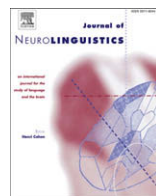




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Formal features in aphasia: Tense, agreement, and mood in English agrammatism

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ABSTRACT

In recent research on aphasia, a considerable number of studies have examined deficits in patients with agrammatism in the domain of verb-finiteness marking in different languages. Whilst much of this research has focused on tense and subject–verb agreement and has shown that tense is particularly impaired, the nature of verb-finiteness deficits in agrammatism is still a matter of controversy. The present study reports new evidence from sentence-completion and grammaticality-judgment experiments with 9 English-speaking aphasic patients (and 9 matched control subjects) examining tense, agreement, and (subjunctive) mood marking. We found that the patients were more impaired in tense than in (subjunctive) mood or agreement marking. Tense impairments were seen in the sentence-completion and the grammaticality-judgment tasks, for both present and past tense, and for different morphological types. We suggest that the tense deficit in agrammatism is syntactic in nature and affects the specification of the formal feature $[\pm\text{Past}]$ within the inflectional complex of a clause.

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1. Introduction

A defining clinical feature of agrammatic aphasia is impairments in the domain of morphosyntax, specifically the omission or incorrect use of grammatical morphemes in production (see e.g. Menn & Obler, 1990). Research has shown, however, that not all grammatical morphemes are equally affected

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and that agrammatism cannot simply be characterized as a global morphosyntactic deficit or a general loss of grammatical morphemes in production and comprehension. In English agrammatism, for example, the *-ing* affix encoding progressive aspect on verbs is omitted much less often than past-tense *-ed* or the 3rd singular present-tense *-s*; see [Druks and Carroll \(2005\)](#) for review. More recently, a series of studies has shown that within the domain of verb-finiteness morphemes, tense marking is particularly impaired in agrammatism across a range of languages, including English ([Arabatzis & Edwards, 2002](#); [Dickey, Milman, & Thompson, 2005](#); [Faroqi-Shah & Thompson, 2007](#)), Hebrew ([Friedmann & Grodzinsky, 1997](#)), Arabic ([Diouny, 2007](#)), German ([Burchert, Swoboda-Moll, & De Bleser, 2005a](#); [Wenzlaff & Clahsen, 2004](#)), Spanish ([Benedet, Christiansen, & Goodglass, 1998](#); [Gavarró & Martínez-Ferreiro, 2007](#)), Dutch ([Bastiaanse, 2008](#); [Kok, van Doorn, & Kolk, 2007](#)), Greek ([Nanousi, Masterson, Druks, & Atkinson, 2006](#); [Stavrakaki & Kouvava, 2003](#); [Varlokosta et al., 2006](#)).

Several proposals have been made to characterize the impairments of agrammatic patients in the domain of verb-finiteness in linguistic terms. One proposal is the Tree-Pruning Hypothesis ([Friedmann & Grodzinsky, 1997](#); [Grodzinsky, 2000](#); [Hagiwara, 1995](#)) which postulates a syntactic deficit according to which the functional category TP (=Tense Phrase) and any other functional category above TP are omitted from agrammatic clause-structure representations yielding pruned phrase-structure trees with less hierarchical structure than in normal language. Whilst this hypothesis was originally proposed to account for agrammatic production, [Friedmann \(2008: p. 146\)](#) has recently argued that it 'can be extended to agrammatic comprehension as well'. The Tree-Pruning Hypothesis presupposes a hierarchy of functional categories in which tense and agreement form separate functional categories and AgrP (=Agreement Phrase) is lower than TP in clause structure ([Pollock, 1989](#)), or in which the operation Agree can check a subject's person and number features in some other functional category lower than TP ([Gavarró & Martínez-Ferreiro, 2007: p. 38](#)). Given one of these assumptions, tree pruning not only accounts for the finding that agrammatic patients experience greater difficulties with tense than with agreement marking (see e.g. [Diouny, 2007](#); [Gavarró & Martínez-Ferreiro, 2007](#); [Tissen, Weber, Grande, & Günther, 2007](#)), but also for the observation ([Friedmann, 2001, 2002](#); [Hagiwara, 1995](#)) that *wh*-questions, embedded clauses and other phenomena that involve functional categories above TP are also impaired in agrammatic aphasia.

The second proposal to explain agrammatic difficulties with verb-finiteness marking posits a deficit in dealing with the interpretable features of functional categories ([Nanousi et al., 2006](#); [Varlokosta et al., 2006](#)). Assuming the distinction ([Chomsky, 1995](#)) between a verb's uninterpretable features such as person and number (that are irrelevant for semantic interpretation) and interpretable features such as tense and mood (that contribute to sentence interpretation), the Impaired Interpretable Features Hypothesis proposes that functional 'categories that carry interpretable features may cause more difficulties to non-fluent aphasic subjects' ([Varlokosta et al., 2006: p. 742](#)) and that for these patients 'the morphophonological realisation of interpretable features [is] not functioning' ([Nanousi et al., 2006: p. 235](#)). By contrast, operations such as Agree ([Chomsky, 1995](#)) that are involved in checking uninterpretable features are said to be unimpaired. Consequently, agreement features should be better maintained in agrammatism than tense (as well as other interpretable features).

The third account posits selective difficulties with tense features in agrammatism. One proposal is the Tense Underspecification Hypothesis ([Wenzlaff & Clahsen, 2004](#)) according to which the functional category IP (or TP), i.e. the host of verb-finiteness features such as agreement, tense, and mood, is not properly specified for either [+past] or [–past]. Empirical evidence for this account comes from the finding ([Wenzlaff & Clahsen, 2005](#)) that low accuracy scores for tense not only contrast with higher accuracy for agreement in agrammatism but also with higher correctness for mood ($\pm$ Realis) marking indicating that tense is selectively impaired within the verb-finiteness domain.

As is clear from this brief review, there seems to be a consensus in the literature on agrammatic aphasia that tense marking is indeed 'particularly vulnerable' ([Druks & Carroll, 2005: p. 13](#)). If, however, we start to ask questions that go beyond this general statement, the answers are far from clear and more controversial. How selective is the tense deficit within verb-finiteness marking? Do tense impairments affect morphologically distinct types, e.g. regular and irregular forms, in the same way? Is the tense deficit restricted to production or does it extend to other modalities? Is the impairment in tense marking directly correlated with deficits at higher layers of clause structure?

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