Brief Report

# Reprint of "Young children's referent selection is guided by novelty for both words and actions" ☆

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## ARTICLE INFO

## ABSTRACT

Young children are biased to select novel, name-unknown objects as referents of novel labels and to similarly favor novel, action-unknown objects as referents of novel actions. What process underlies these common behaviors? In the case of word learning, children may be driven by a novelty bias favoring novel objects as referents. Our study investigated this bias further by investigating whether novelty also affects children's selection of novel objects when a new action is given. In a pre-exposure session, 40 3- and 4-year-olds were shown eight novel objects for 1 min. In subsequent referent selection trials, children were shown two pre-exposed objects and one super-novel object and either heard a novel name or saw a novel action. The super-novel object was selected significantly more than the pre-exposed objects on both word and action trials. Our data add to the growing literature suggesting that an endogenous attentional bias to novelty plays a role in children's referent selection and demonstrates further parallels between word and action learning.

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## Introduction

How children learn the meanings of words has received considerable attention over the last 40 years. Researchers have been keen to identify the processes involved in working out the referent

on hearing a new word as well as the factors that give rise to long-term retention (see Swingley, 2010, for a review). Carey and Bartlett (1978) were the first to show that 4- and 5-year-old children could accurately determine the correct referent for a novel name when contrasted with a familiar name (i.e., they asked children to get "the chromium tray, not the blue one, the chromium one"). Since then, many studies have replicated this general finding where children need to decide what the referent is between the choice of a novel object and a familiar object (e.g., Golinkoff, Hirsh-Pasek, Bailey, & Wenger, 1992; Wilkinson, Ross, & Diamond, 2003). Children have been observed to select the appropriate referent from around 15 to 17 months of age (Halberda, 2003; Markman, Wasow, & Hansen, 2003; but see Bion, Borovsky, & Fernald, 2013).

One answer to the question as to how children successfully select the correct referent is that they are guided by linguistic word learning biases. One such bias is mutual exclusivity; children will reject an object as a potential referent if it already has a name (Markman, 1989, 1990). Another bias is the novel name–nameless category (N3C) principle; when given a novel label, children will select a referent belonging to a nameless category (Golinkoff, Mervis, & Hirsh-Pasek, 1994; Mervis & Bertrand, 1994). Both of these biases require children to discriminate between objects that they can and cannot name. Whatever the bias, the outcome is the same; children map novel words to novel unnamed objects.

Recently, however, attention has turned away from specific linguistic biases, with researchers investigating the role that more domain-general processes might play in referent selection. Researchers have investigated whether referent selection relies on broader learning biases such as attention to novelty (Horst, Samuelson, Kucker, & McMurray, 2011; Mather & Plunkett, 2012) and social–pragmatic reasoning (Grassmann, Stracke, & Tomasello, 2009). That is, do the processes used in mapping words to objects extend beyond word learning? For example, Markson and Bloom (1997) reported that 3- and 4-year-old children map linguistic facts to novel objects and retain them in much the same way as they do new words. More recently, Riggs, Mather, Hyde, and Simpson (in press) demonstrated that the processing involved in word–object mapping and retention also extends to action–object mapping. In the first of their studies, they tested 3- and 4-year-olds' ability to use novel actions as well as words in a referent selection task. Children were shown both a familiar object (e.g., a cup) and a novel object and were given a request using either a novel name (e.g., "Pass me the koba") or a novel action (e.g., "Pass me the object we do this with" as the experimenter performed a "novel" action such as rubbing the top of the left arm). Children selected the novel object in both the novel action and novel word conditions at significantly above-chance levels, with no difference in performance between them. These findings added to a small literature reporting that children map and retain novel actions to novel objects (and specifically those actions employed to *use* the objects)[1] as readily as they map and retain novel words (Childers & Tomasello, 2002, 2003; Hahn & Gershkoff-Stowe, 2010). For example, Childers and Tomasello (2002) investigated whether the impressive retention of word–object mappings extends to action–object mappings. They trained young children on novel nouns, verbs, and actions associated with a novel object. They tested comprehension ("Which object can I do this with?" as the experimenter performed the novel action) at time intervals of 1 min, 1 day, and 1 week. Memory for correct actions was very good for all time intervals and was no different from memory for correct words. Taken together, this literature supports the view that there are parallels between novel action learning and word learning in young children and that word learning relies on domain-general attentional and learning processes.

Riggs and colleagues (in press) concluded that children use novel action information (i.e., how that object is used) to select a novel referent. They also raised two possibilities as to the processing underlying this behavior. First, children may have used their knowledge of objects and how they are used to select a referent. That is, they may have excluded the familiar object because they knew the action associated with its use (e.g., running a hairbrush through one's hair)—in other words, a kind of mutual exclusivity bias for actions and objects. A second possibility is that children responded on the basis of the most novel stimulus and that an attentional bias to novelty drove behavior in their referent selection task.

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[1] A different literature (see, e.g., Suanda & Namy, 2013) investigates children's mapping of symbolic gestures to novel objects, that is, those actions/gestures that might *represent* the referent and not the mapping of those actions employed to *use* the object, which is the focus of the current study.