WHERE PHILOSOPHICAL INTUITIONS COME FROM

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Little is known about the aetiology of philosophical intuitions in spite of their central role in analytic philosophy. This paper provides a psychological account of the intuitions that underlie philosophical practice, with a focus on intuitions that underlie the method of cases. I argue that many philosophical intuitions originate from spontaneous, early-developing cognitive processes that also play a role in other cognitive domains. Additionally, they have a skilled, practiced component. Philosophers are expert elicitors of intuitions in the dialectical context of professional philosophy. If this analysis is correct, this should lead to a reassessment of experimental philosophical studies of expertise.

Keywords: Philosophical Intuitions; Dual processing; Philosophical expertise; Experimental philosophy

1. Introduction

Analytic philosophers frequently appeal to intuitions. In the method of cases[1], vivid scenarios elicit intuitive responses that directly speak for or against a philosophical claim.
Take, for instance, Lackey's [2007] case of the creationist teacher. Prima facie, it seems you should only assert *p* if you know that *p*. To challenge this view, Lackey has us imagine a devoutly Christian Young Earth creationist teacher who accepts creationism on the basis of faith, but who also recognises the scientific evidence in favour of evolution. When she asserts to her class 'Modern day *Homo sapiens* evolved from *Homo erectus*', it seems that she is warranted in making this assertion, although she does not know or even believe this proposition. This intuition provides a strong case against the claim that assertion requires knowledge. The epistemic function of intuitions is not restricted to the method of cases, but is also prominent in other philosophical styles of argumentation, such as analogies.

Until recently, the evidential value of intuitions elicited in the method of cases and other philosophical writings was uncontroversial. However, of late a number of philosophers have wondered whether intuitions are helpful to adjudicate between philosophical views. From the armchair, Cappelen [2012] argues that intuitions do not have any special evidential value, and that we should dispense with them altogether. Using empirical methods, negative[2]

[1] The method of cases in analytic philosophy involves the construction of scenarios that elicit intuitions. These intuitions are considered as evidence for or against philosophical theories.
[2] Alexander et al. [2014] distinguish between two projects of experimental philosophy: positive and negative. Positive experimental philosophers embrace the evidential value of intuitions, but insist that empirical methods are needed to probe what intuitions laypeople hold. Negative experimental philosophers attack reliance on intuitions by pointing out how these vary across different groups, or according to the context and order in which thought experiments are presented.

experimental philosophers have launched a pervasive attack on the purported reliability of intuitions: they argue that intuitions are unreliable, because they vary along dimensions that are epistemically irrelevant, for instance, language [Vaesen et al. 2013], gender [Buckwalter and Stich 2014], culture [Weinberg et al. 2001], and age [Colaço et al. 2014].

Recent attempts to replicate some of these studies, however, have failed to demonstrate the purported gender and ethnicity effects [e.g., Adleberg et al. in press; Nagel et al. 2013]. For example, Weinberg et al. [2001] found that students at Rutgers who had an East Asian background were more likely to attribute knowledge in Gettier cases than students with a western background. By contrast, in Kim and Yuan's [2014] replication, participants of white and Asian backgrounds responded in a strikingly similar fashion: 85.4% of East Asians and 86.2% of Westerners denied knowledge in Gettier cases. This stability in epistemic intuitions in replication studies is heartening, but as Nagel [2012] cautions, it would be a mistake to equate consensus with correctness. She cites empirical evidence by Koriat [2008] that indicates that the strength of an intuition correlates with the consensus that people have about it, not necessarily with its correctness.

Discussions on philosophical intuitions have seldom considered their psychological origins. This paper will examine the psychological origins of intuitions that underlie philosophical practice, with a focus on intuitions elicited by the method of cases. Tentatively, I will look at some implications of this research for the dependability of those intuitions, but my aims are primarily descriptive. As I will argue in section 2, understanding the aetiology of philosophical intuitions is vital for making headway in debates on their evidential value. Section 3 takes the dual processing approach as a starting point to understand where philosophical intuitions come from. While this provides a plausible account for the origins of intuitions, it cannot explain how they are used in philosophical practice. Section 4 proposes two distinct developmental pathways for intuitions, as maturationally and practiced natural, drawing on theoretical work by McCauley [2011]. Section 5 explores the maturationally natural origins of philosophical intuitions, focusing on teleological intuitions that underlie the argument from design, and epistemic intuitions that underpin scenarios of knowledge attribution. Section 6 examines the practiced, skilled elements of philosophical intuitions. Philosophical intuitions are to a significant extent the result of type 1 cognitive processes that also play a role in other cognitive domains. Philosophers are expert elicitors of intuitions in the dialectical context of professional philosophy. If correct, this should lead to a reassessment of experimental philosophical studies of expertise.

2. Why the aetiology of philosophical intuitions matters

Historical and contemporary philosophers [e.g., Locke 1690; Brogaard in press] have often compared intuitions to perception:

> This part of knowledge is irresistible, and, like bright sunshine, forces itself immediately to be perceived, as soon as ever the mind turns its view that way; and leaves no room for hesitation, doubt, or examination, but the mind is presently filled with the clear light of it. 'Tis on this intuition, that depends all the certainty and evidence of all our knowledge [Locke 1690: 264].

Beliefs formed on the basis of ordinary perception are often veridical. To explain why, we can draw on a wealth of empirical work in the cognitive sciences that elucidates how perception leads us to form true beliefs. For this reason, reliabilists frequently cite simple cases of perception as exemplar cases of justified belief formation, and when arguing for the reliability of a specific belief-forming process (such as mystical perception), they are keen to

draw analogies with ordinary sense perception [e.g., Alston 1991]. However, this strategy does not extend to domains like logic, mathematics, and ethics [Schechter 2013]. Beliefs in these fields suffer from the access problem: it is not obvious how we have access to the relevant logical, mathematical, or ethical truths. An influential formulation of the access problem is Benacerraf's [1973] challenge to mathematical Platonism. Assuming that knowledge depends on a causal relationship between knower and object, it is hard to see how we can know that 2 + 2 = 4 if numbers are Platonic, acausal entities outside of space-time. Field [1989: 232–233] later generalised this challenge: 'we should view with suspicion any claim to know facts about a certain domain if we believe it impossible in principle to explain the reliability of our beliefs about that domain.' Formulated in this way, the access problem is not specific to Platonism. It generalises to any domain where the purported reliability of the beliefs in this domain is not readily explicable.

