Applying the usage-based approach to language disorder:
An examination of noun phrases in aphasia

Rachel Hatchard
Manchester Metropolitan University, r.hatchard@mmu.ac.uk

To fulfil their basic needs, humans need to communicate with others about objects, abstract concepts, people, places and situations. In typical language users, this fundamental act of reference is very commonly effected using noun phrases (NPs) (e.g. Serratrice & De Cat, 2020). But what happens to this key linguistic device when the language system is disrupted in some way, leaving the speaker less able to retrieve or assemble their utterances? This is the situation facing people with the most commonly acquired language disorder in adults: aphasia.

In line with the rule-based/componential view of language that remains dominant in aphasiology, research has studied individual elements of NPs in aphasia, particularly nouns (e.g. Alyahya et al., 2018), pronouns (e.g. Arslan et al., 2021) and determiners (e.g. Rosenbech Nielsen et al., 2019). Very little work investigates NPs as whole items, as would be of interest in a usage-based approach, a perspective which is only just beginning to gain traction in aphasiology (see, e.g., Boye et al., 2018; Hatchard, 2015; 2021; Hatchard & Lieven, 2019; Martínez-Ferreiro et al., 2020). No existing work applies this approach to whole NPs in spontaneous speech in aphasia, but doing so could provide new insight into this debilitating disorder - with potential implications for speech and language therapy -, and help to further test the usage-based approach, thereby also increasing understanding of typical language processes.

Regarding NP acquisition, usage-based analyses suggest that children develop their NPs gradually over time, beginning with the head nouns themselves, before building an understanding of determiners, adjectives and, later, postmodifiers over several years (e.g. Kemp et al., 2005; Eisenberg et al, 2008). Correspondingly, it would be unsurprising if NP elements were more preserved in this order in aphasia, as items that are acquired earlier may be more entrenched and potentially less prone to 'loss' (or loss of access) in this disorder.

This study provides a usage-based examination of NPs in spoken Cinderella narratives from 12 people with various aphasia 'types'/ severities. Comparisons are drawn to data from 12 neurotypical speakers narrating the same story.

Supporting usage-based predictions, findings suggest a continuum whereby NP length, complexity and variety increase with decreasing spoken language impairment severity: The NPs of the speaker with the greatest impairment consisted only of head nouns. Those with slightly greater capabilities still mainly produced only head nouns, but with occasional and uneven use of determiners (mainly numerals) and modifiers that were relatively basic (e.g. good, bad) or likely part of an entrenched expression (e.g. ugly in ugly sisters). Postmodifiers, in particular, were mainly only used from the middle of the speaker continuum upwards, as were multiple instances of a given component (determiners or modifiers) within a given phrase. Furthermore, overall, the percentage of NPs headed by nouns decreased, while those headed by pronouns increased, with less severe impairment.

Results are discussed in relation to both the development of linguistic theory and clinical practice (speech and language therapy).

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