Warrant: A First Approximation

One thought emerging from our canvas of contemporary accounts of warrant in Warrant: The Current Debate is that there are many different valuable epistemic states of affairs—epistemic values, we might call them, giving that oft-abused word a decent sense; and different conceptions of warrant appeal to different epistemic values. For example, there is doing one's subjective epistemic duty, doing one's objective epistemic duty, and doing both; these figure prominently in classical internalism. There is having a set of beliefs that is coherent to one or another degree; there is also the disposition to have coherent beliefs; these things are what the coherentist is quite naturally enthusiastic about. There is having adequate evidence or good reasons for your beliefs; this goes with the evidentialism that has been a dominant feature of the epistemological tradition and is presently represented in different ways by Conee and Feldman, and William Alston. There is having a reliable set of faculties or belief-producing mechanisms, which of course goes with reliabilism of various sorts. There is also knowing that you have a reliable set of epistemic faculties. There is also Foley rationality, and there are the several varieties of Foley rationality, such as believing what you think would contribute to your attaining your epistemic goal, believing what on reflection you would think would contribute to your attaining that goal, believing what really would contribute to your doing so, and so on. There is having a set of beliefs that contributes to your nonepistemic goals such as happiness, or living the good life, or living the moral life. There is having the right goals; there is aiming to have the right goals; and there is knowing that you have the right goals. There is believing what is true, and there is having true beliefs on important topics; there is accepting a given belief to the right degree. There is knowing that you know; there is being able to prove to the skeptic that you know. And there are a thousand other epistemic virtues.

2See his "Concepts of Epistemic Justification," Monist (January 1985); and "An Internalist Externalism," Synthese 74, no. 3 (1988); see also several of the articles collected in Epistemic Justification (Ithaca: Cornell University Press, 1989).
I. Proper Function

Now the notion of warrant is clearly connected with all of these epistemic values and more besides. (The problem here is to come up with a conception of warrant that gives to each its due and describes how each is connected with the others and with warrant.) As a first step toward developing a satisfying account of warrant, I should like to call attention to still another epistemic value: having epistemic faculties that function properly. The first thing to see, I think, is that this notion of proper function is the rock on which the canvassed accounts of warrant founder. Cognitive malfunction has been a sort of recurring theme. Chisholm's dutiful epistemic agent who, whenever he is appealed to redly, always believes that nothing is appearing redly to him, Pollock's cognizer who by virtue of malfunction has the wrong epistemic norms, the Coherent but Inflexible Climber, Dretske's epistemic agent whose belief that Spot emits ultraviolet radiation has been caused by the fact that Spot does indeed emit such radiation, Goldman's victim of the epistemically serendipitous lesion: all are such that their beliefs lack warrant for them. In each case the reason, I suggest, is cognitive malfunction, failure of the relevant cognitive faculties to function properly, to function as they ought to. Chisholm's agent meets Chisholm's conditions for warrant; his beliefs lack warrant, however, because they result from cognitive dysfunction due to a damaging brain lesion, or the machinations of an Alpha Centaurian scientist, or perhaps the mischievous schemes of a Cartesian evil demon. Something similar must be said for each of the others. In each case the unfortunate in question meets the conditions laid down for warrant by the account in question; in each case her beliefs fail to have warrant because of cognitive malfunction. Hence each of these accounts misfires, at least in part by virtue of its failure to take appropriate account of the notion of proper function.

I therefore suggest initially that a necessary condition of a belief's having warrant for me is that my cognitive equipment, my belief-forming and belief-maintaining apparatus or powers, be free of such malfunction. A belief has warrant for you only if your cognitive apparatus is functioning properly, working the way it ought to work, in producing and sustaining it. (Of course this isn't nearly sufficient, and I shall try to supply some of what is necessary to achieve sufficiency.)

The notion of proper function is one member of a connected group of interdefinable notions; some of the other members of the group are dysfunction, design, function ( simpliciter), normality ( in the normative nonstatistical sense), damage, and purpose. There is initial reason to doubt, I think, that this circle of concepts can be broken into from the outside—that is, reason to doubt that any of them can be defined without reference to the others. Here we have a situation like that with modality: possibility, contingency, necessity, entailment, and their colleagues form a circle of properties or concepts that can be defined or explained in terms of each other but cannot be defined in terms of properties outside the circle. (Of course that is nothing against these modal concepts.) The same goes here, I think; but I shall consider (in chapter 11) attempts to define or explain these terms by way of terms outside the circle.

You may nonetheless think there is a serious problem with this notion right from the start. Isn't the idea of proper function an extremely unlikely idea to appeal to in explaining the notion of warrant? Isn't it every bit as puzzling, every bit as much in need of explanation and clarification, as the notion of warrant itself? Perhaps so; but even if so, at least we can reduce our total puzzle by explaining the one in terms of the other; and we can see more clearly the source and location of some of our perplexities about warrant. Further, the idea of proper function is one we all have; we all grasp it in at least a preliminary rough-and-ready way; we all constantly employ it. You go to the doctor; he tells you that your thyroid isn't functioning quite as it ought ( its thyroid output is low); he prescribes a synthetic thyroxin. If you develop catareata, the lenses of your eyes become less transparent; they can't function properly, and you can't see well. A loss in elasticity of the heart muscle can lead to left ventricular malfunction. If a bird's wing is broken, it typically won't function properly; the bird won't be able to fly until the wing is healed, and then only if it heals in such a way as not to inhibit proper function. Alcohol and drugs can interfere with the proper function of various cognitive capacities, so that you can't drive properly, can't do simple addition problems, display poor social judgment, get into a fist fight, and wind up in jail.