If we have no aetiological account of philosophical intuitions that ties them somehow to philosophical truths, we have no compelling reason to accept that such intuitions are sound. In Cummins' [1998] terminology, we have no way to externally calibrate philosophical intuitions, that is, to assess their validity apart from their perceived consensus in the philosophical community. By contrast, scientific procedures, such as the use of a telescope, can be externally calibrated because we have access to the target independent of the procedure we are testing. Cummins argues that we do not have a 'test key' that allows us to assess whether intuitions about fairness and other properties that philosophers study are warranted. Consensus about the validity of philosophical intuitions, even if universal, is insufficient. Suppose everyone saw the same thing through their telescope—without an external way to assess whether telescopes are reliable instruments that is not enough to establish the validity of the practice.

There is an established tradition in western philosophy to look for psychological origins of intuitions as an external way to justify appeal to those intuitions. Examples include *anamnesis* in Plato, *noûs* in Aristotle, and innate ideas in the rationalist tradition. Gradually, philosophers have discarded these notions, and by the eighteenth century, intuition had become roughly synonymous with immediate knowledge. As a result, contemporary philosophers frequently appeal to intuitions without having a theoretical rationale for this practice. As Hintikka [1999: 131] puts it, 'The vast majority of philosophical writers these days take the name 'intuition' in vain since they do not believe in Platonic anamnesis, Aristotelian forms, Cartesian innate ideas, or Kantian transcendental deductions.'

In the absence of these concepts, where could an external measure be found to gauge philosophical intuitions? Until recently, intuitions received little attention in psychology. The exception was intuitions in linguistics, the spontaneous judgments by which native speakers assess whether sentences are grammatical. However, over the past 15 years, intuitions have become more prominent, especially in dual processing models of reasoning (see next section), and in the study of moral intuitions [e.g., Haidt 2001]. Psychologists do not use the term intuition in the same way as philosophers do, but there is a large semantic overlap [see Hodgkinson et al. 2008 for review]. In both disciplines, intuitions are regarded as assessments that come about without explicit reasoning and that seem to have some prima facie credibility to those who hold them. For example, Gopnik and Schwitzgebel [1998: 77], a psychologist and a philosopher, define intuitive judgments as 'not made on the basis of some kind of explicit reasoning process that a person can consciously observe. Intuitions are judgments that grow, rather, out of an underground process, of whatever kind, that cannot be directly observed.' Moreover, in both disciplines, there is an on-going debate on the epistemic value of intuitions. For instance, psychologists examine whether reliance on intuition can help improve managerial decisions [Sinclair and Ashkanasy 2005].

Psychological investigations of intuitions can potentially provide us with resources to

gauge the evidential value of intuitions deployed in philosophical practice. Within a naturalistic framework, there is a fundamental continuity between philosophical reasons and psychological causes. Intuitions and other products of philosophical reflection do not stand outside the natural order [see Blackburn 2001 for discussion]. In this view, the psychological underpinnings of intuitions can provide a test key to assess their validity. Reliabilism, while not the only way to bridge naturalistic causes with philosophical motivations, is one of the best-developed frameworks to link them. In this framework, a test key to probe the soundness of philosophical intuitions is the extent to which cognitive processes that underlie our formation of philosophical intuitions are reliable. Appealing to the psychological origins of philosophical intuitions is, of course, also a philosophical move. It is not external to philosophical discourse. However, it is independent from the philosophical practices that are typically used to elicit intuitions, such as introspection; in this way, it provides an independent way to assess the reliability of philosophical intuitions. The next section will examine dual processing accounts as a potential way to characterise philosophical intuitions in psychological terms.

3. Intuitions as a result of Type 1 cognitive processes

'Intuitive' and 'intuition' characterise widely divergent activities, events, and objects. The controls of a computer game, a melody, and a style of playing chess can be described as intuitive [Cappelen 2012: chapter 2]. Because of the disparate contexts in which these terms are used, Cappelen is pessimistic about the prospects for a unifying definition. However, he observes 'one feature that stands out when these cases are considered: *there is some kind of ease, effortlessness, or spontaneity involved*. Another way of putting this is that *the acts involved don't require a lot of reflection or effort*' [Cappelen 2012: 33, emphasis in original]. The distinction between fluent and effortful cognitive processes lies at the heart of dual processing accounts of reasoning. Dual processing accounts can help to uncover the psychological underpinnings of philosophical intuitions [see also Nagel 2014].

Dual processing accounts propose that human cognition is characterised by two types of processes. These are termed Type 1 and Type 2, also known as System 1 and System 2 [Evans 2008; Stanovich and West 2000][3]. Type 1 cognition is typically fast, automatic, fluent, and effortless. It is implicit, context-sensitive, and personalised. Its outputs emerge spontaneously, without explicit inference or reasoning. For example, when I drop a pen, I form the spontaneous belief that the pen will fall downward. This belief does not require an inference from other beliefs (e.g., The Earth exerts gravitational pull to objects with mass in its proximity; This pen is an object with mass in the proximity of the Earth; Therefore, if released, it will fall toward the centre of the planet). Intuitions are typical outputs of Type 1 cognition. Type 2 cognition is slower, less fluent, deliberate, and effortful. It requires making explicit inferences. It is less susceptible to context and to some extent depersonalised. For instance, assessing that the conclusion 'Cigarettes are healthy' is correct, given the premises, 'All plant-based items are healthy; Cigarettes are plant-based' requires the ability to disregard knowledge one has acquired earlier and to focus on the validity of the conclusion. Arguments are typical outputs of Type 2 cognition.

