

Draft. Forthcoming in *Pacific Philosophical Quarterly*.

Think of the Children! Epistemic Justification and Cognitively Unsophisticated Subjects

Gregory Stoutenburg

Abstract: I undermine the argument that ‘high’ epistemic standards are false because children and other cognitively unsophisticated subjects possess justification while lacking certain logical and epistemic concepts. I argue, instead, that the standards we often use to attribute logical and epistemic concepts to ordinary, cognitively sophisticated adults can easily be seen to cover many unsophisticated subjects; therefore, the alleged lack of certain concepts is no basis for rejecting ‘high’ epistemic standards. Whether or not such standards are correct has to be argued on other grounds.

Keywords: epistemic justification, concept possession, internalism, externalism

## 1. Introduction

The epistemological literature is rife with claims that certain epistemic requirements are too stringent because children and other cognitively unsophisticated subjects are unable to satisfy them. But, so goes the claim, unsophisticated subjects often possess justification. Some instances:

Surely creatures like dogs and pre-verbal children can have mediate knowledge. My dog knows that I am preparing to take him for a walk, and he knows that because he sees me getting out his chain. But such creatures have no concepts of deductive, inductive, or other relations between propositions and hence are quite incapable of believing, much less justifiably believing, that such relations obtain.

Alston, 1989:164

A special virtue of these definitions is that they avoid over-intellectualizing justification. They allow for one's having doxastic justification without one's having the *concept* of epistemic justification. Thus these definitions are especially generous toward knowers such as children and higher animals outside our species. Indeed, the addition of further requirements to these definitions risks inexcusable unkindness here.

Moser, 1989: 158

Epistemology after Descartes tends toward hyper-intellectualization...A viable conception of warrant and knowledge must include both primitive and sophisticated types. A condition of viability is that such a conception apply to animal and child perceptual belief and knowledge, as well as to mature human instances of belief and knowledge.

Burge 2003: 503-504

One of the most powerful motivations for externalism is that we correctly attribute knowledge to unsophisticated persons, children, and some animals.

Poston, 2014

Consider a young child or unreflecting adult, who gets a good look at the Sesame Street character Elmo in a book, and who forms the belief that *that is red* without further ado. In forming the belief, the child certainly does not consciously draw on beliefs about the reliability of her experience...she does not even have the concepts required to form beliefs about the reliability of her experience...However, the child and the adult are plausibly both justified in forming and in holding the belief *that is red*.

Silins, 2014

Many people don't even have the concept of validity or strength, including children, adolescents, and people who haven't had any training in reasoning. But, these people make inferences all the time, including modus ponens...So, these people are justified in making certain inferences without having any beliefs...about those inferences.

Thurrow, 279: 2009

[E]xternalism seems to be capable of protecting knowledge against the threats of radical skepticism. Instead of setting extremely high standards for knowledge, externalism proposes more moderate constraints...It is a result of this modesty that we can quite plausibly attribute simple factual knowledge to young children and even to animals, as we indeed usually do, without having to assume that they are in possession of sophisticated knowledge or beliefs about the epistemic status of their beliefs.

Schantz, 2004:10

An issue that brings the differences between [intellectualist and reliabilist]

approaches to a head is the question of how to understand attributions of knowledge to animals and small children.  
Williams, 2004

While it would be too strong to require the belief that [were it the case that not-p, then it would not be the case that S believes that p] and that [were it the case that p, then S would believe that p]—don't children know?—perhaps it is appropriate to require that [one] not believe the negations [of those subjunctive conditionals].  
Nozick, 1981:196

And, especially relevant to this paper:

A child who reasoned: 'If he were hiding behind that tree, he wouldn't have left his bicycle leaning on it. But it is leaning on it. So, he must be hiding behind some other tree,' would, other conditions permitting, have reasoned his way to a justified conclusion. But such a child would not have beliefs about necessity or logical entailment. He wouldn't even have the ingredient (meta-) logical or modal concepts.  
Boghossian, 2001:638

Some of these philosophers are simply reporting what others take to be a reason to reject some epistemic standard. Those whose words reflect their own views, however, have diverse motives for admonishing defenders of high epistemic standards to 'think of the children.' While many of the above remarks explicitly mention that epistemic externalism seems to be best positioned to allow that children, animals, and cognitively unsophisticated adults can possess justification or knowledge, the concerned are not all externalists. Paul Moser, for instance, is a rather traditional internalist who finds 'inexcusably unkind' epistemic standards that appear to rule out justification for the cognitively unsophisticated. Internalists and externalists alike are concerned for the children.

The recurring theme here is that high epistemic standards cannot be met by children, animals, and cognitively unsophisticated adults; those agents often have justified beliefs; therefore, the high standards are incorrect. One also notices from some of these philosophers a

more specific indication of what prevents the cognitively unsophisticated from satisfying the high standards, namely an inability to form certain *beliefs* due to their not possessing certain *concepts*. To take a few examples: Thurow says the unsophisticated lack logical concepts (and that it would take a logic class to possess them); Silins, that they lack metabeliefs about the reliability of perceptual processes because they lack the requisite epistemic concepts; and Schantz, that they generally lack beliefs about the epistemic worth of their beliefs.

My goal in this paper is to challenge the pervasive attitude that it is simply *obvious* that cognitively unsophisticated subjects cannot meet standards of epistemic justification that require possession of certain technical concepts or the holding of allegedly too-complex beliefs. I will argue that it may be easier than is often thought for some cognitively unsophisticated subjects to satisfy some high epistemic standards.<sup>1</sup> I focus on language-using creatures, for it is only with language-users that there is a clear argument to be made from the presence of certain behaviors to the possession of the sort of concepts and cognitive abilities relevant to this investigation. The style of argument offered may be extended to non-linguistic creatures, but I say little about the prospects of such an argument here. That said, there is a way of thinking about what it would take to satisfy some high epistemic standards which makes it relatively easy to satisfy those standards: if, that is, *any* finite mind can satisfy the standards. The contexts in which epistemologists raise their concern for the epistemic welfare of the children are diverse. For the sake of focus, I consider the requirements for justifiably believing that an inference is good.

