**The Problem of Easy Knowledge and**

**how to conceive of epistemic Entitlement**

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**Abstract:**

Stewart Cohen has formulated what he calls the problem of easy knowledge, which is said to plague any epistemological position that posits basic knowledge. The problem of easy knowledge takes two forms. Here we want to focus on the bootstrapping version of the problem. We argue that Cohen’s misgivings only apply to a simple and rather silly form of bootstrapping, while there are unproblematic and important forms of bootstrapping. We develop the distinction between the problematic and unproblematic form of bootstrapping, and argue that good bootstrapping poses no problem for proponents of epistemic entitlement—properly understood. Indeed, we argue that an inarticulate form of good bootstrapping is important in becoming the kinds of competent perceptual systems that many of us humans are. At the same time, we think that what we have to say about this good bootstrapping has important consequences for how one should understand the epistemic entitlement characteristic of human perception.

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# 1. Overview

Stewart Cohen ([2002](#_ENREF_6), [2005](#_ENREF_7), [2010](#_ENREF_8)) has formulated what he calls the problem of easy knowledge, which is said to plague any epistemological position that posits basic knowledge. For Cohen, to posit basic knowledge is to posit beliefs that can count as objectively justified, and which thus could be knowledge, without the support of justified background beliefs in the reliability of the processes that are the sources of those beliefs. (Perceptual beliefs, memory beliefs, and even testimonial beliefs, have been thought to be basic in this sense.) The problem of easy knowledge takes two forms—one turning on the idea that knowledge is closed under obvious implication, the other turning on the apparent possibility of too easily bootstrapping one’s way into the epistemically reassuring belief in the reliability of the processes giving rise to the basic belief. Here we focus on the bootstrapping version of the problem.

Cohen worries that, if there are epistemic channels that warrant belief without the need for supporting beliefs about their reliability, then this would allow one to use the beliefs arising through those channels to “too easily” arrive at epistemically comforting metabeliefs. To illustrate, he envisions an agent drawing on perceptual beliefs (as perception is commonly thought to be one such warranting channel) to inductively bootstrap one’s way to the conclusion that one’s perceptual processes are reliable. The illustration (discussed below) certainly shows that some forms of bootstrapping would be worthless. But, we do not think it shows that one cannot use the results of perception to garner an epistemically appropriate sense for the reliability of one perceptual processes. As we diagnose the problem encountered in Cohen’s illustration, it lies with the structure of the inquiry that Cohen imagines, not with the perceptual beliefs that serve as data for that inquiry. The bootstrapping that Cohen imagines would be bad, but not because it’s data is problematic, nor because all bootstrapping is worthless, but because what is imagined is bad bootstrapping.

The kind of problem encountered here is found in various contexts involving inductive inference. Think of inductive generalization from samples. Suppose that one has a set of observations of cases in a population, and suppose that that there is nothing epistemically problematic with these observations considered individually—each may be a piece of knowledge to which the agent is entitled. It might yet be that these observations do not provide a basis for an epistemically warranting or objectively justifying inference about the population. While each observation may be epistemically unproblematic of itself, the set of one’s observations yet may not constitute a proper sample from which to generalize. One’s observations might constitute a biased sample for various reasons. So, beyond the question of whether we are warranted or entitled to each of the observations, or of whether we know in each case, there is the question of whether the inquiry is structured in such a way that it can put one in a good epistemic situation with respect to how things stand regarding the population parameter of concern. Now, obviously, that there are epistemically inappropriate inductive inferences does not show that all inductive inference is problematic. Neither need bad inductive inference from some class of data show that the information used there as data were not themselves pieces of knowledge, or not themselves objectively justified.

There are good and bad forms of bootstrapping, just as there are (more generally) good and bad forms of inductive inference. More specifically, there are good ways of perceptually based bootstrapping one’s way to a sense for (even warranted belief and knowledge of) the reliability of one’s perceptual processes. In order to have a proper diagnosis of the problem posed by Cohen’s illustrations of problematic perceptual based bootstrapping, one needs at least the rudiments of an account of good bootstrapping. We soon draw on ideas from Glymour’s venerable bootstrapping model of confirmation in the sciences ([Glymour, 1980](#_ENREF_10)), for it suggests a way of distinguishing good from bad bootstrapping. We then argue that one can find good bootstrapping at work throughout the epistemic lives of typical humans. It is exhibited in the training up of the human perceptual system from early on. This bootstrapping is more than epistemically benign, it is wonderful!

On the account that we offer here, the defeasible entitlement enjoyed by perceptual processes in typical human adults is not a simple thing. It is important to recognize that perceptual processes are themselves somewhat plastic. Human perceptual processes become what they are by training in which those processes themselves are shaped through a history of apparent successes and failures—they are processes that possess and accommodate such information quickly and automatically in coming to deliver their verdicts about everyday objects. In effect, the typical human agent’s perceptual procecesses and verdicts will themselves be informed by antecedent bootstrapping. However, we believe that the targets of Cohen’s argument, writers such as Burge, Pryor, and Sosa, would not see this as in conflict with a “basic knowledge structure” such as they envision.

Cohen’s problem of easy knowledge is intended to chasten epistemologists who posit sources of belief that can engender beliefs with justification sufficient to count as knowledge (if not Gettierized) without background justified beliefs in the reliability of those very processes. When we insist that one and the same perceptual process can generate a belief without the benefit of justified background beliefs in its own reliability, and yet can be responsive to background information that amounts to a sense for its reliability in the circumstances, we may seem to be talking out two sides of our mouths. We are not. The account we develop makes sense of the default entitlement structure that Burge thinks is fitting in connection with perception, memory, and testimony. Pryor’s dogmatism also seems to suggest such a structure, as does Sosa’s discussion of the relations between of animal knowledge and reflective knowledge. (Again, such are the targets of Cohen’s problem.) However, we argue that the entitlement they envision is it best understood as having a place for much information, gotten by bootstrapping, informing one’s perceptual processes—and commonly doing so subdoxastically. A defeasible entitlement structure would need to involve processes that can be understood at two levels—levels we characterize in *The Epistemological Spectrum* when we call for an “iceberg epistemology” ([Henderson & Horgan, 2000](#_ENREF_15), [2011b](#_ENREF_17)).

Central to our account is the idea that in managing well one’s epistemic chores one typically makes use of rich information that has been acquired in the course of one’s life—information that one may possess, and to which one may be sensitive, without representing it. This information need not be articulable, or accessible to the agent (in the familiar epistemological sense associated with access internalism)—it certainly need not qualify as what would normally be thought of as a belief—and yet it can be accommodated in processes in a way that subserves two epistemic functions: (1) it can be accommodated so as to condition what belief comes to be generated by the process (for example, in an episode, it can condition whether one forms a perceptual belief, and just what perceptual belief is formed), and (2) it can be accommodated in a way that gives one an associated sense for the confidence one should have in a belief so generated in the circumstances obtaining. This sense for normatively reasonable credence is, in effect, a sense for the reliability in the circumstances of the process in play. We believe that attention to the acquisition and place of such information in human cognitive processes will yield a realistic understanding of those processes that are commonly taken to deliver basic knowledge, and that this understanding will dissolve or diffuse the bootstrapping version of the problem of easy knowledge—for much background information is attained by a good form of bootstrapping.

