PSYCHOLOGISM WITH RESPECT TO LOGIC:
AN EXAMINATION OF SOME THESES

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ABSTRACT

I take psychologism with respect to logic to be an endorsement of the slogan that the laws of logic are (in some sense) laws of thought. My interest in psychologism is this: on the one hand there are lots of implausible and unacceptable ways of interpreting this slogan; but on the other hand we have strong intuitions that deductive logic is an important part of what it is to think or reason correctly. The interesting problem is to explain the role of logic in correct reasoning without falling into the trap of an erroneous form of psychologism.

In Part One I distinguish several metaphysical interpretations of the psychologistic claim, and examine a series of arguments presented by Bradley, Frege, and Moore directed against them. While most metaphysical versions of psychologism are refuted by their arguments, I present Bradley’s own position which can be understood to be a more sophisticated form of psychologism that apparently escapes these arguments. I conclude by outlining a set of considerations which, if fully defended, legislate against any metaphysical version of psychologism.

In Part Two I distinguish between two uses of the term "principles of reasoning". The first refers to the traditional idea that there may be principles that direct reasoning --- for example, principles that tell us what we ought to believe in certain circumstances. The second refers to principles of deductive validity. Since the first kinds of principles would be about beliefs or other psychological states, then if no distinction is made between the two kinds of principle it is almost inevitable that laws of deductive logic will be interpreted as being about psychological entities.

These points are made in the context of J.S. Mill’s work on logic. I show that Mill explicitly makes this distinction and so avoids psychologistic conclusions. I endorse his conclusion that principles of deductive logic neither are nor provide principles for directing reasoning. Some headway is made in characterizing the relation between deductive logic and reasoning.

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Introduction

What is psychologism with respect to logic, and what is wrong with it? It used to be common for philosophers and logicians to make remarks like the following:

Logic ... is the science of the operations of the understanding which are subservient to the estimation of evidence. [1]

Logic ... may be considered as the Science, and also as the Art, of Reasoning. ... Its most appropriate office ... is that of instituting an analysis of the process of the mind in Reasoning. [2]

Logic ... is the science which studies the general principles in accordance with which we think about things, whatever things they may be. [3]

Logic is ... the analysis and criticism of thought. [4]

Very similar statements occur in the introductory chapters of almost any logic book published prior to 1930 --- and most philosophers would unhesitatingly brand these claims as "psychologistic". Here logic is said to be a science; its subject matter is a certain set of operations of the understanding --- those we call reasoning or thinking. It is plausible to summarize these claims in the slogan: the laws of logic are (in some sense) laws of thought.

I think that there is something to this slogan. There does seem to be an important and close relation between logic and thought, between logic and certain capacities of human understanding, and so there may be some interpretation of the slogan that makes it true. After all, isn't it this relation between logic and thought, or between logic and
correct thinking, that makes logic of special interest to us? Of course, we can and do treat logic formally, as a calculus (Boole would say) for determining the correctness and strength of deductive and inductive arguments. But

Both these studies have also an interest of another kind, derived from the light which they shed upon the intellectual powers. They instruct us concerning the mode in which language and number serve as instrumental aids to the process of reasoning; they reveal to us in some degree the connexion between different powers of our common intellect; they set before us what, in the two domains of demonstrative and of probable knowledge, are the essential standards of truth and correctness, --- standards not derived from without, but deeply founded in the constitution of the human faculties. [5]

Although Boole’s remark is not very clear, it does suggest several possible interpretations of the slogan: the laws of logic are aids or guides for reasoning, the laws of logic are standards of correct thinking; and the laws of logic are founded upon or derived from the human faculty of thought (the human mind).

For ease of exposition I will say that any commitment to this slogan is a form of psychologism with respect to logic. Perhaps there are psychologistic theses about logic that do not embody an interpretation of the slogan, but for the most part they will not concern me here. My interest in psychologism with respect to logic focusses on this: on the one hand there are clearly lots of implausible and unacceptable ways of interpreting the psychologistic slogan; but on the other hand the slogan has some plausibility, and I would like to find a true interpretation of it. If no true inter-
interpretation is forthcoming I would at least like an explanation of the relation between logic and thought or logic and correct thinking, and an understanding of why there cannot be such an interpretation,

Some of the discussions in this thesis, particularly in Part II, show how difficult it is to produce any substantive generalizations that codify relations between logic and thought. And this task is made more difficult by the history of psychologism. For one thing, few philosophers have given any coherent defence of a plausible version of psychologism about logic. It is rather a thesis that is often "refuted" --- an opponent is branded as having a psychologistic position, or as making psychologistic claims, and that position or those claims are shown to be problematic. This situation forces the methodology of this thesis. The fact that few philosophers have defended psychologism means that there are few sympathetic and studied attempts to interpret the slogan or explain the relation between logic and thinking. And in most of the cases where I have tried to track down psychologistic theses that are claimed by one philosopher to be held by another, it has turned out that the claims are based on misinterpretations and misunderstandings, or at best on unsympathetic readings. Thus I have often had to reconstruct psychologistic positions --- perhaps held by no one at all --- by looking at "refutations" of psychologism.
This thesis is divided into two parts. In the first part I look at metaphysical interpretations of the slogan. Given that thoughts are mental or psychological processes, then the slogan becomes:

Laws of logic are (in some sense) laws of psychological processes.

Laws of logic might be laws about psychological processes either because laws of logic are about the very same things that laws of psychology are about, or because laws of logic actually are (or follow from) laws of psychology. I call the first interpretation "psychologism about concepts and truth-bearers", because it maintains that concepts or truth-bearers, the things that logical laws are about, are psychological or mental entities. Versions of the second interpretation I call identification theses, for it would follow from such claims that logic is really part of psychology.

By and large it is these metaphysical theses that formed the psychologism so fiercely attacked by Bradley, Frege, and Moore. And these theses have to be reconstructed from their "refutations", because it is difficult to find proponents of them. I construct the positions, and show why psychologism about concepts and truth-bearers is the central thesis of metaphysical psychologism. Then I examine a series of arguments presented by Bradley, Frege, and Moore against these positions. I suggest that while most versions of the metaphysical theses are pretty clearly refuted by these philosophers, there is at least one sophisticated
position held by Bradley that is not easily refuted. However the question does arise as to whether that position, when stated in a way that avoids certain pitfalls that Moore emphasizes, really is psychologistic in any interesting sense. By way of conclusion I sketch the outlines of a position which, if properly defended, would legislate against any form of metaphysical psychologism.

In the second part of this thesis I focus on questions about reasoning. I think that terms such as "principles of reasoning" or "principles of inference" have an important ambiguity that is often not noticed. In our traditional sense a "principle of reasoning" is a "principle that directs reasoning" --- a principle that tells me what I ought to believe or conclude, depending on what other things I believe. I actually have some misgivings about whether we will ever find substantive general principles of this kind (this question surfaces at the end of section 6 of Part II), but let me set that aside for now. A second sense of the term is that which is intended by contemporary philosophers and logicians, who often use the term simply to mean "laws of deductive validity" --- laws or principles that describe deductively valid argument forms. Without this distinction, psychologism about logic becomes almost inevitable. For it is very natural to think that laws of reasoning in the first sense are laws about mental entities --- the associationist or his forbears would say that principles of reasoning are principles of association. And if no distinction is made
between the two notions of "principles of reasoning", then laws of deductive logic will almost certainly be interpreted as psychological or associationist laws too. This may result in a metaphysical interpretation of the psychologistic slogan: laws of logic are laws of reasoning, but laws of reasoning are laws about thoughts or about thinking. Distinguishing laws of deductive validity may prevent this slide.

Mill is one of the first philosophers to go some way towards making this distinction. His famous (and often misunderstood) claim that all syllogisms are a petitio principii is based on this distinction. For Mill denies not that syllogisms are deductively valid argument forms, but that they are, or provide, principles of reasoning in the first sense. While I disagree with some of his arguments to this conclusion, I agree with the conclusion itself. The central line of argumentation in Part II is based on a careful examination of Mill's system as a way of motivating and making the distinction between the two notions of "principles of reasoning". I go on to show that there is no direct connection between these two notions. There are various ways in which "principles of reasoning" in the first sense might arise: as principles of justification, as prescriptions about what one ought to believe, and as principles of rationality. I argue that in none of these cases is there any way in which laws of deductive validity are, or
can be transformed into, substantive principles of reasoning.