And it isn't just in rough-and-ready everyday commonsense contexts that the notion of proper function is important; it is deeply embedded in science.

We are accustomed to hearing about biological functions for various bodily organs. The heart, the kidneys, and the pituitary gland, we are told, have functions—things they are, in this sense supposed to do. The fact that these organs are supposed to do these things, the fact that they have their functions, is quite independent of what we think they are supposed to do. Biologists discovered these functions; they didn't invent or assign them. We cannot, by agreeing among ourselves, change the functions of these organs. . . . The same seems true for sensory systems, those organs by means of which highly sensitive and continuous dependencies are maintained between external, public events and internal, neural processes. Can there be a serious question about whether, in the same sense in which it is the heart's function to pump the blood, it is, say, the task or function of the nocturnal moth's auditory system to detect the whereabouts and movements of its archenemy, the bat? 24

According to David Baltimore, "many instances of blood disorders, mental problems, and a host of other disabilities are traceable to a malfunctioning gene." 25 According to the great Swiss child psychologist Jean Piaget, a seven-year-old child whose cognitive faculties are functioning properly will believe that everything in the universe has a purpose in some grand overarching plan of design; later on a properly functioning person, he said, will learn to "think

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24See p. 9, and see the discussion of Pollock's account of proper function in chapter 11, pp. 1996.

and realize that everything has either a natural cause or happens by chance.\footnote{The Child’s Conception of Physical Causality (London: Kegan Paul, Trench, Trubner, 1930).}

Biological and social scientists, furthermore—psychologists, medical researchers, neuroscientists, economists, sociologists, and many others—continually give accounts of how human beings or other organisms or their parts and organs function: how they work, what their purposes are, and how they react under various circumstances. Call these descriptions (following John Pollock)\footnote{“How to Build a Person,” in Philosophical Prospectives, 1, Metaphysics, 1987, ed. James Tomberlin [Atascadero, Calif.: Ridgeview, 1987], p. 146.} functional generalizations. For example, whenever a person is appeared to really under such and such conditions, she will form the belief that there is something red present; whenever a person considers an obvious a priori truth such as \(2 + 1 = 3\), she will find herself firmly believing it; whenever a person desires something and believes so and so, he will do such and such. To strike a more sophisticated if no more enlightening note: whenever an organism of kind \(K\) is in state \(S_i\) and receives sensory input \(P_n\), then there is a probability of \(r\) that it will go into state \(S_j\) and produce output \(O_j\). Pollock makes the important point that if these functional generalizations are taken straightforwardly and at face value, as universal generalizations about people and other organisms and their parts, they are nearly always false. They don’t hold of someone who is in a coma, having a stroke, crazed by strong drink, or has just hit the ground after a fall off a cliff. Clearly these functional generalizations contain something like an implicit restriction to organisms and organs that are functioning properly, functioning as they ought to, subject to no malfunction or dysfunction. The notion of proper function, therefore, is presupposed by the idea of functional generalizations.

So the notion of proper function is a notion we have and regularly employ; I may therefore appeal to it in explaining warrant. Still, it needs exploration, clarification, and explication if it is to serve as the key notion in an account of warrant. I shall have more to say about this notion below and in the next chapter; for the moment, let us provisionally entertain the idea that a belief has warrant for me only if the relevant parts of my noetic equipment—the parts involved in its formation and sustenance—are functioning properly. It is easy to see, however, that proper function cannot be the whole story about warrant. You have just had your annual cold checkup at MIT; you pass with flying colors and are in splendid epistemic condition. Suddenly and without your knowledge you are transported to an environment wholly different from earth; you wake on a planet revolving around Alpha Centauri. There conditions are quite different; elephants, we may suppose, are invisible to human beings, but emit a sort of radiation unique on earth, a sort of radiation that causes human beings to form the belief that a trumpet is sounding nearby. An Alpha Centaurian elephant wanders by; you are subjected to the radiation, and form the belief that a trumpet is sounding nearby. There is nothing wrong with your cognitive faculties; they are working quite properly, still, this belief has little by way of warrant for you. Nor is the problem merely that the belief is false; even if we add that a trumpet really is sounding nearby (in a soundproof telephone booth, perhaps), your belief will still have little by way of warrant for you.

To vary the example, imagine that the radiation emitted causes human beings to form the belief not that a trumpet is sounding, but that there is a large gray object in the neighborhood. Again, an elephant wanders by; while seeing nothing of any particular interest, you suddenly find yourself with the belief that there is a large gray object nearby. A bit perplexed at this discovery, you examine your surroundings more closely; you still see no large gray object. Your faculties are displaying no malfunction (you have your certificate from MIT); you are not being epistemically careless or slovenly (you are doing your epistemic best); nevertheless you don’t know that there is a large gray object nearby. That belief has little or no warrant for you. Of course you may be justified, within your epistemic rights in holding this belief; you may be flouting no epistemic duty. Further, the belief may also be rational for you in every sensible sense of ‘rational’;\footnote{See my Warrant: The Current Debate (New York: Oxford University Press, 1993), chap. 6, sec. 1, “The Varieties of Rationality.”} But it has little warrant for you.

