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Folk concepts and intuitions: from philosophy to cognitive science

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Analytic philosophers have long used *a priori* methods to characterize folk concepts such as *knowledge*, *belief* and *wrongness*. Recently, researchers have begun to exploit social scientific methodologies to characterize such folk concepts. One line of work has explored folk intuitions with cases that are disputed within philosophy. A second approach, with potentially more radical implications, applies the methods of cross-cultural psychology to philosophical intuitions. Recent work in this area suggests that people in different cultures have systematically different intuitions surrounding folk concepts. A third strand of research explores the emergence and character of folk concepts in children. These approaches to characterizing folk concepts provide important resources that will supplement, and perhaps in some cases displace, *a priori* approaches.

Researchers at the intersection of philosophy and cognitive science have begun systematic exploration of folk concepts, such as *wrong*, *knows* and *refers*. There is nothing new in wanting to characterize these concepts – that has been a preoccupation of philosophers for millennia. The novelty of the recent work lies in the appropriation of social scientific methodology to investigate what has until now been a largely *a priori* enterprise. This work also has potentially wide ramifications for cognitive science because these concepts that have attracted philosophical attention plausibly also guide cognition in central domains such as moral evaluation, mental state attribution, and semantic judgment.

Philosophical context

Concepts such as *knowledge*, *belief* and *wrongness* have played a central role in philosophy at least since Plato. As these concepts are central to the philosophical enterprise, it is a primary concern of many philosophers to achieve an adequate characterization of them. Furthermore, many philosophers would maintain that to answer substantive questions such as 'Do we know anything?', 'Do beliefs exist?', or 'Is morality relative?', we need first to have a clear idea of the character of the relevant concepts [1–4].

In analytic philosophy, the dominant approach to characterizing concepts has been an *a priori* approach in which the philosopher considers whether a proposed analysis fits his intuitions about various possible cases. To analyze the concept of *knowledge*, for instance, the philosopher consults his intuitions about various cases, and the concept of knowledge will be adequately characterized when the analysis conforms to the intuitions. So, to take one well-known example, several philosophers have embraced the 'justified true belief' analysis of knowledge, according to which if subject S believes proposition *p* on the basis of good justification, and *p* is true, then S *knows* that *p* [5,6]. However, this analysis has been challenged by cases about which many philosophers have the intuition that a person's justified true belief does not count as knowledge [7,8] (for a detailed example see Box 1). Thus, we are encouraged to reject the justified true belief account of knowledge because it runs afoul of intuitions about possible cases.

Some philosophers have wondered exactly what is delivered by this approach of consulting intuitions about cases [9,10]. Is the philosopher who uses this method merely gleaning the character of his *own* concepts [11], or perhaps more broadly the concepts of analytic philosophers? This would invite an obvious worry about parochialism: if analytic philosophers are merely giving analyses of their own intuitions and concepts, then it's not obvious that their work carries much interest for the vast majority of the population who happen not to be analytic philosophers. However, there is a natural way out of this worry. One might maintain that although the *method* is *a priori*, the results of this inquiry will be analyses not just of the concepts of analytic philosophers but of the concepts used by lay people. Hence, many analytic philosophers now view conceptual analysis as a project

Box 1. An example of conceptual analysis using intuitions about cases

According to standard accounts of knowledge, S knows that *p* just in case:

(i) S believes that *p*.
(ii) That belief is true.
(iii)That belief is justified.

Consider, however, the following scenario: Marie's friend Bill has lived in Lincoln, Nebraska for his entire life. Marie concludes from this that Bill lives in a city named after a famous politician. Marie is unaware that Bill has just moved to Washington, D.C. In this case, Marie's belief that Bill lives in a city named after a famous politician is true; her belief is also justified, because she has good reason to believe that Bill still lives in Lincoln. Nonetheless, many analytic philosophers (and many Western undergraduates) would have the intuition that Marie does not *know* that Bill lives in a city named after a famous politician [7,8,29]. Thus, it is concluded that the concept of knowledge is not adequately analyzed as justified true belief.

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of describing the folk concepts of *belief*, *wrongness*, *knowledge*, and so forth [3,4,12,13].

