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Fast Mapping Is a Laboratory Task, Not a Cognitive Capacity

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Abstract

Fast Mapping is a laboratory task that typically involves an experimenter creating a nonsense name for an object the participant has never seen before. We demonstrate how researchers' use of the term Fast Mapping has extended beyond its core meaning as a laboratory task to more abstractly denote an internal process, a skill that children employ in their everyday lives, and an inherent capacity. We argue that such over-extension is problematic.

Keywords

Fast Mapping; over-extension; autistic language development; trademarks

Trademark attorneys caution against anthimeria, which occurs when language users over-extend the meaning of terms. For example, when we refer to searching the Internet as Googling, manipulating images as Photoshopping, or inline skating as Rollerblading, we are over-extending the core terms. Such over-extension pre-dates current-day technology. Our grandparents referred to vacuuming as Hoovering, and baby-boomers might still refer to photocopying as Xeroxing. Decades ago FedExing, over-extended to denote delivering overnight, was deemed a valid Scrabble play (but in the modern game, Words-with-Friends, it is not). Consumers' propensity to over-extend encompasses nouns along with verbs, as Kleenex, Band-Aids, Frisbees, and Yo-Yos illustrate. However, as attorneys attest, over-extending the meaning of brand names can sometimes lead to trademark loss (Cohen, 2009).

In a similar vein, we argue that over-extending the meaning of laboratory tasks can sometimes lead to theoretical loss. Take the case of Fast Mapping. As Cooper, Greve, and Henson rightfully explain (2018, p. 1), Fast Mapping is a laboratory “task”; it is an artificially constructed “procedure,” albeit one “developed from ideas about how infants rapidly acquire vocabulary from relatively few learning exposures” (Cooper et al., 2018, pp. 2, 6). It typically involves an experimenter creating a nonsense name for an object the participant has never seen and pairing that novel word and its novel referent with a familiar word and its familiar referent.

Unfortunately, success on the laboratory task does not ensure success outside the laboratory, for children or adults. As Cooper et al. (2018, p. 3) document, “the partial information”

learned when participating in a Fast Mapping task, “may not result in long-term retention.” Murphy (2001, p. 1112) paints a more cynical picture: “Somehow, the bright children who could learn a [novel word] based on a single example grew up into dull college sophomores who could not learn two [novel words] even when they saw all their exemplars over and over again” (see also Horst & Samuelson, 2008, p. 152, who “urge caution regarding claims” of long-term learning from the Fast Mapping task, and Bion et al., 2013, p. 47, who conclude that success on the Fast Mapping task is not “essential for early word learning”).

Despite these shortcomings, some researchers over-extend the term. They consider Fast Mapping not simply a laboratory task and not simply performance on that laboratory task. Rather, some researchers, including those who study autistic¹ language development, over-extend Fast Mapping to denote a mental process. For example, Fast Mapping has been deemed a word learning process (Akechi & Kobayashi, 2014; Carr & Felce, 2000; McDuffie et al., 2017; Wilkinson & Green, 1998), a learning process (Bloom, 2001; McDuffie et al., 2006; 2013), and, more generically, a cognitive process (Barcus, 2011). All these denotations over-extend the concept’s true meaning, which is simply a five-minute laboratory task, the component processes of which are unknown (Horst & Samuelson, 2008).

Other researchers over-extend Fast Mapping to denote a skill that children employ in their everyday lives beyond the lab (Crumrine et al., 2010; McDuffie et al., 2017). For example, Fast Mapping has been deemed a “processing skill” that children use whenever they are “exposed for the first time to a novel word paired with a novel object” (Stokes & Klee, 2009, p. 499). Such over-extensions falter in the face of data demonstrating that children’s performance on the Fast Mapping task accounts for less than ten percent of the variance in their skill in developing vocabulary (Stokes & Klee, 2009).

Other researchers extend Fast Mapping further to denote an inherent ability, indeed, a capacity that children are born with (Bates, 2004; Bloom, 2002) and use whenever they “encounter a novel word” so they can “rapidly acquire information about its meaning” (Yow et al., 2017). For example, Bloom (2002, p. 38) defines Fast Mapping as children’s “fundamental ... ability to successfully learn words under conditions of minimal exposure” (see also Drager et al., 2006; Perkins et al., 2006; Harris & Reichle, 2004; Walton & Ingersoll, 2013; Wilkinson & Green, 1998).

Over-extension of Fast Mapping becomes even more problematic when applied to atypical children, such as autistic children. Because researchers assume the Fast Mapping task indexes an innate capacity, when autistic children perform more poorly than non-autistic children, researchers assume the former lack an important capacity possessed by the latter. What is the intervention proposed to remediate these children? Direct training on the Fast Mapping task (although evidence is limited that any child can generalize beyond the training stimuli, Carr, 2003; Carr & Felce, 2000; 2008; Wilkinson & Albert, 2001).

¹We use identity-first language (e.g., autistic children, non-autistic children) rather than person-first language (e.g., children with autism, children without autism) because identity-first language is preferred by autistic people (Kenny et al., 2015), is recommended by APA (Dunn & Andrews, 2015), and is less likely to contribute to stigma (Gernsbacher, 2017).

As it turns out, when autistic and non-autistic children are well matched (Gernsbacher & Pripas-Kapit, 2012; Gernsbacher, Morson, & Grace, 2015; 2016), autistic children are equally adept at the Fast Mapping task (Ellawadi et al., 2016; Luyster & Lord, 2009; Venker, 2019). But the pitfalls demonstrated by over-extending the meaning of laboratory tasks parallel those encountered by over-extending the meaning of brand names.

When brand names are over-extended, they lose their trademark. For example, Aspirin, Escalator, Thermos, Granola, Kerosene, Linoleum, and Zipper were once trademarked names, but through over-extension they have lost their legally protected ability to be distinguished from other goods and products (Anderson, 2012). The brand names are now confused with generic concepts. We argue that laboratory tasks can meet a similar fate. When over-extended, they too can lose their core meaning. They can become confused with processes, skills, even capacities, when in fact they are simply laboratory tasks, which may not model reality, as over-extension of the Fast Mapping task illustrates.

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