What this example is designed to show, of course, is that the proper function of your epistemic equipment is not (logically) sufficient for warrant; it is possible that your cognitive equipment be functioning perfectly properly but your beliefs still lack warrant for you. And the reason is not far to seek: it is that your cognitive faculties and the environment in which you find yourself are not properly attuned. The problem is not with your cognitive faculties; they are in good working order. The problem is with the environment—with your cognitive environment. In approximately the same way, your automobile might be in perfect working order, despite the fact that it will not run well at the top of Pike’s Peak, or under water, or on the moon. We must therefore add another component to warrant; your faculties must be in good working order, and the environment must be appropriate for your particular repertoire of epistemic powers. It must be the sort of environment for which your faculties are designed—by God or evolution (or both). Perhaps there are creatures native to the planet in question who are much like human beings but whose cognitive powers fit that epistemic environment and differ from ours in such a way that Alpha Centaurian elephants are not invisible to them. Then their beliefs would have warrant where yours do not.

It is tempting to suggest that warrant just is (or supervenes upon) proper functioning in an appropriate environment, so that a given belief has warrant for you to the degree that your faculties are functioning properly (in producing and sustaining that belief) in an environment appropriate for your cognitive equipment: the better your faculties function, the more warrant. But this cannot be correct. Couldn’t it happen that my cognitive faculties are working properly (in an appropriate environment) in producing and sustaining a certain belief in me, while nonetheless that belief enjoys less by way of warrant for me than some other belief? Say that a pair of beliefs are (for want of a better term) productively equivalent if they are produced by faculties functioning properly
to the same degree and in environments of equal appropriateness. Then couldn't it be that a pair of my beliefs should be productively equivalent while nonetheless one of them has more by way of warrant—even a great deal more—than the other? Of course that could be; as a matter of fact it happens all the time. The belief that \(7 + 5 = 12\), or the belief that I have a name, or the belief that I am more than seven years old—any of these has more by way of warrant for me than does the memory belief, now rather dim and indistinct, that forty years ago I owned a secondhand sixteen-gauge shotgun and a red bicycle with balloon tires; but all, I take it, are produced by cognitive faculties functioning properly in a congenial environment. Although both epistemic warrant and being properly produced come in degrees, there seems to be no discernible functional relationship between them: but then we can't see what warrant as simply a matter of degree being produced by faculties working properly in an appropriate environment. We still have no real answer to the question What is warrant? That particular frog (with apologies to John Austin) is still grinning residually up from the bottom of the mug.

Fortunately there is an easy response. Not only does the first belief, the belief that \(7 + 5 = 12\), have more by way of warrant for me than the second; it is also one I accept much more firmly. It seems obviously true, in a way in which the belief about the bicycle and shotgun do not. Among the things we believe, we believe some much more firmly than others. I believe that I live in Indiana, that \(2 + 1 = 3\), that the sun is larger than the earth, that China has a larger population than India, and that Friedland used to be much larger than it is now; and I believe some of these things more firmly than others. Here I speak of full belief, not the partial beliefs of which Bayesians speak. Following Ramsey, Bayesians sometimes suggest that my degrees of belief can be at least roughly determined by examining my betting behavior; the least odds at which I would bet on a proposition \(A\) measures the degree to which I believe \(A\). If I am willing to bet at odds of \(2:1\) that the die will come up either 5 or 6 then I must believe to degree .667 that it will come up that way. This seems to me wrong. The truth is I believe it probable to degree .667 that the die will come up that way. And no doubt I fully believe that; that is, in this case I don't believe anything to degree .667 (strictly speaking, there is no such thing as believing something to degree .667), but I do believe (fully believe) that there is a .667 probability that the die will come up either 5 or 6. Suppose I buy a ticket in a thousand-dollar lottery I believe to be fair. Here it is false, I think, that I believe I will not win, or believe that to degree .999. What I do believe is that it is very probable (probable to degree .999) that I won't win.\(^{10}\)

Return to the case in question, then: although I believe both \(7 + 5 = 12\) and 40 years ago I owned a secondhand 16-gauge shotgun and a red bicycle with balloon tires, I believe the former more strongly than the latter; this is correlated with the fact that the former has more by way of warrant for me than the latter. I therefore conjecture that when my cognitive establishment is working properly, then in the typical case, the degree to which I believe a given proposition will be proportional to the degree it has of warrant—or if the relationship isn't one of straightforward proportionality, some appropriate functional relationship will hold between warrant and this impulse. When my faculties are functioning properly, a belief has warrant to the degree that I find myself inclined to accept it; and this (again, if my faculties are functioning properly and nothing interferes) will be the degree to which I do accept it.

Initially, and to (at most) a zeroth approximation, therefore, we may put it like this: in the paradigm cases of warrant, a belief \(B\) has warrant for \(S\) if and only if that belief is produced in \(S\) by his epistemic faculties working properly in an appropriate environment; and if both \(B\) and \(B^*\) have warrant for \(S\), \(B\) has more warrant than \(B^*\) for \(S\) iff \(S\) believes \(B\) more firmly than \(B^*\). And knowledge requires both true belief, and a certain degree of warrant (a degree that may vary from context to context, so that knowledge may display a certain indexical character).\(^{11}\)

Putting the matter thus imports what is at this stage at best a wholly spurious pretense of precision and completeness; and the rest of this chapter and the next will be given over to some of the necessary qualifications, amplifications, and the like, including attention to the absolutely crucial notion of the design plan. To begin with some of the essential and obvious qualifications then: it is of first importance to see that this condition—that of one's cognitive equipment functioning properly—is not the same thing as one's cognitive equipment functioning normally, not, at any rate, if we take the term 'normally' in a broadly statistical sense.\(^{12}\) Even if one of my systems functions in a way far from the statistical norm, it might still be functioning properly. (Alternatively, what we must see is that there is a distinction between a normative and statistical sense of 'normal'.) Karl Lewis is not defective with respect to jumping by virtue of the fact that he can jump much further than the average person.

