

Biased Assimilation of Evidence (starring Kelly 2008)

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I. The Question

DIVIDE-AND-DIVERGE

There is a robust tendency for groups of people to divide into social subgroups that primarily interact amongst themselves, such that both:

- (1) Members of the same subgroup tend to converge to similar opinions;
- (2) Members of different subgroups tend to diverge in opinions.

Examples: U.S. politics; social media; religious congregations; inter- and intradepartmental disagreements.

THE QUESTION: To what extent are DIVIDE-AND-DIVERGE dynamics the result of *epistemically rational* responses to individuals' situations?

Clearly these dynamics lead to collectively bad outcomes (both practically/morally, and epistemically). **THE QUESTION** is whether these bad outcomes are due to *individual* or *structural* failings.

Analogy: obesity epidemic vs. depleting fisheries.

II. The Story

Why does DIVIDE-AND-DIVERGE happen? I think there are three steps:

Step 1: The group spontaneously divides into relatively small social subgroups.

Step 2: Through selection effects, these initial subgroups are relatively more homogenous in opinion than a random sample from the group.

Step 3: Through skewed informational effects (sharing, accumulating, and processing evidence), subgroup opinions become *more homogenous* and *more extreme* in the direction of their initial tendencies.

Step 1: Social relations (even for purely informational purposes) take time and resources. Communication requires maintaining Stalnakerian common ground ("getting on the same page"). It also requires remembering your friend's names/birthdays/interests/etc.

→ People will have a limited capacity for social links.

Step 2: You are deciding whether to form a social link with *A* or with *B*. Suppose *A* agrees with you on many of your firmly held opinions, while *B* disagrees with you. Who should you form a link with? Whether on a practical or epistemic basis: *A*, intuitively.

But maybe not so simple: if you have epistemic concerns, you'll want to avoid Groupthink (etc.), so may prefer to assemble a more ideologically diverse "team"?

Step 3: Three main causes.

(3.1) *Group polarization*: tendency of like-minded groups to become more extreme in their opinions after sharing them.

Plausibly due to the sharing of evidence (directly, or through revealing your opinions).

(3.2) *Selective exposure*: the evidence people expose themselves to is influenced by their prior opinions. Positive test strategy. Source selection.

(3.2) and (3.3) are often lumped together as "confirmation bias."

(3.3) *Biased assimilation*: when presented with ambiguous evidence, people are more likely to think that it supports their pre-existing opinions than the opposite. Can lead to *belief divergence* in response to same evidence.

Lord et al. 1979; Plous 1991; Kuhn and Lao 1996; Munro and Ditto 1997; Jern et al. 2014

THE QUESTION is whether and to what extent the processes underlying these steps would be present amongst epistemically rational agents.

→ Kelly's paper asks this question for (3.3) biased assimilation.

Kelly 2008, 'Disagreement, Dogmatism, and Belief Polarization.'

III. Basics of Biased Assimilation

The 'ambiguous' evidence often takes the form of reading conflicting studies on subjects that people have strong prior opinions about—e.g. efficacy of death penalty as deterrent (Lord et al. 1979) or nuclear energy (Plous 1991).

Presented with studies one at a time, everyone agrees in the direction each pushes their beliefs. But people tend to think that the one that agrees with their prior opinion pushes *stronger* (Lord et al. 1979).

Upshot: two people presented with same evidence, opposite reactions.

Must this be irrational?

No. Evidential support always relative to background beliefs.

Bayesian "washing out" results?

One strategy: show why in case at hand we should *expect* people with different prior opinions to have different background beliefs, leading to differing evidential assessments (Jern et al. 2014).

Kelly's strategy: explain differing reactions by asymmetrical strategies of *alternative-hypothesis generation*.

People don't behave like Kripkean dogmatists. They pay *more* attention to studies that conflict with their beliefs.

Kelly's proposal:

- (i) People work harder searching for alternative explanations of evidence that conflicts with their opinions than for evidence which confirms them; and
- (ii) Given some evidence, how much you should take it to support a hypothesis "depends on the space of alternatives of which one is [should be?] aware" (Kelly 2008, 619-20). (Siphoning off support.)

"Now consider what the participants in this experiment did not do. They did not misconstrue the evidence against their position as more favorable than it really was. They correctly saw hostile findings as hostile findings. Nor did they participants simply ignore or dismiss these negative results. Instead, they carefully scrutinized the studies that produced these unexpected findings and came up with criticisms that were largely appropriate..." (Gilovich 1991, 54)

Kelly's question: does the combination of (i) and (ii) indicate irrationality?

IV. Alternative-Generation and Commutativity

Kelly wants to distinguish between questions about rationality of (i) and (ii)—between rationality of following a reasoning strategy and the rationality of the beliefs that result from this strategy.

Starting with (i), he thinks "questions about how much time or effort one should devote to scrutinizing a given study or piece of evidence are *practical* questions" (622).

Depends on opportunity costs, while rational degree of confidence is simply a matter of evidential support.

Blurry line here? Take someone who is given a fixed amount n of cognitive resources/time to investigate whether p . (E.g. given 1 minute to solve a reasoning problem.) It seems like there's a *purely epistemic* question we can ask: "What's the best strategy for getting to the truth?"

In other words, we can ask questions of *bounded epistemic rationality*: Given constraints C (time, processing power, etc.), what's the epistemically best strategy? So not clear to me that Kelly's distinction is a sharp one.

Regardless, we can ask: in a context of inquiry, is the asymmetric-generation strategy irrational? Kelly thinks not: analogy with science as *anomaly-driven*.

Can we say more? Take the special case the only available Strategies are to generate alternatives for one bit of evidence—the one confirming (S_c) or the one disconfirming (S_d) your prior beliefs. Which strategy maximizes expected accuracy? Intuitively, S_d —you expect it to be more likely to yield results.

So maybe (i) and (ii) are fully rational.

OBJECTION: This makes it so the order in which you receive evidence changes what you should think! (626)

A and B start with same background and both receive total evidence $E = E_1 \wedge E_2$. A receives it by first receiving E_1 (which supports p), and then receiving E_2 (which tells against it). B receives in reverse order.

Claim 1: If they implement (i), A and B will end up with different opinions about p .

Claim 2: Therefore (i) violates evidential commutativity.

Kelly: Claim 1 is true; Claim 2 is false.

Narrow vs. broad sense of evidence (627-8).

Narrow sense: "data"; information about the world [?]. The sort of thing you could write down on a piece of paper and share with a bunch of people.

Broad sense: everything you are [should be?] aware of that makes a difference to what you should think.

A and B only receive the same *narrow* evidence; because of their (we are supposing, rational) alternative-generation strategies, the order effects lead them to end up with different total *broad* evidence.

Evidential commutativity, properly formulated, only applies to broad evidence.

UPSHOT: Given our limited resources, (i) and (ii) may be fully rational.

⇒ *Biased assimilation of evidence may be too.*

Kelly: but those of us that *know* of this process should realize that the order in which we received (narrow) evidence has affected which hypotheses we've generated and so what (broad) evidence we have. We should correct for this.

Maybe: "Which plan (of action and reasoning) maximizes expected accuracy?"

Failures of evidential commutativity.

A will generate alternatives when sees E_2 , diminishing its support for $\neg p$; B will do the same for E_1 , diminishing its support for p .

Q: Should this eliminate biased assimilation entirely? I don't think so. Suppose in fact there are plausible alternative explanations for both E_1 and E_2 . Having used an asymmetric strategy, A only knows of one for E_2 —she should be unsure whether there's one for E_1 . So A still has p -favoring evidence. Vice versa for B .

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