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ScienceDirect
Brain and Language 105 (2008) 149–160
Brain and Language
www.elsevier.com/locate/b&l

The production of Turkish relative clauses in agrammatism: Verb inflection and constituent order

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Accepted 5 November 2007
Available online 20 February 2008

Abstract

This study presents results from a sentence completion test that examines the production of finite main clauses and non-finite relative clauses in Turkish agrammatic speech. In main clauses, the verb is finite and all its constituents are in their base positions. In relative clauses, the verb is a participle and the NP undergoes overt movement to an A-bar position. The results show that non-finite relative clauses with overt movement as such are more difficult to produce than finite main clauses with a base order. The findings are discussed with respect to several hypotheses on finite verbs and syntactic complexity. The conclusion is that Turkish agrammatic speakers have more problems in producing structurally derived clauses and the production of verbs is influenced by linguistic factors such as the overt movement of the NP.

Keywords: Agrammatic aphasia; Verb inflection; Syntactic movement; Constituent order

1. Introduction

Agrammatic speakers with Broca's aphasia are known to have problems with both complex sentence structures and free and bound grammatical morphemes. This has been explained by various theories at different levels. Some researchers assume that the deficit in Broca's aphasia is restricted to certain nodes in the syntactic tree (Friedmann, 2000; Hagiwara, 1995), that is, the syntactic tree is partially damaged from a specific node up and therefore errors are made in production. Others seek to determine which elements (Thompson's Argument Structure Complexity Hypothesis, see Lee & Thompson, 2004), structures (Bastiaanse & van Zonneveld's Derived Order Problem Hypothesis, 2005) or positions in the syntactic tree (Wenzlaff & Clahsen's Tense Underspecification Hypothesis, 2004, 2005; Burchert and colleagues' Tense and Agreement Underspecification Hypothesis, 2005) are most vulnerable. There is quite some overlap between the different hypotheses.

1.1. Linguistic accounts

The focus of the present study will be on the different predictions made by the hypotheses concerning finite verbs—Friedmann's *Tree Pruning Hypothesis* (*TPH*), Burchert and colleagues' *Tense and Agreement Underspecification Hypothesis* (*TAUH*) and Wenzlaff & Clahsen's *Tense Underspecification Hypothesis* (*TUH*)—on the one hand and the hypothesis on sentence complexity (Bastiaanse & van Zonneveld's *Derived Order Problem Hypothesis* (*DOP-H*)) on the other.

What the TPH, TAU and TUH have in common is that they describe the problems that agrammatic speakers have with the production of finite verbs. According to the TPH and the TUH, the production of Agreement morphology is intact while the production of Tense is impaired. According to the TAUH, both Tense and Agreement can be independently affected in agrammatic production. The difference between the TPH on the one hand and the TAUH and TUH on the other, is that the TPH assumes that all nodes above Agreement are inaccessible (these are Tense and

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doi:10.1016/j.bandl.2007.11.001

Complementizer nodes, following Pollock, 1989) while the lower nodes are intact, whereas the TAUH and the TUH predict that the production of Tense and/or Agreement is impaired, but that this does not necessarily imply that nothing else is impaired in agrammatic production. In other words, the TPH predicts exactly which structures are impaired and which are not, whereas TUH and TAUH, according to which Tense is underspecified, suggest that poor production of Tensed finite verbs is due to the nature of Tense, that is, due to its interpretable features that are underspecified and they do not make further assumptions on other structures.

The basic assumption of the DOP-H is that all languages have a base word order and that other word orders are derived. The DOP-H predicts more problems in sentences in which the constituents are in derived order than in sentences in which the constituents are in their base position. For example, the base order in Dutch is subject–object–(finite) verb (SOV), which is visible in the embedded clause. The order of the main clause is derived (subject–finite verb–object). One of the findings that the DOP-H is based on is that Dutch agrammatic speakers have more problems to produce finite verbs in main than in embedded clauses (Bastiaanse, Hugen, Kos, & van Zonneveld, 2002). The DOP-H is not restricted to finite verbs. It also predicts that object scrambling, an operation low in the syntactic tree, is also impaired. This was confirmed for Dutch (Bastiaanse, Koekkoek, & van Zonneveld, 2003) and German (Burchert, 2006). Hence, the DOP-H is not focused on one position in the tree, but simply poses that complex sentences (defined as sentences with overt movement of a constituent) are difficult to produce for agrammatic speakers. In other words, in terms of language production models (Levelt, 1989), 'grammatical encoding' is assumed to be impaired (Bastiaanse & van Zonneveld, 2004).