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\(^{12}\)See the discussion of Pollock's account of proper function, in my Chapter I, pp. 198ff.
Perhaps most adult tomcats get into lots of fights and ordinarily move into late middle age with patches of fur torn out; it does not follow that an old tomcat with all of his fur suffers from some sort of censorial disorder. Perhaps most male cats get neutered; it does not follow that those that don't are incapable of proper function. If, by virtue of some nuclear disaster, we were nearly all left blind, it would not follow that the few sighted among us would have improperly functioning eyes. So your belief's being produced by your faculties working normally or in normal conditions—that is, the sorts of conditions that most frequently obtain—must be distinguished from their working properly.

Further, a belief has warrant for me only if my epistemic faculties are working properly in producing and sustaining it; but of course it isn't true that all of my cognitive faculties have to be functioning properly in order for a given belief to have warrant for me. Suppose my memory plays me tricks; obviously that does not mean that I can't have warrant for such introspective propositions as that I am appeared to redly. What must be working properly are the faculties (or subfaculties, or modules) involved in the production of the particular belief in question. And even they need not be working properly over the entire range of their operation. Suppose I cannot properly hear high notes: I may still learn much by way of the hearing ability I do have. Furthermore, a faculty that does not function properly without outside aid can nonetheless furnish warrant; I can have warrant for visual propositions even if I need glasses and can see next to nothing without them. Still further, even if my corrected vision is very poor, I can still have warrant for visual propositions; even if I can't perceive colors at all, I can still have warrant for the proposition that I perceive something round. Again, even if I can't perceive colors at all, I can still have visual warrant for the proposition that something is red; even if for me nothing appears redly (everything is merely black and white) I might still be able to see that something is red, in the way in which one can see, on a black and white television, which boxer is wearing the red trunks. And of course there will be many more qualifications of this sort necessary: suppose my belief is based upon two different mechanisms and one but not the other is functioning properly; suppose the same process works properly over one part of its range of operation but not over another, and my belief is produced by its working over both of these parts of its range of operation; or suppose a process is not working properly over part of its range but produces in me in given circumstances the very same belief it would have if it were working properly; in these cases does my belief have warrant? These are good questions, but there isn't time to work out all the answers here.

Still further, proper functioning, of course, comes in degrees; or if it does not, then approximation to proper functioning does. Clearly the faculties relevant with respect to a given belief need not be functioning perfectly for me to have warrant for my belief; many of my visual beliefs may constitute knowledge even if my vision is not 20/20. Similarly, my faculties can function properly even if they do not function ideally, even if they do not function as well as

those of some other actual or possible species (a point I discuss in chapter 6 of Warrant: The Current Debate). My locomotory equipment may be functioning properly even if I can't run as fast as a cheetah; my arithmetic powers may be in good working order even if I can't anywhere nearby keep up with a computer, or an angel, or an Alpha Centaurian. But how well, then, must such powers be functioning? Part of the answer here, of course, is that there is no answer; the ideas of knowledge and warrant are to some degree vague; hence there needs to be no precise answer to the question in question. What I hope is that the vaguenesses involved in my account of warrant vary with the vaguenesses we independently recognize in the notion of warrant. If warrant and proper function are properly tied together, then we may expect that they will waver together.

Similar comments and qualifications, of course, must be made about the environmental condition. For my beliefs to have warrant, the environment must be similar to that for which my epistemic powers have been designed; but just how similar must it be? Here, of course, we encounter vagueness; there is no precise answer. Further, suppose I know that the environment is misleading; and suppose I know in just which ways it is misleading. (I'm on a planet where things that look square are really round.) Then, clearly enough, the fact that my environment is misleading need not deprive my beliefs of warrant. And of course the same must be said for the requirement that my faculties be in good working order. Suppose (as in Castaneda's fantasy) I suffer from a quirk of memory: whenever I read a history book, I always misremember the dates, somehow adding ten years to the date as stated: beliefs formed by way of reading history books—even beliefs about dates—can still have warrant for me; I can compensate for my erroneous tendency. What counts, of course, are uncorrected and uncompensated malfunctions. Clearly there is need here for a good deal of chiseling; let me postpone it, however, in order to turn to other more pressing matters.

II. The Design Plan

But aren't there cases in which our faculties function perfectly properly in the right sort of environment but the resulting beliefs still lack warrant? Surely there are. Someone may remember a painful experience as less painful than it was, as is sometimes said to be the case with childbirth.15 You may continue to believe in your friend's honesty long after evidence and cool, objective judgment would have dictated a reluctant change of mind. I may believe that I will recover from a dread disease much more strongly than is justified by the statistics of which I am aware. William James's climber in the Alps, faced with a life or death situation, believed more strongly than the evidence warrants that he could leap the crevasse. In all of these cases, there is no cognitive dysfunction or

15A woman giving birth to a child has pain because her time has come; but when her baby is born she forgets the anguish because of her joy that a child is born into the world." John 16:21.
failure to function properly; it would be a mistake, however, to say that the 
beliefs in question had warrant for the person in question.