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<sup>1</sup> In the epistemological literature, the connotation of ‘high epistemic standards’ seems to be ‘epistemic standards that are difficult to meet.’ If we accept that connotation, my thesis would be absurd: it could never be easy to satisfy high standards, because that would mean (by substitution) that it is easy to meet standards that are difficult to meet. So, to be clear, by ‘high epistemic standards’ I mean those specific epistemic principles which other philosophers have identified as ‘high epistemic standards’ and other principles similar to those; my argument, then, is that it is far from obvious that some of those principles cannot be satisfied by cognitively unsophisticated subjects.

The plan: section two very briefly articulates the sort of argument this paper seeks to undermine. Section three describes a high standards epistemic principle and offers an account of how an ordinary adult could satisfy it. That account is then extended to (language-using) cognitively unsophisticated subjects. Section four discusses how unsophisticated subjects might possess epistemic concepts. Section five considers an objection from the nature of dispositional beliefs. Section six concludes with some reflections on the comparative justification of propositions for cognitively sophisticated subjects and unsophisticated subjects.

## **2. The ‘Think of the Children’ Argument**

The sort of argument suggested by our opening quotations goes something like this.

1. Epistemic standard E entails that if S is epistemically justified in believing that p, then S possesses logical and/or epistemic concepts.
2. Children and other cognitively unsophisticated subjects possess justified beliefs but they do not possess logical and/or epistemic concepts. (In other words, there is some S which is justified in believing that p without meeting the necessary condition specified in the antecedent of (1), so that condition is not necessary after all.)

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C. Therefore, meeting standard E is not necessary for epistemic justification.

I want to cast doubt on (2) and thereby weaken the ‘Think of the Children!’ argument against high epistemic standards. I will argue that plausible standards of concept-possession suggest that what we require to attribute epistemic and logical concepts to cognitively sophisticated subjects likely extends to cognitively unsophisticated subjects; so, I undermine the argument by challenging (2), showing that it may not take much cognitive sophistication to meet ‘high’ epistemic standards if any minds can satisfy them. One upshot is that whether or not high

epistemic standards are correct cannot be decided by appeal to what some class of putative believers can or cannot do.

Next, I propose a ‘high’ epistemic standard.

### **3. Justified Inference**

#### *The Principle of Justified Inference*

In much of the paper I discuss the standards for justifiably believing that an argument is good. When I talk about argument goodness in this paper, I mean that property an argument has when it satisfies a certain standard for the strength of the connection between its premises and its conclusion. If an argument is good by deductive standards, then it is deductively valid. If an argument is good by nondeductive standards, then it is nondeductively strong.<sup>2</sup> There are other properties of arguments which contribute to them being good arguments, including not being question-begging and not being logically circular. I ignore those features in what follows for ease of exposition. I will focus on the standards for justifiably believing that an argument is deductively valid, but my arguments can easily be revised to justify beliefs about nondeductive strength.

I want to propose a particular high standards requirement before addressing how the requirement might be satisfied by unsophisticated subjects. The purpose behind introducing the principle is to motivate discussion of the justification of unsophisticated subjects with a specific

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<sup>2</sup> It is clearer to talk of ‘arguments evaluated by such-and-such standards’ than ‘such-and-such arguments.’ Suppose someone offers an argument with the *intention* of having the premises logically entail the conclusion, but fails to do so, even though the premises constitute good grounds for accepting the conclusion. How do we describe the argument? As an invalid deductive argument? A good nondeductive one? You can hear students asking, ‘How do you tell if an argument is a bad deductive argument or a good nondeductive argument?’ It’s better to avoid that unanswerable question by explaining that ‘deductively valid’ and ‘nondeductively strong’ are genuine properties of arguments, but ‘deductive’ and ‘nondeductive’ are not.

principle in mind. The argument of the paper does not hinge on the principle's acceptability.

The requirement we will consider is this:

*Principle of Justified Inference (PJI)*: If S justifiably infers Q on the basis of P, then S justifiably believes that 'If P, then Q.'<sup>3</sup>

I won't attempt to argue for PJI here. I will mention, though, that one might prefer to PJI the weaker requirement that subjects must possess *propositional* justification for believing the inference is good in order to justifiably infer. That is fine. If I can make plausible the idea that cognitively unsophisticated subjects can satisfy PJI, complete with its requirement of doxastic justification for believing an inference is good, then the arguments that follow show *a fortiori* that propositional justification for beliefs concerning argument quality is possible for unsophisticated subjects. Finally, one might not find it plausible to require justification of any sort for the goodness of an inference as a condition on inferring justifiably. Those with that inclination still acknowledge that at some point people acquire facility with some logical and epistemic concepts; most of the remainder of the paper considers our standards for attributing those concepts, and is therefore still useful even to those who eschew PJI and anything like it.

I now discuss how PJI could be satisfied, bracketing the issue of whether it is a good requirement to hold.

The most plausible way to understand how the principle could be satisfied is this. One's

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<sup>3</sup> As I mentioned in the introduction, the targets of this paper include both internalists and externalists. PJI favors neither internalism nor externalism. While it might be easier to see why an internalist would endorse it, nothing prevents an externalist requiring it and holding that beliefs of the form 'If P, then Q' are justified by (e.g.) a reliable belief-producing process in just the same way other beliefs are justified on that externalist view.

Though 'If P then Q' suggests that the metabelief requirement for justified inference requires subjects to believe a material conditional holds, I intend 'If P then Q' to suggest that the premises P sufficiently support the conclusion Q in whatever way is required for the argument. For some arguments, the more precise requirement suggested by 'If P then Q' is 'P entails Q'; for others, 'P makes probable Q.' I trust that my way of stating the requirement does not create confusion.

inferring that Q on the basis of [P and (If P, then Q)] while understanding the logically good connection between those propositions justifies the belief that the inference is good. Recognition of the strength or validity of an inference justifies the belief that the inference is strong or valid. One need not have a *prior* justified belief that the form of the argument is good.<sup>4</sup>

For that reason, PJI does not threaten a vicious infinite regress.<sup>5</sup> Consider the regress Lewis Carroll presented in ‘What the Tortoise Said to Achilles’ (1895). The Tortoise and Achilles find themselves off on a regress because for any proposed inference from some premises to a conclusion, they require a premise that licenses the inference from the other premises to the conclusion. They start by considering whether some premise P supports some conclusion C. They agree that they need to add a premise that says ‘If P, then C’. But the fatal mistake has already been made: by agreeing that any *rule* that would license the inference from premises to a conclusion must take the form of an additional *premise*, they have started a vicious infinite regress. Any group of premises will require an additional premise that says *those* premises support that conclusion. But now there is another premise which itself requires yet another premise saying that it can be part of an inference to the conclusion.

