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Monkey business: Children's use of character identity to infer shared properties

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ABSTRACT

Children's toys provide a rich arena for investigating conceptual flexibility, because they often can be understood as possessing an individual identity at multiple levels of abstraction. For example, many dolls (e.g., Winnie-the-Pooh) and action figures (e.g., Batman) can be construed either as characters from a fictional world or as physical objects in the real world. In two experiments, 72 4- and 5-year-olds took part in a property extension task, the results of which provide evidence of an understanding that (1) two representations of a character share certain properties in virtue of their shared character identity, and this sharing does not stem simply from having the same name, and (2) one representation of a character is more likely to share properties with another representation of the character if the properties were acquired by the character than if they were acquired by the representation. Children's understanding of a representational object's abstract character identity thus enabled them to transcend using its unique spatio-temporal history as a sole basis for inferring its idiosyncratic properties.

1. Introduction

Research in cognitive development has begun to explore not only children's knowledge of kinds (e.g., dog) but also their understanding of individuals (e.g., Fido). A key finding in this recent work is that young children show a strong reliance on spatiotemporal history when making judgments that pertain to individual identity. For example, one line of research has revealed that children as young as 20 months old will use an object's spatiotemporal history, rather than its visible properties, as a basis for extending its proper name. At this age, children will continue to apply a proper name to a doll after it undergoes a displacement, failing to extend it to another doll, even one that looks identical (e.g., Bélanger & Hall, 2006; Hall, Lee, & Bélanger, 2001; Liittschwager & Markman, 1993; Sorrentino, 2001). Another line of studies has revealed that young children will often extend a proper name (or a unique identifying phrase) to an individual object that maintains a spatiotemporal path, even if it undergoes extensive changes in appearance, form, and/or material (e.g., Gutheil & Rosengren, 1996; Hall, 1998; Hall, Waxman, Brédart, & Nicolay, 2003; Liittschwager, 1995; see also Blok, Newman, & Rips, 2005; Rhemtulla & Hall, 2009; Rhemtulla & Xu, 2007; Rips, Blok, & Newman, 2006). Recently, Hood and Bloom (2007) showed that preschoolers treat some valuable artifacts as having greater worth than exact replicas, which are identical in everything but spatiotemporal history. Similarly, Gutheil, Gelman, Klein, Michos, and Kelaita (2008) reported that preschoolers distinguish the knowledge states of individual objects that are the same in every respect but spatiotemporal history.

One outstanding question about children's concepts of individuals pertains to objects that can be construed as possessing an individual identity at more than one level of abstraction. It is striking that many highly familiar objects in children's daily lives – their toys – fall into this category. A Batman action figure, for example, has many of Batman's features (e.g., wearing a mask, having big muscles) that arise in virtue of sharing Batman's character identity; but it also has many idiosyncratic features (e.g.,

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being made of plastic, having ketchup stains) that arise in virtue of its unique spatiotemporal history. Many toys are representations of fictional characters from movies or books, and as such, they are objects that share an individual identity with countless other representations of the same character, while remaining numerically distinct individual objects in and of themselves. Gutheil et al. (2008) used character toys (e.g., Winnie-the-Pooh dolls) to investigate children's reliance on spatiotemporal history when inferring the knowledge state of individual objects. On one trial of their task, one Pooh "watched" as children played a game in one room; then children moved to another room where an identical Pooh doll was present. Children were asked whether the second Pooh knew about the events that the first Pooh had watched. Children's responses showed that they considered spatiotemporal history to be necessary for attributions of an individual's knowledge state: Pooh 2, though physically identical to Pooh 1, was not credited with knowledge of the earlier events.

Gutheil et al.'s (2008) study is important because it reveals that preschoolers are able to view two representations of the same character as distinct individuals with distinct properties. In the current research, we looked at the flip side of this issue: can children view numerically distinct (and perceptually distinctive) representations of the same character as having properties in common in virtue of sharing a character identity? Gutheil et al.'s evidence that children rely on spatiotemporal history when judging the knowledge states of individual objects suggests that it may be difficult for children to use a shared character identity as a basis for inferring shared properties. In order to construe two representations of the same character as sharing an individual identity, children must overcome differences not only in the toys' appearance but also in their spatiotemporal history.