I cannot forbear quoting a couple of Locke’s examples:

Would it not be an insufferable thing for a learned professor, and that which 
his scarlet would blush at, to have his authority of forty years standing 
wrathful out of hard rock Greek and Latin, with no small expense of time and 
candle, and confirmed by general tradition, and a reverent beard, in an instant 
overthurned by an upstart novelist? Can any one expect that he should be made to 
confess, that what he taught his scholars thirty years ago, was all error and 
mistake; and that he sold them hard words and ignorance at a very dear 
rate?16

The professor’s faculties may be functioning properly (there may be a properly 
functioning defense mechanism at work); but his belief that the young upstart 
is dead wrong would have little by way of warrant. Another of Locke’s examples:

Tell a man, passionately in love, that he is jilted; bring a score of witnesses 
of the falsehood of his mistress, “tis ten to one but three kind words of hers, shall 
 INVALIDATE all their testimonies...What suits our wishes, is forwardly 
believed is, I suppose, what every one hath more than once experimented; and 
though men cannot always openly gain-say, or resist the force of manifest 
probabilities, that make against them; yet yield they not to the argument.
(Essay, IV, xx, 12)

Now it was widely believed in the eighteenth century that love was or induced a 
sort of madness, so that the lover’s epistemic faculties are not functioning properly. 
Even if that isn’t so, however, even if we are designed to act and believe in extravagant fashion when in love, the lover’s belief that his mistress is 
true to him has little by way of warrant.

Still another case: according to Freud, religious belief is “the universal 
obsessional neurosis of mankind”; religious belief consists in “illusions, fulfillments 
of the oldest, strongest, and most insistent wishes of mankind.” 17 Rather 
similar sentiments are expressed by Marx, who holds that religious belief is 
produced by an unhealthy, perverted social order: “This State, this society, 
produce religion, produce a perverted world consciousness, because they are a 
perverted world...Religion is the sigh of the oppressed creature, the feelings 
of a heartless world, just as it is the spirit of unspiritual conditions.” 18 Now 
neither Freud nor Marx would be mollified if we pointed out that religion is 
very widespread among human beings, that is, “normal” in the statistical 
sense; what is statistically normal may still be a disease, a matter of malfunction; 
in this case a cognitive dysfunction. But there is a further subtlety here;

16An Essay concerning Human Understanding, ed. A. C. Fraser (New York: Dover, 1953), IV, 
xx, 1; hereafter referred to as Essay.

31.

18K. Marx, Introduction to a Critique of the Hegelian Philosophy of Right, in Collected Works, 

Freud and Marx differ in a significant way. Marx seems to think that religion is 
a sort of perversion, something unhealthy; it is as if he says, “Let’s call it 
an aberration and be done with it.” Freud, on the other hand, is ambivalent. First, 
he says that religious belief is or stems from neurosis: that sounds like he thinks 
religious belief arises from a cognitive malfunction of some sort. But then he 
also says it is a matter of illusion, and arises from the “oldest and strongest 
and most insistent wishes of mankind.” That suggests not that religious belief arises 
from malfunction or failure of some cognitive module to function properly, 
but instead by way of wish fulfillment. What one believes in that way isn’t necessarily 
a product of malfunction; illusion and wish fulfillment also have their 
functions. According to Freud, they enable us to mask the grim, threatening, 
threatening visage of the world—a visage that would otherwise cause us to 
cower in terror or sink into utter and apathetic despair. On the second way of 
thinking, then, religious belief need not be a result of malfunction; it might be 
produced by faculties functioning just as they should. Even so, however—even 
if the wish fulfillment that produces religious belief does not result from cognitive 
malfunction—religious belief won’t enjoy much by way of warrant.

So the proposed condition for warrant—proper function in an appropriate 
environment—isn’t anywhere nearly sufficient for warrant. Why not? Well, 
consider the elements of our cognitive faculties responsible for beliefs of the 
above sorts—those produced by wishful thinking, or by the optimism that 
enables one to survive a deadly illness—one thinks that the purpose of these 
modules of our cognitive capacities is not to produce true beliefs. They are 
instead aimed at something else: survival, or the possibility of friendship, or 
(Freud thinks) the capacity to carry on in this bleak and nasty world of ours.

To get a better understanding of this matter, we must consider a notion of 
crucial importance: that of specifications, or blueprint, or design plan. Human 
beings are constructed according to a certain design plan. This terminology 
does not commit us to supposing that human beings have been literally 
designed—by God, for example. Here I use ‘design’ the way Daniel Dennett 
(not ordinarily thought unsound on theism) does in speaking of a given organism 
as possessing a certain design, and of evolution as producing optimal design: “In the end, we want to be able to explain the intelligence of man, or 
beast, in terms of his design; and this in turn in terms of the natural selection of 
this design.” 19 We take it that when the organs (or organic systems) of a human 
being (or other organism) function properly, they function in a particular way. 
Such organs have a function or purpose; more exactly, they have several 
functions or purposes, including both proximate and more remote purposes. The 
ultimate purpose of the heart is to contribute to the health and proper function 
of the entire organism (some might say instead that it is to contribute to the 
survival of the individual, or the species, or even to the perpetuation of the 
generic material itself). 20 But of course the heart also has a much more circum-
scribed and specific function: to pump blood. Such an organ, furthermore,

normally functions in such a way as to fulfill its purpose; but it also functions to fulfill that purpose in just one of an indefinitely large number of possible ways. Here a comparison with artifacts is useful. A house is designed to produce shelter—but not in just any old way. There will be plans specifying the length and pitch of the rafters, what kind of shingles are to be applied, the kind and quantity of insulation to be used, and the like. Something similar holds in the case of us and our faculties; we seem to be constructed in accordance with a specific set of plans. Better (since this analogy is insufficiently dynamic) we seem to have been constructed in accordance with a set of specifications, in the way in which there are specifications for, for example, the 1992 Buick. According to these specifications (I’m just guessing), after a cold start the engine runs at 1,500 RPM until the engine temperature reaches 190°F; it then throttles back to 750 RPM.

