



## Last week

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- The remainder of Sosa's argument on behalf of the Moorean line on the argument from ignorance
- The contextualist approach to the problem:
  - Not just pronouns and adverbs, but also gradable adjectives and quantified phrases may be context sensitive
  - The verb 'to know' might be similarly sensitive, possibly *because* of the sensitivity of, say, quantified phrases
  - While the conclusion of the argument from ignorance is true when uttered in that context, we are uneasy with this because we fail to see that this is consistent with the same claim's being false when uttered in 'ordinary' contexts

## This week

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- A recent methodological development in epistemology (and philosophy more broadly) that has been heralded as revolutionising the discipline

## Last week (ctd)

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- Two complaints about epistemic contextualism
  - Schiffer on meta-semantic blindness
  - Conee on contextualist approaches to quantifier phrases
- A WAM on behalf of the sceptic
  - Bach's line on quantified phrases and gradable adjectives (we say something false but communicate something true)
  - A sceptical line modelled on Bach's discussion

EXPERIMENTAL EPISTEMOLOGY

## Analyses and intuitions

- We saw in lectures 1–3 the manner in which debates over philosophical analysis have been conducted:
  - (1) *A* offers initial analysis of the form ‘*X* iff *Y*’
  - (2) *B* offers hypothetical situation wrt which she claims that people’s intuitions are that *X* but not *Y*, or vice versa
  - (3) (i) *A* revises initial analysis or
  - (3) (ii) *A* dismisses *B*’s objection
- Regarding (3)(ii), we have seen some options:
  - (a) *A* suggests that **the intuitions that *B* appeals to have no probative force** (e.g. offers a WAM or claims that the case is too complicated)
  - (b) *A* suggests that **people’s intuitions are not as *B* claims**

## The Condorcet Jury Theorem

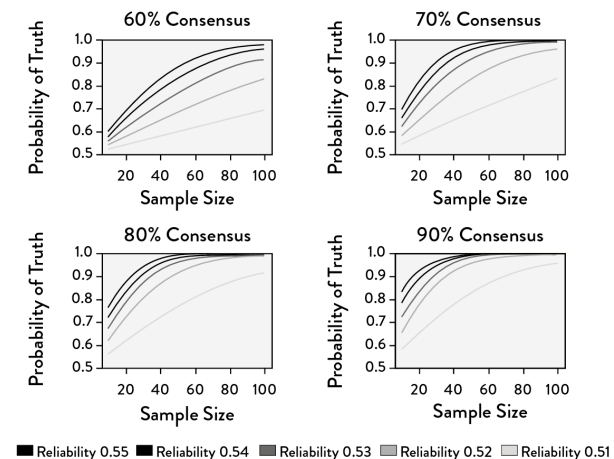
- The basic result, informally put:
  - Assume  $n$  people vote on whether or not a claim is true
  - Assume that their votes are **conditionally independent**, given the truth of the matter
  - Assume that they have **identical minimal competences**, i.e. better than random chances of getting things right
  - Then the probability that the majority verdict is correct (the **majority competence**) (a) is **greater than each individual competence** and (b) **converges quickly to 1** as  $n$  tends towards  $\infty$  (and converges more quickly the higher the individual competence and greater the majority)
- The general outcome is robust under some relaxations of the independence and competence conditions

## The wisdom of the crowds

- There is a good reason why *B* and *A* appeal to the intuitions of the folk in (2) and (3)(ii)(b)
- A plausible principle (Sytsma & Livengood 2014)

**PRINCIPLE OF AGREEMENT** ‘Widespread agreements of reports about a philosophical case provide *prima facie* reason to endorse the conclusion of the consensus report, while lack of widespread agreement provides *prima facie* reason to refrain from endorsing any claim about this case.’
- A rigorous formulation (how widespread must the agreement be?) and justification of this is beyond the scope of the course
- Tentative support: **Condorcet Jury Theorem** & extensions

## Illustration (from Sytsma & Livengood)



## The CJT and the PRINCIPLE OF AGREEMENT

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- Our authorised confidence in the majority view depends on our assuming the independence and competence conditions
- But plausibly, we are in a situation of **uncertainty** wrt these
- If so, our confidence in voter competence, which in turn underpins our confidence in the truth of the majority judgment, can *itself* be sensitive to the observed pattern of votes
- This fact explains why, as suggested in the PRINCIPLE OF AGREEMENT a lack of consensus in votes undermines confidence in voter reliability (including *our own!*)
- Some models do account for this (Bovens & Hartmann 2003)

## Polling the folk

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- But, returning to *A* and *B*'s moves:  
Neither typically bothers to find out how widespread the intuitions or lack of intuitions *actually are!*
- Recently: emergence of attempts to systematically poll the 'folk' using methods from social psychology, e.g. surveys & 'classical' statistical analysis ('**X-Phi**')
- X-Phi has considered scenarios pertaining to most philosophical sub-disciplines: ethics, phil. of language, phil. of mind,...
- Our focus-X-Phi approaches to epistemology-happens to be one of the longest established