The upshot for the psychologistic slogan is that I find no substantive correct interpretation of it. However some of my results go some way towards explaining what role deductive logic, or facts about the deductive relations between propositions, have in correct reasoning or thinking.

Endnotes

1. Mill, J.S., A System of Logic, London, 1843, Intro., sec. 7. Henceforth I will refer to this work as 'SL'.


PART I:

METAPHYSICAL ARGUMENTS ABOUT PSYCHOLOGISM IN LOGIC
1: A First Metaphysical Thesis

It is rather difficult to find any clearly elaborated view that is plausibly called psychologism about logic. In light of this it is striking that three philosophers with such different backgrounds and interests as Bradley, Frege, and Moore should agree as to what are the central doctrines of psychologism about logic, and should submit them to very similar kinds of criticism.

Thus Bradley sets the tone of The Principles of Logic in the opening pages with a complaint about the pervasiveness of empiricist psychology in British philosophy and logic --- the psychological attitude as he calls it.

We take it for granted and as a matter of course that, like sensations and emotions, ideas are phenomena. And, considering these phenomena as psychical facts, we have tried (with what success I will not ask) to distinguish between ideas and sensations. But, intent on this, we have as good as forgotten the way in which logic uses ideas.

Bradley suggests that there is at least one fundamental problem for those who ignore "the way in which logic uses ideas": "... if an idea were treated as a psychical reality, if it were taken by itself as an actual phenomenon, then it would not represent either truth or falsehood." (PL, p. 2) But logic treats of truth and falsehood, and of relations between truths and falsehoods. Consequently the ideas of logic (concepts, and things that represent truth and falsehood) cannot be psychical phenomena.

This is intriguing. We can agree that if actual pheno-
mena cannot represent truth and falsehood, then any doctrine which has it that psychical phenomena represent truth and falsehood must be wrong. So if this is Bradley's train of thought we can expect a defence of the premise that actual phenomena cannot represent truth and falsehood. Even if this is not the form of Bradley's argument we can expect a defence of a weaker claim, that psychical phenomena, at least, are not concepts and do not represent truth and falsehood.

In his important work The Foundations of Arithmetic, published just one year after Bradley's Principles of Logic, Frege begins with similar complaints expressed in much the same language. Frege suggests that the investigation of the foundations of arithmetic, and of the concept of number in particular, is of concern to both philosophy and mathematics; but he acknowledges that in the past, exchanges between philosophers and mathematicians have not been fruitful. "This is due", Frege claims, "... to the predominance in philosophy of psychological methods of argument, which have penetrated even to the field of logic." The effect of these methods is that philosophers suppose ... that concepts sprout in the individual mind like leaves on a tree, and we think to discover their nature by studying their birth: we seek to define them psychologically, in terms of the nature of the human mind. But this account makes everything subjective, and if we follow it through to the end, does away with truth. (FA, p. vii.)

Again what is problematic is the assumption that concepts
are psychical particulars, things that occur in the mind and have a 'birth'. The suggested consequence of the assumption is that it 'does away with truth'.

To take one final example, it is well known that anti-psychologism about logic is prominent in the early work of Moore and Russell. It first surfaces, ironically, as part of Moore's reaction to Bradley's theory of judgement. Moore argues to the conclusion that "the idea used in judgement ... cannot ... be described as part of the content of any psychological idea whatsoever", and that problems arise for any theory that tries "to explain the concept in terms of some existent fact, whether mental or of any other nature." (NJ, p. 179) It is only with the rejection of any attempt to identify concepts with particulars, and a fortiori with mental particulars, that one can explain the nature of judgements (propositions or truth-bearers), of predication, and of truth itself.

All three philosophers deny that concepts are mental particulars. Just how far this apparent agreement extends is moot. Both Bradley and Moore suppose that truth-bearers are, or are composed of, concepts or 'logical ideas'; but as Frege develops his notion of a concept in the light of his sense-reference distinction this is not the case. On the other hand, it is clear that in his later work Frege denies that truth-bearers, and senses in general, are subjective, psychical particulars: "for me, what is true is something objective and independent of the judging subject; for psy-
I will use this latter point as an excuse for sliding over the fact that there is no shared view as to what concepts are, for these philosophers certainly agree about the incorrectness of particular views. In order to have a label at my disposal I will say that any doctrine which entails that concepts and truth-bearers are psychical particulars entails psychologism about concepts and truth-bearers. Notice that psychologism about concepts and truth-bearers does yield an interpretation of the psychologistic slogan. Laws of logic are generalizations about propositions or truth-bearers. But if truth-bearers are psychical particulars then laws of logic are laws about psychical particulars.

There are a number of interesting arguments against psychologism about concepts and truth-bearers, or versions of such a thesis, to be found in the work of Bradley, Frege, and Moore. The arguments, and the questions they raise, are historically important, but they are also philosophically interesting in their own right. In subsequent sections I will look at several of the arguments against psychologism about concepts and truth bearers. But there are other kinds of psychologistic theses about logic, most of which are not taken as seriously by these philosophers. What I want to do first is to suggest and examine a second psychologistic thesis about logic. For I want to show that Bradley, Frege, and Moore really are justified in placing so much emphasis
on this first psychologistic thesis. They are right to concentrate on this issue because (as I will argue) it really is a central component of one obvious version of psychologism about logic; moreover it is an issue that is more tractable than many others. It is a central issue even if the traditional questions about logic (questions such as: what is the nature of logical truth, necessity, and implication; what is the nature of the laws of logic; and, of course, what are the laws of logic) do not explicitly raise the question of the ontological status of concepts and truth-bearers.

Endnotes


2. Frege, Gottlob, The Foundations of Arithmetic (trans. Austin), Basil Blackwell & Mott, Ltd., 1959, p. v. I will refer to this work as 'FA'.

3. Moore, G.E., "The Nature of Judgement", Mind 30. 1899, p. 179. I will refer to this paper as 'NJ'.

2: A Second Metaphysical Thesis

I want to contrast psychologism about concepts and truth-bearers with another, stronger interpretation of the psychologistic conclusion. This is the thesis that the laws of logic actually are, or follow from, the laws of psychology, as opposed to being laws about the same things that psychological laws are about. By way of example, let me amplify some remarks that Joseph makes. Logic is a science, and the point of a science is to uncover principles --- laws of nature. Here the term 'law' is not to be understood in any prescriptive sense. For instance, when we say that the planets follow astronomical laws, we mean that those laws are 'illustrated' by the behaviour of the planets.

Such laws, the general principles to which things in their properties and their behaviour do actually conform, are what the physical sciences seek to discover, each in its own department, and if logic is a science, it must have a subject of its own, in which it seeks for principles and laws. (Joseph, p. 2)

So there are two basic ideas: a science has a subject, and it generates laws about that subject.

Now, Joseph says that the subject of logic is thought. By this he means that logic is supposed to characterize thought as it occurs --- examples of thinking, cases of a person thinking this or that. This is quite analogous to the study of motion in physics. The subject of a theory of dynamics is motion, that is, cases of objects moving here or there. So just as the physicist tries to discover laws that particular cases of motion illustrate, so logic "is the
science which studies the general principles in accordance with which we think about things, whatever things they may be ... ." (Joseph, p. 3)

The natural assumption, and the assumption that Joseph pretty clearly makes, is that all cases of thinking are occurrences of mental phenomena, psychological events or processes. It is true that we often characterize differences in thoughts via differences in what the thoughts are about; in fact Joseph contends that "all thought is 'thinking this or that'". (Joseph, p. 12) Thus "the operations of the mind are unintelligible, if we disregard altogether the nature of their objects". (Joseph, p. 12) Still, thinking this or that is an operation of the mind, a mental process.

But psychology studies occurrences of mental phenomena. Indeed the subject of psychology is presumably the set of all occurrences of mental phenomena. Thus, on Joseph's view, the subject of logic is included in the subject of psychology. I take it that to claim that the subject of logic is included in the subject of psychology is just psychologism about concepts and truth-bearers. But there is another step that can be taken. One can suppose not only that the subject of logic is included in the subject of psychology, but that the laws of logic are psychological laws, or follow from psychological laws. In other words one can suppose that logic is, or is reducible to, psychology. This is a stronger version of psychologism about logic, and
is surely another way of interpreting the psychologist's slogan.