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<sup>4</sup> In making an appeal to the positive epistemic status of children’s beliefs, Thurow (2009:279) argues that it is possible to justifiably infer without respecting my PJI. Part of his reason is that ‘it seems possible to be justified in making an inference (epistemically) prior to being justified in believing that the inference is valid.’ While the defender of PJI does need to hold that a justified belief that an inference is good is a necessary condition of the inference in question being justified, the defender of PJI does not need to hold the priority claim Thurow assumes. But if one wanted to require this, the only way to justifiably infer would be to first justifiably believe *a priori* that the inference is good.

<sup>5</sup> Samuel Taylor agrees that if recognition of the goodness of the argument is not part of the *basis* for justifiably believing that the argument is good, then no regress arises. See (Taylor 2015), esp. footnote 13. However, he also thinks that if the metabelief about argument goodness is not part of the basis for believing the argument is good, then it does no epistemological work: in his words, “to modify a phrase from Smart, it looks like an epistemological dangler” (personal communication).

Note that, in my view, even if the regress the principle generates were vicious, that would still not necessarily be a reason to reject it. For related discussion, see my (forthcoming).



PJI does not require the justification of a belief that an inference is reliable *prior to* performing an inference justifiably. (*Prior* neither logically nor temporally nor epistemically.) While a justified belief that the inference is good is a necessary condition of justifiably inferring, recognizing the goodness<sup>6</sup> of an inference is what makes the inference justified and what justifies the belief that the inference is good. A regress never starts, because the satisfaction of the first-level conditions—recognizing the goodness of the inference—justifies the second-level belief that the inference is good. And since the first-level justification is not itself constituted by beliefs or judgments themselves in need of justification, no worries arise at a third or higher level.<sup>7</sup>

### *Satisfying the Principle of Justified Inference for Ordinary Adults*

How might a cognitively unsophisticated subject satisfy PJI? Satisfying PJI will require a belief that has as its content that a particular inference is good (valid or strong, depending on the argument). We can get clearer on what it would take for an unsophisticated subject to satisfy the standard by getting clear on what it would take for a normal adult to satisfy it.

Consider this argument:

1. Batman wears a black suit.
2. Everyone who wears a black suit is a businessperson.
3. Batman is a businessperson.

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<sup>6</sup> It is important to distinguish recognizing the goodness of an inference from recognizing *that* an inference is good. I suggest that the former is necessary, not the latter. I avoid stating the requirement as ‘recognizing that’ an inference is good because ‘recognizing that’ is most plausibly construed as a type of judgment that would need justification if it is to provide justification.

<sup>7</sup> This, it seems to me, also constitutes a refutation of the Carroll-inspired argument advanced by Paul Boghossian against requiring justification for the validity of an inference as a condition of justifiably inferring (2001: 638).

(Read the argument so “black suit” is univocal.) This is an example I use early in my undergraduate classes to teach the concept of validity. The argument is valid and has one false premise (or two, depending on how one understands descriptions of fictional characters). Before offering examples like this, I define validity. Then I ask if the argument is valid.

Overwhelmingly, they recognize that it is. Usually, when asked to explain why it is valid, someone will answer while gesturing with their hands in such a way that indicates the reason has to do with class inclusion and exclusion relations holding between wearing a black suit, being Batman, and being a businessperson. After some examples like this, it is usually time to talk about formal structures. But it appears that prior to being told what exactly a formal logical structure is, there is some implicit grasp that the argument has a structure that makes it valid.

Let us suppose that the very early logic student infers (3) justifiably. With that assumption, we can attempt to identify what is going on with the student that accounts for the inference being justified. First, it seems that the student understands that it has to be the case that if the premises are true, then the conclusion is true. Second, it seems the student understands that the reason the argument has the feature of being such that if the premises are true then the conclusion is true is in virtue of the way the second premise covers the first, structurally speaking. Now I don’t claim these things, whether formulated this way or another way, are in attentive, conscious focus for the student who justifiably infers the conclusion. What I am claiming is that *if* the inference is justified, it is because the student is implicitly or explicitly aware of these things, regardless of whether or not the student can *state* these reasons clearly, either now or on exam day, and regardless of the way the student would formulate in thought or in language the description of the argument’s validity.

To satisfy PJI, the student will also need a justified belief about the argument, and that

requires that the student possess and deploy the concept of entailment (if the example had been a nondeductively strong argument, then the requisite concept would be strength) and recognize that the premises entail the conclusion. When these elements are present, the student possesses everything necessary to have a justified belief that the inference is good.

The belief that is justified need not be fully explicit in the student's mind such that the student is clearly attending to it. As we often do when countenancing justification on the basis of memory, we may allow that the student's belief that the argument is valid be a dispositional belief rather than an occurrent belief. The student need not be consciously entertaining the justified belief that the argument is good for the justified belief to satisfy PJI. Of course, for the dispositional belief that the argument is good to be justified, it must be possible for that belief to become occurrent under some circumstances. To insist too hard that the content of the belief will always be outside of the subject's awareness is basically to admit that the subject does not have a belief about the quality of the argument. (More on this in section five.)

The objection we see in the opening quotations about the possibility of unsophisticated subjects having such beliefs is that those subjects lack the concepts to form beliefs about argument quality. But it is surprisingly easy to gloss these concepts in ordinary language. It would be a bizarre requirement of concept possession to hold that a subject only possesses a concept if the subject can use a largely unknown technical term to express that concept. Surely, our students don't know that 'entailment' means 'the relation that holds between the premises and conclusion of a deductively valid argument' prior to us teaching them that definition. But that should not prevent them from possessing the *concept* of entailment any more than failure to know that 'ungulate' means 'hoofed animal' prevents ordinary adults from possessing the concept *ungulate*. If we allow that ordinary adults can possess the concept *ungulate* without

being able to express thoughts of hoofed animals using the word ‘ungulate,’ then we should allow that it is at least possible for ordinary adults to possess the concept *entailment* without being able to express thoughts about that logical relation using the word ‘entailment.’

