

# Generality of individual differences in actively open-minded thinking

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**Introduction.** Actively open-minded thinking (AOT) is a set of standards for the conduct of thinking in general (Baron, 1985, 2019). Beginning with Stanovich and West (1997), individual differences in endorsement of these standards have been assessed with questionnaires concerning beliefs about the nature of good thinking. Several versions have been developed since then (e.g., Haran et al., 2013; Pennycook et al., 2020; Svedholm-Häkkinen & Lindeman, 2017), all of which show parallel results (Pennycook et al., 2020; Baron et al., 2022), which include correlations with political commitments and beliefs.

The scales (one of which is listed below) assess two major components of (lack of) AOT, acceptances of myside bias, and intolerance of uncertainty. **Myside bias**, the focus of this report, is a general term for search and inference done in ways that favor possible conclusions that are already strong in the thinker’s mind, such as failing to think of problems with these solutions or reasons favoring alternatives.

Although these scales have been tested “across subjects” from varying populations, we know of no systematic tests of generality across the content of thinking, despite the claim that the theory applies to all thinking.<sup>1</sup>

The present studies test the generality of AOT endorsement across content areas selected to differ in the appropriateness of intuitive (as opposed to reflective) thinking and in the importance of being correct. In addition to a full AOT scale, we select two questions from each of the two major components of (the negative side) of current scales: myside bias and overconfidence. We ask all four questions about each of several examples of thinking, differing in content. This report con-

cerns only the two myside-bias questions and the full AOT scale.<sup>2</sup>

**Method.** We did four studies using the same population, a panel of adults collected over many years (so somewhat older than most studies). Thus there was overlap, but our instructions emphasized that we were interested in differences among the various kinds of thinking. N’s were, respectively, 108, 166, 156, and 152. Each study presented different examples of thinking (20 for Studies 1 and 2, 32 for Studies 3 and 4) and asked two myside-bias and two confidence questions about each example. In Studies 2–4, the examples were presented in pairs to emphasize the importance differences. For example, the example about the salad dressing in Study 4 was paired with a parallel example in which the woman had a serious peanut allergy.

The figure below shows the **two myside-bias questions** of interest for each of the 4 studies. One was about looking for **negatives** of the leading option, and one was about considering **alternatives**. To the left of each row of graphs are the most and least “important” examples from that study, as determined retrospectively from the combined AOT endorsements for the negative and alternative questions combined.