# 2. The Apparent Problem:

## i. Basic Knowledge? Basic Justification?

As Cohen presents the problem, the issue is whether knowing that *p* requires knowing that the process generating that belief is itself reliable. Not a few epistemologists would hold the general principle:

(KR) A potential knowledge source K can yield knowledge for S, only if S knows K is reliable.

Cohen notes that KR is not without its own problems. In particular, when thinking about processes such as our perceptual processes, it is plausible that one cannot get information about the reliability of those processes without relying on those very processes. As a result, if one embraces KR without hefty loopholes, one seems to end with a serious version of the problem of the criterion—and with skepticism. So, a natural response is to look for epistemic sources that plausibly can be exempted from KR—to repudiate KR unqualified. This is to posit select sources of “basic knowledge”—it is to hold that knowledge has a “basic knowledge structure” (or BKS).[[1]](#endnote-1)

While much of the discussion has been carried on in terms of knowledge—basic knowledge—it is desirable to focus primarily on what is required for an agent to have an objectively justified or warranted belief—a belief such that, were it true and not Gettierized,[[2]](#endnote-2) (or not produced in an locally distinctively inhospitable environment) it would qualify as knowledge. At issue is whether there are epistemic processes, channels, or sources—perhaps, such as perception, memory, or testimony—the deliverances of which one has a kind of entitlement to accept without the support of justified meta-level beliefs regarding the reliability of the source process.

In this paper, we will defend an epistemology that we take to posit a form of basic justification. The position that we espouse is suggested by Burge’s ([1993](#_ENREF_3), [1997](#_ENREF_4), [2003](#_ENREF_5)) writings on epistemic entitlement.

Tyler Burge has argued that certain source processes give rise to beliefs that can be warranted without supporting metabeliefs. In particular, memory and testimony, along with perception, can produce warranted beliefs without supporting beliefs about the reliability of such processes generally, or about their reliability in the circumstances. Again, were the agent to have significant reasons to think that the process were compromised in the circumstances obtaining, or were the agent antecedently to have strong reasons to think that the belief there indicated was not true, the process could fail to warrant the belief. According to Burge, the warrant for perceptual belief, testimonial belief, and memory-based belief, is characterized by a default entitlement structure. We take it that Burge’s account of entitlement posits a BKS in Cohen’s terms.[[3]](#endnote-3) It posits what we will call an *Entitlement Structure—ES—*characterized by a select set of source processes, *s,* for which the following entitlement principle holds:

**Entitlement Principle:** A person is entitled to accept as true the deliverance of *s,* unless there are stronger reasons not to do so.[[4]](#endnote-4)

We want to defend the idea that there can be, and are, sources of belief that give such entitlement—a default defeasible entitlement.

 Cohen mention Pryor’s dogmatic epistemology and Sosa’s virtue epistemology as positions espousing a BKS. We read both Pryor and Sosa as suggesting a ES form of BKS.[[5]](#endnote-5),[[6]](#endnote-6)

## ii. Bootstrapping and the Problem of Easy Knowledge

The charge is this: a BKS or ES would allow one to get by bootstrapping to a justified meta-belief, but we should not have been able to get to that meta-belief in that way—it would neither be knowledge, nor objectively justified.

Cohen argues that, if one’s epistemology posits an ES, one will be committed to the epistemic propriety of certain problematic inferences: bootstrapping inferences. To begin with, one could employ the entitling process to generate a set of beliefs. Then, as long as one also has the rudimentary self-reflective capacity to register what process one employed and that it delivered the results it did (and that this processes is also entitling), one can engage in an enumerative induction having the conclusion that the process is reliable. This is the *bootstrapping version* of the easy knowledge problem—as the agent would seem to be warranted in using the source (said to provide a default entitlement) to bootstrap one’s way to a meta-belief to the effect that the source is reliable.

As a striking illustration, Cohen imagines that one undertakes to investigate the reliability of one’s color perception by studying one’s responses to a slideshow. As one looks at the colors projected on the wall, one generates a set of color judgments, first patch blue, second patch red, third patch green, and so on. In parallel, one reflects on the process employed—that it is visual perception—and on what it delivers, first judgment is that it is blue, second judgment is that it is red,…. Finally, one puts all this data together:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Trials | Color of patch | Process employed | Process verdict | T-value of the verdict |
| 1 | Blue | Visual  | That it is blue | True |
| 2 | Red | Visual | That it is red | True |
| 3 | Green | Visual | That it is green | True |
| … | … | … | … | … |

Table 1

Not surprisingly, one’s sample yields a track record of reliability, and, since by hypothesis one is entitled to all the data here relied on, one seems entitled to conclude that one’s visual processes are reliable. Using what one is supposedly epistemically entitled to, without needing justified background beliefs regarding the reliability of one’s perceptual processes, one has apparently managed to bootstrap one’s way to a justified or warranted belief in the reliability of the perceptual processes on which one has relied. Something certainly is amiss here.

# 3. Easy Bootstrapping, Difficult Bootstrapping, and Risk

## i. Easy Bootstapping and the Absence of Risk

Let us get clear on what is amiss in the sort of bootstrapping envisioned above. To get to the meta-belief that one’s color vision is reliable by way of the bootstrapping just described would be too facile, in some sense to be explicated. It does not yield objectively justified or warranted belief. But, the problem is not that one got there easily. When there is an easy way of getting into a good epistemic position regarding a given belief, that is great. The problem instead is that *this* easy way of bootstrapping oneself to the belief in question *does not leave one in a good epistemic position* regarding the matter.

Here is a first thought: If, for some contingent matter, *p*, one is seeking to determine whether of not *p*, one needs to use a process that can produce differing verdicts, *p* and *~p* (or at least can fail to yield the verdict that *p*). Of course, one also wants the process to be such as would tend to produce the verdict that *p* when in fact *p*, and tend not to produce that verdict when *p* does not obtain. Thus, a process that is bound by its structure and logic to produce one and exactly one verdict (no matter the details of the input) is simply no good. The fix is in—before any “data” is collected, merely reflecting on the structure and resources of the process, one can see what its verdict will be. One does not need to “run” the study—one knows exactly where it will end up. The simple bootstrapping that Cohen describes is a case in point—it is capable only of one verdict: that one’s color vision is reliable.

One way in which these first thoughts are overly crude has to do with its appeal to the “contingency” of the matter in question. One should note that something along these lines should hold for an acceptable method for getting to necessary truths. For example, consider one’s method for determining whether the atomic number of gold is 79—supposedly it is metaphysically necessary that gold has atomic number 79. Yet there is some sense in which one would want one’s method for determining the atomic number of gold “to be able” to turn up different values as the atomic number of gold.

It helps to have a distinction between epistemic possibility and metaphysical possibility. Consider: at some point as folk had just begun to ascertain the characteristic number of protons in the nucleus of the various elements.[[7]](#endnote-7) They had a general method, which they could apply to the various known elements in order to determine their atomic number. Suppose that they decided to deploy their method on gold—which then had yet to be subjected to their method.[[8]](#endnote-8) It might then have been epistemically possible that gold had epistemic number 78 (for example, or some other number)[[9]](#endnote-9) even though this is not metaphysically possible. What these folk knew, supposing that they knew basically how their method worked, did not determine (as it were, in advance) that gold had atomic number 79. One could not know in advance that it would yield that result merely by understanding how that method worked. One needed to use one’s method, *gather the relevant data*, and only then discover what the method delivered as a result. In contrast, one can look at Cohen’s simple bootstrapping process and know in advance that it will produce a positive verdict.

