

Implications for the Reductionism/Anti-Reductionism Debate on Testimonial Justification from Psychological Studies of Selective Trust: Scope and Limitations

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Abstract:

The Child objection is a major challenge for reductionism, which requires hearers to have positive reasons for testimonial justification. However, it has been pointed out that anti-reductionism, which requires only the absence of negative reasons, or defeaters, suffers from a problem of the same kind of problem. The child objection presupposes the empirical thesis that “children do not have the capacity to consider reasons”, but the plausibility of this assumption may be revealed by developmental psychology research on selective trust. This paper clarifies for what kind of reasons various experiments can be said to test the ability to consider, and in what sense children who pass the test can be said to be “considering” reasons. In doing so, we clarify the scope and limits of the implications that selective trust studies can have for reductionism and anti-reductionism. We then suggest what future psychological research is desired from an epistemological interest to go beyond the current limitations.

1. Introduction

The reductionism/anti-reductionism debate is a central issue in the epistemology of testimony. Reductionism holds that a person must have positive reasons, such as the belief that the speaker is trustworthy, for the belief in the content of someone’s testimony to be justified.¹ Anti-reductionism, on the

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¹ This paper focuses explicitly on justification and assumes that it is closely related to knowledge. Specifically, we assume that the following relationship between knowledge and justification holds (Lackey 2008: 9; Goldman and Olsson 2009: 20, 22).

S knows that p if and only if

1. p is true.
2. S believes that p.
3. S is justified in believing that p.

other hand, maintains that positive reasons are not necessary for testimonial justification. One major point of contention in this debate is the child objection, which is directed from anti-reductionism to reductionism (Audi 1997).² The objection argues that because children lack the cognitive abilities necessary to have positive reasons, reductionism entails the unacceptable consequence that children can never be justified in their beliefs based on testimony, and then concludes that reductionism must be false.

Obviously, the premise that children lack the cognitive capacities to have positive reasons is an empirical claim that can be verified through scientific investigation. Clément (2010) criticizes the inappropriate appeal to children by reductionism/anti-reductionism because they have sufficient capacity to consider reasons, citing early studies on selective trust in developmental psychology. However, further elaboration on Clément's line is required in light of the advancements in both epistemology and developmental psychology since the time of his work. There are two significant considerations in the field of epistemology. The first is that it is now recognized that the child objection is not solely a problem for reductionists (Lackey 2008: Chap. 7). While anti-reductionism does not necessitate positive reasons for justification based on testimony, it does require the absence of negative reasons in common with reductionism. Lackey argues that, since children cannot substantially satisfy this requirement, an undesirable consequence is inevitable even if one adopts anti-reductionism. Secondly, there is a deeper understanding of negative reasons, or defeaters. Specifically, the classification of defeaters and the conditions under which certain types of defeat hold are discussed. Such research will help to clarify the necessary conditions for testimonial justification. On the other hand, psychological studies of selective trust involve experiments under various conditions, some of which may be interpreted as testing children's ability to consider defeaters. In this paper, we, therefore, explore the scope and limitations of the implications of selective trust research on the child objection, incorporating findings from both

4. A suitable anti-Gettier condition is satisfied.

The line of emphasizing the separation of knowledge and justification, taking the knowledge condition weakly and the justification condition strongly, can be found in the epistemology of testimony (cf. Audi 1997). By contrast, the understanding of justification in this paper must be weaker because of the assumed close relationship between justification and knowledge.

² This sort of objection is often referred to as an "infant/child objection", but in this paper it is simply called a "child objection". In the literature on child objections, the age range indicated by the terms "child" or "infant" is often ambiguous and varies (cf. Lackey 2008: 195; Graham 2018: 3021), but for the purposes of this paper, it is assumed to be preschoolers aged approximately one year or older.

epistemology and developmental psychology.

The structure of this paper is as follows. The second section introduces reductionism/anti-reductionism and examines their relation to positive and negative reasons, or defeaters. Additionally, an overview is provided of the nature of defeaters. In Section 3, we look at the child objection to reductionism and its variant, which has been modified to challenge both reductionism and anti-reductionism. The variant of the child objection posits that “justification requires the absence of defeaters” and that “children are not capable of considering defeaters”. Section 4 examines what kind of reasons various experiments conducted in research on selective trust can be said to test the ability to consider, and in what sense children who pass the test can be said to be “considering” reasons. After identifying the scope and limitations of the implications for the reductionism/anti-reductionism debate, we briefly discuss the kind of research desired in the future to move beyond the current limitations.

