

The Processing of Fixed Expressions During Sentence Comprehension

DIETER HILLERT AND DAVID SWINNEY¹
University of California, San Diego

1. Fixed Expressions-Issues of Representation and Processing

Understanding language involves recognition and access to not only individual words, but also to a vast array of fixed expressions-idioms, collocations, proverbs, common quotations, names, titles, slogans, song lyrics, etc. The purpose of the present paper is to examine the question of how fixed expressions-particularly those with non-literal interpretations-are understood during on-line sentence comprehension. The work we present examines cases of both truly fixed expressions and those which are deemed somewhat more malleable but still 'idiomatic', with a focus on the processing of these expressions in a language that has a highly productive (active) use of word collocation, particularly for compounds-German. We begin by outlining some general assumptions and issues underlying our work.

To begin with, there is no clear ground upon which to firmly establish definitions of what constitutes a purely 'literal' vs. 'figurative' (non-literal) expression. Such definition ultimately awaits a monolithic (universal and correct) theory of semantics/syntax. Similarly, distinguishing what ate

¹ The authors gratefully acknowledge support from the grant NIH DC02984 to the second author for the work reported herein. Correspondence to dhillert@ucsd.edu or to dswinney@ucsd.edu.

digm was employed throughout. In an initial study, we examined ambiguous compounds (compounds with both a literal and an idiomatic interpretation) such as "Bienenstich" (literal: "bee-sting"; idiomatic meaning: "a particular cake") in a sentence context biased toward the idiomatic interpretation, as shown in (1).

- (1) Zu Weihnachten backte die Mutter stets einen *Bienenstich* A PP and einen Stollen.

(At Christmas baked the Mother always a "bee-sting" and a fruit loaf.)

Probe words related to the idiomatic meaning of the compound (related: KUCHEN/cake; control: KANZEL/pulpit) and to the literal meaning of the compound's head (related: HONIG/honey; control: ANKER/anchor) appeared at the offset of the idiomatic compound in the figuratively biased sentence.² Mean reaction times for 50 native (German) speakers (who saw only a single probe with the sentence for each exemplar) can be seen in Table 1. The priming effect for both the idiomatic-related target ($p < .01$) and the literal-related target ($p < .01$) strongly support the argument that both the literal and idiomatic interpretations of these ambiguous idioms were accessed in this study, even in the presence of a context biased only toward the (more frequent) idiomatic interpretation.

Table 1. Priming patterns (mean difference of reaction time to control-related probes) of ambiguous idiomatic compounds in figuratively biased sentence contexts.

Idiomatic Meaning	87 ms
Literal Meaning	48 ms

A second study, which used the same procedures and methods as the first experiment, was run to examine a dramatically stronger case—that of the processing of idiomatic compounds which only have idiomatic interpretations (idioms without literal interpretation) such as "Lackaffe" (gloss: 'lac-monkey'; someone who shows off). These idioms have fixed meanings and are frequently used in everyday German conversation. In this study, such idiomatic compounds were presented in a neutral sentence context.

- (2) Hans war nach der Ansicht der meisten Mitschuler ein Lackaffe APP im aus gesprochenen Sinne.

(Hans was after the view of the most class mates a "lac-monkey" in a decisive sense.)

² We used a display time of 300 ms, a zero interstimulus-interval (0-ISI) and an intertrial interval of 2000 ms). Because of space limitations, we discuss in the present context only a part of the conditions examined (see for further details Hillert & Swinney 2000).

For example, in (2) we probed for the activation of the idiomatic meaning (related: EITEL/vain; control: BUNT/colorful) and for the activation of the literal meaning of the head noun (related: BAUM/tree; control: SAMT/velvet) at the offset of the idiom compound. As in the previous study, this experiment was designed so that no subject hears/sees more than one probe/experimental word with any exemplar sentence. The mean reaction times of fifty native German speakers to the idiomatic meaning and to the literal meaning of the compounds' head in the neutral context condition can be seen in Table 2. We found significant priming for idiomatic ($p < .0001$) and literal ($p < .05$) interpretations in the neutral context with these 'idiom-only-interpretation' compounds. These results seem to strongly support the interpretation that the literal meaning of the head noun of these exclusively idiomatic compounds was accessed when the idiom was heard. This was so in spite of the fact that there was no possible literal interpretation for this compound. These data argue therefore strongly for the LRH, at least in the processing of German compounds.

Table 2. Priming patterns (mean difference of reaction time to control-related probes) for exclusively idiomatic compounds in a neutral sentence context.

Idiomatic Meaning	70 ms
Literal Meaning	67 ms

The outcome of both experiments together demonstrate that both idiomatic meaning and literal meanings of words comprising idiom compounds in German appear to be immediately activated when the idiom is heard during sentence comprehension. This strongly suggests that fixed meaning phrases act in much the same way as do lexical ambiguities—all meanings associated with the form of the word(s) are accessed automatically and exhaustively.

4. Conclusions

The research presented here, combined with prior work in the literature, suggests strongly that fixed form expressions are processed in a manner consistent with the literal-meaning-independent general models of idiom processing. Moreover, they support a 'multiple-form-driven-access' version of such models (all meanings—both idiom and literal—are accessed). The evidence we present does not demonstrate any particular support for an idiom key or configurational role in such access, and it is completely consistent with an account that holds that fixed idiomatic meanings are lexically stored (LRH). The current evidence provides no basis for speculation about a (de)compositional procedure involved in such access, but we note that we only examined one particular idiom type in our work—compounds). Finally, there is no evidence in our work supportive of an anticipatory-predictive process in the comprehension of idiom strings (such a process would have allowed only the idiomatic interpretation to be accessed in a

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