While that argument shows that it is *possible* that ordinary adults possess some logical concepts, it does not show that we *should* attribute logical concepts to them. To compare, under what circumstances should we attribute possession of the concept *ungulate* to an adult? Strong evidence that someone possesses the concept is that the subject can talk about ungulates in language that is less precise. Someone who can walk through a zoo and talk about the hoofed animals using the less-technical phrase ‘hoofed animal’ is talking about ungulates and only ungulates, but is doing so in a way that doesn’t use technical vocabulary. The imagined subject has the ability to discriminate ungulates from non-ungulates—you just look at the feet—and even to talk about ungulates. That the subject uses a more common expression to pick out ungulates should be no objection to ascribing possession of the concept *ungulate* to the subject.<sup>8</sup>

If the imagined subject possesses the concept *ungulate*, a very similar story can be told of how an ordinary, cognitively sophisticated subject who has never had the blessing of an introductory logic course also possesses logical concepts like entailment. When we teach logical terminology to our students, we do so by means of examples.

1. Batman wears a black suit.
2. Everyone who wears a black suit is a businessperson
3. Batman is a businessperson.

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<sup>8</sup> The proposed condition for concept-attribution is neutral between a few competing accounts of what concepts are, namely that concepts are a sort of mental representation, a kind of ability, or a thing that satisfies a specific functional role.

1. All dogs go to Heaven.
2. Heaven is a place on Earth
3. Therefore, all dogs go to a place on Earth

1. Planets are solid bodies that orbit the Earth
2. Satellites orbit the Earth
3. Therefore, satellites are planets

By simply using a bit of imagination, our student can recognize that there is a feature of the first two arguments not shared with the third. There are lots of ways to express in ordinary language what the feature of the first two arguments is. I hear things like this, as I expect many others have: ‘*Definitely*, the premises *make* the conclusion true.’ ‘There’s *no way* the premises are true and the conclusion isn’t.’ ‘The conclusion *has to be* true if those premises are true.’ Each italicized expression stands in for concepts of *necessity* and *possibility*, just like talk of ‘hoofed animals’ stands in for the concept of *ungulate*. It takes little interpretive work to understand that ‘x being true *definitely makes* y true’ is just a clumsier way of saying ‘x entails y’; likewise, ‘there is *no way* the premises are true and the conclusion isn’t’ is a simpler expression of ‘necessarily, if the premises are true, the conclusion is true.’ The student who speaks in this way uses words in language that are already explicitly modal words, they apply those terms to arguments that actually possess the features they point to, and they do this reliably. When we attributed the concept *ungulate* to our subject, we required no more than language close enough to the semantic content of technical terminology, plus an ability to reliably discriminate between ungulates and non-ungulates. Similar features are present for the concepts of *entailment*,

*necessity*, and *possibility*. So, when those conditions are met, we should also attribute those logical concepts.

There is one more important concept that the subject will have to possess in order to justifiably infer, and that is the concept of *logical form*. There is reason to think students possess that concept; those reasons parallel the reasons just offered for thinking ordinary adults possess other logical concepts. If the student can look at a series of sample arguments, at least some of which have the same logical structure, and can identify the ones that have the same structure while using language closely enough approximating talk of logical form ('shape,' 'this premise covers that premise,' etc.), then we should attribute the concept of logical form as well.

Our student's mind is populated with logical concepts—the very same concepts that we seek to elucidate—prior to our elucidating them. The idea is Platonic, in a way: our goal is to bring to light something that is already present in their minds. (I don't mean to suggest that one has to be a Platonist about universals to accept this idea, nor that concept nativism is required or even the best account compatible with this idea.) What I have tried to show is that our reasons for attributing logical concepts to ordinary, cognitively sophisticated adults are as good as the reasons we have for attributing other concepts to them. Unless we are prepared to take away *lots* of concepts we normally think of ordinary adults as possessing, then we ought to attribute logical concepts as well.

It is surely possible that adults in possession of logical concepts whose beliefs about argument validity or strength are rarely brought to conscious attention have less epistemic justification for those beliefs than we do, on account of our regularly considering such matters. But that should have been expected. Geologists have more strongly justified beliefs about rocks than philosophers do; philosophers have more strongly justified beliefs about argument

structures than accountants do. When we finally get to talking about unsophisticated subjects, the same considerations apply. Cognitively unsophisticated subjects are plausibly worse at applying concepts of philosophical interest than cognitively sophisticated subjects are, so of course they may be *less* justified in their beliefs which involve application of those concepts. That is perfectly consistent with claiming that children and other unsophisticated subjects still have justified beliefs. This conclusion may be resisted, as I discuss in section six; for now I am content to point out that it is not obviously a problem to accept that result.

By now one might worry that my account cannot make sense of a certain kind of apparent discovery: e.g. that hoofed animals are ungulates.<sup>9</sup> On my account, someone possesses the concept *ungulate* exactly when that person possesses the concept *hoofed animal*; indeed, in my view, these are the same concept. Trivially, then, when you have one, you have both—because you have the one and only concept expressed by both ‘hoofed animal’ and ‘ungulate’. But it seems that one learns something when one comes to accept ‘hoofed animals are ungulates’—doesn’t that suggest that *hoofed animal* and *ungulate* are not identical concepts, and consequently that those who lack facility with the relevant distinctive terminology *lack* such concepts?

I think the sort of discovery that takes place when one learns to talk about ‘ungulates’ is not one of acquiring a new concept, but of acquiring a new word for expressing an old concept. The phenomenon is very familiar. We can bring it out by mentioning an old hoax. (I first heard of this over twenty years ago. If you get the right audience, it can be a lot of fun.)