2. Reductionism/Anti-reductionism and Defeaters

The crux of the disagreement between reductionism and anti-reductionism precisely pertains to the criteria on the part of the hearer required for *prima facie* justification. According to reductionism, beliefs founded on testimony are *prima facie* justified when the hearer has positive reasons for accepting the testimony, such as a track record of the testifier’s past statements being accurate.³

Reductionism:

(R) For every speaker, A, and hearer, B, B believes that p with *prima facie* justification on the basis of A’s testimony only if B has appropriate (non-testimonial) positive reasons to accept A’s testimony.

The intuitive motivation for reductionism is that belief in the testimony of someone who maliciously tries to deceive the hearer or who is not a reliable epistemic subject in the first place is not likely to be justified if one believes it without any other basis. Reductionism denies the *prima facie* justification in such cases by (R).

³ There are two types of reductionism: global reductionism, which requires reasons for believing testimony in general, and local reductionism, which requires reasons for believing the testimony of a particular testifier in a particular situation. What we deal with here is exclusively the latter.

In contrast, anti-reductionism denies (R), namely, it does not require any positive reasons for justification.

Anti-reductionism:

(NR) For every speaker, A, and hearer, B, B possibly believes that p with prima facie justification on the basis of A's testimony even if B has no (non-testimonial) positive reason to accept A's testimony.

Anti-reductionism allows for a wide range of prima facie justifications without demanding the hearer to have positive reasons. However, the adoption of anti-reductionism does not mean that *ultima facie* justification can also hold independently of the conditions on the hearer side. For *ultima facie* justification, the hearer must not have any negative reasons, i.e., defeaters, for not accepting the testimony. Anti-reductionism, as well as reductionism, accepts the following necessary condition for *ultima facie* justification.⁴

Ultima Facie Justification:

For every speaker, A, and hearer, B, B believes that p with *ultima facie* justification on the basis of A's testimony only if:

(Prima Facie Justification Condition) B believes that p with prima facie justification on the basis of A's testimony and

⁴ In this paper, we construe that the conflict between reductionism and anti-reductionism is over the conditions for prima facie justification, and that both sides agree that *ultima facie* justification requires the absence of defeaters. However, this point is often not made explicit. For example, Lackey (2008: Chap. 5), who is the main focus of the next section, does not distinguish between prima facie justification and *ultima facie* justification, but understands that reductionism requires a positive reason for justification and anti-reductionism requires the absence of negative reasons. In contrast, Leonard's recent summary (Leonard 2021: Sec. 1), which includes the no-defeater condition in both reductionism and anti-reductionism, reflects the same understanding as this paper.

(No-defeater Condition) B has no normative defeaters for A's testimony.⁵⁶

Defeaters are possible or actual beliefs that a belief (hereinafter called a target belief) is false (or that clearly implies that it is false) or that the target belief is not properly based, e.g., formed in an unreliable way, not based on adequate evidence, or not properly related to the evidence. The former is called a rebutting defeater, and the latter an undercutting defeater. For example, suppose I buy lunch at the only sandwich shop near my workplace, and on my way back to the office, I encounter a co-worker who tells me, "I went to the sandwich shop, but it was closed". At this point, I have a rebutting defeater for the content of my colleague's testimony. In contrast, when we consider the case where instead of my visiting the shop, I know that my colleague has a habit of making fun of me with nonsensical lies, I have an undercutting defeater. In either case, if I ignore the existence of defeaters and believe the content of my colleague's testimony, then the belief must not be justified.

In turn, that some defeaters are normative, not psychological, means that they function by virtue of the fact that the subject in some sense *ought to* believe. It is not necessary that the subject actually believes in order for normative defeaters to cause the target belief to lose its justification. For example, I am invited to my friend's house, and he tells me, "There is no mouse because I always keep my house clean." which I believe. But then I see a gray object about seven inches long moving quickly in the corner of the room. But, hating mice, I cannot believe the horror of a mouse being in the room I am in, so I try not to think about the gray object. At this time, I do not believe that there is a mouse, and I continue to believe my friend's testimony that there is no mouse, which does not seem justified. This is a case of a normative defeater.