There are a number of conditions that have to be met in order for it to be plausible that a theory A is part of, identical with, or reducible to a theory B. For example, consider the following two conditions that are both necessary, though not jointly sufficient: the first I will call condition S, that the subject of theory A is included in the subject of theory B; and the second I will call condition T, that each sentence of theory A has the same truth conditions as the sentence of theory B that it is identified with. What should be quite clear is that the subject of one theory can be included in the subject of another (condition S can be met) without it thereby being identical with, or part of, the other, and in particular without condition T being met. For two theories can say different but compatible things about the same class of entities.

The point here is not to attempt to list all the conditions of a successful identification of two theories, but rather to distinguish several importantly different ways in which proposed reductions or identifications can be challenged. Thus in the first place one could try to demonstrate that the subject of the theory to be reduced is not included in the subject of the reducing theory --- that condition S is not met. In the second place one could try to show that the truth conditions of a sentence to be reduced differ from those of its reducing sentence --- that
condition T is not met. Of course this second kind of argument would be rather unusual because the question of a possible identification of two theories (or more likely, of two kinds of theories) would only be broached given the supposition that the two (kinds of) theories in question are both true. But this second type of argument suggests a whole additional range of possible arguments against an identification of two theories. For in general one may try to demonstrate that the sentences of one theory may lack (or have) some property that the sentences of the second theory have (or lack). For example, the sentences of one may not [1] be laws while the sentences of the other are, or the sentences of one theory may be necessary (if true) but the sentences of the other only contingent (if true), and so on. Thus I will say that some condition P is being challenged when it is argued that the sentences of one theory have some property P that sentences of the other lack.

While it is possible to suppose that logic is part of or reducible to psychology, it is important to put the emphasis in the right place. It is not that I think that an identification of logic with some part of psychology is either very interesting or plausible. It is rather, on the one hand, that some philosophers have made claims that can be legitimately interpreted as a commitment to such an identification, although to my knowledge no serious attempt has ever been made to carry out such a programme. And, on

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the other hand, philosophers have offered principled objections and arguments against the possibility of any such identification --- for example, that the sentences of one of logic or psychology must have some property P that the sentences of the other lack. Whether or not any such arguments are ultimately successful, the important point for now is to be clear about the relation between psychologism about concepts and truth-bearers and other possible psychologistic positions. I take it that in denying the truth of psychologism about concepts and truth-bearers, Bradley, Frege, and Moore are denying that the subject of logic is included in the subject of psychology. Certainly if their arguments succeed, it follows that there can be no identification of logic with psychology. On the other hand, from the fact that one has a demonstration that there can be no identification of logic with psychology it does not follow that psychologism about concepts and truth-bearers is false. For it may be possible to argue in any particular case that condition T is not met, or that there is some condition P that (in principle) cannot be met, without thereby raising the question of whether or not the subject of logic is included in the subject of psychology. Thus a thesis that maintains an identification of logic with some part of psychology is much stronger than a thesis that merely maintains psychologism about concepts and truth-bearers, in the sense that the former implies, but is not implied by, the latter.
1. Consider the proposal that psychology is reducible to physics. One traditional question is whether the laws of psychology will be mapped onto the laws of physics, or merely that the laws of psychology will be mapped onto true sentences (but not necessarily laws) of physics. The former meets the paradigm of an empiricist reduction, but perhaps the latter deserves to be called a reduction as well. Both kinds of reduction presuppose that conditions S and T are satisfied, but they differ in what further conditions have to be met. For example, the strong empiricist reduction involves type identities (psychological types are really physical types), and so on. Often these questions are discussed in terms of what the bridge laws (or generalizations) between psychology and physics are like. My point is that to suppose that there are bridge laws (or generalizations if there are no laws) is to suppose that conditions S and T are met.

It could be that condition S is met by psychology and physics while condition T is not --- but this is not an initially attractive position for philosophers of mind. The result would be that there are properties and events that are not physical properties and physical events. In the case of psychology and physics it does not seem possible that condition T could be satisfied but not condition S.
Some Fregean Arguments against an Identification Thesis

I mentioned earlier that the main concern of Bradley, Frege, and Moore is with psychologism about concepts and truth bearers. But Frege does briefly discuss a version of an identification thesis with respect to mathematics and psychology. For when Frege asserts that "if number were an idea, mathematics would be psychology" (FA, p. 37), it is natural to suppose that he is worried about an identification of arithmetic with psychology. The example is interesting in its own right, but it also leads directly to questions about psychologism with respect to logic as well as to mathematics. Perhaps more importantly, the example shows the difficulty of arguing for or against an identification thesis; certainly when Frege's observations are taken as arguments against such an identification they vary in merit.

However, some of Frege's remarks are directed against the claim that the subject of arithmetic is included in the subject of psychology, and it is interesting to see the progression from arguments against this weaker claim to arguments against the stronger identification thesis. By and large, I think that the arguments that Frege makes against the weaker thesis are unsuccessful. He writes, for example, that

if we say 'The North Sea is 10,000 square miles in extent' then neither by 'North Sea' nor by '10,000' do we refer to any state of or process in our minds: on the contrary, we assert something quite objective, which is independent of our ideas and everything of that sort. (FA, p. 34)
Given the assumption that in 'The North Sea is 10,000 square miles in extent' the number term '10,000' refers to a number, Frege's denial that this use of '10,000' refers to a psychological state or process simply amounts to a denial that numbers are psychological states or processes.

But perhaps there is also an argument here. If number can be shown to have a property, objectivity, that psychological states and processes lack, then Frege does have the basis for a genuine argument that numbers are not psychological entities, and that the subject of arithmetic is not included in the subject of psychology.

Now, "what is objective ... is what is subject to laws, what can be conceived and judged, what is expressable in words" (FA, p. 35). Moreover, "what is purely intuitable is not communicable" (FA, p. 35). Thus what is purely intuitable, what Frege also calls sensation, is not objective. From this we can generate an argument. Numbers are objective; they are subject to laws, they can be conceived and judged about, and such conceptions and judgements are communicable. Ideas are purely intuitable, and so are not objective. Presumably the subject of psychology is composed of what is purely intuitable, and so the subject of mathematics is not included in the subject of psychology.

Surely the psychologist has a ready reply. Perhaps there is something that is purely intuitable and is not communicable; and if there is, let us call it sensation as Frege does. But even if there are sensations of this spe-
cial kind, most psychologists suppose that there are other sorts of mental entities that are objective in the requisite sense. Associationist psychology, for example, supposes that there are impressions and ideas, and that these objects are subject to laws --- to the laws of association. Moreover, it seems that at least some of our judgements are judgements about ideas, and that such judgements can be communicated --- that is, expressed in words. Thus the associationist has grounds for claiming that ideas meet all of Frege's conditions for objectivity, and so can deny that ideas lack this property that numbers have.

As far as I know Frege does not anticipate such an objection. In a footnote where he distinguishes an 'objective notion' of idea from the 'subjective notion' he writes: "an idea in the subjective sense is what is governed by the psychological laws of association; it is of sensible, pictorial character" (FA, p. 37). So he would certainly disagree with what I proposed as the psychologist's reply, that what is subject to the laws of association meets all of the criteria for objectivity. But this is not enough. For in the face of the associationist's response, it begins to look as though Frege is simply identifying the non-objective with the psychological. I am not going to argue against Frege's drawing the objective/non-objective distinction in this way. But without any further justification of this distinction the associationist will contend
that the assertion that numbers are objective has only the force of the assertion that numbers are not psychological entities --- and we were looking for an argument to that conclusion.

Of course this issue is not closed. Perhaps it can be shown that there are other properties that numbers have and ideas lack. But by way of contrast I would like to turn to some very different considerations that Frege raises. These considerations can be turned into a rather powerful argument against the possibility of there being any identification of arithmetic with psychology, not by tackling the ontological question of whether the subject of arithmetic is included in the subject of psychology, but by directly tackling the question of whether some appropriate condition P can be met.