Developmental psychologists [e.g., Spelke and Kinzler 2007; Carey and Spelke 1996] locate the origin of some Type 1 cognitive processes in core cognition, representations that

[3] I will use the Type terminology, as the Systems terminology gives the impression that the two types of thinking form two coherent separate systems. Current empirical evidence indicates that there are several cognitive processes, working in parallel, which can be characterised as either intuitive or reflective.

children acquire early in development, often in infancy. These provide humans with a rich set of intuitions in several domains. An example is intuitive physics, which yields intuitions about the behaviour of inanimate objects, e.g., they persist when not in sight, and their motion is influenced by external agents and objects. Spelke et al. [1995] found that even three-month-olds have expectations about objects; for instance, they are surprised (indicated by a longer looking time) if a solid object falls apart without any apparent external cause. Other domains of core cognition include intuitive psychology, by which we attribute beliefs, desires, and other mental states to others, and intuitive biology, by which we attribute biological functions such as eating, sleeping, and growth to biological organisms. Some authors, such as Carey [2009], draw a further distinction between core cognition and folk theories (also known as intuitive theories), which are more culturally variable and build on core cognition. For instance, human core cognition allows us to distinguish small cardinalities up to 3 precisely, and larger numbers approximately. Combined with language and counting strategies, young children learn to represent natural numbers, for instance, they learn that 2 + 2 = 4. Although they emerge somewhat later in development than core cognition (typically in middle childhood), folk theories are a form of Type 1 cognition, as they are fluent, effortless, and context-sensitive. Folk psychology, for example, is cross-culturally variable in the extent to which we attribute people's actions to internal motivations or external circumstance [Lillard 1988], but these attributions happen spontaneously and unreflectively.

Under many circumstances, Type 1 cognition provides humans, as well as other animals, with knowledge about their environment[4]. However, Type 1 cognition is highly susceptible to biases and faulty heuristics. For example, intuitive physics yields predictions that deviate from Newtonian physics. Laypeople have difficulties predicting the trajectory of objects: they believe that a ball launched from a sling will continue in a spiral trajectory, or that a ball dropped by a running person will fall straight to the ground, rather than following a parabolic path [McCloskey et al. 1983]. Take, as another example, the cognitive reflection task [Frederick 2005], a simple three-item test that requires participants to suppress Type 1 responses to provide the correct answer, for example,

A ball and a bat cost $ 1.10. The bat costs $ 1 more than the ball. How much does the ball cost?

In order to provide the correct, reflective answer (5 cents), participants need to actively resist giving the intuitive answer (10 cents). Can we conclude from this that Type 1 cognition is unreliable? Not necessarily, since experiments like these are set up in such a way that the intuitive response is incorrect, and that the Type 2, reflective response, is correct. The normative expectation that reasoning is superior to intuition is already built into the experiment [Elqayam and Evans 2011: 245]. A meta-analysis of studies that compare the strengths and weaknesses of both types of thinking found no overall advantage for Type 1 or Type 2 cognitive processing [Acker 2008]: whether making deliberate inferences or relying on intuition is best depends on the situation. For instance, people are better at detecting deception when they rely on intuition than when they have to consciously deliberate [Albrechtsen et al. 2009]. Type 1 cognition tends to be reliable if it takes place in a relevant ecological context and if the cognitive processes are appropriate for the domain. Intuitive psychology provides intuitions about whether someone is deceiving us, which is unsurprising given the ecological relevance of this capacity for social creatures like us.

[4] In a psychological sense, knowledge means a body of information an organism can draw on to act adaptively in its environment.

4. Two developmental pathways to intuitions

We have seen that intuitions plausibly originate from Type 1 cognitive processes. Discussions of the psychological underpinnings of intuitions do not differentiate between two developmental pathways by which intuitions can emerge. Consider the intuition of a native speaker about whether a sentence is grammatically correct, and the intuition of a mathematician about whether a theorem is provable. Both arise without effort or conscious deliberation, and both are fluent and automatic. However, the first kind of intuition results from a broadly-shared cognitive process (natural language), whereas the second only occurs in mathematical experts. This latter intuition reaches beyond core cognition and other early-developed Type 1 cognitive processes, although it shares their fluency.

To tease apart these two developmental trajectories of intuitive thinking, McCauley [2011] distinguishes between two kinds of Type 1 cognitive processes, which he dubs maturational and practiced natural. *Maturationally natural* cognition, such as speaking a natural language or intuitive psychology, arises early in development, typically in infancy or early childhood. It is mastered without extensive cultural support, emerging through mundane interactions between a child and her social and physical environment, as part of species-typical development. As maturationally natural skills are part of the normal development of neurotypical children, there is low variability in their proficiency. While speakers of a natural language exhibit some variability in how well they speak the language, within everyday discourse there are no experts. Domains of core cognition are maturationally natural. In spite of its phenomenological sense of fluency, the cognitive machinery underlying maturationally natural cognition can be complex. For instance, belief-desire psychology requires one to keep in mind the mental states of others, separate them from one's own mental states, and update them with contextual cues. Yet mental state attribution is a remarkably automatic form of processing; even infants as young as seven months are sensitive to the mental states of others [Kovács et al. 2010]. Maturationally natural cognition gives rise to intuitions, such as when we intuit someone's motivations and desires based on their behaviour, facial expression, and other social cues.

Practiced natural cognition, such as reading, writing, cycling, and playing the guitar, does not emerge spontaneously. Typically, these skills require some material scaffolding, such as instruction manuals or trainer wheels. Many hours of dedicated, deliberate practice are required to become proficient in a practiced natural skill. As a result, most practitioners do not reach the level of experts in their field, but remain at a lower level of proficiency (e.g., few guitarists exhibit the skill of Jimi Hendrix). This gives rise to substantial variability in competence. High levels of expertise in a practiced natural skill are associated with structural changes in the brain. For example, musicians who learned to play a musical instrument during childhood exhibit increases in grey matter in motor, auditory, and visual-spatial brain areas [Gaser and Schlaug 2003]. Practiced natural cognition generates intuitions, for instance, musicians have intuitions about how a piece of music will continue [Huron 2006]. Practiced natural skills typically recruit some maturationally natural capacities. For example, there is growing evidence that formal arithmetic builds on an evolved number sense, which helps us to discriminate between discrete magnitudes in our environment [Lourenco et al. 2012]. Being able to improvise or predict the direction of a musical piece is a practiced skill that requires extensive training and listening, but musical scales, tempos, and harmonies build on evolved acoustic preferences that were shaped by human evolution, in particular, speech comprehension [Gill and Purves 2009].

Applying the distinction between maturationally and practiced natural cognition, I suggest that philosophical intuitions have a dual developmental origin. In section 5, I propose

that many philosophical intuitions, especially those used in the method of cases, are elicited by maturationally natural cognitive processes, such as intuitive psychology and intuitive physics. In section 6, I argue that philosophical training gives rise to practiced natural intuitions about specific philosophical positions. The deployment of scenarios, analogies, and other writings that elicit maturational intuitions in a dialectical context is also practiced natural.