In a way, viewing philosophy as providing characterizations of folk concepts is not entirely revisionary. It is plausible that many traditional philosophical problems, such as the mind–body problem and the problem of free will, are rooted in folk concepts and intuitions. Indeed, it is natural to regard much work in the history of philosophy as attempts to discern the character of folk concepts. When Socrates asks his fellow Athenians, 'What is virtue?' or 'What is knowledge?', he is, in part, trying to draw out the character of the concepts they already have. The goal of characterizing folk concepts therefore seems to be historically ancient and connected with some of the weightiest questions in philosophy. And the view that philosophers are characterizing folk concepts presents an attractive escape from the charge of parochialism. However, this approach also carries the substantive assumption that the intuitions of analytic philosophers will be representative of folk intuitions. Prima facie, this substantive assumption carries an empirical commitment. When a philosopher maintains that his intuition about a possible case is representative of folk intuitions, this should typically mean that, barring performance errors, ordinary people will have the same intuition when presented with the same case. Indeed, the very method of collecting intuitions about possible cases might be extended into the experimental domain.

That is exactly what has been happening in recent work at the intersection of philosophy and the social sciences. Researchers have used several different empirical approaches to investigate folk concepts. The focus here will be on work using techniques from social psychology, cross-cultural psychology, and developmental psychology.

Social psychology and folk concepts

One trend has been to explore folk intuitions using social-psychological surveys on cases that are disputed within philosophy [14–17]. It will help to consider a case in detail, so I focus here on recent empirical work on the folk concept of *intentional action*. In the philosophical literature, the 'simple view' of intentional action maintains that if S intentionally did *A*, then S intended to do *A* [18]. Philosophers have disagreed about whether this coheres with our intuitions – some philosophers reject the simple view [19,20] whereas others defend it [21,22]. Philosophers on both sides have brought sophisticated and subtle moves to bear on the issue. But until recently, what they haven't systematically done is *ask* people. In a set of experiments, Joshua Knobe has presented adults with cases that are designed to assess whether people answer in accordance with the simple view or not [23]. Knobe presented the following scenario:

> 'The vice-president of a company went to the chairman of the board and said, "We are thinking of starting a new program. It will help us increase profits, but it will also harm the environment." The chairman of the board answered, "I don't care at all about harming the environment. I just want to make as much profit as I can. Let's start the new program." They started the new program. Sure enough, the environment was harmed.'

When presented with this vignette, most participants said that the agent intentionally harmed the environment, but relatively few said that it was the agent's express *intention* to harm the environment [13,23,24]. These results suggest that the folk concept of intentional action does not conform to the simple view.

Using survey methods for assessing folk intuitions has the potential to be delightfully liberating. For one thing, it might allow us to circumvent the impasses that arise when the intuitions of philosophers clash. Furthermore, the social psychological methodologies provide the foundation for a tractable research framework. For instance, it is possible that Knobe's effects are the product of pragmatic features of the experimental materials [25]. Another possibility is that there are systematic individual differences concerning these sorts of questions. There might be important similarities in the minority of Knobe's subjects whose responses did conform to the simple view. These kinds of hypotheses based on pragmatics or individual differences can be tested directly by exploiting established research methods in the social sciences [26,27]. By contrast, it is less clear how to arbitrate a dispute over intuitions between two highly trained analytic philosophers.

Cross-cultural psychology and folk concepts

Folk concepts have also been investigated cross-culturally, again using lay intuitions about possible cases. Researchers in this area have found what seem to be striking cultural differences in intuitions involving folk concepts such as *wrong*, *knows* and *refers* [28–31]. Some of this work builds on previous research by Nisbett and colleagues that indicates systematic differences between East Asians and Westerners on a number of dimensions. For instance, East Asians seem more inclined to classify objects on the basis of family resemblance, whereas Westerners seem more disposed to focus on causation in describing the world and classifying things [32–34]. Related East/West differences also seem to show up in people's intuitions about knowledge [29,30].

