

Contents lists available at ScienceDirect

Journal of Neurolinguistics

journal homepage: www.elsevier.com/locate/ jneuroling



Exploring *wh*-questions in agrammatism: Evidence from Greek

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ARTICLE INFO

Article history: Received 11 May 2010 Received in revised form 14 June 2010 Accepted 15 June 2010

Keywords: Agrammatism Wh-questions Greek Adjunct Argument Movement

ABSTRACT

This study investigates the ability of three Greek-speaking agrammatic patients to produce and comprehend wh-questions by means of a wh-question elicitation task and a picture-pointing task. The role of question type is explored by comparing argument with adjunct questions and subject with object questions. Overall, production was found significantly more impaired than comprehension. The agrammatic participants had better performance on argument than on adjunct questions, while no dissociation was observed between subject and object questions. The overall difficulty with wh-questions indicates that the agrammatic participants had a deficit in syntactic movement or in handling CP, a finding which is compatible with other cross-linguistic results. Although this finding could be accounted for by existing hypotheses, an alternative account is proposed, according to which wh-questions are difficult to process because they are associated with LF-interpretable features, which increase their processing load. Finally, the preponderance of argument over adjunct questions reinforces the (double) dissociation between these two question types reported in the literature, while the lack of a dissociation between the subject- and the object-questions suggests that both question types involve syntactic movement to CP.

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^{0911-6044/\$ -} see front matter © 2010 Elsevier Ltd. All rights reserved. doi:10.1016/j.jneuroling.2010.06.003

1. Introduction

It is well-documented that not all syntactic structures are equally impaired in agrammatism. It has been argued that serious difficulties are observed with structures involving syntactic movement, such as matrix clauses in V2 languages (that is, languages with SOV as the basic word order where verbs always move to the second position of the declarative matrix clause; e.g. Dutch, German) and *wh*-questions (e.g. Bastiaanse & van Zonneveld, 1998, 2005; Van der Meulen, Bastiaanse, & Rooryck, 2005), or, seen from a different perspective, structures involving the highest layer of the syntactic hierarchy, that is, the Complementizer Phrase (CP), such are relative clauses, *wh*-questions, and cleft sentences (e.g. Hagiwara, 1995; Friedmann & Grodzinsky, 1997). Hagiwara (1995) has argued that the higher a node, the more difficult it is for agrammatic speakers, since in order for it to project, the syntactic process of Merger (Chomsky, 1995) has to be implemented more times than when a lower node has to project. Friedmann and Grodzinsky (1997) formulated the Tree Pruning Hypothesis (TPH) making similar predictions. According to the TPH, the agrammatic deficit usually arises from a "pruning" of the syntactic tree at the Tense (T) node, with all nodes above being unavailable; in contrast, all the projections below T are predicted to be relatively spared. Therefore, on both Hagiwara's and Friedmann and Grodzinsky's accounts, structures involving a CP, such as *wh*-questions and relative clauses, are expected to be severely impaired.

Indeed, cross-linguistic studies on agrammatism have revealed that in general this is the case (e.g. Friedmann, 2002; Van der Meulen et al., 2005; Thompson, Shapiro, Tait, Jacobs, & Schneider, 1996; Yarbay Duman, Aygen, & Bastiaanse, 2008; Grodzinsky, 1989); nevertheless, a number of studies reported on agrammatic speakers who were quite good at comprehending and producing structures involving a CP (e.g. Penke, 2001; Stavrakaki & Kouvava, 2003). Furthermore, dissociations are often reported between certain subtypes of a given structure involving a CP, and also between production and comprehension. For instance, to limit ourselves to *wh*-questions, dissociations have been observed between *wh*-questions and *yes/no*-questions (e.g. Friedmann, 2002; for Hebrew and Arabic), between argument and adjunct questions (e.g. Friedmann, 2002; Van der Meulen et al., 2005; Thompson et al., 1996), between *wh*-object questions and *wh*-NP-object questions (Hickok & Avrutin, 1996). As for the asymmetry between (different) modalities, it has been reported that agrammatic speakers perform significantly higher on the comprehension rather than on the production of questions (e.g. Hickok & Avrutin, 1996; Linebarger, Schwartz, & Saffran, 1983; Friedmann, 2002).

Interrogative sentences in agrammatism have gained less attention compared to other structures involving a CP, such as relative clauses. The present study focuses on matrix *wh*-questions in Greek agrammatism. Its goal is twofold: a) to gain insight into the ability of agrammatic speakers to handle different types of *wh*-questions in production and comprehension, which is expected to contribute to a better understanding of the underlying deficit in agrammatic aphasia, and b) to enrich the pool of agrammatic data with respect to matrix *wh*-questions, providing evidence from Modern Greek (henceforth, Greek). More specifically, we compared argument and adjunct questions, as well as subject and object questions. The motivation for these comparisons came from both linguistic distinctions and psycho/neurolinguistic findings (discussed in Sections 1.1 and 1.2). We will discuss our results by making reference to the existing accounts of agrammatism and we will propose an alternative account not only for the agrammatic patterns regarding *wh*-questions, but for a broader range of empirical facts pertaining to agrammatism as well. Finally, we will address the issue of the relation between the brain and the agrammatic aphasia, relating the site of the lesion of the agrammatic participants to their patterns of linguistic performance.

The paper is organised as follows: In Section 1.1 we provide a brief linguistic background on wh-questions, whereas in Section 1.2 we offer a survey of a number of cross-linguistic studies on wh-questions in agrammatism. Section 2 illustrates the methodology used in our study. Section 3 describes the results obtained followed by a discussion in Section 4.

1.1. Wh-questions and syntactic theory

There are two major types of questions: *wh*-questions and *yes-no*-questions. A variation is observed as to their relation with CP depending on the question type and the language. To our knowledge, at

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