

Making Connections Within Text: A Review of Anaphor Resolution

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In order to be a successful reader, one needs to not only be able to identify individual words, but also to create an ongoing representation of the events described throughout a text. One way this continuity is accomplished is through anaphor resolution. An anaphor is the word that refers to something that was previously introduced within the text. Take the following example:

- It had been a long day. The builders were exhausted. Eventually a truck arrived to help. They needed the vehicle because the load was so heavy. At last they could start work on the building.

The word “vehicle” is the anaphor used to refer to the previously mentioned “truck” in the text. The word “truck” is termed the *antecedent*, while the one or two words following the anaphor (the word “because,” in this example) is termed the *postanaphor region*.

Research suggests that there are two stages of anaphor resolution. In the first stage, a link between the anaphor and its antecedent is made (known as bonding); in the second stage, the link between the anaphor and antecedent is integrated with the overall context of the text (known as resolution).

The processes that are involved with bonding and resolution are resource-heavy and may depend on skills that develop as people age. Studies of anaphor resolution in adults have found longer reading times for sentences that have anaphors farther away from their antecedents and for antecedents that are less typical. For example, a truck (a typical antecedent) has more of the traits we would generally associate with a vehicle (the anaphor) than a construction crane (an atypical antecedent) has. In contrast to what is known about anaphor processing in adults, less is known about anaphoric resolution in children — especially processing that occurs as children are actively reading.

In a [recent article](#) in the *Journal of Cognitive Psychology*, researchers Holly Joseph (Oxford Brookes University and University of Oxford), Georgina Bremner (University of Oxford), Simon Liversedge (University of Southampton), and Kate Nation (University of Oxford) examined anaphoric resolution in

children as they read. Specifically, they were interested in understanding how children resolve anaphors as they read and whether individual differences in working memory and reading comprehension affected children's resolution abilities.

The researchers tracked the eye movements of 10- and 11-year-old children as they read short passages, such as the example above that described the builders and the truck. The authors manipulated the distance between the anaphor and its antecedent by placing them in consecutive sentences (near) or one sentence apart (far). The researchers also manipulated the typicality of the antecedent, for example, using the antecedent "truck" (typical) or "crane" (atypical). The children also were assessed for reading comprehension and verbal working-memory ability.

An examination of the eye movements the children made in the anaphor and postanaphor regions of the text suggested that anaphor processing begins when children look at the word and continues after their eyes have moved onto the postanaphor region. The results also suggested that children failed to resolve the most demanding type of anaphor — atypical ones far from their antecedents — perhaps because this process is too demanding for children of these ages.

Verbal working memory and reading comprehension influenced the effects of typicality and distance during anaphoric processing in a way that suggests that working-memory capacity is important for bonding information in children, while reading comprehension is important for resolution.

Although much more remains to be discovered about how children process anaphors — and the way this skill develops — this article provides an important look into the way children read and comprehend text.

Reference

Joseph, H. S., Bremner, G., Liversedge, S. P., & Nation, K. (2015). [Working memory, reading ability and the effects of distance and typicality on anaphor resolution in children](#). *Journal of Cognitive Psychology*, 27, 622–639.