3. Child Objection Against Reductionism and Its Variant

⁵ The no-defeater condition is based on Lackey's formulation (Lackey 2008: 158). However, although it is omitted here for the sake of simplicity, precisely speaking, the defeater must be limited to those that are not themselves defeated. For example, in the case of the friend's house discussed below, if one takes a closer look at the gray object that reappears and realizes that it is a mouse toy, there is no longer any reason to believe that there is a mouse. Strictly speaking, therefore, the no-defeater condition refers only to defeaters that are not defeated.

⁶ Lackey herself also requires the absence of psychological defeater. I will argue in the full paper that psychological defeat is only apparent, but this point is omitted here.

Since anti-reductionism accepts the no-defeater condition of ultima facie justification, although it rejects (R) of reductionism and thus not require the hearer's positive reasons for prima facie justification, it requires that the hearer has no negative reasons for his or her belief to be testimonially justified in an ultima facie sense. According to Lackey, this makes anti-reductionism vulnerable to a variant of the child objection (Lackey 2008: Chap. 7).

The child objection is originally directed at reductionism.⁷

Child Objection against Reductionism:

- (a) According to reductionism, for every speaker, A, and hearer, B, B believes that p with (ultima facie) justification on the basis of A's testimony only if B has appropriate positive reasons to accept A's testimony.
- (b) However, children lack the cognitive capacity to have appropriate positive reasons.
- (c) Therefore, children cannot have any testimonial justification for their beliefs. ((a) + (b))
- (d) Children do have at least some beliefs with (ultima facie) justification on the basis of testimony.

Since (c) and (d) conflict, the child objection concludes that (a), namely reductionism, should be abandoned. At the same time, the proponents of the child objection argue that children can satisfy the no-defeater condition because they do not have negative reasons, i.e., defeaters, and therefore anti-reductionism can admit the testimonial justification of children (Audi 1997: 415).

In response, Lackey argues that what is necessary for justification is not satisfying the no-defeater condition in such a way. According to her, a satisfaction of the condition that prohibits something in the form of "only if X does not ϕ ," can be characterized into two types: trivial and substantive satisfaction. Moreover, she contends that it is substantive satisfaction of the no-defeater condition that is required for

⁷ The child objection to reductionism is presented by Audi, who denies that justification is a necessary condition for knowledge and acknowledges the possibility that children can have knowledge but cannot have testimonial justification (Audi 1997: 414 -416). Here we follow Lackey's reformulation of justification as a necessary condition for knowledge (Lackey 2008: 9, 196). It should also be noted here that since Lackey's purpose is to defend her own idea called "dualism", which includes R, from the child objection, she formulates the objection as an objection to reductionism and dualism, but here it is simply an objection to reductionism.

justification (Lackey 2008: 7.2).

Trivial Satisfaction: X does not ϕ merely because X does not have the capacity to ϕ .

Substantive Satisfaction: X has the capacity to ϕ and does not ϕ .

Just as a person who never lies because he lacks the ability to do so cannot claim any moral superiority, a person who lacks the ability to consider defeaters and hence does not have defeaters cannot have superior epistemic status. Therefore, it is not the mere trivial satisfaction but the substantive satisfaction of the no-defeater condition that is necessary for justification. In addition, according to Lackey, reasons are reasons, whether positive or negative, and thus as long as children are not capable of considering positive reasons, as the proponents of the child objection to reductionism assume, they should also be incapable of considering negative reasons (Lackey 2008: 199). Even if children satisfy the no-defeater condition, it is in the sense of trivial satisfaction. It follows from the above that we can construct a variant of the child objection.⁸

Variant of Child Objection:

- (a) According to the conditions of *ultima facie* justification, which both reductionism and anti-reductionism endorse, for every speaker, A, and hearer, B, B believes that p with (*ultima facie*) justification on the basis of A's testimony only if B substantively satisfies the no-defeater condition, that is, B has the capacity to consider defeaters and has no normative defeaters for A's testimony.
- (b) However, children lack the cognitive capacity to consider defeaters.
- (c) Therefore, children cannot substantively satisfy the no-defeater condition and thus cannot have any testimonial justification for their beliefs. ((a) + (b))
- (d) Children do have at least some beliefs with (*ultima facie*) justification on the basis of testimony.