To refine our first suggestion, let us begin with a distinction due to Goldman (1986)—although we will use different terminology to mark Goldman’s distinction.[[10]](#endnote-10) Typically, a given process may yield a verdict on multiple matters or questions. One’s processes of color vision may yield a verdict regarding various propositions—that surface/patch is green, that that surface/patch is brown, that this patch is blue, that that one is red, and so on. Goldman thought it important to distinguish between what we will here term *narrow* reliability—the reliability of the process with respect to some one proposition it yields (that such-and-such an item is green)—and *wide* reliability—the reliability of the process with respect to the range of propositions it might render in its various possible applications within its environment. Suppose, that Andy’s color vision is highly widely reliable. One could point to arbitrary to regions on a standard artist’s color wheel array, or to items with those same surface characteristics, and Andy could generally render correct verdicts about the color of that region or item. Being able to do this for the vast majority of such color regions constitutes wide reliability in Andy’s color perception. Now imagine that, after a knock on the head, Andy’s processes of color perception have come to be scrambled in the following way. It is as if the color wheel had been flipped, or mapped onto itself. With respect to the colors in two small regions of the wheel, say along the green and red axis, Andy’s processes remain reliable—verdicts regarding colors instanced in only these two small regions Andy’s judgments are what they would have been earlier. But, for the other colors or regions, Andy’s processes are now highly unreliable. For example, presented with blue regions and things, Andy sees and judges that they are yellow, and Andy judges that yellow regions and things are blue. Andy’s color vision now lacks wide reliability—it is no longer reliable “for all (or many) uses of the process” (Goldman 1986, p. 44). However, with respect to the proposition that such-and-such a thing is green, Andy’s vision remains narrowly reliable—it is reliable “in the context of” these propositions.

Goldman argues that the kind of reliability relevant to knowledge (and objective justification or warrant) is some form of wide reliability. Clearly, Andy’s new color vision would not put Andy into a good position regarding his color beliefs generally. But, what should one think about the epistemic status of a belief for which Andy’s processes are narrowly reliable? It may be useful to first consider cases in which one is dealing with claims that are either necessarily true or necessarily false—say mathematical claims. Suppose Billy arrives at the belief that 293+412=705. One might have gotten to this using standard elementary pen and paper calculation. This process has both narrow and wide reliability. Alternatively, being stubborn and lazy in his early schooling, Billy might have adopted some facile but widely unreliable process such as accepting as true all formula that are over 7 symbols in length (“long” formula). This “lazy long addition” would have yielded the mathematical belief above. With respect to that belief, this lazy process would possess (mere) narrow reliability. This narrow reliability is of negligible epistemic worth. If Billy had considered instead the question of whether 293+412=706, then he would have thought it true—and he would even judge that 2+3=9,342,827. It seems that using such a merely narrowly reliable process is unacceptably and needlessly risky—even when one *happens to be* thinking about 293+412=705. The best that can said for this lazy process is that when it gets it right, it gets it right. There is no connection between the information used in the process and mathematical truth. Rather, the process gets the right answer for all true long formula, and gets the incorrect answer for all false long formula—and when the process happens to yield the correct answer it is merely because it then happened to be applied to a formula that is true. Even the blind chicken sometimes gets some corn, but that is not to praise blind pecking as an epistemic virtue. Failing of wide reliability, one is not in a good epistemic position in believing as one does.

Next, suppose that one wants to answer the yes/no question of whether some item has some property. Consider a process that by its very structure is bound to give the same answer in regarding any item—namely that the item possesses the property in question. It does not matter what item is considered, the process will give the same answer no matter which it is. For example, one might use the following process for determining whether a given inscription (using the standard alphabet) represents a grammatical English sentence: If the inscription is at least one letter long, one judges that the inscription is grammatical. Obviously, no matter what inscription one looks at, this will produce the same positive verdict. Still, it is narrowly reliable with respect to any grammatical sentence in English. It is narrowly reliable with respect to ‘See tip run’, for example. Yet using such a merely narrowly reliable process is unacceptably and needlessly risky. When one gets it right, it still seems that one just got lucky and happened to focus on a case regarding which the correct verdict happened to be that one verdict that the process delivers in any case. One could have as easily applied the method to, ‘Run tip see’. While the process is bound to give a correct verdict regarding any case in which the correct verdict is affirmative, it is equally bound to give an incorrect verdict with respect to any case in which the affirmative verdict is incorrect. The process lacks wide reliability.

 Of course, our primary concern is with a process that would answer questions about the reliability of various cognitive processes. For a range of one’s cognitive processes, one can seek to determine whether the process in question (the object processes) is reliable. Consider then a *process of inquiry* that would address such questions (call this the *meta-inquiry process*). This meta-inquiry process can be characterized in terms of a set of informational resources and their structured inferential use.[[11]](#endnote-11) One can then ask whether such a structured use of informational resources allows one to reliably settle questions of the reliability of one’s object processes.[[12]](#endnote-12) One can ask whether the meta-inquiry process is widely reliable.

 In Cohen’s slideshow example, the agent addresses the question of whether one kind of object process is reliable: perceptual processes of color determination. The agent’s informational resources, in this example are three-fold:

1. The deliverances of one’s color vision.
2. The reflective identification of the source of those deliverances: that they derive from the agent’s own color vision.
3. The reflective identification of the content of the judgment delivered in each case.

As we have already seen, this resource base generates information about cases of the sort arrayed in table 1, and must necessarily lead to an apparently unblemished and unblemishable track record for the object process in question. In a phrase, the fix is in. To the extent that the object process—in this case, perceptual color determination—is indeed reliable, it follows that the process of meta-inquiry envisioned is narrowly reliable. It can only yield a positive verdict and it happens that this particular object process is reliable.

The same general meta-inquiry process might be used to evaluate the reliability of all manner of object processes. For example: Is one’s auditory discrimination of bird songs reliable? Is one’s echolocation of things in my environment reliable? Is one’s wishful thinking reliable as a way of determining what will be one’s birthday present? Is one’s fideistic acceptance reliable as a way of determining what supernatural beings there are?

The structure of the meta-inquiry process of which Cohen’s illustration is an instance can be represented using a variable for the object process in question (process x), and variables for the contents that the object process delivers in each case (that the item is p, or p\*, and so on), and for the property of the item in each case, as “determined” using the object process. Thus:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Trials | Property of item’s property | Object process employed | Object Process verdict in case | T-value of the verdict |
| 1 | p | Process x | That it is p | True |
| 2 | p\* | Process x | That it is p\* | True |
| 3 | P\*\* | Process x | That it is p\*\* | True |
| … | … | … | … | … |

Table 2

Clearly, this meta-inquiry process—*simple bootstrapping*—can deliver only one result, no matter what object process is investigated, no matter what its verdicts in individual cases. It can give only a positive verdict in each and every question to which it is applied. It will necessarily tell one: that one’s color vision reliable, that one’s auditory perception of bird species is reliable, that one’s echolocation is reliable, that one’s wishful thinking is reliable as a way of determining what will be one’s birthday present, and that one’s fideistic acceptance is a reliable a way of determining what supernatural beings there are. (Of course, the verdict that one’s echolocation or wishful thinking is reliable will be belied by other experiences—but this turns on the use of wider resources than is characteristic of the meta-inquiry envisioned above—it requires a more powerful process of meta-inquiry, one to which we will soon turn.)