One of the fundamental philosophical problems discussed in the *Foundations of Arithmetic* is: what is "the nature of arithmetical truths"? (FA, p. 3) The burden of the book is to show that they are analytic and a priori. The truths of arithmetic are analytic if they can be shown to follow from general logical laws and definitions, and they are a priori if they can be proven without appeal to particular factual claims (see FA, p. 4). The method of proving the conclusion is by actually demonstrating that the truths of arithmetic follow from the general laws of logic, without any appeal to particular facts. Although a complete proof does not actually occur in FA, one must agree that the apparent success of the project justifies Frege's assertion that it is "a
very probable conclusion that the truths of arithmetic are analytic and a priori ..." (FA, p. 118). Thus the book itself provides the basis for a master argument against psychologism, or any other doctrine that implies that the truths of arithmetic are other than analytic and a priori. For both sides agree that the truths of psychology are synthetic and a posteriori; thus no sentence of psychology has all of the properties of any sentence of arithmetic. In other words some condition P cannot be met. Notice that this argument is conducted independently of the ontological question of whether the subject of arithmetic is included in the subject of psychology.

The master argument depends on there being a derivation of arithmetic from logic, but it also depends on the nature of the laws of logic themselves. In the Foundations Frege does not (explicitly) discuss the nature of the laws of logic, but the application of the master argument to a critique of psychologism in mathematics forces the issue. To see this, consider someone who accepts an identification of logic with psychology. Such a philosopher could accept that there is a derivation of arithmetic from logic, but contend that logic is a part of psychology. Thus he accepts that the laws of arithmetic are analytic in Frege's sense --- indeed it obviously follows that some laws of psychology (or some of their consequences) are also analytic in this sense. However this is no problem for the psychological
logician and mathematician. For from this point of view Frege's notion of analyticity is fairly trivial. And perhaps more importantly, the laws and statements of psychology generally will not be analytic, since it will be maintained that logic is reducible to a proper part of psychology and that arithmetic is reducible to a proper part of logic. Thus the fact that the laws of psychology are not in general analytic in Frege's sense is no reason for denying either that arithmetic or logic is reducible to psychology.

So the anti-psychologist about arithmetic who follows the master argument is forced to raise the questions: what are the laws of logic; what are their truth conditions; and, as Frege sometimes asks, how are they justified? Our anti-psychologist about arithmetic is driven to ask these questions about logic because he must argue that some condition P does not hold between logic and psychology --- for that is how the psychologist escaped the master argument. While these important questions about logic may be motivated by anti-psychologism in the way I have suggested, they are rather independent of the ontological questions about what truth-bearers are. It seems that at least in principle the anti-psychologist can raise these additional questions about the nature of logic and logical truth without thereby raising the ontological questions about concepts and truth-bearers.

It is interesting to note that Frege himself cannot accept such a response to the proponent of psychologism who
turns the master argument around in this way. For Frege seems to think that we are not entitled to raise questions about the nature and ultimate justification of the laws of logic. And he certainly thinks that there is no legitimate way of answering such questions. He writes, for example, that

The question why and with what right we acknowledge a law of logic to be true, logic can answer only by reducing it to another law of logic. Where this is not possible, logic can give no answer. If we step away from logic, we may say: we are compelled to make judgements by our own nature and by external circumstances; and if we do so we cannot reject this law --- of Identity, for example; we must acknowledge it unless we wish to reduce our thoughts to confusion and finally renounce all judgement whatever. I shall neither dispute nor support this view; I shall merely remark that what we have here is not a logical consequence. What is given is not a reason for something’s being true, but for our taking it to be true. (BLA, p. 15)

Frege is not minimizing the strength of such reasons for taking laws of logic to be true. But such reasons do not justify the truth of the laws of logic. Perhaps there is no such justification because there is no deeper level to retreat to. There is only the internal justification for a given law that other laws can sometimes provide. Since there is no external point of view for justification, there is no external point of view from which to challenge or defend the thesis that this particular condition \( P \) has been met.

Frege does actually try to use these apparent facts to argue against the psychologistic position by showing that
there is a fundamental incoherence in that position. Suppose that when we try to 'step away from logic' we do in fact find that by some kind of psychological necessity we cannot reject the laws of logic. Then we must face the consequences of this, and proponents of psychologism about logic are not always willing to do so. This necessity would not prevent us from imagining beings whose thought is governed by other laws, and who reject the laws of truth. "Where it hinders us is in supposing that these beings are right in so doing, it hinders us in having doubts whether we or they are right" (BLA, p. 15). For if it is true that we cannot doubt the laws of logic --- well, then we can't! As far as we are concerned the other beings are simply wrong. Frege seems to think that this shows that there is some incoherence in the psychologist's position. The proponent of psychologism wants to say that other systems of logic are possible or conceivable --- in some sense just as legitimate as our system --- but by hypothesis I am not able to reject (or doubt) the presently accepted laws of logic.

If this is the only argument (and Frege does not fill in any more details) then it is not very convincing. There is certainly an underlying problem here, about determining what it is to accept (or reject) laws of logic. It certainly is not to say that one accepts them. For whatever it is to accept laws of logic, we suppose both that most people do accept them and that most people cannot formulate them. So
if we really want to get a grip on the issues here it would help immensely if we had a better understanding of what it is to accept or reject laws of logic. But the real difficulty appears to be independent of this point. For one wants to reply that our supposed inability to reject the present laws of logic does not (also by hypothesis) prevent us from imagining and describing an alternative system of logic that is accepted by other beings. And is such a description not enough to show its possibility --- even if we think that such beings would be wrong?

I think that this reply suggests another argument that may be the real point behind Frege’s worry. I think the problem is not really about whether or not we are psychologically capable of rejecting the laws we presently accept, but rather whether it really is possible to coherently describe alternative systems of logic. For, on the one hand, this seems to imply that there are systems of logic that are incompatible with our own, but, on the other hand, that such systems are at least possible systems. But this is incoherent. That is, the description I just gave commits me to an inconsistency. For any laws or statements that are incompatible with the laws of logic I now accept are impossible --- they are not only false, but (from my point of view) are logically or necessarily false. So the proponent of psychologism seems to be unable to state his position consistently. Notice that the point does not turn on the hypothesis that we cannot reject the laws we presently ac-
cept. It is rather that given the laws we presently accept, we cannot coherently describe the psychologistic thesis.

I do not think that this is an air-tight argument. But it is fairly convincing for someone in Frege's position who does not see the legitimacy of 'stepping outside' a system of logic. For the one major point in the argument that seems open to question by the proponent of psychologism is the contention that the proposed description would not be about a possible situation --- not possible because it is inconsistent. To the proponent of psychologism this must be question-begging. For him the claim that other systems of logic are possible must imply that possibility is divorced from consistency --- that is, from our 'parochial' notion of consistency. In order to make his position coherent, the proponent of psychologism must come up with an answer the question of what it is to accept, or follow, a system of logic. This is not a project that Frege is prepared to take seriously.

The upshot of Frege's position is that his only recourse against the proponent of psychologism who tries to force an identification of logic with psychology is to argue against psychologism about concepts and truth-bearers. The question of whether or not condition P is met is not open for discussion, as far as Frege is concerned, because he thinks that there is no position from which we can legitimately question or judge the truth and ultimate justifica-
tion of the laws of logic. (On the other hand this stance does justify his claim that the psychological logician cannot state his position coherently.) But he can discuss condition S. As Frege concludes,

Surveying the whole question, it seems to me that the source of the dispute lies in a difference in our conception of what is true. For me, what is true is something objective and independent of the judging subject; for psychological logicians it is not. (BLA, p. 15)

Thus in Frege's own case there is a special motivation for his narrowing the dispute with psychologism about logic to the ontological question; he has argued that it is the only question open for debate.

Endnotes

1. Of course he is right that there is no explicit reference to psychological states or processes, but that cannot be the point at issue.

2. Frege sets out these considerations fairly clearly on p. 5 of FA.

3. It is also appears to be independent of the question of whether or not condition T can be met. Certainly no particular identification is being proposed and examined. The question is whether or not two sentences can have the same truth conditions, but one is synthetic and a posteriori, while the other is analytic and a priori --- and that issue simply has not been raised.