5. Maturationally natural roots of philosophical intuitions

As we have seen, maturationally natural intuitions originate from several domains of core cognition such as intuitive psychology, intuitive biology, and intuitive physics. Goldman [2007: 11] hypothesises that it is 'unlikely that there is a single psychological faculty responsible for all intellectual insight. The psychological pathways that lead to mathematical, logical, and application intuitions [intuitions elicited in the method of cases] respectively are probably quite different.' If philosophical intuitions have distinct causal origins, this 'undercuts the notion that rational intuitions are homogeneous in their reliability' [Goldman 2007: 11], for instance, intuitions in arithmetic might be reliable, whereas philosophical intuitions might not be.

The situation is likely more complex than Goldman envisages: several maturationally natural cognitive processes underlie the generation of philosophical intuitions. For example, intuitions about what counts as knowledge may be shaped by intuitive psychology, our maturationally natural ability to attribute knowledge and beliefs to others (see 5.2). By contrast, modal intuitions about the identity of objects across possible worlds may be shaped by psychological essentialism [Mizrahi 2014]. This is the tendency to attribute essences to objects which allows young children and adults to ignore superficial, external characteristics when they think about the identity of objects. For example, three-year-olds realise that an apple seed, planted in a pear orchard, will turn into an apple tree [Gelman and Wellman 1991].

I will now examine two cases, teleological intuitions in natural theology and epistemic intuitions in the attribution of knowledge, as examples of maturationally natural cognition that underlie the generation of philosophical intuitions. While my focus is primarily descriptive, a study of the psychological origins can also reveal something about their validity. If it is the case that there are diverse psychological processes that underlie the generation of intuitions in philosophy, we can expect that they are not valid or invalid across the board. Rather, their evidential value should be assessed on a case-by-case basis. Such assessments should look at the mechanisms that underlie the generation of philosophical intuitions, and at the philosophical context in which they are deployed. For example, suppose that intuitions that lead us to deny knowledge in Gettier cases are shaped by folk psychology. To assess whether these intuitions are correct, we should first examine whether the folk psychological mechanisms underlying them generally produce reliable results, i.e., whether humans can reliably attribute or deny knowledge in everyday situations. Next, we should see whether these folk psychological mechanisms function well in the context of Gettier scenarios, which are complex and place demands on working memory due to the unexpected coming together of several events. If both conditions are met, we have an external, psychological validation for the appeal to epistemic intuitions in Gettier cases.

5.1 Teleological intuitions and the design argument

Design arguments in natural theology have an enduring popularity across times and cultures, appearing in ancient Greece and Rome, as well as medieval Europe, India, and the Islamic world [see e.g., Sedley 2007, Brown 2012]. Drawing an analogy between natural objects like

the eye and intricate artefacts like a watch, they propose that the best explanation for ordered complexity and teleology in nature is a designer, arguing that purely naturalistic causes cannot bring these features into existence. For instance, Cicero [45 BCE (1967)] derided the atomists for thinking that mere fortuitous collisions of particles could bring about the beauty and complexity of the world. Paley [1802 (2006)] rejected naturalistic accounts as insufficient explanations for complex design features of the natural world. Design arguments rely on two maturationally natural intuitions: ordered complexity is caused by agents, and the natural world exhibits teleology [see also De Cruz and De Smedt in press: chapter 4].

Developmental psychological research supports an early-developed propensity of young children to infer agents as the causes of order, complexity, and goal-directedness. Preverbal infants seem to intuit that only agents can create order: they exhibit surprise (as measured by a longer looking time) when they see that the cause of an ordered state of affairs, such as a neat stack of blocks or a recurrent pattern of beads, is caused by a mechanical tool. They do not show surprise when the cause turns out to be a human hand [Ma and Xu 2013]. Preschoolers who are asked whether an agent (e.g., mom) or a non-agent (e.g., the wind) can cause a room to become messy or tidy assert that both agents and non-agents can make it messy, but that only an agent can tidy it up [Newman et al. 2010].

The intuition that the world exhibits teleology emerges around age 4 or 5. Preschoolers have a strong preference for teleological explanations (e.g., mountains are there for climbing) over non-teleological, mechanistic accounts (e.g., mountains are there because a lot of stuff piled up). They also spontaneously formulate teleological explanations for natural kinds and animals, e.g., lions are there 'to go in the zoo' [Kelemen 2004]. In concurrence with this, children from religious and non-religious backgrounds prefer creationist accounts of the origin of species. This tendency only lessens when they become teenagers, when children from secular backgrounds start to give more evolutionary explanations [Evans 2001]. Although teleological thinking lessens during adolescence, it is never completely eradicated—several studies indicate that our intuitive preference for teleology remains latent. For example, when adults are put under time pressure and have to decide quickly whether explanations are true or false, they are more likely to label incorrect teleological explanations as true, e.g., 'The sun radiates heat to nurture life on earth' [Kelemen and Rosset 2009]. Strikingly, even Ivy League physical scientists show an increased tendency for teleological thinking when put under time pressure, for instance, they are likely to endorse explanations like 'mosses form around rocks to stop soil erosion' [Kelemen et al. 2013]. As they predicted, Kelemen et al. [2013] found that teleological spurious reasoning is lower among physical scientists compared to the general population, but to their surprise, a PhD in the humanities also has a protective effect. Education decreases the tendency to infer teleology: Romani adults who are schooled reason less teleologically than those without schooling [Casler and Kelemen 2008]. People with Alzheimer's show a re-emerging tendency to endorse incorrect teleological explanations, probably a result of their inability to recall the mechanistic explanations they learned earlier in life [Lombrozo et al. 2007].

Notice that in this work on teleology, the tendency to offer the intuitive, Type 1 response (which is to give a teleological explanation) is measured by the extent to which respondents provide incorrect answers. One cannot infer from this literature that teleological intuitions in general are spurious. Nevertheless, the well-attested tendency for false positives in this domain does give some cause for concern for the cogency of intuitions that underlie the design argument. The propensity to infer teleology, and by extension, design, lessens when people are under better epistemic conditions, e.g., education decreases teleology, time pressure and Alzheimer's increase it.