 The basic lesson is simple: the meta-inquiry process of easy bootstrapping that Cohen envisions is lacking in wide reliability. It can yield only one verdict, the positive meta-verdict, and would do so whether the object process is reliable or not. Cognitive processes are sometimes reliable and sometimes not. This provides an improved diagnosis of what is wrong with the kind of easy bootstrapping that Cohen envisions. As we will soon argue, not all forms of bootstrapping meta-inquiry lack wide reliability. [[13]](#endnote-13),[[14]](#endnote-14)

The simple bootstrapping that Cohen envisions would be too easy in that the few resources that it uses do not allow one to meet the demands of wide reliability. It seeks to determine whether of not one’s object processes are reliable, yet it is so structured that it can only yield one answer—that they are. If one’s processes were unreliable or unreliable in the circumstances, it would produce this same result. One’s “hypothesis” is never at risk. At best, one just happened to apply it with regard to an object process this is reliable.

This said, most philosopher’s would admit that one needs to rely on one’s perceptual processes in order to get information about the reliability of one’s perceptual processes. One cannot establish a priori that one’s perceptual processes are reliable. There is a clear sense in which this commits one to *some* form of bootstrapping in connection with the question of the reliability of one’s perceptual processes. The point applies, *mutates mutandis* to other putatively basic epistemic sources, such as memory. There must be, and there are, better forms of bootstrapping.

## ii. Difficult Bootstrapping and Risk.

 Glymour’s classic (1980) discussion of bootstrap testing in science provides several important ideas. According to the bootstrapping account of scientific evidence and testing, data provides evidence for theoretical claims, hypotheses, by providing instances of the hypotheses (where an "instance" is understood in something like the way developed in Hempel's work on qualitative confirmation). Of course, when the hypothesis under test employs vocabulary not used in statements of the data, a very common situation, the data can provide an instance of the hypothesis only when an instance of the hypothesis can be derived from the evidence in conjunction with further theoretical claims. Thus, confirmation becomes a triadic relation: Certain data confirms (or disconfirms) hypothesis H with respect to theory T (Glymour 1980, 110). The theoretical claims connecting data to hypothesis are clearly not analytic truths. Rather, they are themselves subject to testing (confirmation or disconfirmation) against data with respect to some bits of theory (Glymour 1980, 145-151) (thus the notion of bootstrapping).

But, does such an approach make theory confirmation too easy? Couldn’t our theory contain mutually compensating errors, so that it is bound to produce spurious positive instances?

Suppose that bit A is used together with evidence E to justify bit B; and suppose that bit B is used with evidence E' to justify bit A; then might it not be the case that E and E' determine neither a real instance of A nor a real instance of B but provide instead spurious instances, which appear to be correct because the errors in A are compensated for in these cases by errors in B and vice versa? (Glymour 1980, 108)

Glymour responds, "Indeed it might be the case, but it would be wrong to infer straight out from this that E and E' provide no grounds at all for A and B" (ibid.). He seeks to build into his account ways of guarding against compensating error and concludes that "[t]he only means available for guarding against such errors is to have a variety of evidence, so that as many hypotheses as possible are tested in as many different ways as possible" (ibid., 140). Such variety in testing any one hypothesis involves computing the values involved in that hypothesis in different ways, using different sets of theoretical generalizations and computing them from different sets of evidence.

To test a hypothesis, *H*, on the basis of evidence *E* with respect to theory *T*, then, it must be possible to compute or determine the value of the quantities occurring in the hypothesis so as to obtain a positive instance of it on the basis of *E* and generalizations of *T*. However, while this is a necessary condition, it is clearly not sufficient for testability, for it is also necessary that evidence of the sort *E* puts *H* at risk. That is, *E* contains values for certain quantities (understood broadly), and it must be possible to have gotten from the procedures used in obtaining *E* a data set *E'* with different values of those same quantities (when those procedures were employed in a setting that differed, or course). Finally, for the hypothesis to be a risk, it must be possible for some such different data set E’ to produce a negative instance of *H* by way of same computations that produced the positive instances (Glymour 1980, 115-117). Obviously, this requirement is not satisfied by the meta-inquiry envisioned in Cohen’s easy bootstrapping illustration.

We take inspiration from Glymour’s account. To bootstrap test a component of one’s theory, one uses other components to compute an instance from some observational data. To bootstrap oneself into a sense for the reliability of one component of one’s perceptual processes, one uses other perceptual processes. One may think of one’s broad range of perceptual processes, *P*, as composed of more restricted perceptual processes or disposition, *p1, p2, …, pn*. Some of these will be visual (and depend on certain kinds of information), others tactile (and similarly various), and so on. Further, some visual processes will involve more accommodation for occlusion or for distances, than others. Suppose that some component, *pi*, delivers some perceptual verdict/expectation: *e*. If one is to have perceptual information that gives an epistemically fitting basis for a sense of the reliability of one’s perceptual process, *pi*, the other components of one’s perceptual processes, *P*, must be put to work. They must be capable of yielding conflicting verdicts, e’, as well as verdicts supportive of e. This is how the “hypothesis” that some perceptual process, *pi* is reliable can be put as risk—the perceptually-based processes for “determining whether *pi* is reliable or not are not trivial in the way suggested by the slideshow story, and that is a very big start.

As indicated by Glymour, there is yet some possibility of spurious confirmation or disconfirmation. This risk can only be mitigated, not eliminated. It is mitigated in basically the way Glymour suggests, by multiple and diverse forms of cross-checking.

The meta-inquiry process of simple bootstrapping, as above distilled out of Cohen’s illustration, would violate the demands on a fitting test of the hypothesis that the object process is reliable. It would do so in two ways. First, the data regarding what is the case *is not produced by a process that differs in any significant way from the object process being evaluated for reliability*. Indeed, second, *one and the same instance or verdict of that one object process* would be used both to gauge the verdict of the object process and to gauge what would be a true verdict. This is the limit case of riskless testing.

However, one can do much better, and a proponent of ES can and should demand much better. The structural feature just now required for good bootstrapping—multiple and diverse forms of cross-checking—are happily exhibited in typical human biographies. One can discern this feature in the training up of perceptual processes, exhibited most starkly in childhood, important in all perceptual learning, and responsible for our competent, nuanced, powerful perceptual processes becoming the processes that they are.

## iii. Difficult Bootstrapping, Training, and Perceptual Competence

Life with human sensory endowments is a study in frustrations and successes. From early on, the human epistemic agent (or proto-agent) seems to form expectations on the basis of sensory experience. These expectations may then be frustrated upon subsequent perceptual experience, or they may be borne out in further experience.

 For concreteness, consider a kind of case rife with opportunities for perceptual frustration or vindication of perceptions. Suppose that one is camping in a dense, damp, temperate forest, and that one is looking for wood from which to build a fire. As one walks about, one looks for dry, dead, branches (ideally sufficiently intact to be drug back to camp efficiently). Many of the best and driest branches will be those that have been at least partially suspended in the forest understory (rather than having been integrated in the damp litter). Picking out such items in one’s complex environment poses significant perceptual challenges. The branches one hopes to find will commonly be intertwined in various complex ways with the different components of the understory—they may be partially occluded in various ways, they may be mistaken for branches of living trees/bushes, or living branches may be mistaken for them. Success rates will turn on perceptual processes that will have undergone more or less significant development and refinement. Now, imagine that as one walks about scanning one’s forest environment, one forms a belief that (20 feet) yonder is a nice branch for firewood. One presumably then approaches the putative source. As one does, one gets a more concerted, closer, look at it—perhaps from differing angles—and the resulting perceptual processes may yield corroborating or conflicting verdicts. Perhaps they reveal a leggy branch ending in foliage (and the conflicting verdict that the branch is a living sapling). Perhaps they show the branch to be part of a larger plant, rather than a dead remnant suspended among living branches. Commonly, visual processes will correct visual processes. Still, as the correcting episodes are dependent on different input, and marginally different aspects of one’s visual dispositions, this would seem to make for analogies with Glymour’s account of good bootstrapping.