4. Some will object to my supposition that Frege thinks of justification as working in this untenable way. I would sympathise if I could see what other argument he might have in mind.

5. Perhaps it would be possible to rework this result into an argument at another level. For since laws of psycho-
Igoy apparently are justifiable in a way that logical laws are not, then there is a prima facie case for denying the identification thesis. However the psychological logician will not be impressed with this argument.

6. I will not be pursuing this issue here, but I will speak to it indirectly at several points.
4: **Further Remarks on the Identification Thesis**

Before I return to arguments that are specifically directed against psychologism about concepts and truth-bearers, I want to take one more look at the stronger identification thesis. Of course, as we have seen, a refutation of the weaker thesis amounts to a refutation of the stronger thesis, since the weaker thesis just is condition S. But I think that most philosophers would find an identification thesis implausible over and above any problems with condition S. For most philosophers are convinced that some condition P is obviously not satisfiable --- that is, that the laws of logic have some properties that laws of psychology do not have, or vice versa. However, we will find that it is rather difficult to flesh out the apparently obvious implausibility of any identification thesis, in ways that go beyond the (as yet unexamined) problems associated with the satisfaction of condition S.

These commonly accepted intuitions are often supported by the kind of argument that is given by Chisholm. He suggests that a logical truth such as

\[(L) \quad \text{for any propositions } p \text{ and } q, \text{ if } p \text{ is true, and } p \text{ implies } q, \text{ then } q \text{ is true,}\]

might be given the following psychologistic interpretation:

everyone is so constituted psychologically that if he believes that p is true, and if he believes that p implies q, he cannot but help believe that q is true. [1]

Chisholm argues against such interpretations of logical laws in the following way:
(a) Since "the psychological sentences are empirical generalizations about the way in which people think ... they can be supported only by extensive psychological research".

(b) But "being empirical generalizations, the psychological sentences are probable at best and are at the mercy of contrary instances".

(c) Moreover the existence (or even the possibility?) of contrary instances to psychological generalizations "has no bearing on the truths expressed by (sentences such as) ... 'necessarily, for any propositions p and q, if p is true and if p implies q then q is true'." (All quotations are from Chisholm, p. 51.)

We are to conclude, presumably, that since the sentence mentioned in (c) does express a typical truth of logic, no sentence of psychology expresses a truth of logic.

I think that the argument can be taken in two different ways: it could be understood as an argument against condition T, or else as an argument against some condition P. First, if we understand (b) as asserting that there actually are falsifying instances, then there must be an explicit reference to some particular psychologistic interpretation of logic, which might include a generalization such as Chisholm's interpretation of (L). Of course the suggested interpretation is false. But all that follows from this, since the laws of logic are true, is that any proposed identification that employs Chisholm's suggestion as a translation for some law of logic must be rejected. It does not follow that laws of logic are not empirical generalizations. A proponent of an identification or reduction thesis is committed to the claim that there are true (and
empirical generalizations that are identifiable with laws of logic. But it is surely no test of this claim to point out that a false psychological generalization is --- false!

Very likely this is not Chisholm’s argument. So consider a second way of understanding (b) that is not directed at any particular psychologistic proposal. Emphasizing the distinction between ‘empirical’ and ‘necessary’ laws is the key here. Perhaps the argument is simply this. First, psychological generalizations are empirical generalizations.

When Chisholm goes on to say that empirical generalizations are ‘probable at best’ (see (b)) he seems to mean that empirical generalizations are (at best) confirmed to some high degree of probability. [3]

But logical laws are necessary, and so no logical law is a psychological law.

Let me just mention two problems with this argument. First, even those who (with Chisholm) claim to have a clear understanding of necessity, and of the distinction between necessary and non-necessary truths, should demand a reformulation of the argument. Whether or not a truth is necessary is quite independent of whether or not we know it to be true, or have confirmed it to a high degree. That is, it is not inconsistent to assert of a proposition both that it is only confirmed to some degree, or indeed that we doubt its
truth, but also that it is (if true) necessary. So change the argument. The most obvious thing to do is to replace references to the epistemological status of the truths in question with references to their necessity or non-necessity. Then Chisholm's argument turns out to be:

- laws of psychology are non-necessary;
- laws of logic are necessary;

thus

no law of logic is a law of psychology.

Although this is certainly a valid argument there is now a second problem. For when the argument is presented this starkly, the proponent of psychologism has several possible lines of response. His most likely strategies are to argue either that the second premise is false or else that the argument begs the question. Here necessity and possibility must be divorced from logical truth, since the psychologist must try to argue that logical truths might have been other than they are. A more cautious approach (not incompatible with the preceeding kind of argument) might be something like this. The proponent of psychologism about logic accepts a certain set of data: we say that the laws of logic are necessary, that they appear to us to be necessary, and so on. What he wants to do is to explain that set of data. One explanation is that the laws of logic are necessary, and that we correctly see this. But there could be other explanations. Perhaps necessity is not properly applied to truth-bearers at all. For example, the apparent
necessity of a proposition could be analyzed as a kind of attitude that a thinker has towards the proposition, or perhaps as a function of the relations between the attitude and other psychological states, and so on. So we can imagine that the proponent of psychologism could maintain that the premises are not false, but are either senseless or else elliptical for some very complicated psychological claim. In either case it could be claimed that the argument begs the question on this issue.

I do not think that the psychologistic position that has been presented is easy to follow and defend, but it is clear that Chisholm's argument does not refute the possibility of an identification thesis. If you like, it poses a challenge to a philosopher who proposes to identify logic with some part of psychology. Chisholm has pointed out that it seems to be a consequence of an identification thesis that logical laws are non-necessary, and this needs to be justified. But I expect that the proponent of psychologism is quite willing to accept that challenge.

It is for this reason that I doubt that Chisholm has gotten to the heart of the problem with identification theses. Surely the main problem with such a thesis is not the consequence that logical laws are not necessary truths. To put it baldly, what philosophers find problematic is that logical predicates and logical properties and relations would turn out to be characterizable in terms of psycho-
logical predicates and psychological properties and relations. That is, predicates such as 'is valid', 'is true', 'logically implies', and 'is deducible from' may occur in the formulation of logical laws. And it is certainly a goal of logic to characterize validity, logical implication, and deducibility (if not truth). I think that what is, in the end, the most implausible aspect of an identification thesis (besides its commitment to condition S) is not that laws of logic seem to have different modal properties, and so a condition P is not met. It is rather our intuition that psychological laws or sentences do not, and could not have, the same truth-conditions as laws that employ these logical predicates, so that condition T cannot be met in principle. Or, to put this in another way, what is implausible is that logical relations and properties are even co-extensive with psychological relations. So far this is not to give any argument, but perhaps we can say a little bit more.

I think that Frege is considering this kind of problem when he warns us, as he often does, against what is called the genetic fallacy: "never let us take a description of the origin of an idea for a definition, or an account of the mental and physical conditions on which we become conscious of a proposition for a proof of it." (FA, p. v.) Frege is concentrating on a special case of the problem I want to elaborate. He denies that being a proof of is a psychological relation, and in one passage he does attempt to defend his view. Frege is willing to agree that there may be a
psychological explanation of assertion --- a description of the mental processes that lead to, and cause, an assertion.

But he asks:

Would not logical laws also have played a part in this mental process? I do not want to dispute this, but when it is a question of truth possibility is not enough. For it is also possible that something not logical played a part in the process and deflected it from the truth. We can only decide this after we have discerned the laws of truth; but then we will probably be able to do without the derivation and explanation of the mental process if it is important to us to decide whether the assertion in which the process terminates is justified. (T, pp. 17-18)

Frege is acknowledging the possibility that in the mental process that leads to assertion, logical laws, and perhaps all the steps of a proof or justification of the asserted proposition, may 'play a part'. But what Frege seems to be reacting against is the idea that the proof or justification of a proposition could turn out to be 'merely' a psychological process. I will try to make some headway by way of an example.

To begin, let me give a brief sketch of what a description of a psychological process might be like. A physicist, for example, might describe a physical process by referring to the occurrence of a sequence of states that cause some final state. So it is reasonable to suppose that the psychological description of the cause of an event such as an assertion (say, my assertion that I'll go to the movie) makes reference to the occurrence of a sequence of states S1, S2, ..., and Sn, where Sn is the psychological state
that corresponds to the assertion, and the occurrence of the sequence of states $S_1$, $S_2$, ..., and $S_{n-1}$ causes the occurrence of $S_n$. That the occurrence of states $S_1$, $S_2$, ..., and $S_{n-1}$ cause the occurrence of $S_n$ might follow from more general psychological laws.

