

we are concerned with whether people draw this distinction consistently enough to serve as the basis for a cognitive heuristic.

Is it about “pink” or about “girls”? The inference heuristic across social and nonsocial domains

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Abstract: The inference heuristic provides an intriguing and novel explanation for early thought in a variety of domains. Exploring similarities and differences in inherent reasoning across social and nonsocial domains can help us understand the role that inherent thinking plays in the development of human reasoning and the process by which more elaborate essentialist reasoning develops.

Our drive to understand observed patterns in the world is pervasive and supports powerful learning throughout life. The inference heuristic provides groundwork for this understanding both within everyday reasoning and across development, and has the potential to explain a wide range of psychological phenomena. We applaud the authors' thoughtful proposal. Yet, further specification of key aspects of the proposal—particularly regarding the domain specificity or the generality of inference thinking—will clarify further the theoretical underpinnings of the heuristic and generate related research.

Are inference beliefs about entities in the world (e.g., “pink as feminine”) at all different from inference beliefs about people or their psychological states (e.g., “girls like feminine things”)?

Cimpian & Salomon (C&S) state that both might be the case and may depend on the particular context at hand. We agree that understanding which patterns are subjected to the heuristic process is complex, yet we suggest that there may be important differences in the ways that people attend to, encode, and explain observed patterns in different domains. Are different kinds of evidence similarly susceptible to inference reasoning? For instance, is it easier or harder to learn a new conceptualization of “pink” or of “girls,” and are beliefs about people and non-person entities similarly resistant to change in the face of counter-evidence? One possibility is that information about people may be particularly easily viewed as inherent, and thus it may be relatively easier to update a belief about the femininity of “pink” as compared to the femininity of “girls.” Understanding how inherent reasoning is implemented across domains can be informative for understanding the development of children's reasoning about diverse concepts (e.g., people, animates, artifacts) and could also be informative about the functioning of the inference heuristic more generally.

Relatedly, an inquiry into the domain specificity or generality of inference thinking across social and nonsocial domains could shed light on the relationship between early inference beliefs and later essentialist beliefs. Although intriguing, the proposal for the nature of the developmental change of essentialist reasoning as stemming from the inference heuristic could be further specified. Is the change proposed to involve conceptual content that grows richer or conceptual content that is continuous over time yet whose exhibition requires the emergence of other supporting machinery? Social and nonsocial domains have the potential to differ not only in the way that observed patterns are weighed against existing inherent intuitions, but also in the way that inference explanations are incorporated into essentialist explanations across development. C&S propose that inherent reasoning may indeed be overridden by counterevidence. They discuss the example of artifact categories: Children initially believe that artifact

categories derive from inherent features, but they may abandon that belief in the face of evidence that objects are constructed by people for particular functions. This example raises the general question of what guides children toward or away from inherent or essentialist beliefs across development, and whether attention to the evidence presented, the weighing process of evidence against intuitions, or both, might differ across domains. Selectivity in the patterns that are noticed and explained could play a crucial role in the workings of the inference heuristic in and of itself and in the elaboration of some, but not all, inherent thinking into essentialist thinking.

We also question how critical to the theory is it that inference reasoning applies more for patterns of behavior than for specific instances (or for information about groups of people rather than specific individuals). In theory, couldn't the inference heuristic apply for both kinds of information? For example, if a child learned that someone is good at gorp, why not draw the inference that there is something intrinsic about him that allows him to gorp? Imagine an alternative pattern of results: Suppose children presented with both category-wide and individual-specific information endorsed inherent explanations—this hypothetical pattern of results could presumably also be interpreted as supporting the inference heuristic. Yet, given the reported evidence that information about groups of people is more compelling than information about specific individuals, this finding may provide an opportunity to explore the relationship between inference thinking and social categorization. It is plausible that persistent and coherent conceptual differences in reasoning across domains could result in differential explanations of patterns observed across people and patterns observed across objects.

Finally, the diversity of children's early environments and social experiences may have important influences on the development of the inference heuristic across domains. The authors note that context and culture could guide the types of candidate explanations that become accessible to the heuristic. There are at least two ways in which early experience could guide inherent reasoning: through the available evidence and patterns to be explained that may differ across cultures, and through more pervasive individual differences that may vary across cultural contexts and could in turn influence the workings of the heuristics. To give one example, evidence suggests that bilingual children are more likely to see word-to-referent pairings as arbitrary (Bialystok 1988). Given the proposed link between beliefs about nominal realism and inference, might children raised in diverse linguistic environments also be less susceptible to the inference heuristic? It seems possible that both the process of learning two languages, as well as the diverse social experiences that accompany bilingualism or biculturalism, may influence children's inherent thinking. If so, the influence of such cultural diversity might be explored for both social and nonsocial domains of reasoning.

Does the inference heuristic take us to psychological essentialism?

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Abstract: We argue that the claim that essence-based causal explanations emerge, hydra-like, from an inference heuristic is incomplete.