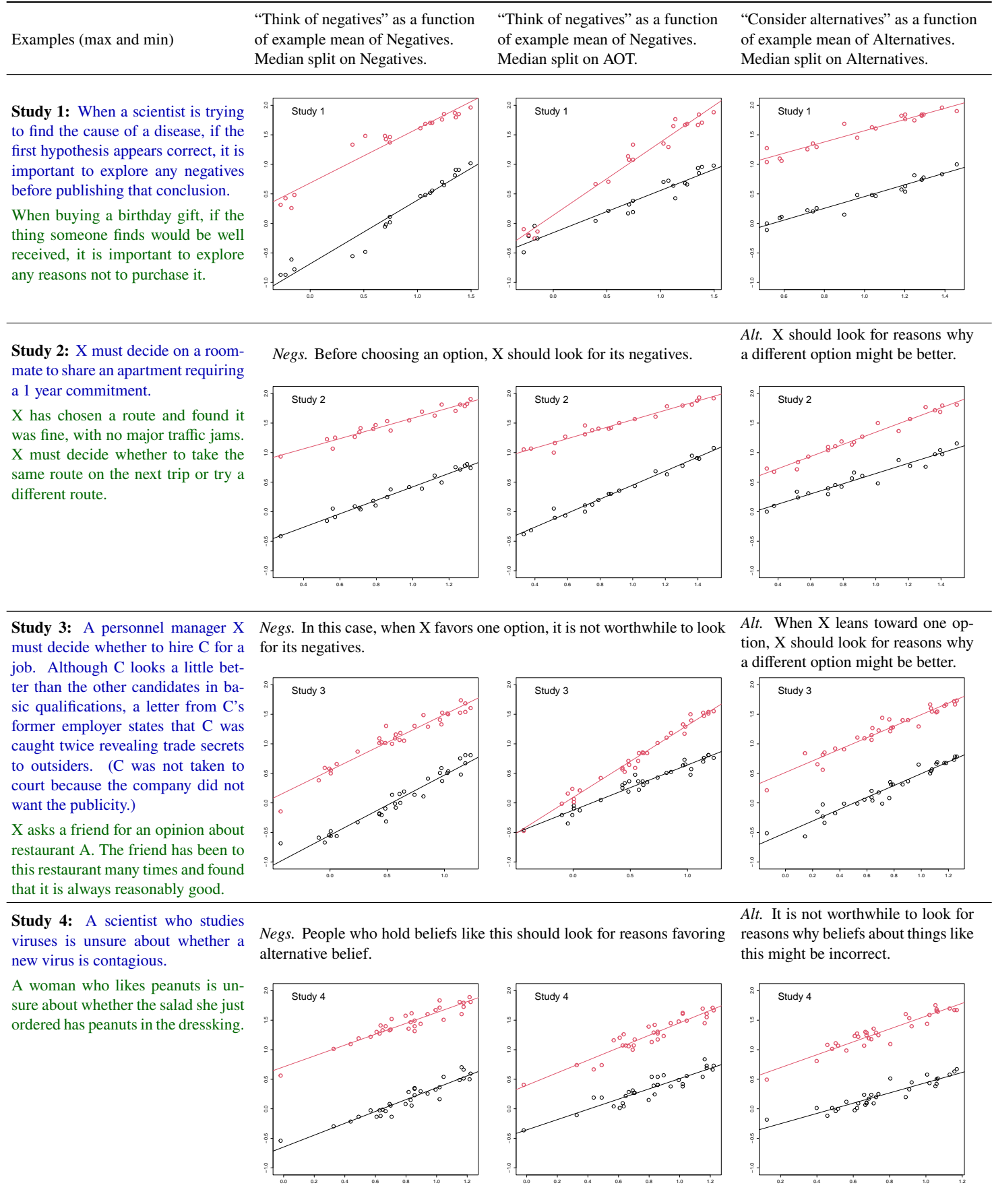
**Results and conclusion.** In the **first graph in each row**, the points are examples and the lines are best-fit regression lines. The horizontal axis is the mean response to the Negatives question for each example (shown above of the example the graph) on a 5-point scale (“Completely agree” to “Completely disagree”) where 0 represents the mid-point of the scale. The vertical axis is the

mean response to each example, separated by subjects who gave high (red) or low (black) answers according to a median split on overall score on all the Negatives. The slope of the lines reflects the differences among the examples. The separation of the two lines reflects the magnitude of individual differences. The fact that the lines are approximately parallel indicates that, **while examples have an effect on endorsement of the Negative example, the individual differences in the Negatives example are preserved regardless of the example.** Thus, for this measure in this study, individual differences in this question appear to be general across examples.

The **second graph in each row** is the same except that the median split is on the AOT scale score rather than the Negatives question. For Study 1, the divergence shows that individual differences as measured by the AOT scale are *not* general across items. **The divergence of the lines shows that the Negatives response is less well predicted by the AOT scale for examples that are low in Negatives to begin with.** Thus, the scale itself does not predict generally the individual differences that are found when the particular example is specified.

The **third graph** is like the first except that it uses the Alternatives question rather than the Negatives question.

Note that **the first and third graphs are parallel in all studies**, implying **generality across importance levels for negatives and alternatives**. Examples and individuals have independent effects. But the **second graph is inconsistent**. For Study 2, the divergence found in Study 1 is almost reversed. The AOT scale may predict better for examples that encourage AOT.



## References

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## AOT scale from Study 4.

1. True experts are willing to admit to themselves and others that they are uncertain or that they don’t know the answer.
2. People should take into consideration evidence that goes against conclusions they favor.

3. Being undecided or unsure is the result of muddled thinking.
4. People should revise their conclusions in response to relevant new information.
5. Changing your mind is a sign of weakness.
6. People should search actively for reasons why they might be wrong.
7. It is OK to ignore evidence against your established beliefs.
8. It is important to be loyal to your beliefs even when evidence is brought to bear against them.
9. There is nothing wrong with being undecided about many issues.
10. When faced with a puzzling question, we should try to consider more than one possible answer before reaching a conclusion.
11. It is best to be confident in a conclusion even when we have good reasons to question it.

<sup>1</sup>Some previous work has examined this issue with somewhat conflicting conclusions (Stanovich & Toplak, 2019; Pennycook et al., 2020).

<sup>2</sup>The confidence questions were designed to assess tolerance of uncertainty, but subjects were, reasonably, less tolerant when the question was more important, so importance became a serious confound.