Now, how are logical laws and propositions supposed to 'play a part' in such a mental process? There is a certain general picture that we can make use of here. At least some of the mental states that might cause an assertion are belief states and other so called propositional attitude states. I will introduce a little terminology here, and say that a belief (or other attitude) state represents the proposition that it is 'about'. We can imagine that among the states $S_1$, $S_2$, ..., and $S_{n-1}$ that cause my assertion that I'll go to the movie, are beliefs such as my belief that if I find my wallet then I’ll go to the movie, and my belief that I’ve found my wallet. Thus in such a circumstance there will be two states that are referred to in the explanation of $S_n$ that represent the two propositions that if I find my wallet then I’ll go to the movie, and that I’ve found my wallet. $S_n$ is to represent the proposition that I’ll go to the movie. In fact to simplify the example I will suppose (what is unlikely for any human subject on any psychological theory) that there are only two states $S_1$ and $S_2$ that are referred to in the description of the cause of $S_n$, and that those states are the beliefs in question. So
in the example the conjunction of what is represented by $S_1$ and what is represented by $S_2$ implies what is represented by $S_n$. I do not know for sure what a sophisticated proponent of psychologism might say about this example. Certainly most of us would agree that it is not very plausible to think that this psychological description of the occurrence of $S_1$ and $S_2$ causing the occurrence of $S_n$ is a description of the conjunction of two propositions implying or proving the third. But let us suppose that the psychologist does say this; how would we argue against him?

I would like to enter several caveats before I proceed any farther. First, whatever arguments we come up with should not play on the fact that the psychology in the example I gave is wrong, as the first interpretation of Chisholm's argument did. That is, this example is merely supposed to provide an illustration to help us think about the problem, and we are looking for an argument that does not appeal to the incorrect details of the example. Second, I want to reject a certain way of reading Frege's argument in the long passage I just cited. When Frege says that it is "possible that something not logical played a part in the process and deflected it from the truth" he can be taken to be implying that it is not possible to 'deflect' an implication from truth. That is, a logical implication is necessary, but a psychological law is not. On this reading we simply have a version of the second interpretation of Chisholm's argument all over again, and it is not the kind of
argument we are looking for. Third, I have not yet said what logical laws are, and I have not tried to represent logical laws explicitly in this example. I suspect that all Frege means by 'logical laws' in this quotation is what I have called laws of truth --- generalizations about truth relations between propositions. An instance of a generalization that is obviously relevant to the example is this: if the propositions that I’ve found my wallet and that if I’ve found my wallet then I’ll go to the movie are both true, then the proposition that I’ll go to the movie is true. We could suppose that this instance of the generalization about propositions, or that generalization itself, is represented by a state (say S3) that occurs in the psychological process that causes the occurrence of Sn. But to add such additional propositions does not help --- the implication holds without them. So I have kept the example simple.

These caveats aside, what kinds of arguments are there to back up the intuition that logical relations such as implication and proof cannot be psychological (causal) relations? When I say that the causal relation between S1 and S2, on the one hand, and Sn on the other, is not a case of implication or proof, I am implicitly pinning a certain thesis on the proponent of the identification of logic and psychology, that logical relations hold between beliefs. One way of putting this thesis is that what is represented (the representation, in one sense) is to be identified with
what does the representing (the representation, in another sense). It seems that it is only under such an identification that the causal relation under consideration could even be a candidate for being a case of implication or proof.

I agree that this is an implausible thesis. For example, it has as a consequence that a belief state is identified with what is believed. But notice that this is simply a version of condition S, psychologism about concepts and truth-bearers. Moreover the proponent of an identification thesis could argue that his position has been grossly misrepresented, and that he is not really committed to this way of putting things. Let me point to an analogy, Quine’s doctrine that truth-bearers are sentences. It is not that Quine agrees that there are propositions under some traditional characterization of what a proposition is --- say, that a proposition is what is expressed by a sentence --- and then discovers that propositions are just sentences after all. Such a description first presupposes that there is a special relation between sentences and propositions, the relation of expressing, and then suggests that the relation is part of the identity relation. From this characterization it would follow that a sentence expresses itself --- surely an unsatisfactory description of Quine’s view. It is rather that Quine argues that there are no propositions, but that sentences (or perhaps events of the uttering of sentences) can perform the central functions
that propositions were invented to perform.

I think that the proponent of an identification thesis can respond in much the same way. When I said that a psychological state such as Sn represents a proposition such as the proposition that I’ll go to the movie, it is natural to think that there are two objects, the state and the proposition, related by the relation of representing. But the psychologist need not suppose that the notion of representation is relational. Indeed most philosophers would agree that the notion of representation cannot be relational in all cases, and several philosophers such as Goodman (and possibly Bradley) have tried to give non-relational accounts of representation.

So let us suppose, at least for the sake of argument, that the proponent of psychologism is committed to a non-relational account of representation. On that assumption the implausibility of condition S does not arise in this crude form. Moreover we were looking for arguments against the identification thesis that did not depend on the implausibility of satisfying condition S. So I want to ask my question once again: is there any basis for our intuitions against this identification thesis that goes beyond the problems with condition S?

Unfortunately I cannot really answer this question here. The identification thesis seems to be developing into the suggestion that laws or principles of proof and justifi-
cation are psychological principles --- that principles of inference are psychological laws. This amounts to an elaboration of the original psychologistic argument form that occurred in the Introduction. The laws of logic are (or provide) principles of justification or inference; justification and inference are mental or psychological processes; and so laws of logic are (or provide) laws of psychological processes. In the previously quoted passage (p. 32), Frege seems to contend that proof and justification are not, and do not depend on, psychological processes or other phenomena. But the issues are extremely complex because the notions of proof, justification, and inference are very difficult notions. In Part II I will argue that the issues have to be resolved in a rather different way than Frege suggests. I will agree with the proponent of psychologism that it is at least very plausible that rules of proof or justification are (in some sense) psychological principles. But I will argue against the view that principles of proof or justification are, or are provided by, principles of deductive logic. So I will argue against any identification of the laws of (deductive) logic with psychological laws. The important considerations that do not directly involve the rejection of psychologism about concepts and truth-bearers (the satisfaction of condition S) depend on a close examination of the notions of justification and correct inference (section 6 of Part II).
Endnotes


2. Some theorists, such as Fodor, have suggested that psychological laws (and laws of the 'special sciences' generally) will not be exceptionless. A reductionist who agreed with this, and also agreed that laws of logic are exceptionless, would have to accept a weaker reduction --- a reduction of laws of logic not to laws of psychology but to sentences of psychology that are not laws. But this is a wrinkle that Chisholm has not considered.

3. I am sure that Chisholm does not mean by this that all empirical generalizations are probabilistic --- although, as I pointed out (previous footnote) it has been suggested that psychological laws are probabilistic and are not exceptionless generalizations.

4. So we might look for arguments to the conclusion that the laws of logic are 'revisable', although not everyone who would support this kind of claim would use such an argument to support some form of psychologism.

5. Frege, for example, suggests that the apparent necessity might be 'psychological'. See page 15 of BLA, quoted on page 22 Section 3.

6. That is, I object to the immediate jump to necessity. Maybe Frege has this in mind, but of course I will give another interpretation in the next few pages. If anyone does insist that Frege is giving some kind of a priori argument here, then I might find it more tempting to try and construct a different argument. Remember that Frege says that the laws of logic 'explain' the meaning of the word 'true'. So we may not need to suppose that Frege is committed to the necessity of logical laws, but only to the incomprehensibility of logical laws being false.

7. A reasonably sophisticated and motivated version of this kind of position is discussed in section 2 of Part II. But I will not go into any further details here.
5: Some Fregean Comments about Truth-bearers and Particular Ideas

We have now seen ample justification for the importance that Bradley, Frege, and Moore give to psychologism about concepts and truth-bearers. It stands as a psychologistic thesis in its own right, yielding an interpretation of what I called the psychologistic conclusion (Introduction, p. 3), and it is a component of any identification thesis. Moreover we have seen that there are genuine difficulties with arguments against an identification thesis that attempt to sidestep psychologism about concepts and truth bearers by arguing against the satisfiability of condition T or of some other condition P. So it is to this thesis that I now turn.

