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Lexical or syntactic control of sentence formulation? Structural generalizations from idiom production ☆

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ABSTRACT

To compare abstract structural and lexicalist accounts of syntactic processes in sentence formulation, we examined the effectiveness of nonidiomatic and idiomatic phrasal verbs in inducing structural generalizations. Three experiments made use of a syntactic priming paradigm in which participants recalled sentences they had read in rapid serial visual presentation. Prime and target sentences contained phrasal verbs with particles directly following the verb (*pull off a sweatshirt*) or following the direct object (*pull a sweatshirt off*). Idiomatic primes used verbs whose figurative meaning cannot be straightforwardly derived from the literal meaning of the main verb (e.g., *pull off a robbery*) and are commonly treated as stored lexical units. Particle placement in sentences was primed by both nonidiomatic and idiomatic verbs. Experiment 1 showed that the syntax of idiomatic and nonidiomatic phrasal verbs is amenable to priming, and Experiments 2 and 3 compared the priming patterns created by idiomatic and nonidiomatic primes. Despite differences in idiomaticity and structural flexibility, both types of phrasal verbs induced structural generalizations and differed little in their ability to do so. The findings are interpreted in terms of the role of abstract structural processes in language production.

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1. Introduction

Sentence formulation requires syntactic information. To convey a message, speakers not only recruit lexical items relevant to their communicative intentions, but also formulate a structural scheme to position these words in well-formed sentences. Understanding structural planning thus involves explaining how information about words and syntax is represented and used in language production. Of necessity, most models of production assume the existence of structurally sensitive processes responsible for word-order. Specific views about the interplay between word retrieval and structure-building, however, vary in terms of the relative contributions that words and more abstract syntactic processes make to the formulation process. We sketch two alternative accounts, a strong lexical account and a strong syntactic account, and derive contrasting predictions from them about the workings of lexicalized and abstract phrasal syntax in the sentence formulation process. These predictions are then tested with idioms, which are a familiar type of lexicalized expression, in a structural priming paradigm.

A strong lexical account of lexical–syntactic integration posits that sentence structure is derived from the syntactic specifications of individually activated words, making word retrieval a prerequisite for the construction of structures. Many models of lexical access assume that a two-step word retrieval process is necessary to allow for the retrieval of words' syntactic specifications and then retrieval of specific sound sequences (see Levelt, Roelofs, & Meyer, 1999, for a review and a model). Before phonological retrieval and overt production can begin, speakers must select lemmas, or syntactic words, from their mental lexicon. This process yields activation of word-specific syntactic features: Nouns may be classified as denoting mass or count entities, verbs may be tagged as transitive or intransitive, and so on. Such information is necessary for building sentence frames with the right configurations.

The need for lexically specific syntactic information in language use is grounded in part in linguistic analyses of lexical constraints on structure (Wasow, 1977). Syntactic structures have to be influenced by lexically specific regularities: For example, the verb *bank* in *The plane banked* and the verb *bank* in *John banked his money* are presumably different lexical entries with different syntactic privileges. The syntactic processes building these two sentences must be attuned to such differences. Differences among verbs in their structural constraints (their *subcategorizations*) and their frequencies of occurrence in alternative structural frames (*verb bias*) can have substantial effects on comprehension, as listeners can be easily garden-pathed or biased towards a particular sentence interpretation by properties of the main verb in a sentence (e.g., Britt, 1994; Garnsey, Pearlmutter, Myers, & Lotocky, 1997; Snedeker & Trueswell, 2004). Because such biases are also seen in the preferences of speakers for certain forms during language production, a major question for production theory is how lexical and structural information are coordinated (Bock, 1987).

From a strong lexicalist perspective, if syntax is uniformly projected from the lexicon, then the deployment of syntactic procedures in the course of production becomes directly contingent upon word selection. Claims of this sort are found in the literature on language acquisition (Tomasello, 2000), language comprehension (MacDonald, Pearlmutter, & Seidenberg, 1994), and language production (Bock & Levelt, 1994). If this strong lexicalist hypothesis is right, and words play the dominant role in structure selection, then the role of more abstract syntactic processes may be reduced to the binding of lexically specific syntactic information into larger structures following lexical retrieval (Jackendoff, 2002).

Strong syntactic accounts, on the other hand, give abstract structural configurations a leading role in acquisition (Fisher, 2002a, 2002b), comprehension (Frazier, 1987), and production (Bock, 1990). Structures need not be activated by words but can be the result of a mapping from event structure to syntactic relations, conveying relational correspondences between elements in a message. In production, for example, a speaker intending to communicate a message with two arguments must build a sentence frame capable of expressing two arguments; a speaker intending to communicate a message with three arguments needs a sentence frame that accommodates three arguments. According to this view, speakers must have syntactic mechanisms that can generate abstract sentence representations, or frames, as scaffolding for utterances (Bock, 1990; Bock & Loebell, 1990). To the extent that these frames can be generated in abstract form, their use is not directly contingent on, or triggered by, lexical retrieval. The identities of the words selected to appear in any particular frame, in fact, need