

Introduction

Jakobson's regression hypothesis stated that the last acquired phonological component is the first impaired in aphasia. In 1978, DeVilliers examined if the same held true for morphology. In a study that compared the 14 grammatical morphemes chronologically ordered by Brown (1973) in his longitudinal study of child language acquisition to the morphemes used by people with non-fluent aphasias she reported that in the 5,000-word segments she studied from Howes' corpus of transcriptions from 8 patients with non-fluent aphasia, fewer of Brown's morphemes were used among the patients (8/14) than in the children.

As well, the order of morpheme use also differed somewhat between the two groups. In particular, the patients used a high number of instances of both copula and contractible copula (e.g., *It's*, *They're*) which Brown reported to be relatively late-learned in children.

Research Questions

1. In spoken discourse, do people with agrammatic aphasia disproportionately produce morphosyntactic elements that are acquired earlier in language development, relative to healthy controls?
2. Is the variety of morphology produced characteristic of earlier acquired forms?

Participants

Participants were 19 people from AphasiaBank (MacWhinney et al., 2011) with agrammatic Broca's Aphasia and 19 healthy age and education matched controls.

	Word count	Age (Years)	Education (Years)
Control N=19	647	54.0	14.5
PWA N=19	200	53.7	14.4

Methods

Data for the study were obtained from the free narrative portion of testing from AphasiaBank. The stimulus questions were: tell me about your stroke, tell me about an important event, and how do you think your speech is these days.

Participants were excluded if they did not show agrammatism, had significant dysarthria, or had limited speech output (e.g. yes/no responses only). Agrammatic aphasia classification was agreed on by two SLPs whose criteria were omission of at least 4 obligatory morphemes.

For each of the participants' agrammatic utterances, we created a corresponding target utterance that would be the least complex full sentence for that utterance. Interrater reliability 90%.

Brown's 14 grammatical morphemes were then tallied as correct, omitted, or erred on for each participant and frequency of use and percentage accuracy in obligatory contexts were calculated for each. We then followed DeVilliers' (1974) method for rank ordering the morphemes by accuracy.

Results

Consistent with DeVilliers (1978) findings, rankings from the patients differed from Brown's ranking for children.

Moreover, PWA in our study overused the contractible copula despite it being late acquired in children. It was used to provide over 20% of the verbs in our sample of PWA. By contrast, among 19 healthy controls in the data set the contractible copula was employed for only 5% of the verbs.

Furthermore, among the possible forms of contractible copula the patients might have employed, only four forms were used more than once: *It's*, *That's*, *I'm*, and *There's*. Of the total number of copulas used the majority was the contractible copula "*It's*". The 19 healthy controls, by contrast, used contractible copulas with a fairly even distribution among the different forms.