⁸ This formulation of the variant is largely based on Lackey (Lackey 2008: 207-208). However, since Lackey formulates reductionism in a way that does not include the no-defeater condition, the variant challenges only anti-reductionism. In this paper, the variant is problematic for both reductionism and anti-reductionism, since we posit that both accept the no-defeater condition as a necessary condition for *ultima facie* justification.

Insofar as the absence of a defeater is necessary for *ultima facie* justification, even anti-reductionism cannot avoid the unacceptable consequence that children do not have any testimonially justified beliefs. Therefore, an appeal to children's abilities makes no difference to the pros and cons of reductionism and anti-reductionism. This is Lackey's response to the child objection against reductionism.

Nevertheless, while reductionism is challenged by both the original child objection and its variant, anti-reductionism need only address the variant. Although there are several possible paths for anti-reductionists to deal with the variant, we consider the negation of (b), namely the thesis that children have the cognitive capacity to consider defeaters.⁹

4. Defeaters and Selective Trust

Since the mid-2000s, there has been growing research in the field of developmental psychology examining children's selective trust, or the tendency to distinguish between others in terms of their trustworthiness as sources of information and learn from certain individuals. In a typical experiment, two informants with different attributes make contradictory statements about the name or function of an object, and the children are asked whom they believe, or experimenters observe whom they turn to for answers to the questions posed. These studies demonstrate that young children, particularly those aged three and older, utilize epistemic characteristics such as accuracy and expertise as well as social characteristics such as age and familiarity as cues to select specific individuals to believe the testimony or to ask for the answer.¹⁰

What has been outlined above appears to be quite different from the portrayal of children that the child objection posits.¹¹ Citing various studies on selective trust, Clément criticizes philosophers engaged in the reductionism/anti-reductionism debate on the basis that children are not as gullible as

⁹ Of course, it is possible to reject (d) by arguing, for example, that children have knowledge but not justification (Audi 1997), that children have pragmatic rather than epistemic justification (Van Cleve 2006), or that infants have only *prima facie* justification and not *ultima facie* justification. This possibility cannot be examined in this paper.

¹⁰ The effects of epistemic and social characteristics at each age of 3-5 years are also confirmed by meta-analyses by Tong et al. (Tong et al. 2019).

¹¹ Because developmental stages, particularly language development, impose constraints on experimental methods, studies of selective trust have focused on young children aged 3 years and older, with limited research on children younger than 3 years old. With the valuable exception of Jaswal 2010, the studies discussed in this paper also mostly focus on children aged 3 years and older.

assumed (Clément 2010).¹² Nonetheless, to determine what we can say and to what extent about the reductionism/anti-reductionism debate from these empirical studies, it will be necessary to comprehend precisely the premises of the child objection, especially (a) and (b). First, there can be a range in the extent to which it is necessary to judge that children have capacity to consider positive and negative reasons. A relatively weak requirement might be that one can appropriately change one's treatment of testimonies when there are reasons to (or not to) believe them. This is the type of ability that can be assessed in psychological research on selective trust. If the demands of the proponents of the child objection are more stringent, such as the ability to believe a particular testifier by reasoning using concepts such as "accuracy" and "reliability", or the ability to provide reasons why one believes a particular testimony when asked why, then, it will be difficult to infer out the implications for the child objection directly from the existing research on selective trust.¹³ Thus, what we can examine here is limited to whether children can consider reasons in a weak sense.

Additionally, as a common point against both Lackey, who holds that child objection poses difficulties for anti-reductionism as well as reductionism, and Clément, who maintains that it is not problematic for either, it is crucial to distinguish the ability to consider positive reasons and the ability to consider negative reasons. For instance, it is not self-evident whether a person who, in principle, rejects the testimony of others and believes only when there are positive reasons to do so has the capacity to consider negative reasons, and vice versa. In the following, we investigate what insight research on selective trust can tell us impart into the ability to consider negative reasons, i.e., defeaters, along the lines of the undercutting/rebutting distinction. In the course of that, we will also obtain partial insight into the positive reasons.

Undercutting Defeaters

¹² However, the reductionist response to the child objection that Clément has in mind is that of treating children as exceptions, not that of Lackey, who appeals to the variant (Clément 2010: 532).