I want to warn you now about the dangers of a certain ubiquitous substance: dihydrogen

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<sup>9</sup> Indeed, a referee has just this worry. I thank the referee for encouraging me to discuss it.

monoxide (DHMO). DHMO has been implicated in thousands of human and animal deaths worldwide. Inhalation of too great a quantity of DHMO causes death in minutes. DHMO corrodes metal, leading to extremely expensive repairs of bridges, roadways, and other vital parts of modern infrastructure. It has even been used as an instrument of torture by governments, including the People's Republic of China and the United States of America. Worse still, DHMO is unregulated. It appears in countless products: it's in our coffee, our lotions, even in our bodies. Don't you agree that we need to raise awareness of dihydrogen monoxide in order to get some regulatory control over this dangerous substance?

Then there's the reveal—dihydrogen monoxide, as you can read right off of the name, is the combination of two hydrogen atoms ('H<sub>2</sub>') and one oxygen atom ('O')—dihydrogen monoxide is H<sub>2</sub>O.<sup>10</sup> Now if your audience gets into the warning story, a curious thing happens when it becomes clear that you were talking about water under a barely concealed name all along. One realizes that 'DHMO' is just a permutation 'H<sub>2</sub>O'. The 'discovery' is that these are just synonymous terms that pick out the *same*, very familiar concept. That is why a hearer feels duped for being taken in by the story.

'Dihydrogen monoxide is H<sub>2</sub>O' is an informative discovery even though one does not acquire any new concepts. Rather, one learns new *words* to express an old *concept*. The solution here is structurally the same as the solution to the problem of informative identity statements of co-referential expressions like 'The Evening Star is the Morning Star.' That identity statement is informative because one learns that two different concepts pick out the same

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<sup>10</sup> Here's a website with more worrisome facts about DHMO, including some of the ones I mentioned: <http://www.dhmo.org/facts.html>.



object. Similarly, one can make the terminological discovery that different words express the same concept: e.g. ‘dihydrogen monoxide is H<sub>2</sub>O.’<sup>11</sup>

We often should attribute technical ‘concepts’—more accurately, concepts expressed by technical words—to individuals who do not use the precise manner of expression we expect. The question of how one comes to discover that different terms can express the same concept is no obstacle for attributing logical concepts to cognitively unsophisticated subjects.

### *Inference for the Cognitively Unsophisticated*

I have argued: (1) it is impossible to perform an inference with justification without understanding (or grasping or somehow apprehending) the relationship between the premises and the conclusion; (2) it is impossible to infer justifiably without having a justified belief that the inference in question is a good one;<sup>12</sup> (3) that the justification for the belief that the inference is good is constituted by the justification for the inference—namely, one’s understanding of the connection between premises and conclusion, plus possession of certain logical concepts—; (4) that ordinary adults are in possession of many logical concepts as evidenced by a discriminatory ability and the near-equivalence of certain ordinary language expressions and logical terms.

I will now extend (4) to cover language-using unsophisticated subjects, including young

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<sup>11</sup> If you want to get to essentially the same sort of phenomenon in less time, start asking people if they’ll accept Federal Reserve Notes (printed U.S. bills) as payment for goods or if they know anyone who has suffered from cephalgia (headaches). Surely one can possess the concept *printed U.S. currency* even if one fails to realize that ‘Federal Reserve Note’ is the technical name for our bills, and one can possess the concept *headache* even if one fails to realize that ‘cephalgia’ is the technical name for the condition, and so on. You can’t take people’s concepts away by inventing new words to express them.

<sup>12</sup> Recall the qualification I made after providing the argument for PJI: those not compelled by the requirement of doxastic justification and instead favor a requirement of propositional justification still need to account for how it is possible for unsophisticated subjects to satisfy the conditions for possessing that justification, such as the possession of certain logical concepts.

children. The extension is very simple. Take all of the terms that we allowed, in the case of a sophisticated adult subject, to closely enough approximate expressions of logical concepts. Then think of how children would express those concepts. Think also of how children demonstrate sensitivity to logical transformations in very simply-stated arguments. Those features, when present, are the ones that justify unsophisticated subjects' beliefs.

First, regarding concept-possession. I have been trying to argue that what it takes to attribute a concept is a kind of discriminatory proficiency that is often exhibited by the use of language. Some research in psychology suggests children have discriminatory abilities which allow that they may possess the kind of logical concepts we have been discussing. Children begin using modal terms at an early age. In one experiment, three- to five-year-olds demonstrated sensitivity to the use of modal terms by predicting outcomes in a fictional story (Byrnes and Duff, 1989). In another experiment, four-year-old children were reliably able to find a hidden object the location of which was described to them using epistemic modal terms 'must,' 'might,' 'could,' 'probably,' 'possibly,' and 'maybe' (Moore, Pure, and Furrow 1990). The children demonstrated sensitivity to the different uses of these terms in the experiments. In another, children aged four to eight were tested on the ability to distinguish improbable from impossible events: while they had difficulty with one element of the test, the results suggest they possess the concepts in question well enough to answer the examiners' questions (Shtulman and Carey 2007). Other studies provide evidence that children possess facility with the semantics of epistemic possibility and necessity by the time they are five years old by giving reliable answers to whether or not a puppet telling them a particular object was in a box was speaking truly when the puppet said 'It *may be* that the puppet is in the box' or 'The puppet *has to be* in the box' (Papafragou and Ozturk, 2007). These children were also able, to a degree, to answer questions

about whether the puppet was giving informative answers, which suggests facility with the pragmatics of modals as well. One could hardly ask for better evidence that young children possess at least to some degree the concepts necessary to form beliefs about argument quality that require the use of modal concepts.<sup>13</sup> The children in these studies demonstrated the ability to make conceptual distinctions using simple expressions that seem to stand in for more technical ways of expressing apparently sophisticated modal concepts. On the plausible assumption that children younger than these are beginning to form the concepts but cannot demonstrate it by answering somewhat difficult questions like older children can, it is not unlikely that the concepts are present in children still younger, albeit in a probably more inchoate way.

Regarding sensitivity to logical transformations, I offer a personal story. I know a child who, at only one and a half years old, had this exchange with a caretaker:

Child: “Go outside.” (That appeared to be baby-speak for ‘I want to go outside’.)

