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A corpus-based study of agrammatic aphasia: new evidence for the potential prominent part played by adaptive strategies in these patients' oral production

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Introduction

This study investigates the plausibility of "adaptation theory" in oral agrammatic production by means of large and systematic corpora studies.

The hypothesis of agrammatism being, at least partly, an adaptive behaviour is thus tested, following some assumptions put forward by Nespoulous (1973, 2000) and Hofstede and Kolk (1994).
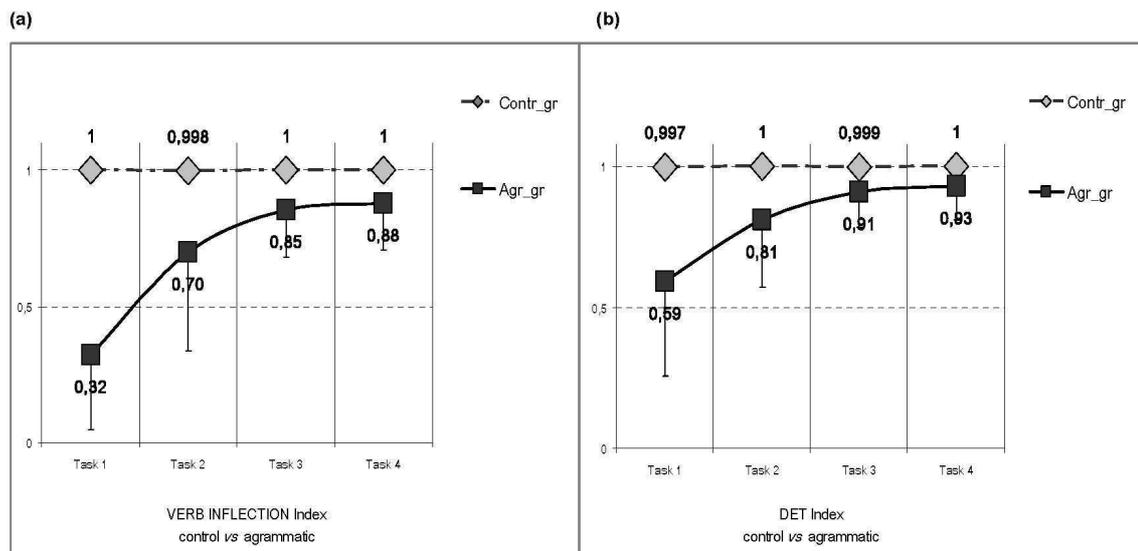
Method

We have gathered speech data involving four production tasks with gradual contrasts in instructions and picture use: autobiographical spontaneous speech (task 1) *versus* fairy tales (task 2: no pictures) *versus* short stories (task 3: 4 pictures for 7 stories) *versus* sentences (task 4: 60 pictures). 6 French agrammatic patients with left hemisphere stroke involving Broca's area participated in the experiment. We obtained approximately 4 hours of transcribed and analyzed agrammatic speech. Corpora analyses were conducted on fluency, lexical, morpho-syntactic and discourse aspects for each task, on the basis of Saffran *et al.* (1989) 's quantitative analysis procedure taking into account linguistic specificities of French.

*Selected results**

The verb inflection index (Figure 1-a) gradually increased from 0.32 in connected spontaneous speech (task 1) to 0.88 in isolated sentences (task 4). Strikingly, the higher the task demands (as in task 4), the better the verb inflection. Such a trend was also observed for the determiner index (Figure 1-b), with fewer omissions of obligatory determiners in task 4 (0.93 of required determiners being produced) compared to task 1 (0.59).

Figure 1 : Evidence for across-task variability in 4 production tasks, concerning 9 control vs 6 agrammatic speakers ; mean verb inflection index (a) and mean determiner index (b)

Those trends reflect that elliptical strategies (simplification of verbal morphology and preferential omission of some grammatical words) seemed to be more available and used in spontaneous speech.

Moreover, the fluency drop we observed (from 53 wpm in spontaneous speech to 40 wpm in pictured stories) might be the result of longer pauses and self-interruptions due to higher processing or reflexive demands to encode the target forms required by the instruction and the picture use.

Discussion

The inconsistent use of elliptical style (simplification and omission strategies) can explain agrammatic performance which is variable from one task to the other. Therefore, across-task comparisons clearly and regularly indicated that agrammatic speakers adjusted fluency and morpho-syntactic surface structures, showing variable grammatical accuracy according to task demands.

The existence of other types of strategies, like palliative strategies relying on substitutive procedures and corrective strategies relying on revision procedures, is also reported.

Finally, variability in the use of strategies, combined with the improvement or decrease of fluency and / or grammatical accuracy, lead us to suggest that some "performance rules" are very likely to reflect linguistic output adjustments we observed, which may be due to the agrammatic speakers' adaptive abilities. The intervention of monitoring (variable focused attention on form) might be responsible for the inconsistent use of strategies.

*Among 30 variables.

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