## A second principle

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- There is another plausible way in which the observed votes could affect our confidence about the reliability of the voters
- Sytsma & Livengood offer up:  
**PRINCIPLE OF RELIABILITY** 'If reports about a philosophical case are sensitive to philosophically irrelevant details, such as culture, socio-economic status, gender, personality and so on, then one has prima facie reason to refrain from using one's own report about that case as a premise in a philosophical argument'
- Again, a rigorous formulation (how sensitive must the reports be?) and justification of this is beyond the scope of the course

## Polling the folk (ctd)

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- Some of the data has been argued to support or undermine popular philosophical claims (see reading):
  - A survey reporting agreement on the failure of the equation of knowledge how and ability (Bengson *et al* 2009)
  - Surveys finding:
    - divided opinion as to whether subjects know when a sceptical alternative has been made salient (Weinberg *et al* 2001), or
    - no clear association between conversational salience of sceptical alternatives and knowledge attributions (e.g. May *et al* 2010; but see Schaffer & Knobe 2012)
- Note: in the absence of a well motivated statistical model, there is little that can be inferred from the observations

## Data and inferences therefrom

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- I'll focus here on the most controversial work, which
  - (1) Reports a sample of intuitions apparently divided on the basis on factors apparently uncorrelated with competence (e.g. culture, gender, etc.)
  - (2) Concludes from the data that intuitions wrt the relevant scenarios ought not be trusted

### SOME STUDIES

## Note on statistical methodology

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- The studies considered share a common form of statistical inference: **classical hypothesis testing**
- The method:
  - Formulate a **null hypothesis** to be tested (e.g. there is no association between cultural background and Gettier judgments)
  - Collect some data
  - Consider how likely it would be, given the truth of that hypothesis that a particular numerical attribute of the data (e.g. frequencies of judgments by cultural group) would have a value at least as extreme as the one observed (the **p-value**)
  - If  $p\text{-value} < \text{some threshold}$  (e.g. 5%), reject the hypothesis

## Cultural variability

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- Weinberg *et al* (2001) polled intuitions on Gettier cases in a ethnically / culturally diverse set of fluent English speakers:
  - 'Bob has a friend, Jill, who has driven a Buick for many years. Bob therefore thinks that Jill drives an American car. He is not aware, however, that her Buick has recently been stolen, and he is also not aware that Jill has replaced it with a Pontiac, which is a different kind of American car. Does Bob really know that Jill drives an American car, or does he only believe it?'
- Question: does Bob 'really know' that Jill drives an American car, or does he 'only believe' it?

## Cultural variability (ctd)

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- Results (really knows vs merely believes):
  - Westerners: 26% vs 74%
  - East Asians: 53% vs 47%
- The relevant p-value was low enough for them to reject the null hypothesis of no association

## Cultural variability (ctd)

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- Results (really knows vs merely believes):
  - Westerners: 32% vs 68%
  - East Asians: 12% vs 88%
- Again, the relevant p-value was low enough for them to reject the null hypothesis of no association
- But sensitivity to cultural factors wasn't the only sensitivity observed in relation to this case

## Cultural variability (ctd)

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- Weinberg *et al* (2001) also polled intuitions on a particular accidental reliability case:

'One day Charles was knocked out by a falling rock; as a result his brain was 'rewired' so that he is always right whenever he estimates the temperature where he is. Charles is unaware that his brain has been altered in this way. A few weeks later, this brain rewiring leads him to believe that it is 71 degrees in his room. Apart from his estimation, he has no other reasons to think that it is 71 degrees. In fact, it is 71 degrees.'
- Question: does Charles 'really know' that it is 71 degrees, or does he 'only believe' it?

## Order sensitivity

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- Swain *et al* (2008) considered the possible effects of prior presentation of cases of clear knowledge or clear non-knowledge
- Question: to what extent do you agree with the relevant knowledge attributions on a 5-point scale (3 = neutral)?
- Result (mean response in accidental reliability case):
  - No prior clear case: 2.8
  - Prior clear case of knowledge: 2.4
  - Prior clear case of non-knowledge: 3.2
- The relevant p-value was low enough for them to reject the null hypothesis of no association

## Gender sensitivity

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- Starmans & Friedman have reportedly found evidence for an association between gender and Gettier intuitions
- They polled a number of undergrads (84 men, 56 women) in relation to the following:
  - 'Peter is in his locked apartment, and is reading. He decides to have a shower. He puts his book down on the coffee table. Then he takes off his watch, and also puts it on the coffee table. Then he goes into the bathroom. As Peter's shower begins, a burglar silently breaks into Peter's apartment. The burglar takes Peter's watch, puts a cheap plastic watch in its place, and then leaves. Peter has only been in the shower for two minutes, and he did not hear anything.'
- Question: does Peter 'really know' that there is a watch on the table, or does he 'only believe' it?