One recent attempt to use intuitions about cases in a cross-cultural setting explores folk intuitions about reference. Roughly speaking there are two prevailing accounts of reference. According to 'descriptivism', a name refers to the object that best fits the description associated with the name. On the 'causal–historical' account, a name is introduced to refer to an individual, and the name continues to refer to that individual so long as the uses of the name are causally linked back to the introduction of the name; crucially, on this account, the description associated with a name plays no role in fixing the referent. Philosophers assess these theories by how well the theories fit with intuitions about cases that implicate reference. A famous thought experiment from Kripke, the 'Gödel case', elicited intuitions from philosophers that did not fit with the descriptivist theory, and this led many

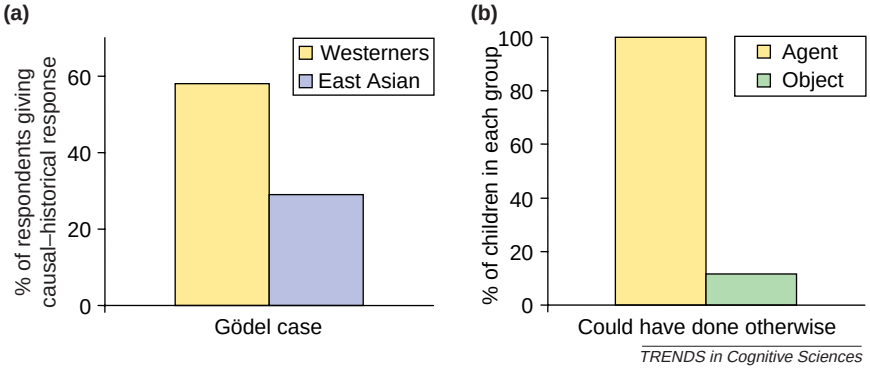

Figure 1. **(a)** Westerners and East Asians were given Kripke's Gödel scenario and asked to whom the name 'Gödel' referred in the scenario. As can be seen, a higher percentage of Westerners than East Asians gave the causal–historical response. (See text for details. Data from [31].) **(b)** Children were asked whether either an agent or an object *could have done otherwise.* All the children in the 'agent' condition said that the agent could have done otherwise, whereas very few children in the object group said that the object could have done otherwise. This supports the notion that children have a concept of free will in which agents but not objects could have done otherwise. (Data from [43].)

philosophers to promote the causal–historical approach. Kripke presents the case as follows:

> Suppose that Gödel was not in fact the author of [Gödel's] theorem. A man called 'Schmidt'… actually did the work in question. His friend Gödel somehow got hold of the manuscript and it was thereafter attributed to Gödel. On the [descriptivist] view in question, then, when our ordinary man uses the name 'Gödel', he really means to refer to Schmidt, because Schmidt is the unique person satisfying the description 'the man who discovered the incompleteness of arithmetic' [35].

Kripke's intuition about this case is that, despite the fact that the description that is associated with 'Gödel' is uniquely satisfied by Schmidt, the name 'Gödel' does not refer to Schmidt. This intuition is shared by the majority of subsequent commentators. However, given the apparently different classificatory tendencies of East Asians and Westerners noted earlier, Machery and colleagues predicted that East Asians would be more likely than Westerners to have descriptivist intuitions about such cases [31]. East Asian and Western participants were given a version of Kripke's 'Gödel' case and asked whether in this scenario, a person using the name 'Gödel' is talking about (a) the person who really discovered the incompleteness of arithmetic or (b) the person who got hold of the manuscript and claimed credit for the work. As predicted, East Asians and Westerners responded differently. East Asians tended to give the answer (a) that conforms to descriptivist theories of reference, and Westerners tended to give the answer (b) that conforms to causal–historical theories of reference (see Figure 1a).

Developmental psychology and folk concepts

Developmental psychology offers yet another avenue for investigating folk concepts. Indeed, developmental psychologists have been exploring the emergence of folk concepts in children for the past two decades. Recent work has looked more closely at the emergence of notions like free will and moral objectivity, which have been closely studied by philosophers.

