Aphasic Errors and Phonological Universals: Contrasting Patterns in Patients with and without Articulatory Difficulties

Cristina Romani[a,*], Claudia Galluzzi[a]

[a] *Aston University, Birmingham*

Introduction

Roman Jakobson (1948/1968), made two seminal statements about aphasic language: 1) it is a mirror image of child language and 2) it represents a loss of phonological distinctions. Recent re-interpretations of Jakobson's implicational universals in terms of Optimality Theory (OT), also suggest that aphasic speech may be explained as a re-arrangement of constraints so that markedness constraints take precedence over faithfulness constraints. Jakobson's statements have been criticised since aphasic speech includes contrasts and structures which emerge late in development (e.g., Caramazza, 1994) and difficulties with lexical retrieval seem to be better interpreted as reductions in levels of activation rather than as a loss of contrasting information. However, these issues may be confused by considering different types of patients together. Here, we want to re-examine the effect of implicational universals in aphasia by distinguishing different groups of patients where articulatory difficulties are established with a clear criterion.

Method

Twenty-five Italian patients were asked to repeat and spell to dictation a battery of 773 words. We indexed articulatory difficulties with rate of ***phonetic errors***. These are errors where a target phoneme is produced in a slurred and/or imprecise way rather than being omitted or substituted with another phoneme. Using arbitrary cut offs (below 5%, below 10% and more than 10% of phonetic errors) we subdivided our patients into three groups: phonological, mixed and apraxic.

Results and Conclusions

Both of Jakobson's original statements were found to be true, but they applied to different groups of patients.

1) The speech of the apraxic patients could well be characterized as a mirror image of child language as described by Jakobson and predicted by OT. Complex structures were avoided so that consonantal clusters were reduced to singletons, the sonority profile of the syllable was optimized (through substitutions), and more marked segments were substituted with less marked segments. Moreover, as predicted by OT, the patients use a variety of strategies to eliminate complex structures. E.g., complex onsets are eliminated through consonant deletions and vowel epentheses; heterosyllabic clusters are eliminated through consonant deletion or assimilation. Adult-like structure can be present because random fluctuations determine whether faithfulness or markedness constraints are ranked higher.

2) The speech of the phonological patients (and to a lesser extent of the mixed group), in contrast, was not affected by markedness, but by a loss of featural specifications so that which feature was picked was a chance

* Corresponding author.
 E-mail address: c.romani@aston.ac.uk .

ccurrence. This is in contrast with activation models which predict picking systematically the m

quent/most active phoneme.

Markedness constraints affect almost exclusively the apraxic group and are weaker in spelling than in repetiti is suggests that they have an articulatory basis. However, all patient groups showed a tendency to minima ange the syllabic structure of the target, other things being equal. This suggests that output constraints ope complex representations which represent, on distinct levels, features and structural information. This imp t faithfulness constraints can be specified not only in terms of identity of features but also terms of identity llable structure.

References

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