

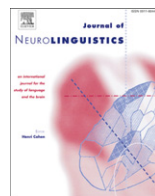


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Spared syntax and impaired spell-out: The case of prepositions

Simone Mätzig, Judit Druks*, Ad Neeleman, Gordon Craig

Division of Psychology and Language Sciences, Department of Linguistics, University College London, Chandler House, 2 Wakefield Street, London WC1N 1PF, United Kingdom

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ABSTRACT

The objective of the study was to identify the factors that determine the preservation/impairment of prepositions in aphasia. Five parameters derived from previous research (Bennis, Prins, & Vermeulen, 1983; Friederici, 1982; Grodzinsky, 1988; Kean, 1977, 1979; Kreindler & Mihăilescu, 1970) were examined in a sentence completion task and three types of grammaticality judgement tasks using four subcategories of prepositions with 18 preposition tokens in a large number of test sentences. Prepositions were found impaired in both Broca's and anomic aphasia. Most of the parameters could not account for the data, and some data were in the opposite direction to the predicted. No disproportionate impairments of meaningless prepositions were found and prepositions with syntactic function were best preserved in the majority of patients. Patients made predominantly within-category substitution errors. The results are interpreted as evidence for preserved syntactic knowledge about prepositions. It is suggested that a deficit at the post syntactic level of (late) spell-out is the underlying reason for the preposition deficit.

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* Corresponding author.

E-mail address: j.druks@ucl.ac.uk (J. Druks).

1. Introduction

Our current knowledge of the availability of prepositions in aphasia is limited. Only a few past studies focused on prepositions with the aim of identifying the underlying reasons for their impairment¹, mainly in the 1980s and 1990s, and these studies often used linguistic constructs that today are outdated. Importantly, they have rarely been cited, reviewed, or related to each other. The paucity of research on prepositions is in sharp contrast with the interest aphasia researchers have in verbs, noun-verb differences and verb inflections. We counted, for example, 38 papers that have been published during the last 25 years that report noun and verb production in picture naming only of over two hundred patients (see Mätzig, Druks, Masterson, & Vigliocco, 2009).

The neglect of prepositions in aphasia research is surprising because prepositions are a particularly interesting grammatical class to study. The reason is that prepositions share properties of both lexical and functional categories. This is reflected in the ongoing debate among linguists as to how to characterize them (Grimshaw, 2005; van Riemsdijk, 1990; Rizzi, 1985; Svenonius, 2004, 2007). Prepositions, like functional heads, are caseless, and do not combine with tense or aspect morphology (in English and in many other languages). Some prepositions do not receive stress and their fixed number indicates that, like pronouns and determiners, they belong to closed-class words. On the other hand, prepositions have lexical features too. All prepositions are like lexical heads in that they mark case and some prepositions assign theta-roles, and have rich meaning and stress. A subset of prepositions assign clearly defined theta-roles to their complements (e.g., spatial: *in/on/under/at the table*; temporal: *in two weeks/in 1999/at 3 pm*; benefactor: *he bought flowers for her*; recipient: *he showed the map to his mother*; instrument: *he opened the letter with a knife*; etc.). Subcategorized prepositions are somewhat different. While they assign theta-roles to their complements, these are semantically opaque (e.g., *to rely on friends, to suffer from headache, to be interested in something*) (Neeleman, 1997). Another subset of prepositions fulfils a purely syntactic function. These prepositions assign case to their complements but not theta-roles. The English *of* is such a meaningless preposition. *Of* is inserted in order to satisfy the *Case Filter* when a phrase consists of nouns or adjectives² that cannot assign case (e.g., *Sue's pride of her daughter, Sue is proud of her daughter*). The infinitival *to* is another grammatical morpheme that heads verbal phrases in the form of bare infinitives (Hyde, 2000). The infinitival *to* – just like the syntactic preposition *of* – fulfils a syntactic role in the sentence. Similar to *of*-insertion, *to*-insertion circumvents violation of the *Case Filter* by assigning case to PRO, the (empty) subject of the verb because a non-finite verb cannot assign case to its subject³. A third preposition that fulfils a grammatical role is *by* that heads the *by*-phrase in passive sentences. In passives, the subject of the active sentence surfaces in the *by*-phrase, but maintains the theta-role assigned by the verb in the active sentence⁴. It appears, therefore, that *by* functions as a case assigner only⁵.

¹ Additional studies that report preposition deficits in aphasia and acquired dyslexia (e.g., Druks & Froud, 2002; Friederici, 1981, 1985; Friederici et al., 1982; Froud, 2001; Goodglass et al., 1970; Kemmerer, 2005; Kemmerer & Tranel, 2000, 2003; Kolk & Friederici, 1985; Leikin, 2002; Lonzi & Luzzatti, 1995; Mack, 1981; Miceli et al., 1989; Mondini, Luzzatti, Zonca, Pistarini, & Semenza, 2004; Morton & Patterson, 1987; de Roo, Kolk, & Hofstede, 2003; Ruigendijk, 2002; Saffran, Schwartz, & Marin, 1980; Schwartz, Saffran, & Marin, 1980; Smith, 1974; Tesak & Hummer, 1994; Tranel & Kemmerer, 2004; Wales & Kinsella, 1981) are not discussed in the present paper, because their focus of interest was different from ours in so far that they did not compare performance on different subcategories of prepositions.

² Only NP–P–NP constructions were tested here because AP–P–NP may select not only *of* but other prepositions too (e.g., *proud of/interested in/good at/dependent on/susceptible to*).

³ Not all linguists agree that the infinitival *to* is a preposition. Some classify it as a complementizer (e.g., Postal & Pullum, 1978), an inflection (e.g., Chomsky, 1981), or a modal auxiliary (e.g., Mittwoch, 1990). However, it is widely acknowledged that, historically, the infinitival *to* is derived from the preposition *to* (e.g., Haspelmath, 1989) and has characteristics of a preposition.

⁴ The following examples show that *by* does not contribute to the meaning of its complement: *Susan was investigated by the CIA (agent); the window was broken by the storm (cause); the bread cannot be cut by an ordinary knife (instrument)* (from Svenonius, 2004, p. 25).

⁵ This, however, may be disputed by some linguists who may claim that theta-role marking by the verb to the complement of *by* is impossible because a complement must c-command the head from which it receives theta-roles (e.g. Chomsky, 1981), and the NP in the *by*-phrase in passive sentences does not c-command the verb that is argued to theta-mark it. If true, *by* must function as theta-marker in passive sentences.

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