

Sensitivity to prior context in referring expressions across the lifespan

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In producing referring expressions, speakers are sensitive to discourse contexts: If there are two similar objects in the scene (e.g., two umbrellas), speakers use a modifier to distinguish between them (e.g., “the open umbrella”). Surprisingly, speakers include modifiers – to a lesser extent – even when the contrasting object (e.g., closed umbrella) is not part of the current scene, but was seen and described earlier, a phenomenon known as *lexical differentiation* [1,2]. Because lexical differentiation requires accessing the memory representation of the past referent [3], we hypothesized that older adults, who experience memory decline, may show less differentiation compared with younger adults.

Method. 32 younger adults and 32 older adults completed a referential communication task over Zoom, followed by a cognitive battery to measure memory. On each trial, 4 of the 15 pictures were uncovered (Figure 1), and the participant described the marked image for the experimenter. Each set (the same background) included one ENTRAINMENT trial, one TEST trial, and six interspersed fillers. On entrainment trials, the target image was either an object of the same type (e.g., umbrella; DIFFERENTIATION condition) or of a different type (e.g., bottle; NON-DIFFERENTIATION condition); At test, the target was constant (e.g., a striped umbrella).

Results. We transcribed the participants’ referring expressions and coded for each trial whether a modifier was used. Overall, we found a main effect of differentiation (.73 vs. .59; $z=-4.79$, $p<.001$), indicating that participants produced a higher rate of modification in the differentiation condition (i.e., saying “the open umbrella” after seeing a different umbrella earlier). The main effect of group ($z=-0.86$, $p=0.39$) was not significant, although numerically older adults modified more than younger adults (.70 vs. .62). Further, the interaction was not significant, indicating that differentiation was similar across the lifespan. Thus, although there was a significant memory difference between the groups, it did not modulate the use of modification.

While previous work on lexical differentiation focused on pre-nominal modifiers [1,2], we note that items may also be differentiated using post-nominal modification (e.g., “the umbrella that is open”), which have been shown to be planned later [4,5]. We therefore examined pre- and post-nominal modifiers separately. The pre-nominal modifiers showed the same pattern of results as all modifiers: a main effect of differentiation (.62 vs. .47; $z=-6.48$, $p<.001$), but no main effect of group (.56 vs. .52) nor an interaction. Interestingly, post-nominal modifiers showed a different pattern: older adults modified significantly more than younger adults (.18 vs. .06; $z=-3.80$, $p<.001$), but these modifiers did not vary with differentiation (.11 vs. .12).

Conclusions. Despite showing difference in memory abilities, younger and older adults exhibited lexical differentiation in referring expressions to the same extent. This result suggests that, despite memory decline, older adults are sensitive to discourse history and use modification like younger adults. Interestingly, differentiation was only found with pre-nominal modifiers, not with post-nominal modifiers, although both are equally able to distinguish the current image from an earlier one. This suggests that differentiating modifiers are planned early – before the noun. This finding converges with other cases of over-specification (i.e., modification that is not strictly necessary in the current context), which have been found more in pre-nominal than post-nominal position [cf. 6].

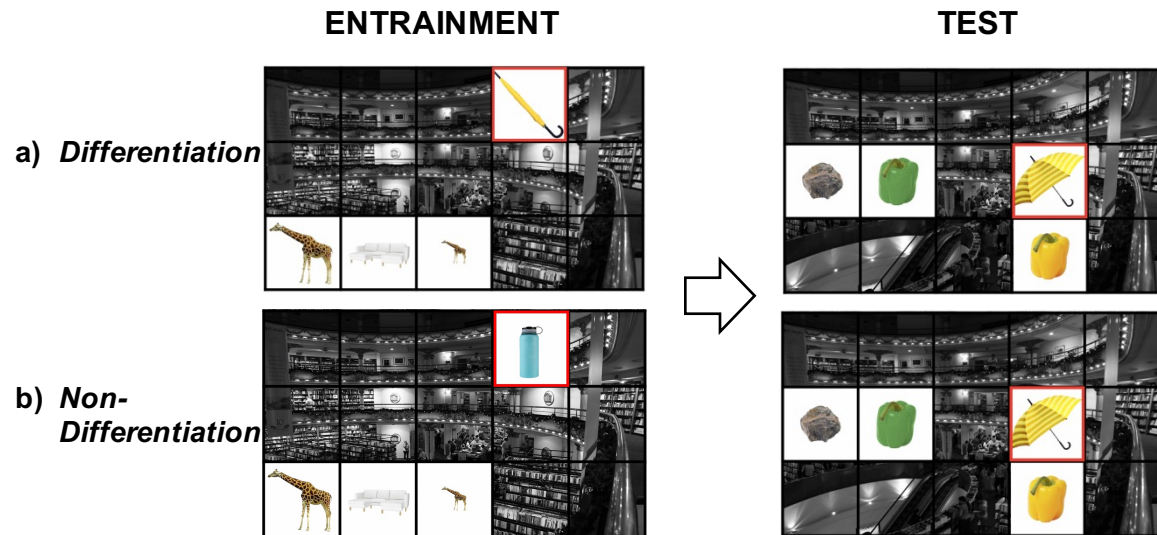


Figure 1. Example entrainment (left) and test (right) trials in the Differentiation and Non-differentiation conditions.

Table 1. Proportion of modified expressions at test trials.

		Pre-noun	Post-noun	All modification
Younger adults	Differentiation	63.0%	6.2%	69.2%
	Non-differentiation	49.7%	5.6%	55.3%
Older adults	Differentiation	60.3%	16.1%	76.4%
	Non-differentiation	44.1%	19.1%	63.2%

References

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