Similarly, there is something like a set of specifications for a well-formed, properly functioning human being—an extraordinarily complicated and highly articulated set of specifications, as any first-year medical student could tell you. Something like such a set; a copy of these specifications does not come with every newborn child, and we can’t write to the manufacturer for a new copy to replace the one we have carelessly lost. Suppose we call these specifications a ‘design plan’. It is natural to speak of organisms and their parts as exhibiting design, and such talk is exceedingly common: “According to Dr. Sam Ridgway, physiologist with the US Naval Ocean Systems Center in San Diego, seals avoid the bends by not absorbing nitrogen in the first place. The lungs of marine mammals,” Dr. Ridgway explains, “are designed to collapse under pressure exerted on deep dives. Air from the collapsed lungs is forced back into the windpipe, where the nitrogen simply can’t be absorbed by the blood.”  Of course the design plan for human beings will include specifications for our cognitive system or faculties. Like the rest of our organs and systems, our cognitive faculties can work well or badly; they can malfunction or function properly. They too work in a certain way when they are functioning properly—and work in a certain way to accomplish their purpose. The purpose of the heart is to pump blood; that of our cognitive faculties (overall) is to supply us with reliable information: about our environment, about the past, about the thoughts and feelings of others, and so on. But not just any old way of accomplishing this purpose in the case of a specific cognitive process is in accordance with our design plan. It is for this reason that it is possible for a belief to be produced by a cognitive process or belief-producing mechanism that is accidentally reliable (as in the case of the processes I have cited as counterexamples to Goldman’s version of reliabilism). Although such belief-producing processes are in fact reliable, the beliefs they yield have little by way of warrant; and the reason is that these processes are pathologically out of accord with the design plan for human beings.

Our design plan, of course, is such that our faculties are highly responsive to circumstances. Upon considering an instance of modus ponens, I find myself believing its corresponding conditional; upon being appealed to in the familiar way, I find myself with the belief that there is a large tree before me; upon being asked what I had for breakfast, I reflect for a moment, and the belief that I had was eggs on toast is formed within me. In these and other cases I do not deliberate; I do not total up the evidence (I am being appealed to reddly; on most occasions when thus appeared to I am in the presence of something red; so most probably in this case I am) and thus come to a view as to what seems best supported; I simply find myself with the appropriate belief. Of course in some cases I may go through such a weighing of the evidence; for example, I may be trying to evaluate the alleged evidence in favor of the theory that human life evolved by means of such mechanisms as random genetic mutation and natural selection from unicellular life (which itself arose by substantially similar mechanical processes from nonliving material); but in the typical case of belief formation nothing like this is involved.

 Chapters 3–9 are devoted to an exploration of the design plan of our epistemic faculties; but here I wish to note just a couple of its salient features. According to our design plan, obviously enough, experience plays a crucial role in belief formation. A priori beliefs, for example, are not, as this denotation mistakenly suggests, formed prior to or in the absence of experience. Thinking of the corresponding conditional of modus ponens somehow feels different from thinking of, say, the corresponding conditional of affirming the consequent, and this difference in experience is connected with our accepting the one and rejecting the other. Of course experience plays a different role here from the role it plays in the formation of perceptual beliefs; it plays a still different role in the formation of memory beliefs, moral beliefs, beliefs about the mental lives of other persons, beliefs we form on the basis of inductive evidence, and the like. In later chapters we shall look into these matters in more detail.

Further, our design plan is such that under certain conditions we form one belief on the evidential basis of others. I may form the belief that Sam was at the party on the evidential basis of other beliefs—perhaps I learn from you that Sam wasn’t at the bar and from his wife that he was either at the bar or at the party. Of course (if our faculties are functioning properly) we don’t form just any belief on the evidential basis of just any other. I won’t form the belief that Feike is a Catholic on the evidential basis of the propositions that nine out of ten Fristians are Protestants and Feike is a Fristian—but, at any rate, unless I am suffering from some sort of cognitive malfunction. And here too experience plays an important role. The belief about Sam feels like the right one; that belief about Feike (in those circumstances) feels strange, inappropriate, worthy of rejection, not to be credited. Still further, the design plan dictates the appropriate degree of firmness of a given belief in given circumstances. You read in a relatively unreliable newspaper an account of a 53-car accident on a Los Angeles freeway; perhaps you then form the belief that there was a 53-car accident on the freeway. But if you hold that belief as firmly as, for example, that 2 + 1 = 3, then your faculties are not functioning as they ought to and the belief has little warrant for you. Again, experience obviously plays an important role.
What we need is a full and appropriately subtle and sensitive description of the role of experience in the formation and maintenance of all these various types of beliefs; in the next chapters I shall try to do something (though not nearly enough) to meet this need. For the moment, we may rest satisfied simply to note the importance of experience in the economy of our cognitive establishment.