 Of course, visual processes may be corroborated or corrected by nonvisual perceptual processes. One might give the branch a jerk, only to find it firmly rooted. One might bend a twig, only to find it flexible, green, and living.

As one’s perceptually induced expectations are perceptually contradicted or vindicated—one comes to be perceptually sensitive to an array of cues that commonly one cannot articulate. There is much richness in the sets of clues to which one eventually comes to be perceptually sensitive—and the clues to which one is sensitive accumulate in the course of ongoing perception. These clues are then accommodated within perception in a largely inarticulate manner. This is important: much of the information to which a normal competent perceptual agent is sensitive in the course of generating perceptual judgments is accommodated far below the level of articulate belief—indeed, much of it cannot be dredged into the conscious form. Thus, perception is significantly shaped by perceptual feedback.

Continuing the concrete illustration above, the frustrations and vindications had when seeking firewood can bring about refinements in one’s perceptual processes—reinforcing those that are corroborated, amending or selectively inhibiting those that are frustrated. Thus, it is common that one who has repeatedly engaged in a search for firewood will develop “an educated eye” for firewood—a refined and more reliable perceptual capability for recognizing it as one ambles along.

 Commonly, then, one’s perceptual process at play in a given episode has a history that is important for its being the perceptual process it is. The perceptual shaping of perceptual processes begins early. Like the camper who tugs on a putative firewood source only to get more, less, or anyway something different from what he bargained for, the small child will many times reach for something that, when manipulated, is not as expected on the basis of initial perceptual promptings. While actively exploring their environment, the child will undergo many and various frustrations and successes—perceptually delivered—and develop a more or less educated eye for everyday objects variously presented, for their colors, sounds, smells, tastes, and tactile cues.

Of course, one’s shaped perceptual processes, one’s “educated eye” does not require one to have an ability to articulate the clues to which one is perceptually sensitive. Certainly, one commonly cannot articulate the exact bearing of these cues on the matters in question. For reasons pursued below, much of the information to which a perceptually competent agent is sensitive needs to be accommodated automatically and subdoxastically in the perceptual processes—and much of this information is not available to the agent on reflection after the fact. The picture thus emerging is this: in common every life one encounters many perceptually afforded vindications and frustrations of one’s antecedently generated perceptual judgments and expectations. This shapes or “trains up” one’s perceptual processes, so that they become (commonly) automatically and (often) inarticulately sensitive to a range of cues. Such training has the informational structure of the good bootstrapping characterized by Glymour.

Now, such training (or inarticulate but good bootstrapping) does not merely shape the verdicts one has a tendency to arrive at in circumstances. It also shapes ones tendency to “perceive confidently” or “perceive hesitantly” (that yonder is a good branch, for example). A commonly inarticulate sense for fitting confidence seems to arise in the course of one’s experiences—in effect, a largely inarticulate but informed sense for the reliability of one’s perceptual process in the case seems embedded in some of one’s perceptions. It is plausible that this inarticulate sense is informed by past episodes of perceptual frustration and perceptual vindication. As one develops a more or less educated eye for everyday objects variously presented, for their colors, sounds, smells, tastes, and tactile cues, one comes to have a sense for when one can rely on the perceptual process in play.

Further, it seems that, commonly, one’s sense for the reliability of one’s perceptual processes is not readily separable from the confidence engendered by the perceptual process itself. We think that this is telling. Commonly, rather than looking for background beliefs, it may be best to think of the perceptual processes as delivering a perceptual belief with something like a degree of confidence that itself reflects the agent’s sense for the reliability in circumstances—and doing so where there may be no occurrent belief about reliability in play in those perceptual process.

## iv. A note on the early childhood

This phenomenon of perceptually formed expectations being subsequently frustrated or vindicated by further perception is in evidence very early in life.[[15]](#endnote-15) Consider work of developmental psychologists in which different patterns more or less suggestive of various occluded objects are presented to children in the first months of their lives.[[16]](#endnote-16) Imagine, for example, one rectangle out of which protrudes two shapes that one might easily imagine are the ends of a thinner rectangle (figure 1a).

Something like:



Figure 1 (Reproduced from ([Amso & Johnson, 2006, p. 1237](#_ENREF_1))).

Then imagine variations involving differential textures, angles, projectible continuity of the smaller components, and movements. Using crude indicators such as the time infants will attend to such stimuli, there is reason to think that by around 4 months of age, there is a change in many childrens’ tendency to form perceptions concerning what manner of objects they have before them—that is, there seem to be changes in their judgments about whether they are presented with one object occluded by a second as opposed to perhaps three or so objects. Differences in the perception of objects such as that in figure 1a are suggested when what would appear to be two ends of an occluded object are “moved” so that it is no longer “behind” what might appear to be the occluding object. What may “emerge” may be either one continuous pattern (figure 1b), or (figure 1c) just the initial two discreet patterns with no pattern connecting them (no intermediate serving as what might have been imagined to be the previously occluded portion of one object). Beginning around 4 months of age, infants tend to look longer at the display when it presents them with the patterns that would not vindicate the expectation of one occluded object coming into view. This is plausibly taken to indicate their struggling to deal with frustrated expectations—that they had perceived 1a in this fashion, and thus had formed the expectation that a single occluded object would emerge. Interestingly, earlier, the reverse seems to hold—younger children look longer when what emerges is a single object. The suggestion would seem to be that they had not earlier perceived and expected that!

 It is plausible that these changes in perceptual tendencies are themselves engendered, at least in part, by perceptually garnered frustrations and vindications of earlier courses of perceptually engendered experiences. However, there remains many open questions concerning the extent to which these changes are explained by learning in the course of these months of life, and the extent to which they are explained by maturation of perceptual cognitive modules. There is evidence that one can hasten or inhibit changes in perceptual tendencies by exposing children to frustrating or supporting events, which of course they must take in perceptually.[[17]](#endnote-17)

## v. Yet to be Resolved: What not to Conclude.

 We want to emphasize what we think is the wrong way of understanding the above. The acquired sensitivity to the reliability of one’s perceptual processes posited above should not be understood as a meta-belief to the effect that these processes are reliable. Such sensitivity as we envision does not require a repudiation of epistemologies with an entitlement or basic knowledge structure (an ES or BKS). We are not suggesting that fitting perceptual processes—at least in the case of a trained-up, competent, normal adult human--have “always already” been certified by a justified meta-belief regarding its reliability.

 It is however, worth noting that, were one to pursue such a line of thought against epistemologies with an ES or BKS, one yet would need to admit that the “justified meta-belief in the reliability of one perceptual process” was arrived at by way of one’s perceptual processes and bootstrapping—there ultimately being no alternative. Further, it would seem that, sooner or later, one needs to admit that one’s perceptual processes sometimes enjoy some kind of default entitlement with defeasibility if they are to play the required role in the training up envisioned. So, even were one to think that meta-beliefs were on the epistemic menu in some later stages, this would not seem to be generalizeable into a repudiation of an epistemology with an ES or BKS.