Free will

In the literature on the child's understanding of the mind, there has been extensive work on the child's concepts of *belief* and *desire* [36–40]. However, the philosophically central notion of free will has been almost entirely neglected in this body of work. Philosophers have long debated about the proper characterization of the notion of free will [41,42]. One historically prominent view is that free will is incompatible with determinism, the thesis that every event is an inevitable consequence of the prior conditions and the natural laws. On such views, an action was free only if the agent could have done otherwise, even if the prior conditions had been the same. Recent experiments investigated whether children think that agents could have done otherwise [43]. Children were placed in one of two conditions: those in the 'agent' condition witnessed an agent exhibit motor behavior; those in the 'object' condition witnessed an object move. For instance, children in the agent condition were shown a closed box with a sliding lid; the experimenter slid the lid open and touched the bottom of the box. Children in the object condition were shown the closed box with a ball resting on the lid; the experimenter slid the lid open and the ball fell to the bottom. The child was asked whether the agent in the first case, and the object in the second, had to behave as it did after the lid was open, or whether it could have done something else instead. The results were very clear – children tended to say that the agent could have done something else, but that the object had to behave as it did (Figure 1b). In a second study, adults and children were asked about physical events (e.g. a pot of water coming to boil) and moral-choice events (e.g. a girl stealing a candy bar). Participants were asked whether if everything in the world was the same up until the event occurred, the event had to occur. In this setting, both adults and children were more likely to say that the physical events had to occur than that the moral choice events had to occur. This provides preliminary evidence

that people have a concept of free will in which agents could have done otherwise.

Moral objectivity

The child's concept of *morally wrong* will serve as a final example. In philosophy, there has been a protracted discussion about whether the folk concept of moral wrongness is objectivist. According to an objectivist conception of moral wrongness, if a particular action is morally wrong, then it is wrong absolutely. So, for instance, if it was morally wrong for Bill to kick the puppy, then this was wrong full stop, not merely wrong relative to some groups and not to others. Thus, an objectivist notion of moral wrongness is committed to the view that (i) true moral judgments are non-relativistically true, and (ii) some moral judgments are true.

When we ask whether the folk concept of wrongness is objectivist, philosophers are divided [4,44]. Research on adult intuitions suggests that there is, in fact, variation in the adult population. Some adults respond as objectivists and some as non-objectivists concerning canonical moral violations, such as unprovoked hitting [15]. It is less clear, however, that the variation is present in children. Rather, children typically maintain that a moral violation like unprovoked hitting is wrong regardless of authority or rules or culture [45–47]. There is evidence of broad cross-cultural consistency on these features of the child's concept of *morally wrong* [48–50]. Furthermore, at least in the US, children also maintain that a moral violation is bad 'for real', not merely bad 'for some people'; by contrast, children maintain that onions are yucky 'for some people' rather than yucky 'for real' [51]. All the available evidence fits with the claim that children's concept of morally wrong is objectivist.

The developmental work might generate a somewhat more nuanced treatment of folk concepts, because we might find that there are 'default settings' on some folk concepts. For instance, one way to interpret the results on moral concepts is that objectivism is the default setting, but that this setting can be overwritten later in development.

Folk concepts: the future

One familiar criticism of conceptual analysis from cognitive science is that much conceptual analysis seems to rely on the assumption that folk concepts can be analyzed as definitions [4–6], and this assumption runs against prevailing views of concepts in psychology [52,53]. But the prospect of cultural variation in folk concepts poses a further threat to conceptual analysis. If there is significant cultural diversity in folk intuitions, this might undermine the authority of *a priori* philosophical methods because philosophers will often be blind to the culturally local aspects of their concepts. However, the issue is a resolutely empirical one, and the cross-cultural work on folk concepts and intuitions has only just begun. It still might turn out that there are deflationary explanations of the results in the existing cross-cultural work. For instance, it might be that the responses of undergraduates to questionnaires are too superficial, and that the cultural differences will disappear in experiments that demand more sustained and careful attention. Further, even if there is some diversity in intuitions, it is possible that there is a core, cross-culturally shared set of intuitions surrounding folk concepts such as *knowledge*, *belief* and *wrongness*. For instance, although there seem to be cultural differences in what counts as knowledge, it is plausible that all cultures share the view that lucky guesses do not count as knowledge [29]. Determining which intuitions are shared cross-culturally is, of course, another empirical question, and one that is an important matter for future research.