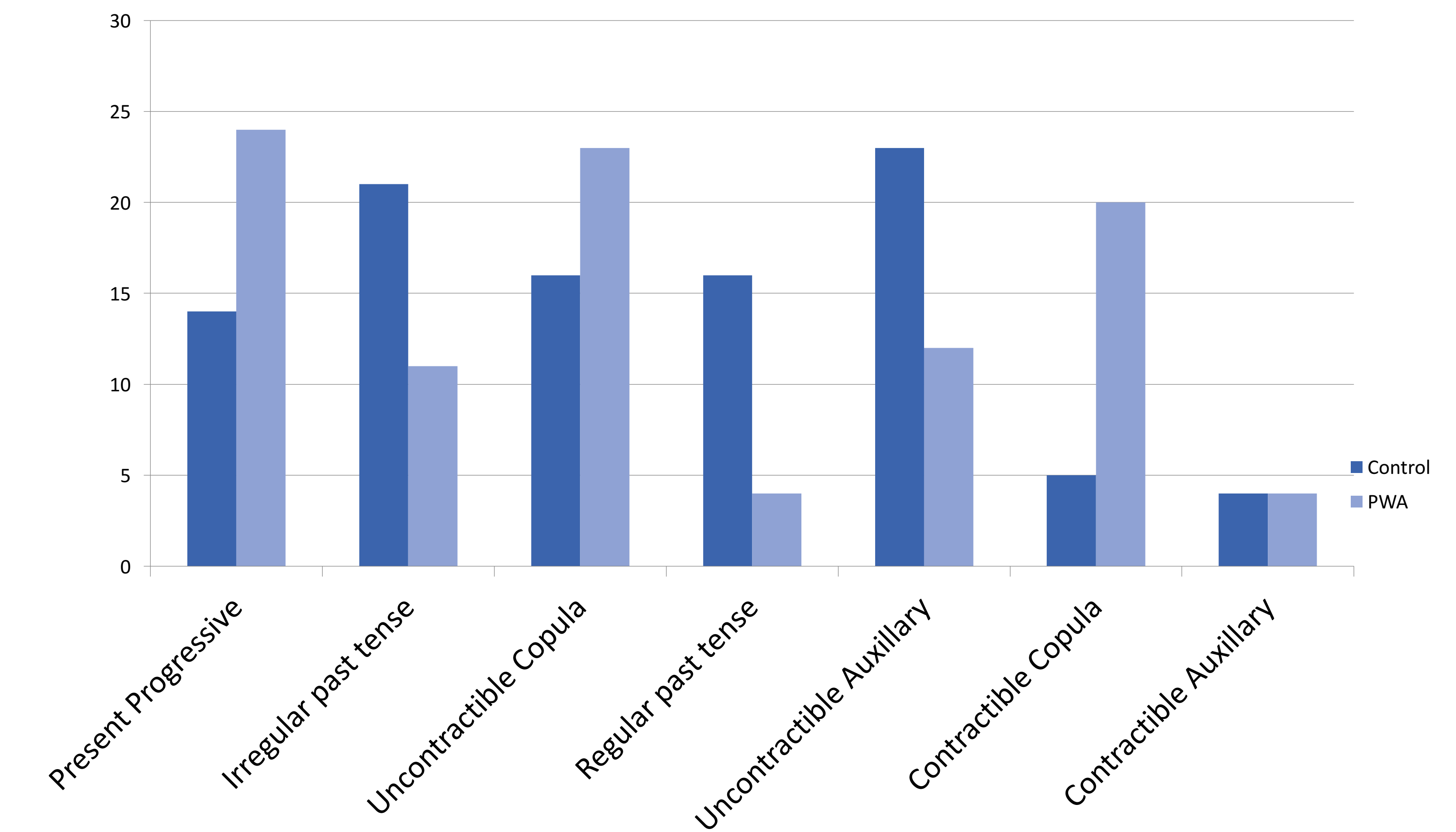


Chart 1. Percent of total verb use by people with agrammatic aphasia compared with healthy controls. Results significant at $p < .005$

	Brown Children	DeVilliers Children Method 1	DeVilliers Children Method 2	DeVilliers PWA	Present Study PWA	Present study Controls
<u>Present Progressive</u>	1	1	2	1	1	6
<u>Plural</u>	2	1	1	2	2	5
<u>Past Irregular</u>	3	3	3	7	7	2
<u>Uncontractible Copula</u>	4	8	7	4	5	4
<u>Articles</u>	5	4	5	5	4	1
<u>Past Regular</u>	6	6	4	6	6	3
<u>Third person regular</u>	7	6	8	8	exc	8
<u>Contractible Copula</u>	8	5	6	3	3	7

Chart 2. Rank of morphemes. Brown children and DeVilliers' Children Method 1: order in which 90% accuracy was achieved in obligatory contexts. DeVilliers' Children method 2 and PWA percentage of correct use in obligatory context.

Discussion

Our findings indicate that PWA overuse the contractible copula, a morpheme that is late acquired in children and used only marginally by healthy individuals. There are three plausible explanations for this phenomenon, which are not mutually exclusive:

1. PWA have difficulty with finite verbs and word finding (Bastiaanse et al., 2002), contractible copulas use a nonspecific subject and one type of verb.
2. The Derived Order Hypothesis states that PWA will not have difficulty with production as long as there is no syntactic movement (Burchert et al., 2008); contractible copulas have a fixed order.
3. People with aphasia use canonical forms because they are simple forms (Menn, 2000); contractible copulas follow this pattern.

Contact

Marta Korytkowska
The Graduate Center, CUNY
Email: Martakory@gmail.com

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