In Section 1 we saw that Bradley, Frege, and Moore all reject the thesis that truth bearers could be 'actual phenomena', and especially psychological particulars. All three suggest that this thesis leads to a problem with truth. For example, Bradley says that particulars (particular things) cannot represent truth and falsehood, and all would agree that existing or concrete particulars cannot represent truth and falsehood. Frege presents a most straightforward and convincing set of considerations in support of this first point, and so I will use his arguments to illustrate the position.

Frege sets out a number of common sense and (almost) universally acceptable constraints upon what a truth-bearer is. Actually Frege's perspective is slightly different, for he chooses to call truth-bearers thoughts.
Without wishing to give a definition, I call a thought something for which the question of truth arises. So I ascribe what is false to a thought just as much as what is true. (T, p. 20)

And so a first partial characterization of thoughts is that they are truth-bearers. A second important characterization of thoughts is that they are the objects of assertion or judgement (or, we can add, belief). For the question of truth arises when one believes or judges, asks a question, or expresses a belief or judgement by making an assertion. And of course given that the subject matter of both conditions is the same thing, the class of thoughts, it is also to be understood that a thing can be believed, judged, asserted, or asked if and only if it is something that is true or false.

For the sake of completeness I should mention that there is a third aspect of Frege’s characterization of thoughts that does not concern me here, although from his point of view it is perhaps the most important one. That is the thesis that thoughts are the senses of sentences. The relevant aspect of that thesis is that the sense of a sentence ‘determines’ its truth value in the way that the sense of a name determines its reference. Frege is clear that this is a substantive thesis that needs defence on several grounds.

Given this characterization of what a thought is, Frege is concerned to show that thoughts are not ideas or other psychological entities. The strategy is very simple. Frege
proceeds to characterize ideas in a way that even the 'un-philosophical' can readily agree with. Then, given the preceding conditions on what thoughts can be, he argues that ideas and thoughts do not have common characteristics, and so cannot be the same things.

Frege takes the obvious starting point to be that ideas compose "an inner world distinct from the outer world" — "a world of sense impressions, or creations of (the) imagination, of sensation, of feelings and moods, a world of inclinations, wishes and decisions". (T, p. 26) Once this rough characterization of ideas is accepted then the following description of ideas can be motivated. First, ideas are immaterial, for they are not sensed, touched, smelled, or seen the way physical objects are. We say that we have ideas, not that we sense them. Second, ideas have bearers. This is part of the force of saying that ideas are had and are not sensed. For there to be an idea it follows (Frege would argue) that the idea must be had or borne by someone. But almost no one would think that it follows from the fact that some physical object exists that there must be someone who senses it. Third, ideas have just one bearer. Again almost everyone would agree that what is in one person's consciousness cannot be in another consciousness. Of course different people can perceive the same things, but the impressions or ideas that are a necessary condition for each person's perceiving the thing are distinct. Given the fur-
ther plausible assumption that the bearer relation is irreflexive, the force of the second and third claims is that ideas are dependent particulars --- the existence of any idea entails the existence of a unique distinct particular, its bearer. Physical things, for example, are not dependent in this sense.

But are thoughts ideas? Like ideas, thoughts are not material things, for they are not sensed or perceived in the way that physical objects are perceived. But Frege also suggests that thoughts are not ideas because they are not dependent particulars --- and indeed that neither of the second or third claims about ideas hold for thoughts. I take it that what is most in need of justification, when one is faced with a proponent of an identity thesis, is that the second claim about ideas does not hold for thoughts. I do not think that Frege has any hard and fast argument here. It is rather that these claims about the nature of thoughts are motivated by the general claim that they are both truth bearers and also what is asserted, judged, and believed, just as the particular claims about the nature of ideas are motivated by the general characterization of ideas as the elements that compose the 'inner world' of sensations.

The motivation or justification goes roughly like this. First, remember the premise that thoughts are what is believed, judged, and asserted. If thoughts are also ideas, which can be had by only one bearer, then it seems that what I believe or judge or assert cannot be the same
thing that anyone else believes, judges, or asserts. And, with reference to the pythagorean theorem, Frege points out that

if it is not the same thought at all which is taken to be the content of the Pythagorean Theorem by me and by another person, one should not really say 'the Pythagorean Theorem' by 'my Pythagorean Theorem', 'his Pythagorean Theorem', and these would be different.... (T, p. 28)

Second, remember that thoughts are also what is true or false. Then on the supposition that thoughts are ideas it seems to be possible, for example, that my pythagorean theorem could be true but someone else's false, since they are completely distinct things. An analogy is that my sensation of a particular strawberry may be red, while it seems to be possible that someone else's sensation of the very same strawberry is not red (perhaps his sensations of red are just like his and my sensations of green). Of course Frege could agree that there is also a sense of 'red' [7] that applies to things outside of consciousness, and there could be a similar sense of "true" and "false". But that is not relevant since we are considering the plausibility of identifying truth-bearers with ideas.

Both of these consequences fly in the face of several common sense intuitions. One such intuition is that we can all believe, assert, and judge about a common subject. Another related intuition is that we can disagree with each other about the truth or falsity of particular judgements. But if what I judge cannot be what you judge, then it does
not seem that we can be either agreeing or disagreeing about anything at all. Let me introduce Frege's terminology, and say that we apprehend thoughts, as opposed to having or bearing ideas. Then in so far as we accept these intuitions, we have justification for denying that only one person can apprehend a thought, while we accept that only one person can have or bear any particular idea. These considerations are directed against the hypothesis that the third claim about ideas holds for thoughts, but there are considerations against the hypothesis that the second claim about ideas holds as well. For we have the strong intuition that, for example, the pythagorean theorem was true prior to anyone's apprehending it or its truth. This is the intuition that not all thoughts need be apprehended, although all ideas must be had or born.

It is plausible to conclude from this that thoughts are not ideas. For while ideas are dependent particulars since they presuppose a unique bearer, thoughts are not dependent particulars since they do not presuppose any apprehender at all, let alone a unique one. So Frege says that

A third realm must be recognized. What belongs to this corresponds with ideas, in that it cannot be perceived by the senses, but with things, in that it needs no bearer to the contents of whose consciousness to belong. (T. p. 29)

Now perhaps, strictly speaking, the argument does not really show this much. For even if we accept all of the foregoing intuitions, all that has actually been proven so far is that
the apprehension relation is not the bearer relation! It is at least possible, given all that has been assumed, that the bearer and apprehension relations hold between the same kinds of objects. While this point is correct, I think that all it really shows is that a little more needs to be assumed in order to make the Fregean (and common sense) case. For instance one could point out that there are puzzling asymmetries engendered by the more tentative conclusion. One example is that some particular idea would turn out to be the pythagorean theorem, and so be apprehendable by anyone of moderate intelligence; but that idea is born by one and only one person. This asymmetry will be problematic if further assumptions are made about the nature of ideas, for example that the bearer must be aware of any ideas that he has. This last assumption lacks a certain generality, since there may be psychological particulars that are not ideas in this traditional sense (and indeed there may be no ideas at all in this traditional sense). Still, it seems that any psychological particulars would be dependent particulars in the appropriate sense. A stronger and more general argument that could be raised at this point would be to appeal directly to the intuition that thoughts are true or false independently of, and prior to, the existence of any human being. That this is one of the most central and important anti-psychologistic intuitions will come to light in section 7, where I will discuss the major argument that explicitly makes use of it.
I want to emphasize that my hesitations on this matter are not intended to undermine Frege's conclusion, at least in the simple form that thoughts are not ideas or other psychological particulars. There is no doubt that it is an extremely plausible conclusion. But I do want to underscore the fact that the justification that has so far been given for it is just based on the Fregian (and I think common sense) intuitions about truth-bearers. Few philosophers would be prepared to challenge these intuitions unless they were in the grip of a special psychological theory, and with that case as an exception, I think that these rather mundane considerations really do suffice to show that truth-bearers are not psychological particulars. But does admitting all of this refute psychologism about concepts and truth-bearers? And if so, what was all the fuss about?