¹³ Indeed, Audi, who raised the child objection to reductionism, argues that children do not have the capacity to consider positive reasons because they lack concepts such as "credibility", which seems to demand more than just sensitivity to the existence of positive reasons (Audi 1997: 414). Graham also has a strong conception of reductionism (Graham 2018: 3019-3020). In contrast, Lackey's examples of subjects that cannot substantially satisfy the conditions that prohibit something are clocks, telephone poles, and coffee cups, which do not even satisfy the apparently weak requirement, and thus it is not clear to what extent she requires for justification (Lackey 2008: 199).

The most typical type of undercutting defeater would be the inaccuracy of the testifier. Studies examining children’s reactions to different testifier accuracies primarily compare individuals who repeat correct statements about the names or functions of things with those who repeat incorrect statements (Clément et al. 2004; Koenig et al. 2004). The results show that children tend to believe the former in these situations, but it is not clear whether they are responding to accuracy or inaccuracy, or both. Therefore, Corriveau et al. conducted an experiment with 3- and 4-year-olds in which they set up a total of three situations in which they compared an accurate testifier to a neutral testifier with no information about accuracy, an inaccurate testifier to a neutral testifier, and an accurate testifier to an inaccurate testifier (Corriveau et al. 2010). They found that both 3- and 4-year-olds are more likely to believe the testimony of a neutral testifier than that of an inaccurate testifier (Table 1). This suggests that children accept the testimony, at least considering the typical undercutting defeater.

At the same time, the experiment includes a test of the ability to consider certain positive reasons. In the situation comparing accurate and neutral testifiers, only 4-year-olds showed a tendency to believe the accurate ones, while 3-year-olds were indiscriminate. This suggests that the ability to consider negative reasons, as far as accuracy is concerned, develops earlier than the ability to consider positive reasons.

	Accurate/Inaccurate	Accurate/Neutral	Neutral/Inaccurate
3-years-olds	Accurate	Indiscriminate	Neutral
4-years-olds	Accurate	Accurate	Neutral

Table 1 Response tendencies of 3- and 4-year-olds in three situations.

Rebutting Defeaters

A study by Clément et al. with 3- and 4-year-olds included a task to see which children prefer to believe their own observations or the testimony of others when they contradict (Clément et al. 2004). In this experiment, the children were presented with two puppets that make accurate statements and inaccurate ones. After the children watching a single-colored pom-pom being placed in a box in front of them, both puppets looked inside the box and were asked what color the pom-pom was. They then answered different colors from the one the children have observed. The experiment examined how children answered when asked what color the pom-pom was. For example, the observation that “the pom-pom is red” is a typical rebutting defeater that clearly implies that the testimony “the pom-pom is green” is false. Therefore, this task can be construed as a test of the ability to consider rebutting defeaters. The results of Clément et al.’s

experiment show that both 3- and 4-year-olds tend to answer the color they observed with their own eyes rather than the testimony of the puppets. This suggests that, at least in such a simple case, children over the age of 3 accept the testimony of others, taking into account rebutting defeaters.

However, Jaswal's study, which was conducted with 2-year-olds, shows more nuanced results (Jaswal 2010: Study 2 and Study 3). Two of his experiments are relevant here. The experiments involved a device consisting of three curved transparent tubes with three cups, each with a different picture, placed at the bottom end of each of the three tubes. The children observed a ball introduced from one of the top ends that rolled down the tube, and fell into the cup. At this point, the testifier indicated a different cup from the one the children observed as the place where the ball was placed. The children were then asked which cup contained the ball, and the experimenters observed how they responded either verbally or by pointing. This procedure was used in two experiments, one with a transparent cup and the other with an opaque cup. The results show that the children tended to prioritize their observations when they kept seeing the ball in the transparent cup, but they tended to believe the testimony in the case of the opaque cup. This suggests that 2-year-olds, except in limited cases where they have fairly strong convictions, are unable to properly reflect rebutting defeaters in their doxastic states.¹⁴

Setting aside some caveats that are discussed later, these results have the following implications for reductionism/anti-reductionism. First, anti-reductionists might say that the variant of the child objection is erroneous because, although 2-year-olds are still in the process of developing their abilities, children at least three years old have shown the ability to consider both types of defeaters. Reductionists, on the other hand, might think that while the ability to consider negative reasons does indeed develop earlier than the ability to consider positive reasons, the difference in the age at which these abilities are acquired is at most one year and is not significant (Table 2). What is suggested here as the conclusion is that the appeal to children's ability to consider reasons does not make as decisive a difference in the superiority of reductionism/anti-reductionism as was initially thought. This conclusion itself is no different from that of Lackey and Clément. However, the grounds for it lie between those provided by them. That is, children are

¹⁴ However, Jaswal's original motivation for providing a clear cup case was to rule out the possibility that children were following the testimony to avoid objecting to the adults.

not fully capable of considering reasons but are not totally helpless: they are in the process of developing this capacity. The period in which they have the capacity to consider negative reasons, which both reductionism and anti-reductionism require, but not positive ones, which only reductionism requires, is not very long. Thus, as far as children are concerned, the difference between reductionism and anti-reductionism consists merely in whether or not children in this short period of time are capable of testimonial justification.