The research on folk concepts and intuitions might also illuminate the psychological underpinnings of some long-standing philosophical problems that seem to be driven by conflicting folk intuitions. For instance, one way to view the problem of free will is that it is driven by powerful intuitions that push in different directions. On the one hand, we have an intuition that an agent could have done otherwise, even if everything else was exactly the same. The developmental work recounted above suggests that this intuition is present even in children. On the other hand, some philosophers claim that people believe that there is a deterministic causal explanation for any action [41]. If one grants that people have both intuitions, a natural psychological explanation is that there are two different systems underlying the opposing intuitions. One possibility is that the deterministic intuition comes from the cognitive system devoted to predicting and explaining behavior, whereas the intuition that agents could have done otherwise comes from the cognitive system devoted to moral evaluation [43]. But any such proposal will seem ad hoc without some kind of support. This is where empirical work can provide a new, data-driven approach. By investigating these intuitions empirically, we might discern the cognitive systems that generate the intuitions, and this will enable us to evaluate whether the conflicting intuitions about free will are generated by partly independent cognitive systems. Of course, to investigate these matters adequately is likely to require exploiting reaction times, error rates, and other experimental techniques

Box 2. Questions for future research

- *Diversity in folk concepts:* Are the differences in intuitions between cultures systematic and explainable? Within cultures, are the individual differences systematic and explainable? Within individuals, are the intuitions stable across time?
- *New domains:* To what extent are there inter-cultural and intra-cultural differences in other folk concepts, such as *causation* and *personal identity*?
- *Core notions:* Are there stable cross-cultural intuitions for folk concepts such as *knowledge, reference* and *free will*? If so, what are they?
- *Default settings:* Is there a shared default setting in children for concepts such as *reference, knowledge* and *wrong*? If so, what factors lead to departures from default settings?
- *Order effects:* To what extent are folk intuitions subject to effects of ordering and training?
- *Cognitive mechanisms:* What are the cognitive mechanisms that generate folk intuitions? Do apparently incompatible intuitions derive from different cognitive mechanisms?
- *Philosophical implications:* To what extent do social scientific methods displace traditional *a priori* methods for characterizing folk concepts?

more sensitive than the survey and interview methodologies reviewed here.

Conclusion

The intrusion of social science methodology onto philosophical terrain does not mean that we abandon traditional philosophical questions such as 'What is morality?' or 'What is reference?'. Rather, social scientific methods can supplement traditional philosophical methods to characterize folk concepts more adequately. Indeed, much of the recent work appropriates the same thought experiments that philosophers have devised. And the empirical approach might reveal that folk notions of morality, for instance, have great cross-cultural consistency and deep developmental roots. However, the social scientific methodology might also raise serious problems for traditional philosophical approaches. If there is significant intercultural or even intra-cultural diversity in folk concepts and intuitions, this could undermine the reach of traditional philosophical methods. But the empirical work on folk concepts and intuitions has only just begun, and it is impossible to make any pronouncements with confidence, except that there is a wealth of questions for future research (see Box 2).