Caretaker: “Only mommy can take you outside.”

Child, with a smirk: “You’re mommy!”<sup>14</sup>

What the caretaker had in mind was this biconditional modus tollens argument:

1. I am not mommy.
2. I am mommy if and only if I will take you outside
3. Therefore, I will not take you outside.

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<sup>13</sup> This data does not show that they possess *everything* sufficient to form beliefs about modality, of course. It may be that, although they possess the *concepts* necessary to form the beliefs, something would prevent them from holding the belief: perhaps an inability to combine the concepts so as to entertain the propositions, for instance. I leave that possibility open. That sort of concern is why I avoid the question of whether children and other unsophisticated subjects *do* possess the concepts I have focused on. My goal in this section is simply to show that there is some evidence that, when combined with our standards for concept-possession, suggest children could possess the requisite concepts to satisfy a standard like PJI.

<sup>14</sup> That’s my boy, Ulysses. I was (and am) very proud!

The very young child then offered a knowingly false premise—the smirk indicated that, I think—to counter the modus tollens with an enthymematic modus ponens: the optimistic conclusion of which, though unstated by child, was that the caretaker would take the child outside.

It seems that this child was not only sensitive to the caretaker’s implicit use of modus tollens, but also in some way recognized that a modus tollens could be transformed into a modus ponens by affirming the antecedent of the biconditional premise to yield as the conclusion a claim the child wanted to be true: that the caretaker would take the child outside.

This does not show that the child had explicitly formed beliefs about rules of inference clearly in mind.<sup>15</sup> (Though the smirk, I think, was a ‘tell’ that there was probably more cognitively accessible to the child than one might normally think a child is capable of.) What it does show is that even a very young child, barely a toddler, is sensitive enough to logical transformations to perform them by changing premises. In this particular example, the logical transformation only required four words. If a child has some words that serve as close enough approximations to adult words, plus some behavioral dispositions to class together arguments similar in form, and we require nothing more in kind (though perhaps more in degree) before counting *sophisticated* subjects justified, then there seems to be no reason at all to deny that children and other language-using unsophisticated subjects can possess justification according to

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<sup>15</sup> Bermúdez (2003, pp. 143-4) argues that creatures that cannot entertain propositional thoughts that take other thoughts as objects cannot truly be said to perform inferences like modus ponens and modus tollens the way we normally think of them: their reasoning can only “approximate” such inferences. I am not sure this is correct. (I’m also not sure this is *not* correct.) Part of Bermúdez’s argument for this thesis is a phenomenological appeal (pp. 159-60). He does not find himself aware of thoughts with propositional structure except by entertaining sentences. I’m not sure whether or not I do. But I want to urge that we cognitively sophisticated adults might entertain certain kinds of thoughts in a way different than the way nonlinguistic creatures do, even while we share many of the same concepts and should be held to the same epistemic standards. If the strictly correct way to describe nonlinguistic creatures’ concepts and their sensitivity to logical transformations is as ‘closely approximating’ ours, I do not object.

*exactly the same* formal standards that we require of normal adults.

The degree to which a child's inferring is justified, and therefore the degree to which a child's dispositional belief that an inference is good is justified, is partly a function of how closely the child's words approximate a description we would require of an adult to whom we'd attribute the concepts necessary to form the beliefs necessary to satisfy our epistemic standards. Similarly, the degree to which a child is justified in inferring and in believing an inference is good depends upon how closely their classifying behavior of argument forms matches what we would expect of someone more expert. But what we found when we compared the words and behavior of a normal, cognitively sophisticated though untrained adult is that those adults approximate well-enough the standards we require for justification. The same considerations that apply for normal, untrained adults ought to apply to children and other unsophisticated subjects. As before, it may be that unsophisticated subjects have less justification than normal adults, who in turn have less justification than those trained in the relevant field of expertise. But again, that is no more surprising a conclusion than that geologists have more strongly justified beliefs about rocks than non-geologists do.

Where does this leave us? A subject who infers justifiably understands the connection between the premises and conclusion, and this understanding justifies the subject's inference and the subject's belief that the inference is good. Someone who endorses a requirement for inference like PJI at least has a plausible way of accounting for how a subject could possess the required concepts for forming such a belief. So, contrary to the assumption expressed in the opening quotes, it is *far* from obvious that unsophisticated subjects cannot form beliefs about logical relations for lack of conceptual resources.

As I said above, the argument here only clearly applies to language-using cognitively

unsophisticated subjects, including very young children. That is not because I have an argument that shows non-linguistic subjects could not possess the relevant concepts or cognitive abilities. Rather, it is because linguistic evidence is the best sort of evidence that something possesses a certain concept or cognitive ability. To anticipate the Conclusion, if something can be found to replace linguistic evidence, perhaps the argument of this paper can be extended to non-linguistic creatures. If not, that absence of evidence does not imply non-linguistic unsophisticated subjects lack the requisite concepts and abilities to have justification. It is not unlikely that children develop the concepts and abilities required for epistemic justification sometime before there is good reason to believe they have those concepts and abilities. And if pre-verbal children can meet the standard, likely some animals can, too. But the argument here does not show that. So, given the absence of evidence, we must seriously question the merits of the claim that non-linguistic unsophisticated subjects have justification. Perhaps the conclusion to draw is that such beings cannot have epistemic justification or knowledge.

#### **4. Epistemic Concepts**

I take the above arguments to be a sufficient reply to *some* of the concerns raised in the opening quotations. One concern raised there but not yet addressed is how unsophisticated subjects could possess beliefs about the epistemic status of their beliefs. In this section, I discuss whether unsophisticated subjects might possess epistemic concepts. The goal of the section is to answer those philosophers quoted at the paper's opening who think it is simply obvious that unsophisticated subjects don't possess epistemic concepts. To be clear, providing an account of how such subjects could possess epistemic concepts is not necessary for a defense of PJI, which does not require that subjects be able to entertain propositional contents that make reference to

justification, rationality, or knowledge. And that is a good thing, for as we will see, it is a little less clear that unsophisticated subjects possess epistemic concepts than that they possess logical concepts.