5.2 Epistemic intuitions and knowledge attribution

In several papers Jennifer Nagel [e.g., Nagel 2012; Nagel et al. 2013; Boyd and Nagel 2014] advocates the reliability of epistemic intuitions. She argues that intuitions elicited by Gettier, Truetemp, and fake barn cases are underpinned by intuitive psychology. On the basis of evolutionary considerations, she proposes that epistemic intuitions are vital to make accurate mental state attributions. Humans are a social species; successful interactions with conspecifics require that one is good at surmising what others think.

Boyd and Nagel [2014: 111] speculate that epistemic intuitions arise because it is 'valuable for creatures like us to form rapid impressions about the presence or absence of knowledge.' They invoke the Machiavellian Intelligence Hypothesis, which states that animals living in complex social groups gain competitive advantages by accurately attributing mental states, and by discerning good or bad intentions, including deliberate deception. However, they acknowledge that mental state attribution takes place in cooperative settings as well. One context they do not explore, but that is ecologically important, is the extensive reliance on testimony. As children depend heavily on testimony from their parents and other informants, it is unsurprising that they are sensitive to the mental states of their interlocutors. For example, four-year-olds prefer informants who are knowledgeable to those who are accurate but who have to rely on third parties to get the answer [Einav and Robinson 2011]. However, because young children typically learn from benevolent testifiers, they are better at detecting ignorance than deliberate deception. For example, three-year-olds tend to trust an adult who deliberately misled them in the past [Jaswal et al. 2010].

Nagel's argument does not take into account that an optimal knowledge-attribution psychology might deviate from truth due to asymmetries in the costs and benefits of false positives (mistakenly attributing true beliefs) and false negatives (failing to attribute true beliefs). This may give rise to belief-forming mechanisms that are geared toward overattributing true beliefs or belief-forming mechanisms that are too stringent, i.e., underattributing true beliefs [see Stephens 2001]. The reliability of epistemic intuitions would thus depend on the type of environment they are deployed in. If humans have to navigate an epistemically hostile environment, where informants routinely are ignorant or deceptive, it may be better to err on the side of safety rather than be deceived by false information. By contrast, if one is surrounded by benevolent epistemic superiors (like one's parents and teachers), it makes sense to be generous in attributing true beliefs. If there are asymmetries, this might lead to excesses of false positives or negatives in attributing beliefs or knowledge. It is at present unclear to what extent epistemic intuitions elicited by philosophical cases like fake barn are susceptible to such asymmetries.

Nagel relies on Sperber et al.'s [2010] model of epistemic vigilance to argue that humans are good at attributing beliefs and knowledge, because they have to maximise the benefits of information transmission while minimising the risks of being misinformed. This model of folk epistemology sees filtering out deception as the primary role of knowledge attribution. As Sterelny [2012] points out, this might be too Machiavellian. The literature on epistemic vigilance has been dominated by concerns about deceptive manipulation. But the risk of being deceived is not uniform. Children learning from parents may at times be deceived (e.g., about Santa), but the skills and knowledge they learn about their environment probably accurately reflect what parents know, e.g., washing hands as a way to get rid of bacteria. In line with this observation, children are more trusting of their informants than adults. They do not trust indiscriminately, as they are sensitive to factors like earlier accuracy and consensus, but they are more willing than adults to accept information that goes beyond the evidence they already possess [Harris and Corriveau 2011].

This leads to the prediction that younger people, especially children, should be more willing to attribute knowledge than older individuals as they have more to gain and less to lose from testimony. Several experimental studies back up this claim. Preschoolers trust testimony even from previously unreliable informers [see Heynman 2014 for review], and three-year-olds tend to accord more weight to the testimony of adults than to their own perceptually-based beliefs [Jaswal et al. 2010]. In agreement with this, Colaço et al. [2014] found that older participants are less likely to attribute knowledge in fake barn cases. However, as all participants in the latter study are adults (the cutoff age between older and younger was 30), it is unlikely that this is due to the benefits of generous knowledge attribution in younger persons. Indeed, two attempted replications, one by John Turri, the other by Joshua Knobe, could not confirm this age effect[5]. Ideally, one should conduct experimental studies on knowledge attribution in philosophical cases with young children, teenagers, and adults to establish a possible age effect.

6. Practiced natural philosophical intuitions

The previous sections have shown how philosophical intuitions in diverse domains draw on maturationally natural cognition. In this section, I will examine what distinguishes philosophical intuitions, especially as used in the method of cases, from everyday maturationally natural intuitions. I will argue that the overlap in psychological terms between both types of intuitions is substantial, but that intuitions used in philosophical contexts have an additional practiced natural element: philosophers are skilled at eliciting intuitions in a dialectical context to evaluate the plausibility of philosophical hypotheses. Moreover, some intuitions are the result of philosophical training rather than early-developing maturationally natural cognitive processes.

That philosophers are expert intuiters seems prima facie plausible, but it has been surprisingly hard to pin down what this expertise consists of. Tobia et al. [2013] found that philosophers, like laypeople, were influenced in their moral judgments based on whether they had to imagine themselves as actors or as observers in moral dilemmas. Remarkably, this framing effect was opposite for philosophers and non-philosophers. The former were more likely to judge that pulling the switch in a trolley dilemma was obligatory if they imagined themselves as actors rather than observers, whereas the latter showed the opposite pattern. Schwitzgebel and Cushman [2012] found that philosophers are as susceptible to order effects as non-philosophers, and that specialization in moral philosophy does not make a difference. In one of their experiments, both philosophers and non-philosophers were more likely to rate two versions of the trolley problem equivalently when pushing someone off a bridge to stop a trolley from killing five people tied to the tracks was presented before pulling a switch for the same reason. Remarkably, philosophers were significantly more sensitive to order effects than laypeople. They were more likely to endorse the principle of moral luck when presented with cases of bad luck first than if cases of good luck came first, and more likely to endorse the doctrine of double effect if switch was presented before push[6]. As Schwitzgebel and

[5] See http://philosophycommons.typepad.com/xphi/2014/06/more-on-fake-barn-intuitions-replications-of-colaco-et-al.html.

