)
- Half of the sentences were transitive and half ditransitive (see Figure 2 for an idiomatic example)
- All sentences were presented in active and in passive voice (see Figure 1)
- For the sentence completion task three verbs were selected for each sentence, whereby:
  a) completed the sentence idiomatically (target verb),
  b) was semantically related, and
  c) was semantically unrelated
- E.g., Der Redner hat den Rahmen gesprengt (a) gesprengt (b) geknackt (c) gestaltet
  (The speaker blew up/burst/designed the frame)
- 156 literal filler sentences

Procedure

In the speeded sentence-completion task, 31 participants:
1. heard a sentence via headphones without the verb in the last sentence position,
2. subsequently saw three verbs presented next to each other on the screen, and
3. decided via a push button box, which of the three verbs best completed the sentence.
Participants were asked to respond as fast as and as correct as possible.
Reaction times and errors were collected from these responses.

Results

1) Idiomatic versus Literal

Idioms were processed faster and with fewer errors than literal sentences (Figure 3).

2) Transitive versus Ditransitive

Ditransitive sentences were processed faster and with fewer errors than transitive sentences.

3) Passive versus Active

Active sentences were processed faster than passive sentences. This processing difference was the same for idiomatic and literal sentences (see Figure 3).

Interaction between Transitivity x Voice

Presented in active voice, dative and transitive sentences showed no processing difference; in passive voice, transitive sentences were processed more slowly and with more errors than dative sentences.

Discussion

1) Idiomatic versus Literal

Easier processing of idiomatic sentences could indicate that:
- Idioms are stored as fixed lexical entries (e.g., Swinney & Cuttler, 1979).
- The joint activation of words in idiomatic sentences is more frequent and thus stronger than the activation of single words in literal sentences (Simonska et al., 2007).
- Idioms are more predictable than literal sentences.

2) Transitive versus Ditransitive

The argument structure was found to affect the comprehension of idioms, though in an unexpected way: The advantage of ditransitive constructions may be due to the adjacency of the idiomatic constituents in passivized dative sentences.

3) Passive versus Active

Idioms are recognized even if they are presented in passive voice. This indicates that idioms are not as syntactically fixed as previously assumed.

Literature

Smolka, E., Rabanus, S., & Rösler, F. (2007). Processing Verbs in German Idioms: Evidence Against the figurative and a literal meaning). Can the bucket be kicked by him?

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