In Experiment 1, we asked whether preschoolers recognize the individual identity shared by two toys that look different but represent the same fictional character, and use this identity to infer that the toys share certain character-based properties. We tested children's ability to use shared character identity in this way by comparing their property extensions in two conditions where a pair of toys had the same proper name: one where the shared name reflected the fact that the two toys represented the same character, and one where the shared name arose by mere coincidence. Prior research in developmental psychology has documented the important role of a shared label in promoting inductive inferences across objects, but that work has also highlighted the importance of the word's lexical form class in licensing such inferences (e.g., Gelman & Coley, 1990; Keates & Graham, 2008). Of particular note, Heyman and Gelman (2000) found that preschoolers were likely to judge that two dissimilar-looking people shared certain psychological properties if the people were labelled with the same trait adjective (e.g., "shy") but not if they were labelled with the same proper name (e.g., "Anna"). Experiment 1 provided a test of whether preschoolers will extend certain properties across objects that share a proper name, if the shared proper name reflects a shared character identity.

In Experiment 2, we further explored children's understanding of the properties shared by representations of the same fictional character. We pitted properties that arose in virtue of one representation's character history against those that arose in virtue of its unique spatiotemporal history, and we explored children's willingness to generalize these properties to another representation of the character. A number of recent findings from the developmental psychology literature have revealed the importance of the origin of an object's properties in children's decisions about its category membership (e.g., Ahn, Gelman, Amsterlaw, Hohenstein, & Kalish, 2000; Gelman & Wellman, 1991) and in their judgments about whether the properties extend to other objects of the same category (e.g., Gelman, 1988; Kalish & Gelman, 1992; Nguyen & Murphy, 2003). For example, Gelman (1988) found that 4-year-olds who saw a picture of an object (e.g., a rabbit) failed to generalize properties that arose in virtue of the object's unique spatiotemporal history (e.g., is cold) but extended across pictures of other category members those properties that arose in virtue of its category membership (e.g., likes to eat alfalfa). Experiment 2 examined whether preschoolers show sensitivity to property origins when reasoning about representations of fictional characters, by restricting properties arising from the representation's unique spatiotemporal history but extending properties arising from the character's history to another representation of the character.

The reasoning ability under investigation in Experiment 2 is a specific case of a more general capacity to think flexibly about an object under multiple conceptual descriptions. Several recent studies using inductive projection tasks have found evidence of this flexibility in preschoolers. For example, Gelman's (1988) results suggest that 4-year-olds can appropriately reason about an object (e.g., a rabbit) either as a unique individual (e.g., as a particular rabbit) or as an instance of an object category (e.g., as a rabbit). Furthermore, Kalish and Gelman (1992) uncovered evidence that 4-year-olds are able to reason aptly about an object (e.g., a metal bow) either as an instance of an object category (e.g., as a bow) or as a portion of a material category (e.g., as metal). More recently, Nguyen and Murphy (2003) found evidence that 4-year-olds have a nascent ability to think appropriately about a food object (e.g., a piece of toast) either as an instance of a taxonomic food category (e.g., grains) or as an instance of a script food category (e.g., breakfast foods). Experiment 2 provided an opportunity to determine whether children's conceptual flexibility extends to the case of reasoning about representational objects: can children think appropriately about these objects either as unique individuals or as fictional characters?

In these experiments, we examined character toys because of their familiarity to preschoolers, but children (at least those in Western societies) regularly encounter many other objects that possess an abstract individual identity on top of their unique object identity. These include books, DVDs, and CDs (which are representations of intellectual objects: stories, movies, and songs), as well as other common objects, such as items of clothing, electronic goods, and vehicles (which are representations of individual