[6] Endorsement of the doctrine of double effect was tested as follows [Schwitzgebel and Cushman 2012: 139]: 'Sometimes it is necessary to use one person's death as a means to saving several more people—killing one helps you accomplish the goal of saving several. Other times one person's death is a side-effect of saving several more people—the goal of saving several unavoidably ends up killing one as a consequence. Is the first morally better,

Cushman write, the fact that philosophers show such large effects is surprising:

> the joint effect of the order of presentation of the moral luck and double effect cases was to shift philosophers' rates of endorsement of the doctrine of double effect from 28% to 70%, including 28% to 62% for ethics PhDs—a very large change considering how familiar and widely discussed the doctrine is within professional philosophy. [Schwitzgebel and Cushman 2012: 149]

There is something puzzling about the idea that philosophical expertise should be measured by how *context-insensitive* philosophical intuitions are. Expert skills are typically context-sensitive, for instance, an Olympic gymnast takes into account the height and feel of the beam she performs a routine on. As Fridland [2014: 2730] observes, experts' expertise is demonstrated in 'their ability to implement their goals in the nuanced, particular controlled ways in which they are able to implement them in the various circumstances in which they perform.' What distinguishes an expert archer from an amateur is the ability to take into account wind direction and other environmental conditions. The expert toxophilite keeps a low point of gravity and waits for a lull in the wind to take aim. Skilled expertise is a thoroughly situated endeavour. This embodied context-sensitivity is not only the case for motor skills, but also for more intellectual skills, such as the perception of musical pitch. Until recently, it was assumed that people with absolute pitch store particular pitches (e.g., A=440 hertz) in long-term memory early on, and that they do not update these pitch memories. However, Hedger et al. [2013] found that participants with perfect pitch, who were exposed to a musical piece where the tuning was very gradually tweaked to end up 33 cents off the original A=440 hertz tuning, perceived flat notes as in tune. This suggests that people with perfect pitch in fact continuously update their pitch memories by what they hear. This updating and sensitivity to the environment is a vital part of their expertise. (Indeed, an acquaintance with perfect pitch who plays historical instruments can easily adapt to various other historical tunings that deviate from the now-standard A=440 hertz by listening to the historical pitches.)

If philosophers are guided by the spontaneous, maturationally natural intuitions elicited by thought experiments, it is unsurprising that they remain sensitive to the situations vividly fleshed out in the method of cases—in some cases even more than laypeople. If philosophers remained thoroughly unmoved by the cases they explore, the epistemic value of the method would be low. Indeed, the fact that even philosophers, who presumably prior to Schwitzgebel and Cushman's experiments had some opinion about the doctrine of double effect, were influenced by the order in which scenarios were presented, highlights the context-sensitivity and continued epistemic role of intuitions for individual philosophers, even after they form (tentative) opinions about the views the cases are probing.

While context-sensitivity characterises skilled expertise, it is not by itself a sufficient measure of it. After all, laypeople are also sensitive to the contexts in which their intuitions are elicited. Control and flexibility are two other features of expertise, which have not yet been investigated by experimental philosophers: skilled practitioners are usually better able at controlling their performance in given situations than laypeople, and they can do so more flexibly, responding to a greater range of conditions [Fridland 2014]. Trained philosophers know what moves are readily available in domains like Aristotelian metaphysics or Kantian ethics. A Hume scholar may have intuitions about what Hume would have thought about a given topic, even if she does not recall exactly what he wrote about it. Unlike non-experts,

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worse, or the same as the second?' A 'morally worse' response was counted as an endorsement of the doctrine.

she would be able to formulate what responses are available to Hume if he were presented with an objection to a claim he made. Such intuitions are similar to the practiced natural intuitions of expert musicians, who, for example, know what kinds of harmonic structures are permissible while making improvisations on a Baroque piece. Because Hume scholars (and Baroque musicians) receive similar training, they end up with similar intuitions. There are thus two distinct developmental pathways that lead to the fact that philosophical intuitions are broadly shared among philosophers: maturationally natural philosophical intuitions are shared because the systems that generate them are strongly canalised in development; practiced natural philosophical intuitions are shared because of similarities in the way philosophers are trained.

Experimental philosophers have focused their investigations of philosophical expertise on maturationally natural intuitions that philosophers share with laypeople, but have not yet examined the practiced natural intuitions that result from familiarity with philosophical positions. This makes methodological sense, given that non-philosophers will have few, if any, intuitions about what historical philosophers may have written. However, this focus on maturationally natural intuitions has led to an underappreciation of intuitions that are elicited in forms of philosophical practice other than the method of cases. Nagel [2014] argues that the phrase 'intuitively' is used in a dialectical context to flag claims that the intuiter believes will be shared with others. In this way, the intuiter hopes that the philosophical claims she makes will be accepted on the basis of shared intellectual seemings. The way in which such intuitions are deployed in a dialectical context is practiced natural: philosophers are experts in designing scenarios, analogies, and other intuition-eliciting writings that speak directly to a philosophical claim.

In a dialectical context, philosophers elicit intuitions they expect to be shared with others, either because they are the result of early-developing maturationally natural cognitive processes, or because they flow from practiced natural fluency acquired through philosophical training. In both cases, shared intuitive responses have dialectical value. To give a concrete example, developmental psychologists [e.g., Bloom 2004] propose that humans are intuitive dualists: they make an intuitive distinction between mental and physical properties of persons, relying on intuitive psychology and intuitive biology respectively. As a result, we can easily imagine that mental states can continue independently from physical states, for instance, when attributing mental states to the dead (e.g., 'grandpa would never have agreed to this'). In philosophical thought experiments such as Avicenna's (Ibn Sina, d. 1037) flying man, this maturationally natural intuitive dualism is deployed to reach non-obvious philosophical results: imagine that an adult man is created, suspended in mid air, deprived of sensory input and without proprioception. What would this man be aware of? According to Avicenna, he would still be aware of himself. As this awareness cannot be of his body, it must be that this awareness of himself is of something non-physical, i.e., his rational soul. In this thought experiment, Avicenna used the intuitions elicited by maturationally natural intuitive dualism to argue against atomist, materialist concepts of the soul which were influential in Islamic philosophy at the time [Marmura 1986]. He was confident that readers would share this intuition: once one affirms that someone could be self-conscious without bodily awareness, one should accept the existence of the immaterial soul. Avicenna appealed to broadly-shared maturational intuitions; the practiced natural skill is exhibited by his ability to come up with an unusual situation where these intuitions are used to argue for a specific philosophical position. It is the dialectical context of discussions about the substance of the soul in Islamic philosophy that brings this practiced natural skill to the fore.