Now return to the examples that precipitated this excursus about the design plan—the cases of beliefs produced by wish fulfillment, or the optimism necessary to surviving a serious illness, or willingness to have more children, or the like. In these cases, the relevant faculties may be functioning properly, functioning just as they ought to, but nevertheless not in a way that leads to truth, to the formation of true beliefs. But then proper function in a right environment is not sufficient for warrant. Different parts or aspects of our cognitive apparatus have different purposes; different parts or aspects of our design plan are aimed at different ends or goals. Not all aspects of the design of our cognitive faculties need be aimed at the production of true belief; some might be such as to conduct to survival, or relief from suffering, or the possibility of loyalty, or inclination to have more children, and so on. What confers warrant is one’s cognitive faculties working properly, or working according to the design plan insofar as that segment of the design plan is aimed at producing true beliefs. But someone whose holding a certain belief is a result of an aspect of our cognitive design that is aimed not at truth but at something else won’t be such that the belief has warrant for him; he won’t properly be said to know the proposition in question, even if it turns out to be true.

So there are cases where belief-producing faculties are functioning properly but warrant is absent; cases where the design plan is not aimed at the production of true (or verisimilitudinous) beliefs but at the production of beliefs with some other virtue. But then there will also be cases where cognitive faculties are not functioning properly, but warrant is present; these will be inverse, so to speak, of the cases of the preceding paragraph. Suppose our design demands that under certain special circumstances our ordinary belief-producing mechanisms are overridden by a mechanism designed to deal with that specific case: perhaps there is a sort of optimistic mechanism that cuts in when I am seriously ill, causing me to believe more strongly than the evidence indicates that I will survive the illness, thereby enhancing my chances to survive it. Suppose I am taken seriously ill, and suppose through some malfunction (induced, perhaps, by the illness itself) the operation of the optimistic mechanism is inhibited, so that, believing just in accord with the evidence, I form the belief that I probably will not survive. Then the relevant segment of my cognitive faculties is not functioning properly; that is, it is not functioning in accordance with the design plan; but doesn’t my belief have warrant anyway? Might I not have the degree of warrant that goes with the degree to which I believe that I probably won’t survive, despite the fact that if my faculties were functioning properly, I would believe (to one or another degree of firmness) that I will survive? The answer, of course, is as before: those segments of my cognitive faculties (those

modules, we might say) that are aimed at truth are functioning properly; my cognitive faculties are functioning in accord with the design plan insofar as the design plan is aimed at the production of true beliefs. There is malfunction only with respect to those cognitive modules aimed at something other than truth; so in this case the belief that I will not survive has the degree of warrant normally going with the degree of belief I display.

Many questions remain, but I must leave them to the reader.

III. Reliability

According to the zeroeth approximation, a belief has warrant for me, speaking roughly, if it is produced by my cognitive faculties functioning properly in a congenial environment. We have just seen that these two together are insufficient: the segment of the design plan governing the production of the belief in question must also be aimed at truth. (In the next chapter I shall say a bit more by way of explaining just what this “being aimed at truth” comes to.) But this is still insufficient. For suppose a well meaning but incompetent angel—one of Hum’s infant deities,—say—sets out to design a variety of rational persons, persons capable of thought, belief, and knowledge. As it turns out, the design is a real failure; the resulting beings hold beliefs, all right, but most of them are absurdly false. Here all three of our conditions are met: the beliefs of these beings are formed by their cognitive faculties functioning properly in the cognitive environment for which they were designed, and furthermore the relevant modules of the design plan are aimed at truth (the relevant modules of their cognitive equipment have the production of true beliefs as their purpose). But the beliefs of these pitifully deceived beings do not have warrant. What must we add? That the design plan is a good one—more exactly, that the design governing the production of the belief in question is a good one; still more exactly, that the objective probability of a belief’s being true, given that it is produced by cognitive faculties functioning in accord with the relevant module of the design plan, is high. Even more exactly, the module of the design plan governing its production must be such that it is objectively highly probable that a belief produced by cognitive faculties functioning properly according to that module (in a congenial environment) will be true or verisimilitudinous. This is the reliabilist constraint on warrant, and the important truth contained in reliabilist accounts of warrant.

It is easy to overlook this condition. The reason is that we ordinarily take it

23Of which were forcibly brought to my attention by Dean Zimmerman.
25Some (Donald Davidson, for example) apparently hold that it is impossible that there be a sizable community of believers most of whose beliefs are false; I disagree and explain why (see pp. 80–81).
26This counterexample was called to my attention by Richard Swinburne, Ian Foster, and Thomas Senor.
27See chapter 9 for a gesture at an account of objective probability.
Warrant and Proper Function