Further, even were one to think of in terms of meta-beliefs, we have at least pointed to a reason for not fearing a form of bootstrapping that would rely on perceptual processes with some form of entitlement. Further, we take the foregoing to show that the proponent of an ES or BKS can help themselves to a form of bootstrapping that does not have the objectionable features found in Cohen’s slideshow illustration. One need not repudiate ES in order to avoid the silly bootstrapping to which Cohen rightly objects. One need only object to bootstrapping that is without risk, and that thus can get us nowhere.

Still, it best not to think that bootstrapping typically gives rise to paradigmatic meta-beliefs. The suggestion that meta-beliefs are always there for the having would encourage one to think that the warranted production of perceptual beliefs requires more than one’s trained-up competent perceptual processes—it would encourage one to think that it requires a kind of background processing and certification at the level of beliefs—and we believe that this would be ill-motivated. We have posited a sensitivity that commonly takes the form of a revisable, refinable, aspect of the perceptual processes themselves—rather than an antecedently possessed doxastic meta-representation that licenses those processes. Such a subdoxastic sensibility can arise by way of training—and can yield a sense for reliability in the circumstances that is not independent of the confidence enjoyed by the output of the perceptual processes.

 The idea of a sensibility, arising through a kind of training that is informed by and informs the perceptual processes in question, is an idea that fits well with the idea of an ES version of a BKS. Indeed we believe it is an idea that must be incorporated in any workable epistemology positing an ES. Let us consider more carefully what an entitlement structure should amount to.

# 4. Dissolution of the Problem of Easy Knowledge

## i. Entitlement, a closer look

On our view, it is a fitting epistemic *default position* that one who is a competent human perceiver accepts the judgments generated without qualm by their perceptual system. (Parallel entitlements obtain with respect to memory and testimony.) To say that acceptance is *a default* signals (a) that one *can* have reasons for doubting the verdict or source, (b) that, *when* onehas such a reason, one then cannot simply accept the verdict (the default may give way, so that warranted acceptance depends on coming to terms with the apparent underminers), and (c) that absent such reasons, simple acceptance is warranted. We take this to characterize a paradigmatic entitlement structure, or ES.

In characterizing this default—this defeasible entitlement—one focuses on one side of a coin, the other side of which involves there being in place processes checking and regulating the acceptance of verdicts of the select set of sources—ones that are sensitive to reasons to doubt their circumstantial trustworthiness. An adequate and complete epistemology with an ES structure will treat of both sides of this one coin. This has not been emphasized by proponents of an ES, but it is not optional in an epistemology with an ES. In keeping with the *defeasible* entitlement structure that defines ES (in particular, in keeping with clause (b)), *were an agent to have significant reason for doubting a source’s trustworthiness, that agent would not be warranted or objectively justified in simply forming the indicated belief on the basis of that source—to be objectively justified in forming the belief, that agent would need to have in play processes that somehow came to terms with the possessed information bearing on trustworthiness*. Call this the *defeated entitlement case requirement.* When the agent has information strongly suggesting source untrustwothiness, processes coming to terms with such information are required to be in play to yield an objectively justified belief.

To say that in defeated entitlement cases the agent *ought to* come to terms with the possessed information implies that the agent *can* come to terms with such information in such cases. Such *a capacity* on the part of the agent requires that the agent have and undergo *processes that are sensitive* to the presence of such information—and that *can initiate processes coming to terms with such information* when such information is present. Thus, this much must then be true of *an agent who has the capacities or processes required by ES in connection with the entitling sources in defeated entitlement cases*: *were that agent to have reason to doubt the trustworthiness of the source, that agent would initiate or undergo processes coming to terms with such information, and would not simply trust the source. This much is true of any agent who has the capacity to satisfy the requirements of an ES in the defeated entitlement case.* (This is not to say that the processes here required need be conscious, articulate, or at the level of internalist epistemology.)[[18]](#endnote-18)

Thus, the proponent of an ES cannot simply distinguish two classes of cases (the bare satisfied entitlement cases and the defeated entitlement cases) and demand that, in some unconditioned manner, different processes be in play in the two. What is demanded of agents in the defeated entitlement case is that certain processes there be triggered. *To demand this is to demand selectively triggering processes*.[[19]](#endnote-19) To demand that the agent would not simply undergo trusting acceptance in a defeated entitlement case is to require that the agent generally have in play processes that are sensitive to the presence and strength of information bearing on source trustworthiness.[[20]](#endnote-20) This is to require that the difference the course of cognitive processing in the two cases be conditioned by the differences in the two cases—it is to require that processes in the agent be sensitive to which sort of case obtains. Thus, even in the satisfied entitlement case the agent’s background processes should be sensitive to the presence of information bearing on trustworthiness of the source process. The entitlement is then to accept the source judgment as true—given that the agent does not there have strong reasons to doubt the source there.

Thus, reflection on the defeasible entitlement structure central to ES leads one to think in terms of a process or processes that sensitively accommodate background information. Still, to do justice to clause (c) above, it must also be the case that the entitling processes allow for a kind of acceptance-without-doxastic-dance in the default case; justified (or unjustified) meta-beliefs certifying source reliability are not required in order for the agent to be entitled to rely on source processes such as perception. There is no tension here. The sensitive background processes demanded of agents need not generate meta-beliefs certifying source reliability.

We think that it is plausible that the demanded sensitivity is commonly provided by the operation of one’s trained-up, competent, perceptual processes in the course of their normal operation. Phenomenologically, one can describe what we envision using the idea that “warning-flags” or “cautions” may arise out of perceptual (or other entitling) processing in some cases, and not in others. With significant background sensitivity, the cases in which warning flags are raised amount to defeated entitlement cases. Absent the warning flags, the entitling processes yield verdicts with a satisfied entitlement. We believe that this model is plausible in light of iceberg epistemology.

## ii. Entitlement, Iceberg Epistemology: Exposed and Submerged Processes

 In (Henderson and Horgan, 2000, 2011) we argue that some epistemically important processes can differ markedly from the sort of processes that have commonly and traditionally been thought to exhaust those of epistemological concern. In particular, we argue that an epistemically competent finite cognitive system (such as a human) faces certain cognitive chores that require reliance on processes of sorts that do not readily fit into traditional epistemological accounts. One must recognize the epistemological importance of cognitive processes turning on information that is possessed by agents in ways that epistemologists have tended to overlook. Examples of the chores in question include the kind of holistic belief fixation reflected in theory choice, and the kind real time perceptual discrimination in the face of challenging conditions. These chores require that the cognitive system be able to somehow bring together the relevant information, sensitively gauging what information is relevant and taking account of that information. The problem for contemporary epistemologists is one of appreciating how this can be done in ways that do not make for intractability. *Iceberg Epistemology*, is inspired by recent work in cognitive science and reflection on connectionist systems. It argues that a system can come to possess much information that is not represented in the system (at least not represented as “representation” is classically or paradigmatically understood), and that the system can automatically accommodate such information without needing to represent it.