In conclusion, philosophers devise vivid cases and other writings that elicit maturationally natural intuitions in a variety of domains. Since these intuitions result from

early-developed, stable cognitive capacities, we can expect a relatively high degree of consensus about them between laypeople and philosophers. Philosophers may not be expert intuiters per se, but expert elicitors of such intuitions in dialectical contexts[7].

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REFERENCES

Acker, F. 2008. New Findings on Unconscious versus Conscious Thought in Decision making: Additional Empirical Data and Meta-analysis, *Judgment and Decision Making* 3/4: 292–303.

Adleberg, T., M. Thompson and E. Nahmias in press. Do Men and Women Have Different Philosophical Intuitions? Further Data, *Philosophical Psychology*.

Albrechtsen, J.S., C.A. Meissner and K.J. Susa 2009. Can Intuition Improve Deception Detection Performance?, *Journal of Experimental Social Psychology* 45/5: 1052–1055.

Alexander, J., R. Mallon and J. Weinberg 2014. Accentuating the Negative. In *Experimental philosophy* Vol. 2, ed. J. Knobe and S. Nichols, Oxford: Oxford University Press: 31–50.

Alston, W.P. 1991. *Perceiving God. The Epistemology of Religious Experience*, Ithaca, NY: Cornell University Press.

Benacerraf, P. 1973. Mathematical Truth, *Journal of Philosophy* 70/19: 661–680.

Blackburn, S. 2001. Normativity à la Mode, *Journal of Ethics* 5/2: 139–153.

Bloom, P. 2004. *Descartes' Baby. How Child Development Explains what Makes Us Human*, London: Arrow Books.

Boyd, K., and J. Nagel 2014. The Reliability of Epistemic Intuitions, In *Current Controversies in Experimental Philosophy*, ed. E. Machery and E. O'Neill, London: Routledge, 109–127.

Brogaard, B. in press. Intuitions as Intellectual seemings, *Analytic Philosophy*.

Brown, C.M. 2012. *Hindu Perspectives on Evolution: Darwin, Dharma and Design*, London: Routledge.

Buckwalter, W. and S. Stich 2014. Gender and Philosophical Intuition, In *Experimental Philosophy Vol. 2*, ed. J. Knobe and S. Nichols, Oxford: Oxford University Press: 307–316.

Cappelen, H. 2012. *Philosophy without Intuitions*, Oxford: Oxford University Press.

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Carey, S. 2009. *The Origin of Concepts*, Oxford: Oxford University Press.

Carey, S. and E.S. Spelke 1996. Science and Core Knowledge, *Philosophy of Science* 63/4: 515–533.

Casler, K. and D. Kelemen 2008. Developmental Continuity in Teleo-Functional Explanation: Reasoning about Nature among Romanian Romani Adults, *Journal of Cognition and Development* 9/3: 340–362.

Cicero, M.T. 45 BCE (1967). *The Nature of the Gods*, ed. and trans. H. Rackham, London: William Heineman.

Colaço, D., W. Buckwalter, S. Stich and E. Machery 2014. Epistemic Intuitions in Fake-Barn Thought Experiments, *Episteme* 11/2: 199–212.

Cummins, R. 1998. Reflections on Reflective Equilibrium. In The role of Intuition in Philosophy, ed. W. Ramsey and M. DePaul, New York: Rowman & Littlefield: 113–127.

De Cruz, H. and J. De Smedt in press. *A Natural History of Natural Theology. The Cognitive Science of Theology and Philosophy of Religion*. Cambridge, MA: MIT Press.

Einav, S. and E.J. Robinson 2011. When Being Right is Not Enough: Four-Year-Olds Distinguish Knowledgeable Informants from Merely Accurate Informants, *Psychological science* 22/10: 1250–1253.

Elqayam, S. and J.S.B. Evans 2011. Subtracting 'Ought' from Is': Descriptivism versus Normativism in the Study of the Human Thinking, *Behavioral and Brain Sciences* 34/5: 233–248.

Evans, E.M. 2001. Cognitive and Contextual Factors in the Emergence of Diverse Belief Systems: Creation versus Evolution, *Cognitive Psychology* 42/3: 217–266.

Evans, J.S.B. 2008. Dual-Processing Accounts of Reasoning, Judgment and Social Cognition, *Annual Review of Psychology* 59: 255–278.

Field, H. 1989. *Realism, Mathematics and Modality*, Oxford: Blackwell.

Frederick, S. 2005. Cognitive Reflection and Decision Making, *Journal of Economic Perspectives* 19/4: 25–42.

Fridland, E. 2014. They've Lost Control: Reflections on Skill, *Synthese* 191/12: 2729–2750.

Gaser, C. and G. Schlaug 2003. Brain Structures Differ between Musicians and Non-Musicians, *Journal of Neuroscience* 23/27: 9240–9245.

Gelman, S.A. and H.M. Wellman 1991. Insides and Essences: Early Understandings of the Non-Obvious, *Cognition* 38/3: 213–244.

Gill, K.Z. and D. Purves 2009. A Biological Rationale for Musical Scales, *PloS ONE* 4/12: e8144.

Goldman, A.I. 2007. Philosophical Intuitions: Their Target, their Source, and their Epistemic Status, *Grazer Philosophische Studien* 74: 1–26.

Gopnik, A. and E. Schwitzgebel 1998. Whose Concepts are They, Anyway? The Role of Philosophical Intuition in Empirical Psychology. In *Rethinking intuition*, ed. M.R. DePaul and W. Ramsey, Lanham: Rowman & Littlefield: 75–91.

Haidt, J. 2001. The Emotional Dog and its Rational Tail: A Social Intuitionist Approach to Moral Judgment, *Psychological Review* 108/4: 814–834.

Harris, P.L. and K.H. Corriveau 2011. Young Children's Selective Trust in Informants, *Philosophical Transactions of the Royal Society B* 366: 1179–1187.

Hedger, S.C., S.L. Heald, and H.C. Nusbaum 2013. Absolute Pitch May Not Be so Absolute, *Psychological science* 24/8: 1496–1502.

Heynman, G.D. 2014. Children's Learning about Deception: A Cross-Cultural Perspective. In *Trust and Skepticism: Children's Selective Learning from Testimony*, ed. E. Robinson and S. Einav, Hove: Psychology Press: 83–94.

Hintikka, J. 1999. The Emperor's New Intuitions, *Journal of Philosophy* 96/3: 127–147.

