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Journal of Neurolinguistics 21 (2008) 177–197

Journal of NEUROLINGUISTICS

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Canonicity effects as grammatical phenomena

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Received 15 May 2006; received in revised form 7 September 2007; accepted 8 September 2007

Abstract

The existence of a split in agrammatic Broca's aphasics' comprehension of semantically reversible sentences with canonical vs. non-canonical word order have been explored in deep in the last decades. In this paper we present and discuss a new approach to *canonicity effects* that derives the asymmetry in a principled way from the Relativized Minimality approach to locality in syntax. The approach takes both processing and representational considerations into account thus avoiding problems, such as *variation* and *complexity*, encountered in non-integrated accounts. New data from a series of tests on both comprehension and production with an agrammatic Broca's aphasic patient are presented and discussed in light of the new proposal. Reduction of these asymmetries to a special case of the more general theory of locality allows generalizations to be made, which might be extended over different populations.

Keywords: Aphasia; Agrammatism; Canonicity; Relativized Minimality; Processing; *wh*-Movement

1. Introduction

In this paper we present and discuss a novel approach to *canonicity effects* in agrammatic Broca's aphasia developed originally in Grillo (2003, 2005). In addition to testing the hypothesis against existing data in the literature, we present and discuss evidence from a series of experiments on both comprehension and production of semantically reversible sentences by an Italian agrammatic aphasic patient. The approach adopted here captures the selectivity of the effect by reducing the phenomenon to a special

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doi:10.1016/j.jneuroling.2007.09.001

case of Relativized Minimality (RM) (in the sense of Rizzi, 1990, 2004a; Starke, 2001). RM is a general principle of economy of syntactic representation which states that a syntactic relation is restricted to the closest possible element capable of bearing that relation. The novel approach avoids many problems posed by previous approaches (most notably those related to variation) and gives a principled account of complexity effects with respect to movement.

Grillo (2003, 2005) proposes that a loss of (syntactic) processing abilities can compromise the representation of the full array of morphosyntactic features normally associated with syntactic elements, thus giving rise to Minimality Effects in precisely definable syntactic configurations. In (1) a schematized representation of an *object-cleft* (*it is the boy who the girl kissed*) sentence in normal adult speakers is given.[1] RM authorizes the formation of the relevant chains between the moved NPs and their traces by virtue of the difference between the feature set associated with the subject NP and that associated with the object NP.

$(\mathrm{N},\theta_2,\phi_\mathrm{s},\mathrm{acc},\mathrm{wh})_{\mathrm{ClassQ}}\ (\mathrm{D},\mathrm{N},\theta_1,\phi_\mathrm{s},\mathrm{nom})_{\mathrm{ClassA}}\ (\mathrm{N},\theta_2,\phi_\mathrm{s},\mathrm{acc},\mathrm{wh})_{\mathrm{ClassQ}}$

(1) It is the boy$_\mathrm{i}$ [who$_\mathrm{i}$ [the girl]$_\mathrm{j}$ [<the girl>$_\mathrm{j}$ kissed < who >$_\mathrm{i}$]].

The presence of the *wh*-feature, in fact defines the object ⟨who⟩ as a member of a class (Q, the Operator's class) distinct from the one to which the subject ⟨the girl⟩ belongs to. The former belongs to the Operator class while the latter belongs to the Argumental class.

In (2) the proposed representation of the same structure by an agrammatic aphasic is schematized.

$(\mathrm{N},\theta_?,\phi_\mathrm{s},\ldots)_{\mathrm{ClassA}}\ (\mathrm{D},\mathrm{N},\theta_?,\phi_\mathrm{s},\ldots)_{\mathrm{ClassA}}\ (\mathrm{D},\mathrm{N},\theta_2,\phi_\mathrm{s},\ldots)_{\mathrm{ClassA}}$

(2) It is the boy$_\mathrm{i}$ [who$_\mathrm{i}$ [the girl]$_\mathrm{j}$ [< ... >$_?$ kissed < ... >$_?$]].

The impoverishment of the set of features, more specifically the absence of the *wh*-feature leads to RM blocking chain formation: as a consequence it is impossible to assign the correct thematic role to each argument, which in turn generates poor comprehension.

This analysis predicts that different pattern will arise with subject relatives, which are, in fact, correctly interpreted by agrammatic patients. In these structures no other NP intervenes between the moved constituent and its trace, hence no RM effects are expected:

(3) It is the boy$_\mathrm{i}$ [who$_\mathrm{i}$ [<the boy>$_\mathrm{i}$ loved the girl]].

1.1. Agrammatic Broca's aphasia and the canonicity problem

Since the seminal paper by Zurif and Caramazza (1976), a great amount of work has been dedicated to reach a better understanding of agrammatic Broca's aphasics' difficulties with semantically reversible sentences with a *non-canonical* linear order of the argument NPs. Different approaches have been proposed to deal with this phenomenon and, more generally, with the correct characterization of agrammatism (see Avrutin, 2001 for a review).

Simplifying to a high degree, and leaving aside the many differences between individual approaches, it is possible to divide the whole spectrum of analyses into two major

[1] The example in (1) is intended merely to give a flavor of the account developed here. A more detailed discussion follows a proper introduction to the issues raised and the theoretical framework adopted in this paper. Non-crucial details are omitted, indexes are used for explanatory purposes only.