Fodor ([1983](#_ENREF_9)) argues that holistic dimensions of central belief fixation make for insuperable problems for traditional computational cognitive science. These problems—the frame-type problems—arise largely because of the apparent computational intractability of managing all relevant information, insofar as that information gets *explicitly represented* in the course of cognitive processing.[[21]](#endnote-21) What this suggests is that belief fixation and related cognitive processes operate in a way that accommodates much relevant information *automatically* and *implicitly*. Apparently, holistic aspects are somehow implicit in the structure of the cognitive system, in such a way that temporal transitions from one occurrent cognitive state to another accommodate the holistic aspects automatically. In the terminology of Horgan and Tienson ([1994](#_ENREF_18); [1996](#_ENREF_19)), the holistic informational content is *morphological*, rather than occurrent.

Morphological content is information that:

1. is implicit in the standing structure of the cognitive system (rather than explicitly represented in the system’s occurrent cognitive states or explicitly stored in memory), and
2. gets accommodated in cognitive processing without getting explicitly represented in occurrent cognitive states, either conscious or unconscious.

The apparent moral: in general, human belief fixation *must* operate in a way that draws heavily upon morphological content, in order to avoid computational intractability. One might say, these processes are *essentially* morphological.

 This suggestion (developed in Henderson and Horgan 2000, and 2011) offers a general, and not implausible, answer to the extremely daunting question of how the holistic aspects of belief fixation could be handled. Not unrelatedly, it provides a promising model for how both subtly informed perception and strongly regulated acceptance of testimony can be managed in tractable ways: In such matters, the competent epistemic agent will have acquired massive amounts of information and will accommodate that information in a largely automatic fashion.

## iii. Conclusion

Our response to Cohen’s problem of easy knowledge in its bootstrapping form amounts to a defense of an epistemology positing a defeasible entitlement structure. This defense turns on three pivotal pieces:

First, in sections 3i and 3ii, we provide an account of bootstrapping that allows one to distinguish silly, useless, riskless bootstrapping from intelligent, challenging, bootstrapping which is characterized by risk. This allows one to see that there are forms of bootstrapping that rely on perception to provide real, indeed vital, information regarding the reliability of one’s perceptual processes.

Second, in sections 3iii, we advance an account of perceptual processes in typical human adults that allows one to appreciate that it these are what they are in typical human agents by virtue of a kind of ongoing training that itself has the features of the good form of bootstrapping. By virtue of what has been learned in such ongoing training-bootstrapping, these perceptual processes may give rise to a fitting sensitivity to reliability in circumstances. Thus, in some cases, the perceptual seeming may arise with its own cautionary cloud—a warning flag—while in other cases the verdict may arise associated with its own sense of reliability or confidence—a “green” flag, an apparent “all’s clear.” In neither case need this associated sense for reliability amount to something clearly or paradigmatically a belief.

Third, we have developed the idea that such trained-up perceptual processes are properly seen as providing a kind of entitlement—and thus give rise to an ES and BKS. When the perceptual processes have been so trained up—bootstrapped with risk—and are not degraded by special interfering processes, they are such that one is warranted in, or entitled the beliefs they spawn, provided one does not have reason not to trust them. Commonly one would be tipped off to defeated entitlement by the processes themselves, or to other ways in which wider processes my raise warning flags. When the perceptual processes themselves generate the warning flags, the warning flags arise subdoxastically—and commonly demand more doxastic and articulate processes come into play. Such is the defeasible entitlement structure that we find in Burge’s writings on testimony and memory, and that we believe is advocated by both Pryor and Sosa. Indeed, we believe that what we say here is highly supportive of Sosa’s (2009) response to Cohen.

Central here is the idea that certain epistemic channels—notably perception—can be subject to an epistemically delightful form of bootstrapping . As a result, these processes can perform (or contribute to the performance of) two functions: (a) they can generate perceptual beliefs in unproblematic cases, and (b) they can provide an informed epistemic sensitivity to their own reliability in the circumstances. When these processes generate a perceptual belief, with no qualms, one is flatly entitled to that belief and one need have in play no supporting belief in the reliability in circumstances of one’s perceptual processes. The entitlement derives merely from being the product of a humanly fitting epistemic competence. At the same time, this epistemic competence is best understood at two complementary levels—in keeping with our iceberg model of human epistemic competence (discussed in section 4.ii). The entitlement just characterized is had at the level of exposed processes—processes at the level of accessible cognitive information and resources. The perceptual belief that there is a dog yonder (absent warning flag) is one that one is entitled to. Such deliverances of perceptual processes, as all deliverances at the level of what is epistemically accessible, may be conditioned by much information that is not fully accessible to the agent on articulate reflection. Thus, plausibly, below the surface, one’s trained-up perceptual processes may have significant information bearing on, and sensitivity to, their own situational reliability.

Epigram:

[I]t is not viciously circular to argue that our perceptual systems are reciprocally formed by our experiences. In fact, it is because our experiences are necessarily based on our perceptual system that these perceptual systems must be shaped so that our experiences are appropriate and useful for dealing with our world.” Perceptual systems are reciprocally formed by our experiences. In fact, it is because our experiences are necessarily based on our perceptual system that these perceptual systems must be shaped so that our experiences are appropriate and useful for dealing with our world ([Goldstone, 2003, p. 233](#_ENREF_13)).

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1. It is worth noting that to hold that there is basic knowledge is not quite the same as being a foundationalist. A foundationalist epistemology is committed a stronger claim. The foundationalist holds that there are beliefs whose objective justification does not depend on *any* other belief, while a BKS theorist would require only that there are beliefs whose justification does not turn on any belief *about the reliability of the source process* in play in the generation of that belief. At the same time, both the proponent of basic knowledge/justification and the moderate foundationalist allow that the justification that would normally be had by beliefs arising from one of the select processes can be defeated or undermined by other beliefs. [↑](#endnote-ref-1)
2. It should be clear from the outset that, as long as we focus on processes or channels that are in the agent—as perceptual processes and memory are standardly conceived, no such process could flatly give rise to knowledge—that is, without some qualification to the effect that the agent must not be in a Gettier-style circumstance. This provides one reason to focus on warrant or objective justification. [↑](#endnote-ref-2)
3. It is worth noting that Burge, writes of “warrant” in part because he uses the term ‘justification’ in a restricted sense—one that refers to the support a belief enjoys from other beliefs. Of course, others would not be so restrictive. On the less restrictive usage, being objectively epistemically justified in a belief is a matter of holding that belief by virtue of objectively appropriate cognitive processes—one’s that, absent Getterization, could yield knowledge. Using “objective justification” in this broad way, Burge’s account amounts to one in which perceptual belief, testimonial belief, and memory-based belief provide justified beliefs and can do so without the need for background beliefs in the reliability of the processes in play. [↑](#endnote-ref-3)
4. Compare Burge’s Acceptance Principle for testimony: “*A person is entitled to accept as true something that is presented as true and that is intelligible to him, unless there are stronger reasons not to do so”* ([Burge, 1993, p. 467, italics in the original](#_ENREF_3))

To posit a select set of processes enjoying such an entitlement would be one way of positing a BKS. That is, one posits a kind of BKS if one [↑](#endnote-ref-4)
5. Pryor’s dogmatism seems to turn on the idea of such a default defeasible entitlement:

The dogmatist about perceptual justification says that when it perceptually seems to you as if *p* is the case, you have a kind of justification for believing *p* that does not presuppose or rest on your justification for anything else, which would be cited in an argument (even an ampliative argument) for *p.* To have this justification for believing *p*, you need only have an experience that represents *p* as being the case. No further awareness of reflection or background beliefs are required. Of course, other beliefs you have might defeat or undermine this justification. But no other beliefs are required for it to be in place ([Pryor, 2000, p. 519](#_ENREF_21)). [↑](#endnote-ref-5)
6. According to ([Sosa, 2007](#_ENREF_22), [2009](#_ENREF_23)), our knowing engagement with the world depends on a form of animal knowledge. Certain virtuous process make for “adroit belief,” Just as a competent archer, in a taking a shot, can hit the target by virtue of an adroit or skillful shot, so an epistemic agent can attain accurate belief by virtue of employing epistemically adroit processes. A belief that is accurate because adroitly produced is said to be “apt.” When the agent produces such an apt perceptual belief, the agent is said to have animal knowledge. Of course typical epistemically virtuous human epistemic agents from early on also begin to integrate their animal knowledge into a perspective on their epistemic standing in their world, yielding a reflective knowledge. Occasionally, this perspective may call into question a belief aptly produced. When this happens, the warrant enjoyed by the aptly produced belief may be undermined. So, in Sosa’s virtue epistemology, we find a version of the default entitlement structure (and an instance of a BKS structure). Certain virtuous source processes yield a belief that has a measure of epistemic warrant adequate to count as knowledge (when not Gettierized, or more generally, when at work in circumstances such that the adroitness of the processes account for the truth of the belief generated). This warrant might be undermined by other beliefs, but it does not depend on metabeliefs about the reliability of the processes at play. [↑](#endnote-ref-6)
7. Rutherford’s 1911 model of the atoms supposed that the number of protons in an atom would be approximately half of the atoms atomic weight. In experimental work in 1913, the physicist Moseley sought to test this idea—using emission spectra. It seems that this work begun to constrain (epistemically) likely values for the atomic number of various elements. Gold was among the elements of concern in this early work. It is worth noting that gold has an atomic weight of 197, so that Rutherford’s conjecture would significantly over estimate its atomic number. It was apparently epistemically possible in 1911 that gold had an atomic weight of 99! More interestingly, suppose that one described the method generally, without giving information about gold in particular. By looking at the method, without information about its calculated central charge, emission spectrum, atomic weight, one could have no idea what it would deliver as the atomic weight of gold. Cohen’s bootstrapping is very different on this score. [↑](#endnote-ref-7)
8. Since gold was involved in developing the method, this is not historically how it happened. If one wishes, one could substitute a different element whose atomic number was ascertained after the method was largely established. [↑](#endnote-ref-8)
9. Perhaps 99 or 98 (see note 7). [↑](#endnote-ref-9)
10. Goldman ([1986, pp. 44-8](#_ENREF_12)) distinguishes between what he terms global versus local reliability, and argues that global reliability is crucial. We ourselves prefer to use the qualifiers ‘global’ and ‘local’ to pick out the environmental parameter with respect to which a proess qualifies (or fails to qualify) as reliable. We thus substitute ‘wide’ for Goldman’s ‘global’ and ‘narrow’ for his ‘local’. [↑](#endnote-ref-10)
11. By “informational resource,” we do mean merely to refer to the input provided by some source process, and we do not mean to suppose that that the input is veridical. Thus, if visual color discrimination provides input for the meta-inquiry process, as in the slideshow illustration, this constitutes an informational resource without regard to whether the information is veridical in each or any case. [↑](#endnote-ref-11)
12. How exactly to put this question is a delicate matter. Since we are dealing with an inferential process, one that takes input from other processes, it would be standard to understand the issue to be the conditional reliability of the meta-inquiry process. However, since the present concern is with a process concerned with the reliability of one of its principle inputs, this will not do. If it can only deliver the verdict that the object process is reliable, then it is conditionally reliable. When a meta-inquiry process has to do with the reliability of an object process that provides its input, conditional reliability cannot be an appropriate measure of epistemic acceptability—it would amount to approving processes that get it right when they get it right. [↑](#endnote-ref-12)
13. This diagnosis could be further refined by using the idea of *fitting modulational control*. Commonly, one’s cognitive processes are significantly conditioned by information delivered by a more inclusive range of one’s processes. Thus, one’s processes may be selectively triggered, encouraged, inhibited, or informed, and thereby refined. To the extent that one’s wider processes have a significant measure of reliability, this modulational control can then enhance the corresponding reliability of the processes so conditioned. At least when this modulation is not prohibitively cognitively costly—when it is tractable for us humans—one requires it for warranted belief formation (Henderson and Horgan 2011). Several forms of modulational control would tend to the *sensitive, selective, application* of a process to “rich veins” of cases in which that process would be highly narrowly reliable. With such modulation, a process may come to be applied largely to this select class of cases—those on which it is narrowly reliable. This results in a *composite process*—the process under fitting modulational control—having greater *wide* reliability than the unmodulated process [↑](#endnote-ref-13)
14. We have elsewhere argued that one must distinguish between *global* reliability and *transglobal* reliability. The distinction is a matter of the reference class relative to which reliability is constituted. Global reliability is reliability relative to the global environment in which the agent is situated. Global reliability is the focus in most reliabilist accounts of objective justification. Transglobal reliability is reliability across a wide range of *experientially relevant possible global environments*. We conveniently omit this refinement in our discussion here. Just as there is wide and narrow global reliability, so there is also wide and narrow transglobal reliability. Notably, the processes we considered above, which we fond to lack wide global reliability also lack wide transglobal reliability. Just as simple bootstrapping is insensitive to the different reliability of processes in its global environment, it would be, in parallel fashion. insensitive to the reliability of the various object processes in each of the experientially relevant possible global environments. [↑](#endnote-ref-14)
15. The discussion to follow concerning experimental results pertaining to early childhood development draws on ([Wolf, Kluender, & Levi, 2006](#_ENREF_24))), and on several of the studies they discuss. [↑](#endnote-ref-15)
16. S. P. Johnson et al. (2004) examined perceptual completion in a group of 3-month-old infants. The infants were habituated to a partly occluded rod display, followed by two test displays (Figure1). The complete rod test display was designed to match a percept of unity, and the broken rod test display was designed to match a percept of disjoint rod surfaces. Longer looking toward one of the two test displays was interpreted as a posthabituation novelty preference. A preference for the broken rod, therefore, was taken to suggest perception of unity of the rod parts during habituation. [↑](#endnote-ref-16)
17. See ([Baillargeon, 2002](#_ENREF_2)). One schematic picture of the interaction of rudimentary perceptual and information learned in training is provided by ([Mareschal & Johnson, 2002](#_ENREF_20)). [↑](#endnote-ref-17)
18. Nor is it to suppose that distinct processes manage these chores: (a) being sensitive to the presence of possessed information bearing on trustworthiness, and (b) coming to terms with the information possessed. It is merely to note that the capacity for managing chore (b) when called for requires the capacity for managing chore (a). [↑](#endnote-ref-18)
19. Or processes that are selectively triggered. In any case, it is to demand a background sensitivity, and much of the paper is devoted to exploring the character of what is required here. [↑](#endnote-ref-19)
20. This does not require that, in the satisfied entitlement case, the sensitive processes yield a belief to the effect that the agent does not possess significant reason to doubt the interlocutor’s trustworthiness. Sensitive background processes could condition episodic processing, befitting the sort of case) without so doing. See also ([Henderson, 2008](#_ENREF_14)); see also ([Goldberg & Henderson, 2006](#_ENREF_11)). [↑](#endnote-ref-20)
21. “Explicitly represented” here does not mean consciously represented. [↑](#endnote-ref-21)