### *How Unsophisticated Subjects Might Possess Epistemic Concepts*

The strategy I will pursue for addressing how unsophisticated subjects might possess epistemic concepts should be obvious by now, since it is just another application of the method used to account for the possession of logical concepts by unsophisticated subjects. To figure out what evidence there could be for thinking a particular subject might possess a certain concept, first, identify the needed concept. In this case, we are considering epistemic concepts like *epistemic justification* and *knowledge*. Second, find simple expressions in language that indicate something similar enough to a description a philosopher might offer, without being too persnickety about the exact manner of expression. Third, search for behavioral cues that indicate a facility with the concept, keeping in mind that verbal behavior expressing the concept is likely to be at least somewhat imprecise. The way ordinary adults provide this evidence will be roughly the same as how unsophisticated subjects do it, with differences between manner of expression and behavioral evidence of concept-possession marking their respective degrees of facility with the concept in question.

How will this play out for concepts like *epistemically justified* or *epistemically rational*? Ordinary language offers some expressions that suggest possession of these concepts. Expressions like ‘good reason,’ or ‘x should believe y’ may indicate possession of those concepts. One tricky issue is the separation of the concepts of *pragmatically*, *instrumentally*, or *morally good reasons* from *epistemically* good reasons. Ordinary language admits of no easy

distinctions between these concepts. Since the use of ‘know’ appears very early in children,<sup>16</sup> it would not be too much of a stretch to think unsophisticated subjects could possess at least one crucial epistemic concept: *knowledge*. Whether they also possess others in a way independently<sup>17</sup> of their possession of the concept of knowledge is a tough question. So while expressions like ‘good reason’ used in some contexts seem clearly to indicate one rational notion and not another, there are no non-technical expressions that clearly indicate the use of one concept of rationality to the exclusion of the others.

At this point in the argument someone who finds the account provided so far plausible can understand the challenge posed by this indecisive evidence in this way: *either* non-experts, both sophisticated and unsophisticated alike, simply aren’t justified in their beliefs that invoke epistemic concepts on account of their lack of an ability to tell these concepts apart by use of language; *or* non-experts, both sophisticated and unsophisticated alike, are justified at least to some degree in holding beliefs invoking epistemic concepts because these expressions, though strictly ambiguous between expressing distinct concepts of rationality, approximate the concept of epistemic justification well-enough to count toward the justification of beliefs invoking those concepts.

Non-verbal behavioral evidence that non-experts possess epistemic concepts is even harder to find, largely because without clear phrases in ordinary language that indicate

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<sup>16</sup> ‘Words like *think*, *know*, and *guess*, which adults use to talk about beliefs, appear before age 3’ (Bartsch and Wellman 1995: 11). Cf. Shatz, Wellman, and Silber 1983.

<sup>17</sup> Of course, if knowledge analyzes into component concepts, then anyone who possesses the concept of knowledge possesses those other concepts: including, arguably, the concept of epistemic justification. What I meant by asking whether unsophisticated subjects possess epistemic concepts other than knowledge ‘independently’ is whether the unsophisticated might have a facility with epistemic concepts other than knowledge even if those epistemic concepts are conceptually connected to the concept of knowledge in such a way that, necessarily, when the concept of knowledge is present, so are these other epistemic concepts.



possession of these concepts, it is hard to come up with a way to expect a subject to behave non-verbally while providing evidence of concept-possession. What would provide the requisite non-verbal behavioral evidence for a child? Perhaps giving a toddler a few thought experiments and pumping for intuitions about who is and is not epistemically (as opposed to pragmatically or morally) justified? It's hard to take such an idea seriously. For, again, if there is no clear verbal way to indicate possession of an epistemic concept, it is hard to imagine what other behavioral evidence could be added that would provide sufficient evidence.

While the case for thinking the cognitively unsophisticated possess epistemic concepts has a shakier foundation than the case for thinking they have logical concepts, the shakiness is due to inconclusive rather than negative evidence. It should be clear, though, that the claims made by various philosophers to the effect that children and other unsophisticated subjects *obviously* don't possess epistemic concepts are false: that is not obvious, by any means. It is at least halfway plausible that expressions like 'good reason,' when used in certain contexts, are indicators of epistemic concepts rather than other concepts that might be expressed using that phrase in other contexts.

And however the evidence falls, someone defending a position like mine can always ask what standard ordinary, sophisticated subjects satisfy. Given the philosophical interest in the concept of epistemic justification, it would be surprising to hold that only trained philosophers have the concept. We often assume that ordinary subjects possess the concept of justification. Plausibly, that is part of the reason we are interested in the concept. But what makes us think ordinary adults possess the concept, if not admittedly inconclusive reasons like those offered in the preceding paragraphs? Whatever we say about those reasons, we can extend them to cover unsophisticated subjects by looking for analogous verbal and non-verbal behaviors exhibited by

unsophisticated subjects.

### 5. An Objection: Never-Evident Dispositions?

We can understand the kind of justified belief ordinary subjects, sophisticated and unsophisticated alike, might have regarding the goodness of an argument or the epistemic status of a belief as a justified *dispositional* belief. The motivation for regarding the beliefs in question as dispositional is the rather evident fact that ordinary subjects, especially children and unsophisticated adults, do not regularly *consciously* entertain in any clear fashion propositions concerning the epistemic status of their beliefs or of argument structures. But, given the hypotheses that PJI is true and that ordinary subjects often perform justified inferences, we have to find a way for ordinary subjects to possess justified belief about their inferences, which leaves dispositional belief as the only option.

It is important to distinguish a dispositional belief from a disposition to believe (Audi 1994). A disposition to believe that p is a disposition to entertain the occurrent belief that p under certain circumstances. A dispositional belief is a belief that is non-conscious at a time. The basic reason for requiring dispositional *belief* to satisfy PJI is that dispositional beliefs are beliefs. Dispositions to believe are not beliefs but tendencies to form beliefs. In that case, there is no actually held belief that could satisfy a requirement like PJI.