for granted that when our cognitive faculties—at any rate, those whose function it is to produce true beliefs—function properly in an appropriate environment, then for the most part the beliefs they produce are true. When our faculties function in accord with our design plan (in an appropriate environment), the beliefs they produce are for the most part true. Certainly we think so with respect to memory, perception, logical and arithmetical beliefs, inductively based beliefs, and so on. Further, we take it for granted that these faculties are reliable; they not only do produce true beliefs, but would produce true beliefs even if things were moderately different. (They produce true beliefs in most of the appropriately nearby possible worlds; that is, most of the appropriately nearby possible worlds W meet the following condition: necessarily, if W had been actual, then our cognitive faculties would have produced mostly true beliefs.) Still another way to put it: we take it for granted that the statistical or objective probability of a belief’s being true, given that it has been produced by our faculties functioning properly in the cognitive environment for which they were designed, is high. Perhaps more specifically our presupposition is that in general (for a person S with properly functioning faculties in an appropriate environment, and given the cited qualifications) the more firmly S believes p, the more likely it is that p is true. Of course, we think some faculties more reliable than others, and think a given faculty is more reliable under some conditions than others. This assumption on our part is a sort of presumption of reliability. Of course, it is a presumption or an assumption; it isn’t or isn’t obviously12 entailed by the notion of proper function itself. So the account of proper function must include it as another condition: if one of my beliefs has warrant, then the module of the design plan governing the production of that belief must be such that the statistical or objective probability of a belief’s being true, given that it has been produced in accord with that module in a congenial cognitive environment, is high.

How high, precisely? Here we encounter vagueness again; there is no precise answer. It is part of the presumption, however, that the degree of reliability varies as a function of degree of belief. The things we are most sure of—simple logical and arithmetical truths, such beliefs as that I now have a mild ache in my knee (that indeed I have knees), obvious perceptual truths—these are the sorts of beliefs we hold most firmly, perhaps with the maximum degree of firmness, and the ones such that we associate a very high degree of reliability with the modules of the design plan governing their production. Even here, however, we are not immune from error: even what seems to be self-evident can be mistaken, as Frege learned to his sorrow.30 It may be worth noting, however, that Frege did not believe the offending ‘axiom’ to the maximal degree; if he had, then he would have been no more likely to give up that ‘axiom’ than to conclude that there really is a set that is and is not a member of itself.

I say the presupposition of reliability is a feature of our usual way of thinking about warrant; but of course this presupposition is not inevitable for us. The skeptic, for example, can often best be seen as questioning this presupposition. She may agree that there is indeed a perfectly proper distinction between cognitive proper function and malfunction, but be agnostic about the question whether there is any correlation at all between proper function and truth. Or she may think there is indeed such a correlation, but think it far too weak to support our ordinary claims to knowledge. Or she may think that since the long-run purpose of our beliefs, as she sees it, is to enable us to move about in the environment in such a way that we do not come to grief (or do not come to grief until we have had a chance to reproduce), there is no interesting correlation between a belief’s being produced by faculties functioning properly and its being true.31 Of course one can be a skeptic about one particular area as opposed to others: a rationalist may think sense perception less reliable than reason and may thus maintain that it is only reason, not perception, that gives us knowledge; an empiricist may see things the other way around. Philosophy itself is a good candidate for a certain measured skepticism: in view of the enormous diversity of competing philosophical views, one can hardly claim with a straight face that what we have in philosophy is knowledge; the diversity of views makes it unlikely that the relevant segments of the design plan are sufficiently reliable. (In a properly run intellectual establishment, therefore, most philosophical views will not enjoy anywhere near the maximal degree of belief.)

To return to warrant then: to a first approximation, we may say that a belief B has warrant for S if and only if the relevant segments (the segments involved in the production of B) are functioning properly in a cognitive environment sufficiently similar to that for which S’s faculties are designed; and the modules of the design plan governing the production of B are (1) aimed at truth, and (2) such that there is a high objective probability that a belief formed in accordance with those modules (in that sort of cognitive environment) is true, and the more firmly S believes B the more warrant B has for S. This is at best a first approximation; it is still at most programmatic, a suggestion, an idea, a hint. Furthermore, it might be suggested (in fact, it has been suggested) that while it may be...

12 Suppose it might sensibly be held that it is impossible that there be rational beings (being capable of reasoning or belief) whose cognitive faculties function properly but who nonetheless hold predominantly false beliefs. Perhaps there are purposes or ends necessarily built into certain kinds of creatures. Then it a molecule or a human, a demon were to design a race of rational creatures whose beliefs were nearly always mistaken, those cognitive faculties would not be functioning properly, even if they were functioning just as they were designed to. Instead, we should have to say that what this demon wanted to do was to design a race of cognitive beings that did not function properly.

30 Frege produced a set of axioms for set theory, including the famous or infamous proposition that for any property P there exists the set of just those things that have P. Russell showed him that this axiom (together with the others) yields a contradiction: it is true, there will be a set of non-membered sets, which both will and will not be a member of itself.

31 Thus Patrick Churchland: “Boiled down to essentials, a nervous system enables the organism to succeed in the four P’s: feeding, fleeing, fighting and reproducing. The principle chare of nervous systems is to get the body parts where they should be in order that the organism may survive. . . . Truth, whatever that is, definitely takes the backseat” (Journal of Philosophy 84 [October 87], p. 540). See my chapter 12, sec. 3, for discussion of this suggestion.
difficult counterexamples to the view, that is only because it is vague and
impr have sympathies with both complaints, although I would implore
thos make the second to heed Aristotle's dictum and seek no more
precaution the subject admits. Maybe there isn't any neat formula, any
shortnappy list of conditions (at once informative and precise) that are
necessary and jointly sufficient for warrant; if so, we won't make
much by grimly pursuing them. But in the next chapters I shall try to
respect both complaints by providing more detail. In chapter 2, I shall make
some comments and respond to some objections; and then in the next seven
chapters investigate each of a number of areas of our epistemic function-
ing, how our faculties function when they function properly in that area,
and the view of warrant to that area of the cognitive domain.