Object scrambling and finiteness in Turkish agrammatic production

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Introduction

The present study questions whether different aspects of the inflectional phrase are impaired in linguistically simple and complex sentences or whether overt syntactic movement is impaired.

There are several prominent theories regarding word order and finiteness in agrammatic aphasia. (1) Tree pruning hypothesis (TPH) suggests that the syntactic tree is pruned from the tense node and up, and therefore cannot project any higher (Friedmann, 2000). (2) Tense underspecification hypothesis (TUH) proposes that, of different kinds of verb finiteness markings, tense is selectively underspecified in agrammatic aphasia, leaving other finite verb inflections (e.g., mood) unaffected (Wenzlaff & Clahsen, 2005). (3) Derived order problem hypothesis (DOP-H) states that all sentences in derived order are difficult to produce and to comprehend for agrammatic speakers (Bastiaanse & van Zonneveld, 2005).

We compared the production of simple active sentences in base order (SOV) with active sentences in which the object moves over the subject (OSV) in Turkish (Aygen, 2004). The focus was on verb inflection: past tense (-DI) and grammatical mood (-SIN).

The three theories above predict three different types of impairments. The TPH predicts that a deficit in OSV sentences (a movement to specTP) should co-occur with a deficit in finiteness: tense and mood inflection (TP/CP), both in the SOV and OSV sentences. The patients will produce word order errors in OSV condition and since there is no access to TP/CP, they will make errors with verb inflection in both conditions through replacing finite verbs with non-finite verbs. The TUH expects a deficiency in tense marking but not in grammatical mood. The DOP-H predicts that OSV-sentences will be difficult to produce, causing word order errors in this condition. Yet, finiteness should not be a major problem in either of the conditions since there is no overt verb movement.

Methods

Subjects

Eight Turkish agrammatic speakers (mean age: 55 years) were tested. All were right-handed and had a single lesion in the left hemisphere. The aphasia type was established with the Gülhane Aphasia Test (Tanrıdağ, 1993). Eight non-brain-damaged Turkish native speakers were the control group.

Materials

A sentence completion test was developed with two conditions: base-order (N = 30) and derived-order (N = 30), each of which consisted of two sub-conditions: half of the finite verbs were marked with past tense (n = 15) and half, with mood inflection (n = 15). The patients were presented with two pictures in which the same action was performed by a different person and with a different object. The patients were prompted with the target word order (with equivalent pragmatic conditions: SOV in SOV condition, OSV in OSV condition) and verb inflection (mood or past) once and had to complete the sentence in a similar way. The order of the sentences was randomized.

SET I  “Let the man paint the door but let the woman paint the wall”
1. SOV-Mood
   Tester: Bu adam kapıyı boyasın ama bu...
   Patient: kadın duvarı boyasın
   Tester: This the man nom the door acc paintmood but this...
   Patient: the woman nom the wall acc paintmood
2. OSV-Mood
   Tester: Bu kapıyı adam boyadı ama bu...
   Patient: duvarı kadın boyadı
   Tester: This the door acc the man nom paintmood but this...
   Patient: the wall acc the woman nom paintmood

SET II  “The woman painted the wall but the man painted the door”
3. SOV-Past
   Tester: Bu kadın duvarı boyadı ama bu...
   Patient: adam kapıyi boyadı
   Tester: This the wall acc the woman nom paintpast but this...
   Patient: the man nom the door acc paintpast
4. OSV-Past
   Tester: Bu duvarı kadın boyadı ama bu...

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Patient: kapıyı adam boyadı

Tester: This the wall acc the woman nom paintpast but this ... .

Patient: the door acc the man nom paintpast

Results

The control group did not produce any errors throughout the test. The agrammatic speakers produced SOV sentences significantly better than OSV sentences (wilcoxon, $z = -2.527$, $p = .012$), for both the mood (wilcoxon, $z = -2.524$, $p = .012$) and the past condition (wilcoxon, $z = -2.533$, $p = .011$) (Table 1).

Most error type concerned word order. The number of word order errors produced in the OSV condition (mean: 14.87) was significantly higher than the SOV condition (mean: 0.87) (wilcoxon, $z = -2.533$, $p = .011$), for both the mood (wilcoxon, $z = -2.384$, $p = .017$) and the past condition (wilcoxon, $z = -2.530$, $p = .011$). In the OSV condition, the patients almost always left the object in its base position, even though they produced the verb inflection correctly.

There were few inflectional substitutions, but all within the finite paradigm (mood substituted with past or vice versa) in both conditions. The comparison of overall inflectional errors in SOV and OSV was not significant (wilcoxon, $z = -0.954$, $p = .340$).

Conclusions

The main finding is that object scrambling (OSV) is impaired but finiteness is not in Turkish agrammatic production.

Unlike the predictions of (1) Tree pruning hypothesis, the patients did not replace finite verbs with non-finite ones and they produced finite verbs (TP/CP) relatively well, suggesting that the functional projections from the tense node and up are accessible. In contrast to the expectations of (2) Tense underspecification hypothesis, tense inflection is not selectively underspecified in agrammatic aphasia: there is no discrepancy between different kinds of verb finiteness markings, tense and mood, both of which are relatively well-preserved.

Accordingly, the deficit is not in finiteness as such. Nevertheless, derived order, as correctly predicted by (3) Derived order problem Hypothesis, is one of the major problems in agrammatic aphasia, even though sentence production is in general difficult for the patients.

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References