## Morals drawn

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- Nichols *et al* (2003), draw the following strong conclusions from the results of Weinberg *et al* (see also Alexander & Weinberg 2007):
  - '[Our] intuitions are simply not to be trusted. If the epistemic intuitions of people in different groups disagree, they can't all be true. The fact that epistemic intuitions vary systematically with culture...indicates that these intuitions are caused (in part) by culturally local phenomena. And there is no reason to think that the culturally local phenomena that cause our intuitions track the truth any better than the culturally local phenomena that cause intuitions that differ from ours.'

## Gender sensitivity (ctd)

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- Results (really knows vs merely believes):
  - Males: 41% vs 59%
  - Females: 71% vs 29%
- The relevant p-value was low enough for them to reject the null hypothesis of no association

## CRITIQUES

## Overview

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- Let's grant that cultural background and gender are independent from competence
- Some crucial questions:
  - Are the respondents in the different groups answering the same questions?
  - Does the data license the rejection of the null hypotheses?
  - If so, would all this still be sufficient to license the stronger conclusions?
  - Do the associations still hold among philosophers?

## Same questions? (ctd)

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- Cullen claims the effect disappears when subjects are explicitly asked to consider each case separately
- It has also been suggested that participants from different backgrounds might be interpreting the key concepts differently (Sosa, Jackson)

## Same questions?

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- As Alfano & Loeb (2014) point out, the general use of surveys poses well-known difficulties:
  - 'Instead of revealing what people think, surveys might establish what people think they think,...think the experimenter wants them to think,...think other participants think, or just something they made up because they had to provide a response.'
- Cullen (2010) reviews a number of possible issues regarding the response-to-intuition inferences in some of the above studies
- In relation to Swain *et al's* results, he suggests:
  - Participants may see in the successive presentation of cases a request to *compare them*
  - Upshot: they are answering *different* questions

## Can we reject the null?

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- Hypothesis rejection on the basis of a low p-value is **deeply controversial** (see Howson & Urbach 2006)
- One problem pertains to **multiple testing**:
  - If we test a whole bunch of true independent null hypotheses, it becomes very likely that our data will lead to the erroneous rejection of at least one of them
- Why so?
  - Given independence, the probability of rejecting no hypothesis is  $0.95^n$ , so the probability of erroneously rejecting at least one is  $1 - 0.95^n$ . This value tends to 1 very quickly.
- Upshot: If I consider enough independent variables, I'm near sure to conclude association of intuitions with a variable that's independent of truth



## Is pessimism warranted?

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- Recall the conclusion that Weinberg *et al* (2001) could draw from their data, assuming classical testing is OK:
  - One ought to reject the hypothesis that there is *no association whatsoever* between cultural background and Gettier intuitions
- That's insufficient to prop up their strong pessimism
- Question: how weak an association can be ruled out by the data on the general statistical inference procedure used?
- Answer: given the sample size (88), *not even a fairly weak one!*
- The data yields a 95% CI (the range outside of which values can be rejected by their logic) for the Odds Ratio (a measure of association) of  $\approx [1.4, 10.1]$ , where 1.5 counts as 'small'

## Philosophers and their intuitions

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- Nichols *et al* (2003):
  - 52% of students who've taken 3 or more philosophy courses claim subjects do not know they are not brains in vats
  - 19% of less experienced students claim they do
- Question: Is this impact a *positive* one?
- Philosophical training clearly improves some things (verbal reasoning, etc.), but is semantic competence one of them?
- For more on the issue, see Weinberg *et al* (2010) article in reading

## Philosophers and their intuitions

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- Even if in the population *overall*, judgments were heavily shaped by irrelevant factors, this might not hold in *all subpopulations*
- *Philosophers* might buck the trend (Williamson 2007)
- If so, there could be reason to downplay the relevance of folk intuitions:
  - A **weighted majority vote**, where more reliable voters are more influential, is more reliable than an unweighted one
- Certainly, there is evidence that philosophical training impacts our epistemic intuitions

## Next week

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- Topic: Collective wisdom
- Required reading:
  - List, C. 2012: *Collective Wisdom: Lessons from the Theory of Judgment Aggregation*. In H. Landemore & J. Elster (eds.), *Collective Wisdom: Principles and Mechanisms*. Cambridge University Press.
- Recommended reading:
  - List, C. & P. Pettit 2011: *Group Agency: The Possibility, Design, and Status of Corporate Agents*. Oxford: Oxford University Press. Chs 2 & 4.

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