There is another reason for requiring dispositional belief rather than a disposition to believe. It is easy to understand how a dispositional belief might be epistemically justified, but very unclear what it would mean for a disposition to form a belief to be epistemically justified. For a dispositional belief to be justified requires what doxastic justification normally requires: that the subject is in possession of propositional justification for the proposition in question, plus

that the subject believes the proposition dispositionally, plus that the subject's dispositional belief is based on the justification for the proposition. What might provide epistemic justification for a disposition to believe? It seems like a category mistake to ask how a disposition to believe is epistemically justified. One might have propositional justification for a proposition that one also has a disposition to believe, but that still offers no clear way to account for the justification *of the disposition*.

The only real alternative to requiring a justified dispositional belief, then, would be to require a disposition to form a justified belief. While that would not satisfy the belief condition on PJI, some might find it more plausible than a requirement of dispositional belief. If one took that option, the same problems arise as those facing a requirement of justified dispositional belief: there have to be some conditions under which the disposition to justifiably believe would produce a justified belief. I will focus the discussion on dispositional belief.

While it is not clearly implausible to think that one might have a disposition to behave in a certain way that is never realized because the circumstances under which one would behave in that way are never realized, dispositional beliefs are genuine beliefs. If we are to count a subject as having a dispositional belief that *p*, there must be some circumstances under which the subject would *consciously* believe that *p*: that is, there must be some circumstances under which the belief that *p* would come to mind. But in the case of children and other cognitively unsophisticated adults, what might the relevant circumstances be? Even if the account offered above concerning ways unsophisticated subjects might have logical and perhaps epistemic concepts is compelling, one might be skeptical that there is a circumstance in which one could get, say, a toddler to actually entertain the proposition *that argument is valid*. Without circumstances which could bring the dispositional belief to conscious awareness, however, it

seems that the subject does not have the dispositional belief at all, which is to say that the subject simply does not have any belief about the matter. Clearly some ways of specifying when and how the subject *would* entertain the belief in question are cheats: e.g. if the toddler took a college logic class (as an 18 year old), the toddler would entertain the belief *that argument is valid*.

The solution is to emphasize that on my understanding of what it would require for a toddler to entertain a belief, the toddler *can* entertain the belief. If we already accept that unsophisticated subjects can entertain propositions roughly the way we do and that their way of doing so involves thoughts that closely enough approximate, but *only* approximate, the way an educated adult would entertain the thought, then there is no barrier to requiring that they *would* entertain such thoughts under certain circumstances. The only real way of advancing the objection would be to argue that there are no circumstances that would prompt unsophisticated subjects to reflect on argument quality or the epistemic status of beliefs *even in the way unsophisticated subjects would carry out such reflection*. I see no reason to concede this. And if we did have some reason to think the subject simply couldn't entertain the belief in question even in the approximate way we have been allowing, it would be plausible to deny that the subject's inferring is justified.

## **6. Conclusion**

The thesis of this paper is that contrary to what many philosophers have presupposed, it is by no means clear that cognitively unsophisticated subjects like small children cannot satisfy some allegedly high epistemic standards, because contrary to the common assumption, there is good reason to think it is possible for them to entertain thoughts about the goodness of certain inferences and about the epistemic worth of their beliefs. Arguments for high epistemic

standards often sound at least halfway plausible, as does the thought that cognitively unsophisticated subjects possess epistemic justification. But when it is presupposed that only one of these can be true, philosophers have been pushed either to reject the high standards in favor of lax ones, or to accept the standards and argue that the beliefs of ordinary subjects are often unjustified. My contention is that rejecting this presupposition may allow both for the preservation of some high standards and the granting of justification to unsophisticated subjects. At least, as I have tried to state as plainly as possible, if cognitively sophisticated but philosophically untrained adult subjects can meet some high epistemic standards, it is by no means obvious that many unsophisticated subjects cannot do so as well.

The paper defends unsophisticated subjects as a class against the ‘think of the children!’ objection; but as many of the opening quotations said, the concern for the children extends to higher animals as well. The method followed in this paper has been to identify indicators of concept-possession in normal adults and ask whether there could be indicators of a similar type in children. But I don’t know what evidence to look besides linguistic evidence and it is largely for that reason that I have had little to say about non-human animals thus far. Perhaps in the case of animals verbal evidence should be replaced with the resources of neuroscience: comparison between non-verbal behaviors of animals and humans, plus neural activity similar to what might be found in humans, could together be used to suggest possession of concepts and recognition of logical structures. The strategy, then, would be the same: take the evidence for attributing concept-possession in the normal human case, and look for analogs biologically further ‘down.’ To repeat what I said above, if there is no evidence to replace linguistic evidence, the conclusion to draw may be that only language-using subjects can possess justification.

What of the worry that unsophisticated subjects could not possess the same degree of

justification for the same propositions based on the same evidence? The worry is that if you took an adult subject we would regard as justifiably believing that *p*, and you switched out the adult with a toddler while keeping all other relevant features of the case the same, the account defended in this paper might seem to suggest that the adult's beliefs are better justified than the toddler's. The way to hold that exactly the same degree of justification is possible for the adult and the child is to hold that the way an unsophisticated subject entertains a proposition is a perfect guise for a fully explicit proposition that might be entertained by a philosophically-trained adult.<sup>18</sup> If the idea that a largely inarticulate way of entertaining a proposition as a perfect guise for a fully articulated proposition is too implausible to accept, then the only option is to hold that unsophisticated subjects are only justified to the degree that their way of entertaining the required proposition captures the fully articulated proposition. Neither of these options strikes me as obviously incorrect: it seems that philosophically-untrained adults often entertain propositions by means of guises that we would count as thinking of the proposition, and it seems plausible that unsophisticated subjects have some justification for believing things they do, but not as much as trained adults. The latter seems especially plausible if you consider some animals that might possess justification, but don't demonstrate a high degree of human-level intelligence: e.g. dogs.<sup>19</sup>

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<sup>18</sup> I use the notion of a propositional guise as part of a strategy to undermine another argument for lowered epistemic standards in my (forthcoming a).

<sup>19</sup> Thanks go to Ali Hasan for feedback on a draft, to Carrie Figdor for helpful correspondence, and to Landon Elkind, Bryan Appley, Brady Hoback, Ryan Cobb, and Dave Redmond, for helpful discussion or comments on a draft.



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