References

1 Mackie, J. (1977) *Ethics: Inventing Right and Wrong*, Penguin
2 Stich, S. (1983) *From Folk Psychology to Cognitive Science*, MIT Press
3 Smith, M. (1994) *The Moral Problem*, Blackwell
4 Jackson, F. (1998) *From Metaphysics to Ethics*, Oxford University Press
5 Ayer, A. (1956) *Problem of Knowledge*, Macmillan
6 Chisholm, R. (1957) *Perceiving: A Philosophical Study*, Cornell University Press
7 Gettier, E. (1963) Is justified true belief knowledge? *Analysis* 23, 121–123
8 Shope, R. (1983) *The Analysis of Knowing*, Princeton University Press
9 Stich, S. (1990) *Fragmentation of Reason*, MIT Press
10 Mele, A. (2003) Intentional action: controversies, data, and core hypotheses. *Philos. Psychol.* 16, 325–340
11 Grice, P. (1989) *Studies in the Ways of Words*, Harvard University Press
12 Lewis, D. (1972) Psychophysical and theoretical identifications. *Australas. J. Philos.* 50, 249–258
13 Goldman, A. (2001) Replies to the contributors. *Philos. Topics* 29, 461–511
14 Knobe, J. (2003) Intentional actions and side effects in ordinary language. *Analysis* 63, 190–193
15 Nichols, S. (2002) How psychopaths threaten moral rationalism. *Monist* 85, 285–304
16 Nichols, S. (2004) After objectivity. *Philos. Psychol.* 17, 5–28
17 Greene, J. *et al*. (2001) An fMRI investigation of emotional engagement in moral judgment. *Science* 293, 2105–2108
18 Bratman, M. (1984) Two faces of intention. *Philos. Rev.* 93, 375–405
19 Harman, G. (1976) Practical reasoning. *Rev. Metaphysics* 29, 431–463
20 Bratman, M. (1987) *Intention, Plans, and Practical Reason*, Harvard University Press
21 Adams, F. (1986) Intention and intentional action: the simple view. *Mind Lang.* 1, 281–301
22 McCann, H. (1986) Rationality and the range of intention. *Midwest Studies in Philosophy* 10, 191–211
23 Knobe, J. (2004) Intention, intentional action and moral considerations. *Analysis* 64, 181–187
24 Knobe, J. and Burra, A. What is the relation between intention and intentional action? *J. Culture Cogn.* (in press)
25 Adams, F. and Steadman, A. (2004) Intentional action in ordinary language: core concept or pragmatic understanding? *Analysis* 282, 173–181
26 Stanovich, K. (1999) *Who is Rational? Studies of Individual Differences in Reasoning*, Erlbaum
27 Novick, I.A. and Sperber, D. (2004) *Experimental Pragmatics*, Palgrave Macmillan
28 Haidt, J. *et al*. (1993) Affect, culture, and morality, or is it wrong to eat your dog? *J. Pers. Soc. Psychol.* 65, 613–628
29 Weinberg, J. *et al*. (2001) Normativity and epistemic intuitions. *Philos. Topics* 29, 429–460
30 Nichols, S. *et al*. (2003) Metaskepticism: meditations in ethno-epistemology. In *The Skeptics* (Luper, S. ed.), pp. 227–247, Ashgate Press
31 Machery, E. *et al*. (2004) Semantics, cross-cultural style. *Cognition* 92, B1–B12
32 Nisbett, R. (2003) *The Geography of Thought*, Simon & Schuster
33 Nisbett, R.E. *et al*. (2001) Culture and systems of thought: holistic vs. analytic cognition. *Psychol. Rev.* 108, 291–310
34 Norenzayan, A. *et al*. (2002) Cultural preferences for formal versus intuitive reasoning. *Cogn. Sci.* 26, 653–684
35 Kripke, S. (1980) *Naming and Necessity*, Harvard University Press
36 Wellman, H. (1990) *The Child's Theory of Mind*, MIT Press
37 Perner, J. (1991) *Understanding the Representational Mind*, MIT Press
38 Leslie, A. (1995) A theory of agency. In *Causal Cognition* (Sperber, D., Premack, D. and Premack, A., eds), pp. 121–141, Oxford University Press
39 Gopnik, A. and Meltzoff, A. (1997) *Words, Thoughts and Theories*, MIT Press
40 Nichols, S. and Stich, S. (2003) *Mindreading*, Oxford University Press
41 Hume, D. (1743, reprinted 1975) *An Enquiry concerning Human Understanding*, Oxford University Press
42 Reid, T. (1788, reprinted 1969) *Essays on the Active Powers of the Human Mind*, MIT Press
43 Nichols, S. (2004) The folk psychology of free will: fits and starts. *Mind Lang.* 19, 473–502
44 Stich, S. and Weinberg, J. (2001) Jackson's empirical assumptions. *Philos. Phenomenol. Res.* 62, 637–643
45 Turiel, E. (1983) *The Development of Social Knowledge: Morality and Convention*, Cambridge University Press
46 Smetana, J. (1993) Understanding of Social Rules. In *The Development of Social Cognition* (Bennett, M. ed.), pp. 111–141, Guilford Press
47 Nucci, L. (2001) *Education in the Moral Domain*, Cambridge University Press
48 Nucci, L. *et al*. (1983) Children's social interactions and social concepts: analyses of morality and convention in the Virgin Islands. *J. Cross Cult. Psychol.* 14, 469–487
49 Hollos, M. *et al*. (1986) Social reasoning in Ijo children and adolescents in Nigerian communities. *J. Cross Cult. Psychol.* 17, 352–374
50 Song, M. *et al*. (1987) Korean children's conceptions of moral and conventional transgressions. *Dev. Psychol.* 23, 577–582
51 Nichols, S. and Folds-Bennett, T. (2003) Are children moral objectivists? Children's judgments about moral and response-dependent properties. *Cognition* 90, B23–B32
52 Fodor, J. (1981) The present status of the innateness controversy. In *Representations* (Fodor, J. ed.), pp. 257–316, MIT Press
53 Stich, S. (1992) What is a theory of mental representation? *Mind* 101, 243–261