Aspectual Constraints in the Mental Lexicon

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This study addresses the question of whether constraints on aspectual semantics play a role in lexical processing. Two universal cognitive constraints are identified: “states cannot be delimited” and “telic predicates cannot be further telicized.” The study investigates how these are obeyed in the productive process of perfective preverb and stem combination in Bulgarian. An off-line task ascertains that Bulgarian native speakers have a default semantic interpretation for the preverbs under investigation. A visual lexical decision task shows clear legality effects in nonwords composed of existing preverbs and stems, thereby supporting decompositional approaches. It is argued that, after the process of morpheme search, there must be a process of checking for combinatory felicity of the morphemes activated in the lexical access.

KEY WORDS: aspectual semantics; mental lexicon; lexical decomposition; non-words; combinatory constraints; morpheme search.

INTRODUCTION

It is well established in the linguistic literature on theoretical morphology that lexical entries of verbs contain information about argument structure, that is, what thematic roles (Agent, Theme, Goal, Experiencer, etc.) a particular verb subcategorizes for (Williams, 1981; Di Sciullo & Williams, 1987). Following a compositional approach to semantics and syntax, primitives of meaning like Dowty’s (1979) CAUSE, BECOME, and BE predicates have been viewed as combining with each other and contributing compositionally to different lexical–aspectual meanings of verbs. It has also been proposed that the argument structure of verbs can better be expressed in terms of aspectual structure: the Agent is the argument of a CAUSE predicate, the Theme is the argument of a BECOME or BE predicate, and so on. For example, the lexical entry of the single word break will contain something like

$$ (1) (X \text{ (CAUSE (BECOME (Y broken))))}, $$

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where CAUSE and BECOME are meaning predicates and “broken” provides the idiosyncratic lexical meaning. The sentence in (2a) can be paraphrased as in (2b). Syntactically, the sentence in (2a) can be represented as follows in (2c):

\[(2) \ a. \ John \ broke \ the \ vase. \]
\[b. \ John \ did \ something \ and \ as \ a \ result \ of \ this, \ the \ vase \ became \ broken.\]
\[c. \ (VP \ John (\ V° \ CAUSE (AspP \ the \ vase (Asp° \ BECOME (VP \ broken)))))\]

where John is the argument of CAUSE (the agent of the event) and the vase is an argument of BECOME (the Theme, or undergoer of the event).

This type of analysis allows one to formulate clear and testable predictions about morphological processing. In English, the aspectual composition is not directly visible in morphological structure, in the sense that the predicates CAUSE or BECOME are not reflected in separate morphemes. However, in Hindi, Japanese, Bulgarian (Slabakova, 1997), and many other languages of the world, the semantic predicate CAUSE is overtly spelled out by causative morphemes. If morphological structure is equated, at least partly, with aspectual structure, then one would expect to see some aspectual constraints operating on the morphological level.

Access to thematic information encoded in the verb and the assignment of this information to the different nominal phrases within the sentence has been at the center of a number of recent psycholinguistic and neurolinguistic studies (e.g., Ahrens & Swinney, 1995; Caplan & Hildebrandt, 1988; Grodzinsky, 1990; Norris, McQueen, Cutler, & Butterfield 1997; Shapiro, Gordin, & Hack, & Killackey, 1993; Shapiro, Zurif, & Grimshaw 1989). Recent work by Piñango, Zurif, & Jackendoff (1999) studies the real-time processing effects of aspectual coercion as compared to the expected syntactic composition in English. There has been less research, however, investigating the involvement of semantic considerations in the morphological processing within the lexical decision paradigm. Two recent studies suggest that semantics is relevant to morphological processing. Marslen-Wilson, Tyler, Waksler, & Older (1994) argue that semantic transparency and compositionality of the surface meanings of stem and affix is a factor in accessing complex words in English, thus presenting evidence for the decomposition of semantically transparent forms. Matthew & Kehayia (1994) demonstrate that speakers are sensitive to argument structure constraints within words. They base their experimental investigation on the restrictions inherent in the thematic information of verbs and affixes and compare the reaction times for the recognition of unattested words that violate argument structure constraints, e.g., faintable, with recognition times for unattested derived words that do not violate such constraints, e.g.,