



# The Inherence Heuristic as a Source of Essentialist Thought

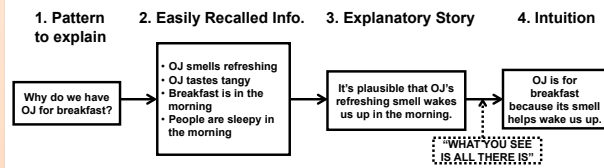
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## Introduction

- According to **psychological essentialism**, people assume that some internal, microstructural property is responsible for membership in natural and social categories (e.g., *tigers, gold, women*) and for the traits associated with category membership.<sup>1</sup>
- We propose that essentialism arises from a tendency to explain patterns in the world by referring to the inherent features of the pattern's constituents—an **inherence heuristic** (Figure 1).<sup>2</sup>
- Inherent features involve only the constituents themselves. They may be perceptual (e.g., color), physical (e.g., weight), chemical (e.g., solid), etc.
- As an example of this process, the early belief that something inherent about girls makes them prefer pink may be elaborated into the essentialist idea that girl DNA causes all properties of girls, including preferring pink.
- **Hypotheses:**
  - Inherent thinking will predict essentialism in adults (Studies 1 & 2).
  - Reducing inherent thinking will reduce essentialism (Study 3).

Figure 1. An Example of the Inherence Heuristic in Action



## The Inherence Heuristic Scale

Participants rated agreement with 15 items about broad patterns observed in the world on a 9-point scale (1 = *strongly disagree*; 9 = *strongly agree*).

### Example Items:

- It seems natural to use red in a traffic light to mean "stop."
- There are good reasons why orange juice is typically consumed for breakfast.
- It seems right that pink is the color typically associated with girls.
- It seems ideal that toothpaste is typically flavored with mint.
- If intelligent organisms were discovered on another planet, they would probably have 2 arms and 2 legs.

**Validation:** Ps ( $N = 35$ ) who agreed with the scale items were more likely to justify their responses with inherent (83%) than extrinsic (11%) reasons,  $t(34) = 16.35, p < .001$ . Ps who disagreed were more likely to cite extrinsic (38%) than inherent reasons (8%),  $t(33) = -5.60, p < .001$ .

**Factor Structure:** The scale demonstrated a single factor structure,  $\chi^2(75, N = 230) = 117.37, p = .001, CFI = 0.966, RMSEA = 0.050, SRMR = 0.041$ .

## Study 1: Inherence Predicts Essentialism

**Participants:**  $N = 323$ , from university subject pools and Mechanical Turk.

**Method:** Ps completed the Inherence Heuristic Scale, a social category Essentialism Scale, and one of three sets of control scales:

- **Cognitive Style Sample**—Need for Cognition, Need for Closure, and Attributional Complexity
- **Cognitive Ability Sample**—a modified Raven's Progressive Matrices, Counterfactual Thinking, Gough Creative Personality Checklist
- **Status Quo Defense Sample**—Social Dominance Orientation, Belief in a Just World, Right-Wing Authoritarianism

### Results:

- Inherent thinking predicted essentialism in all three samples (Table 1)
- Inherent thinking also predicted cognitive style, cognitive ability, and system justification:
  - Need for Cognition:  $r(104) = -.34, p < .001$
  - Need for Closure:  $r(104) = .19, p = .056$
  - Raven's Progressive Matrices:  $r(103) = -.28, p = .004$
  - Belief in a Just World:  $r(110) = .27, p = .004$
  - Right-Wing Authoritarianism:  $r(110) = .36, p < .001$

Sample	Zero Order Correlation Between Inherence Heuristic & Essentialism	Inherence Heuristic Coefficient for Multiple Regression with Controls
Total Sample	$r(321) = .39, p < .001$	
Cognitive Style	$r(104) = .38, p < .001$	$\beta = .39, t(101) = .37, p < .001$
Cognitive Ability	$r(103) = .38, p < .001$	$\beta = .33, t(100) = .33, p = .001$
Status Quo Defense	$r(110) = .40, p < .001$	$\beta = .40, t(107) = .38, p < .001$

## Study 2: Generalizing Across Essentialism Measures

**Participants:**  $N = 218$ , from Mechanical Turk.

**Method:** Ps completed the Inherence Heuristic Scale and 1 of 2 essentialism scales, plus control scales:

- **Lay Theory of Race Sample:** Conformity, shortened Raven's Progressive Matrices, Social Dominance Orientation.
- **Rhodes & Gelman (2009) Essentialism Sample:** Socially Desirable Responding, Right Wing Authoritarianism, Group Authoritarianism.

### Results:

- Inherent thinking predicted both essentialism measures
- Inherent thinking also predicted scores on:
  - Raven's Progressive Matrices:  $r(105) = -.20, p = .042$
  - Right-Wing Authoritarianism:  $r(109) = .47, p < .001$
  - Group Authoritarianism:  $r(109) = .48, p < .001$

Sample	Zero Order Correlation Between Inherence Heuristic & Essentialism	Inherence Heuristic Coefficient for Multiple Regression with Controls
Lay Theory of Race	$r(105) = .31, p = .001$	$\beta = .24, t(102) = 2.56, p = .012$
R&G Essentialism	$r(109) = .43, p < .001$	$\beta = .35, t(106) = 3.34, p = .001$

## Study 3: Manipulating Inherence

**Participants:** 512, from Mechanical Turk.

**Manipulation:** Priming manipulation disguised as a scale:

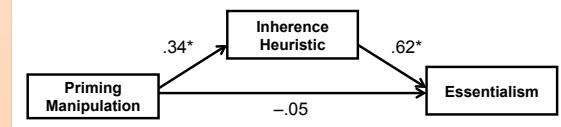
- **Anti-Inherence** scale asked about agreement with non-inherent explanations for patterns (e.g., "The only reason our paper, money, and books are rectangular is historical happenstance").
- **Control** scale asked about agreement that patterns exist (e.g., "Most books, paper, and money are rectangular in shape").

**Measures:** Inherence Heuristic Scale and Essentialism Scale (Rhodes & Gelman, 2009).

### Results:

- Ps in the Anti-inherence condition ( $M = 5.43$ ) had lower scores on the Inherence Heuristic scale than those in the Control condition ( $M = 5.76$ ),  $t(510) = 3.00, p = .003$ .
- The manipulation had an indirect effect on essentialism through the inherence heuristic, *coef.* =  $-.21, 95\% CI = [.07, .36]$  (Figure 2).

Figure 2. Indirect Effect of Condition on Essentialism, Study 3



## Conclusion

The inherence heuristic offers a promising explanation for the cognitive origins of essentialism.

## Contact Info. & Acknowledgements

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Supported by University of Illinois research funds and Spencer Foundation grant #201100111 to Cimpian.

## References

- <sup>1</sup>Gelman, S. A. (2003). *The essential child: Origins of essentialism in everyday thought*. New York: Oxford University Press.
- <sup>2</sup>Cimpian, A. & Salomon, E. (In Press). The inherence heuristic: An intuitive means of making sense of the world, and a potential precursor to psychological essentialism. *Behavioral and Brain Sciences*.

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