

Not so Fast! (And not so Frugal): Rethinking the Recognition Heuristic

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People face a lot of decisions and it stands to reason that we would want to expend as little cognitive effort as possible while still remaining accurate. Gerd Gigerenzer and his colleagues (1996; 1999) have contended that individuals have limited cognitive capacity, and are unable or unwilling to utilize complex statistical methods in decision making. Thus, individuals use heuristics in order to approximate “optimal” strategies more quickly, and at a much lower cognitive cost; hence the term “fast and frugal”.

The simplest of these heuristics is the recognition heuristic (RH) (Goldstein & Gigerenzer, 1999). Simply stated, RH claims that when making a judgment about two items, an individual who only recognizes one of the items will consider the known item to have a higher value. This is an important heuristic not only for its elegant simplicity, but also because it is the first step in a variety of other fast and frugal heuristics (Gigerenzer & Todd, 1999)

To test whether individuals actually use RH, Goldstein and Gigerenzer (1999) asked Americans to make population comparisons among pairs of cities taken from the 30 largest cities in Germany. Participants were also quizzed as to which cities they recognized. The researchers found that when a participant recognized only one city in a pair, he/she judged that city as larger about 90% of the time.

Goldstein and Gigerenzer (1999) clearly assert that the level of recognition is not important in using RH, “the distinction relevant for the recognition heuristic is that between unrecognized objects and everything else”. They discuss the “inconsequentiality of further knowledge” as an essential feature to maintain the frugality of the heuristic.

Accordingly, an individual using RH should judge a recognized city as larger than an unknown one *even if the recognized city is known to be small*. To test this, 50 participants were asked to judge populations of local cities that were known to be small, as compared to made-up cities (which, by virtue of being fictional, were unrecognizable).

Across all cities, only 37% of responses were consistent with RH. Thus, participants were significantly more likely to be inconsistent with RH than chance ($\div 2 = 4.25$, $df = 1$, $p < .05$). Results by city are summarized in table 1.

Table 1: Results of Experiment 1.

City	% using RH	City	% using RH
Cupertino	.30	Milpitas	.33
Sausalito	.20	Berkeley	.35
Foster City	.46	Freemont	.53
Total	.37		

One explanation for the discrepancy between these results and those of Gigerenzer & Goldstein (1999), might be found

in attributions of mental states. Individuals may recognize a city, and attempt to determine *why it is that they do so*. One reason for recognition might be size (large cities are more likely to be well known). However, when there is an alternate reason for recognition – in this case proximity – individuals may attribute their mental state to the alternative. That is, when there are reasons other than size that one might recognize a city, an individual may be less likely to use recognition as a cue that the city is large.

To test this, 172 participants were asked to make population estimates on cities which were famous for virtues other than their sizes (e.g. nuclear accident, featured in literature, etc.) as compared with made-up cities.

Slightly over 40% of the trials were consistent with RH. Subjects were significantly more likely to be inconsistent with RH than are summarized in table 2:

Table 2: Results of Experiment 2.

City	% using RH	City	% using RH
Los Alamos	.38	New Haven	.52
Chernobyl	.29	Timbuktu	.40
Nantucket	.36	Total	.40

This data suggests that although individuals do use recognition as a cue for size estimations, they do so in a more complicated manner than conjectured by Goldstein & Gigerenzer (1999). Individuals appear to make attributions about their mental state of recognition, and perform some kind of Bayesian discounting based upon that attribution. While it is beyond the scope of this abstract to discuss the mechanism thoroughly, it is clear that RH may not be as fast or frugal as it was originally postulated.

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References

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