	Negative Reasons (Undercutting)	Negative Reasons (Rebutting)	Positive Reasons		Anti-Reductionist Admission of Testimonial Justification	Reductionist Admission of Testimonial Justification
2-years-olds	—	Fail	Fail (estimated)	→	Deny	Deny
3-years-olds	Pass	Pass	Fail		Admit	Deny
4-years-olds	Pass	Pass	Pass		Admit	Admit

Table 2 Ability of 2- to 4-years-olds to consider negative and positive reasons and reductionist/anti-reductionist admission or denial of their testimonial justification.

However, there are several concerns in drawing conclusions about children’s ability to consider reasons from the above experiments. First, these situation settings are not typical in selective trust research, and there are few similar studies. In addition, the situations set up in the experiment represent only a small fraction of the cases of undercutting and rebutting defeaters, and it cannot be directly concluded that some children have the ability to consider defeaters in general based on the fact that they pass the above tasks.

In addition, whether the settings of the experiments adequately capture normative defeaters depends on how they should be understood. Normative defeaters are thought to be beliefs that epistemic subjects should have, but when one should have such beliefs is debatable. One idea is that it is when the subject actually has good evidence to support the belief. This is also the understanding that Lackey employs in constructing a variant of the child objection (Lackey 2008: 7.2). In the aforementioned experiments, the children actually have evidence by hearing the testifier repeat false statements or by seeing the color of the toy with their own eyes, and in this sense, they have a normative defeater. In contrast, recent research has presented the idea that normative defeat may hold without one actually having evidence (Lackey 2016: Sec. 7; Goldberg 2016). For example, a mouse exterminator visits a house on business and the house owner tells him, “There is no mouse because I always keep my house clean.” The exterminator believes them without checking inside the house. Although he has no evidence that there are mice, his belief that there are no

mouses does not seem justified.

If the evidence sufficient for normative defeat to hold is not limited to that actually possessed by the subject, what criteria should be used to determine the scope of evidence, and whether such an expanded understanding of normative defeaters should be allowed in the first place are still under discussion and have not been settled (cf. Nottelman 2021). However, if normative defeaters are not limited to what the evidence in a subject's possession actually supports, then the experiments of Corriveau et al. and Clément et al. clearly do not sufficiently test the ability to consider normative defeaters. This is because what these experiments examine is how children reflect the defeaters with evidence in their doxastic states.

In light of the above, the following studies are eagerly awaited in the interest of the child objection. First, studies that confirm the replicability of the results of Corriveau et al., Clément et al., and Jaswal will be valuable. In addition, experiments with neutral testifiers are desirable, not only for accuracy, but also for other epistemic characteristics such as expertise and confidence that can constitute defeaters or positive reasons. Finally, measuring the ability to consider normative defeaters in an extended sense requires, at least, experiments to see, for example, whether children hearing testimony about the color of a toy and then given the opportunity to easily see it for themselves before answering a question, will actually check the toy and appropriately reflect their observations in the answer.

5. Conclusions

The child objection is one of the most primary arguments against reductionism. However, the testimonial justification of children is also problematic for anti-reductionism, since anti-reductionism, along with reductionism, accepts that the absence of defeaters is necessary for *ultima facie* justification. Although the variant of the child objection assumes that children are incapable of considering reasons, developmental psychological research on selective trust suggests that children over the age of three do consider, at least in a weak sense, the existence of undercutting and rebutting defeaters and reflect them in their beliefs. Nevertheless, since the ability to consider positive reasons also develops with a delay of at most a year or so, it is unlikely that appealing to children's abilities would make as much difference as expected in establishing the superiority of reductionism or anti-reductionism. However, there are several concerns about drawing implications for the child objection from existing psychological research, and further research is

desired.

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