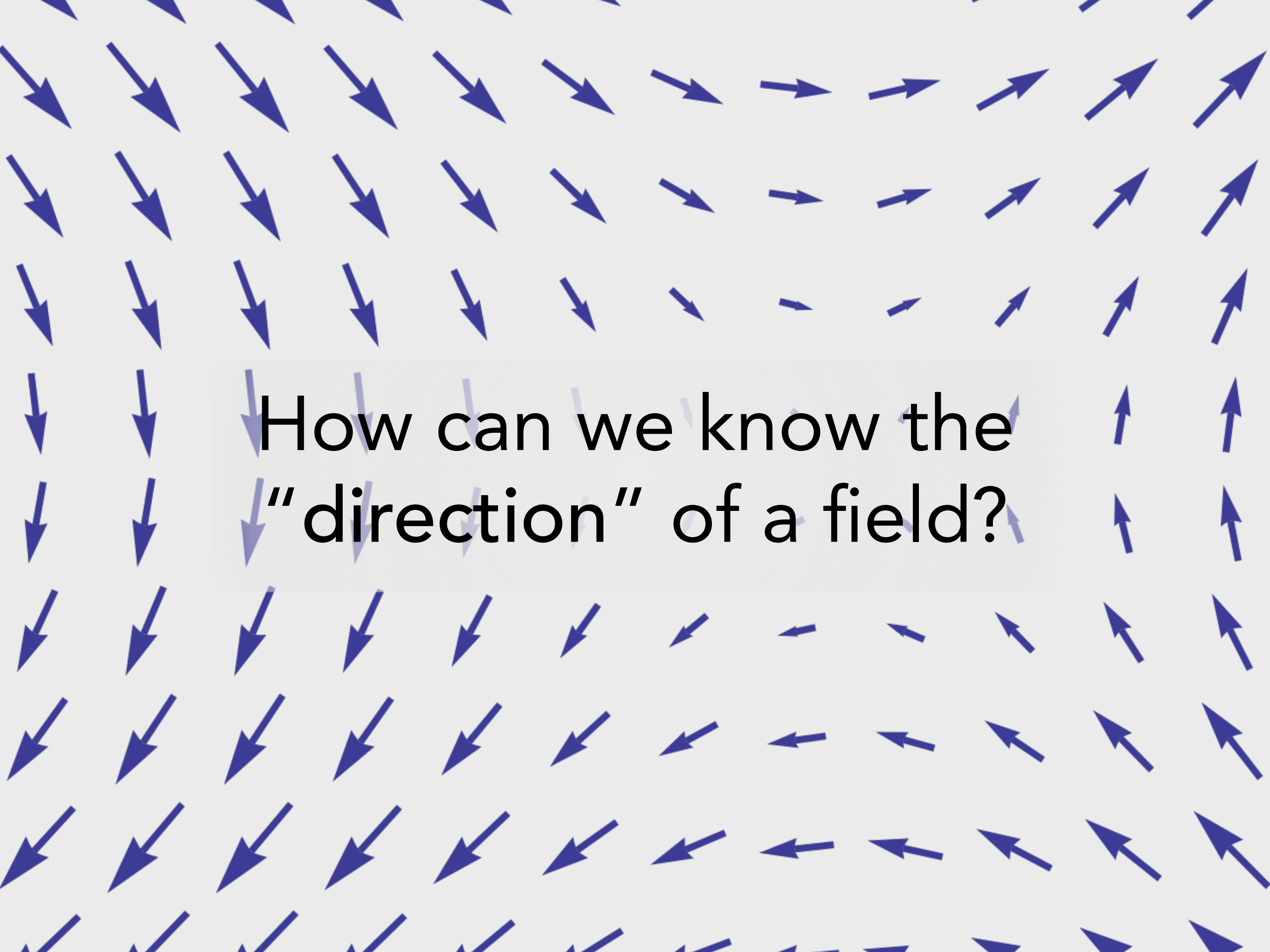# Synthesizing across studies (and findings)

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How can we know the "direction" of a field?

How do we guess at "truth"?

- When many studies **agree**, our confidence in them increases

- When studies **disagree**, how can we know which is right?

Strategies

- Occam's razor

- Look for hidden "logic gaps"

- Create a narrative

- Trust your intuitions

Occam's razor

- William of Ockham (13th century philosopher): "pluralitas non est ponenda sine necessitate" — plurality should not be posited without necessity

- Given two alternatives that explain the data similarly well, prefer the simpler explanation

- Extraordinary claims require extraordinary evidence

Logic gaps

- Think about mathematical proofs— each step starts exactly where the prior step left off

- When we use imprecise (non-quantitative) language, gaps between "steps" can be harder to notice

- When gaps exist, they reflect potential challenges for an explanation

Creating a narrative

- Think about how you'd tell someone about the phenomenon you're studying

- What key elements of the story do you need? Background/motivation, connect key "plot points" into a cohesive logically sound story, conclude with a clear message, etc.

Trust your intuitions

- If your story doesn't make sense to **you**, then it won't make sense to others either

- If your interpretations could go in multiple directions, think about what you'd **guess** is most likely

- Be open and honest about limitations: what should your audience trust vs. what is only speculation?

Examples

- High-impact factor articles (in Nature, Science, PNAS, etc.) are often well-written for a (relatively) broad audience

- Long-format journal articles (Psych Review, JEP: General, etc.) often go into substantially more depth than typical articles

- Review papers, opinion papers, and book chapters are kind of like "extended" discussion sections (TICS, Nature Reviews Neuroscience, Current Opinions, edited volumes)