The present study is focused on the production of finite and non-finite clauses in Turkish. First, the linguistic background of the relevant Turkish grammar will be sketched out, followed by a section on the predictions for agrammatic production. Then the experiment itself and the results will be presented, followed by a discussion of the results in the light of the different theories.

2. Linguistic background

2.1. Main clauses

Turkish is an SOV (subject–object–verb) language[1] (Erguvanlı, 1984). This is illustrated in (1: nom = nominative; acc = accusative, progr = progressive, 3sg = 3rd person singular agreement).

(1) adam ceket-i dik-iyor
the man-nom the jacket-acc sew-progr/3sg
'the man sews/is sewing the jacket'

[1] Permutations of basic SOV order are possible (OSV, SVO, OVS, VOS and VSO) in Turkish. The permutations represent derived orders that are consequences of syntactic operations such as topicalization, backgrounding and focusing in Turkish (Erguvanlı, 1984).

The hierarchy of functional categories in Turkish is Complementizer Phrase (CP)—Tense Phrase/Inflection (TP/INFL)—Aspect Phrase (AspP)—Verb Phrase (VP) (Aygen, 2004). In main clauses, the finite verb moves to T (tense) to check its inflectional features (Chomsky, 1995). This can be seen in Fig. 1. The finite verb moves to T through V+v+T movement in a Turkish main clause (see dashed arrow). This operation is invisible at the surface level, i.e. the finite verb is in its base position even though tense features, such as the present, must be checked (Chomsky, 1995).[2]

In Turkish, both C and T/Infl are responsible for finiteness (Aygen, 2004). Non-finite verbs do not move as high as the T node in the syntactic tree. In the next few paragraphs, some background will be provided about relative clauses in Turkish which are non-finite, but which do have overt syntactic movements.

2.2. Relative clauses

Turkish relative clauses (RC) are participle constructions where the verb of the relative clause appears in a non-finite form (Hankamer & Knecht, 1976; Underhill, 1974). The verb of the relative clause is either marked with a specific subject participle (Spar)—*yAn*, used to relativize the subject, or with a specific object participle (Opar)—*DIK*, used to relativize the object and the non-subject. Uppercase letters in the subject and object participle morphemes represent underspecified phonemes subject to vowel harmony and other morpho-phonemic rules in Turkish.

Example 2 is a subject relative clause and Example 3 is an object relative clause. Overt movement of the subject from its clause-initial position to the end of the clause in a subject relative (see (2) below), and of the object from its pre-verbal position to the end of the clause in an object relative (see (3) below) is shown by a trace (t) which is co-indexed with the moved argument (Aygen, 2003, 2005). In an object relative, the subject is in its genitive (gen) case and the verb agrees in person/number with the subject of the relative clause. Neither the subject in a subject relative nor the object in an object relative is overtly marked for case (nominative) in the examples below.[3]

[2] The present tense is expressed by the -Iyor Aspect marker in Turkish in the absence of any other Tense/Aspect marker following it (Taylan, 2001). According to Aygen-Tosun (1998), the verb moves to T/INFL to check both its Tense and Aspect features in the finite main clauses, even when Tense is not marked overtly.

[3] The case on the extracted subject in subject relative clauses is dependent on its external syntax of the relative clause. Specifically, if the subject relative clause is the subject of a main clause, then it is in the nominative (i.e. ceketi diken adam burada 'the man that has sewn/sew the jacket is here'. If it is the object of a main clause, then it is in the accusative (i.e. ceketi diken adamı gördüm 'I saw the man that has sewn/sew the jacket'). The case on the extracted object in object relative clauses is also dependent on the external syntax of the relative clause—the object is in the nominative when it is the subject of a main clause (i.e. adamın diktiği ceket burada 'the jacket that the man has sewn/sew is here'. If it is the object of a main clause, then it is in the accusative (i.e. adamın diktiği ceketi gördüm 'I saw the jacket that the man has sewn/ sew').