Hodgkinson, G.P., J. Langan-Fox and E. Sadler-Smith 2008. Intuition: A Fundamental Bridging Construct in the Behavioural Sciences, *British Journal of Psychology* 99, 1–27.

Huron, D. 2006. *Sweet Anticipation. Music and the Psychology of Expectation*, Cambridge, MA: MIT Press.

Jaswal, V.K., A.C. Croft, A.R. Setia and C.A. Cole 2010. Young Children have a Specific, Highly Robust Bias to Trust Testimony, *Psychological Science* 21/10: 1541–1547.

Kelemen, D. 2004. Are Children 'Intuitive Theists'? Reasoning about Purpose and Design in Nature, *Psychological Science* 15/5: 295–301.

Kelemen, D. and E. Rosset 2009. The Human Function Compunction: Teleological Explanation in Adults, *Cognition* 111/1: 138–143.

Kelemen, D., J. Rottman and R. Seston 2013. Professional Physical Scientists Display Tenacious Teleological Tendencies: Purpose-based Reasoning as a Cognitive Default, *Journal of Experimental Psychology: General* 142/4, 1074–1083.

Kim, M. and Y. Yuan (draft, 2014). No Cross-cultural Differences in Gettier Car Case Intuition: A Replication Study of Weinberg et al. 2001. URL = <http://philpapers.org/rec/KIMNCD>.

Koriat, A. 2008. Subjective Confidence in One's Answers: The Consensuality Principle, *Journal of Experimental Psychology: Learning, Memory, and Cognition* 34/4: 945–959.

Kovács, Á.M., E. Téglás and A.D. Endress 2010. The Social Sense: Susceptibility to Others'

Beliefs in Human Infants and Adults, *Science* 330/6012: 1830–1834.

Lackey, J. 2007. Norms of Assertion, Noûs 41/4: 594–626.

Lillard, A. 1988. Ethnopsychologies: Cultural Variations in Theories of Mind, *Psychological Bulletin* 123/1: 3-32.

Locke, J. 1690. *An Essay Concerning Humane Understanding*, London: Thomas Basset.

Lombrozo, T., D. Kelemen and D. Zaitchik 2007. Inferring Design: Evidence of a Preference for Teleological Explanations in Patients with Alzheimer's Disease, *Psychological Science* 18/11: 999–1006.

Lourenco, S.F., J.W. Bonny, E.P. Fernandez and S. Rao 2012. Nonsymbolic Number and Cumulative Area Representations Contribute Shared and Unique Variance to Symbolic Math Competence. *Proceedings of the National Academy of Sciences USA* 109/46: 18737–18742.

Ma, L. and F. Xu 2013. Preverbal Infants infer Rational Agents from the Perception of Regularity, *Developmental Psychology* 49/7: 1330–1337.

Marmura, M. 1986. Avicenna's 'Flying man' in Context, *The Monist* 69/3: 383–395.

McCauley, R.N. 2011. *Why Religion is Natural and Science is Not*, Oxford: Oxford University Press.

McCloskey, M., A. Washburn and L. Felch 1983. Intuitive Physics: The Straight-Down Belief and its Origin, *Journal of Experimental Psychology: Learning, Memory, and Cognition* 9/4: 636–649.

Mizrahi, M. 2014. Essentialism: Metaphysical or Psychological?, *Croatian Journal of Philosophy* 14/1: 65–72.

Nagel, J. 2012. Intuitions and experiments: A Defense of the Case Method in Epistemology, *Philosophy and Phenomenological Research* 85/3: 495–527.

Nagel, J. 2014. Distinctively Intuitive Judgments. Paper presented at the Central APA, Chicago, 1 March.

Nagel, J., V. San Juan and R.A. Mar 2013. Lay Denial of Knowledge for Justified True Beliefs, *Cognition* 129/3: 652–661.

Newman, G., F. Keil, V. Kuhlmeier and K. Wynn 2010. Early Understandings of the Link between Agents and Order, *Proceedings of the National Academy of Sciences USA* 107/40: 17140–17145.

Paley, W. 1802 (2006). *Natural Theology*, ed. M.D. Eddy and D. Knight, Oxford: Oxford University Press.

Schechter, J. 2013. Could Evolution Explain our Reliability about Logic? In *Oxford Studies in Epistemology* Vol. 4, ed. T. Gendler and J. Hawthorne, Oxford: Oxford University Press:

214–23.

Schwitzgebel, E. and F. Cushman 2012. Expertise in Moral Reasoning? Order Effects on Moral Judgment in Professional Philosophers and Non-Philosophers, *Mind & Language* 27/2: 135–153.

Sedley, D. (2007). *Creationism and its Critics in Antiquity*, Berkeley & Los Angeles: University of California Press.

Sinclair, M. and N.M. Ashkanasy 2005. Intuition: Myth or a Decision-Making Tool?, *Management Learning* 36/3: 353–370.

Spelke, E.S. and K.D. Kinzler 2007. Core Knowledge. *Developmental Science* 10/1: 89–96.

Spelke, E.S., A. Phillips and A.L. Woodward 1995. Infants' Knowledge of Object Motion and Human Action. In *Causal Cognition. A Multidisciplinary Debate*, ed. D. Sperber, D. Premack and A.J. Premack, Oxford: Clarendon Press: 44–78.

Sperber, D., F. Clément, C. Heintz, O. Mascaro, H. Mercier, G. Origgi and D. Wilson. 2010. Epistemic Vigilance, *Mind and Language* 25/4: 359–393.

Stanovich, K.E. and R.F. West 2000. Advancing the Rationality Debate, *Behavioral and Brain Sciences* 23/5: 701–717.

Stephens, C.L. 2001. When is it Selectively Advantageous to Have True Beliefs? Sandwiching the Better Safe than Sorry Argument, *Philosophical Studies* 105/2: 161–189.

Sterelny, K. 2012. *The Evolved Apprentice: How Evolution Made Humans Unique*. Cambridge, MA: MIT Press.

Tobia, K., W. Buckwalter and S. Stich 2013. Moral intuitions: Are philosophers Experts?, *Philosophical Psychology* 26/5: 629–638.

Vaesen, K., M. Peterson and B. Van Bezooijen 2013. The Reliability of Armchair Intuitions, *Metaphilosophy* 44/5: 559–578.

Weinberg, J.M., S. Nichols and S. Stich 2001. Normativity and Epistemic Intuitions, *Philosophical Topics* 29/1-2: 429–460.