Although I agree that these considerations do refute, or at least strongly undermine, the thesis that thoughts are psychological particulars, I do not think that they refute psychologism about concepts and truth-bearers. The reason is that these considerations still leave the door open for a thesis that, from the point of view of a proponent of psychologism, is just as good as, or amounts to a version of, an identification thesis. For these considerations leave open the possibility that truth-bearers and concepts are types of psychological particulars.

For the moment I am not going to question why anyone
would possibly want to believe such a view. I will just show that it really is compatible with the foregoing consideratins. To summarize, thoughts do not (in general, at least) presuppose the existence of a thinker — in particular they do not have to be apprehended — and they can be apprehended by more than one person. Psychological particulars certainly do presuppose the existence of a thinker or bearer, and it seems unlikely that the apprehension relation could be a relation between thinkers and (some person's) particular ideas, But surely anyone with a mildly robust realism about universals would not think that psychological types presupposed the existence of any exemplars —— types are timeless and exist independently of their exemplars (and the bearers of those exemplars). And there is no problem about devising symmetrical relations to types that different thinkers can share —— for example being in a psychological state that exemplifies the type in question. So the foregoing considerations do not rule out the possibility that truth-bearers are psychological types. For the suggested interpretation shows how it can be that one person can apprehend the same thought at different times, and different people can apprehend the same thought at the same or different times.

Notice that it does not immediately follow that psychological particulars would have to be true or false after all. For types or universals can certainly have lots of properties that tokens do not (and vice versa), and it could
be maintained that being true or false is one such case. Indeed it would seem that whatever advantages or benefits are reaped by holding a strict identification thesis would also be reaped by adopting this suggestion that truth-bearers are psychological types.

Endnotes

1. Most of Frege's considerations are presented in "The Thought", found in Philosophical Logic, ed. P.F. Strawson, Oxford University Press, 1967, pp. 17 - 38. I will refer to this work as 'T'.

2. These considerations occur on pp. 20 - 22 of T.

3. See for example in "On Sense and Reference". Translations from the Philosophical Writings of Gottlob Frege, Ed. by Geach and Black, Basil Blackwell, Oxford, 1970, p. 62, as well as parts of 'The Thought'. Some negative considerations come from the fact that not all indicative sentences have truth-values apart from some context of utterance and intention of the speaker. So it is at least arguable that what might appropriately be called the sense of such sentences does not determine any truth-value, and so is not a candidate to be a truth-bearer.

4. Frege does at least mention several other kinds of arguments to an apparently similar conclusion in 'The Thought'. For example, he takes exception to the suggestion that the truth of ideas might lie in the fact that they correspond with things or states of affairs, and argues that this leads to a harmful regress. And he also suggests that while there may be a sense in which ideas are true, this truth of ideas reduces to, or amounts to, the truth of some sentence or other. These arguments occur on pp. 18 and 19 of T. I do not find either of them very clear, and I will not discuss them directly. But some of what Frege says about the correspondence problem is at least reminiscent of some considerations that Bradley raises, that are discussed in section 6.

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5. Frege presents these considerations on pp. 26-8 of 'The Thought'.

6. Most of these considerations are to be found in 'The Thought', pp. 28-29.

7. And apparently does suppose this --- T, p. 27.

8. I will save the argument until that time, since I think that the interesting form of the argument covers a wider ground than the considerations in this section do.

9. Further arguments are discussed in Part II sections 2-5, in which a more detailed psychologistic proposal is discussed. One reason that this justification here is so sketchy and programmatic is that we have characterized ideas themselves in such a fleeting way.
Bradley raises objections to the suggestion that concepts and truth-bearers are psychological particulars that are rather similar to Frege's, but he shows more awareness of the alternative positions that a proponent of psychologism might defend. Bradley wants to escape the trap of the 'psychological attitude' about logic (see the quotation on page 6 of the Introduction). He readily admits that psychological states or ideas play a role in the mental act of judgement. But

we never assert the fact [ie. a particular idea or psychological state] in our heads, but something else which that fact stands for. And if an idea were treated as a psychical reality, if it were taken by itself as an actual phenomenon, then it would not represent either truth or falsehood. When we use it in judgement it must be referred away from itself. (PL, p. 2)

So what Bradley wants to show is that psychological states or ideas are, from the point of view of logic, symbols that represent what is judged or asserted. What is judged or asserted, and what is represented by psychological phenomena or ideas, are what Bradley calls 'universal meanings' --- the ideas of logic.

Bradley's argument against the strict identification thesis, that the ideas of logic (concepts and truth-bearers) are psychological phenomena or ideas, consists of a (bad) philosophical joke.

... it is clear that the idea, which we use as the predicate of a judgement, is not my mental state as such. "The whale is a mammal" does not qualify real whales by my mammal-image. For that belongs
to me, and is an event in my history; and, unless I am Jonah, it can not enter into an actual whale. (PL, p. 8)

The point of the joke is pretty much in line with the Fregean considerations of the last section: the image is a particular phenomenon, it occurs at some time, and it exists only in my consciousness. What I judged (ie. what I predicated of whales) is what you might or do judge, now or at another time, and so cannot be an event in my consciousness. As Bradley says with reference to the question as to whether or not there is a sea serpent,

"the enquiry is not made about my psychical fact [ie. my idea of the sea serpent]. No one wishes to know if that exists outside of my head; and still less to know if it really exists inside. For the latter is assumed, and we can not doubt it." (PL, p. 8)

Bradley's enquiry does not stop here, because he sees a further possibility for psychologism.

Is it possible, secondly, that the idea [ie. logical idea or predicate] should be the image, not indeed as my private psychical event, but still as regards the whole content of that image? We have a mental fact, the idea of mammal. Admit first that, as it exists and inhabits my world, we do not predicate it. Is there another possibility? The idea perhaps might be used apart from its own existence, and in abstraction from its relations to my psychical phenomena, and yet it might keep, without any deduction, its own internal content. (PL, p. 8)

One point needs to be made explicit about the significance of this question. The term 'content' is a technical term for Bradley. He says that for anything that is we can distinguish 'two sides', existence and content. "In other words we perceive both that it is and what it is" (PL, p.
3). This content that any fact or existent must have is the "character which is different or distinguishable from that of other facts" (PL, p. 3) --- in other words it is the set of properties and relations that hold of it. My particular mammal image (at a given time) has a content, a complex of properties and relations, that distinguishes it from all other phenomena, including other mammal images that I have at other times. The content of my particular mammal image distinguishes it even from other mammal images that I might have because part of its content is that it is related to the other mental phenomena that co-exist with it, and that come before and after it in my mind. What Bradley suggests in this passage is that what is predicated may be the mammal image "in abstraction from its relations to my psychical phenomena", but still keeping "its own internal content" --- that part of the content that makes it a mammal image as opposed to an image of something else. But this abstracted idea is pretty clearly what we might call the image or idea type, the universal that is repeatable in different psychological contexts. In other words, Bradley has broached the question that I raised at the end of the previous section: could concepts and truth-bearers be psychological types?

Bradley's answer is that logical ideas are not psychological types or universals. Since the kinds of psychological particulars (and thus the kinds of psychological universals) that Bradley is explicitly considering are the ideas
and sensations of the empiricist 'theory of ideas', there is a danger that the considerations he brings to bear will not really justify the strong conclusion that logical ideas, which compose judgements, are not any kind of psychological type. But perhaps the best way of evaluating the force of Bradley's claim is to see how successful his argument is, and what theses it refutes.

Bradley's main contention is that the universals in question are still too rich, too specific, or too detailed. As he says,

The 'mammal' in my head is, we know, not bare mammal, but is clothed with particulars and qualified by characters other than mammality; ... And we may ask, Is the whole image used in judgement? Is this the meaning? But the answer must be negative. (PL. pp.8-9)

We can begin to formulate an argument here when we look at the best cases for the thesis that types of ideas are what is predicated. These would be cases in which the predicate is related to a sensation (smells bad to a smell, is raucous to a noise) or can be pictorially represented (is white, is square, is a house to appropriate images). Now, suppose that both the paper and the horse are white. When I assert this I predicate the same thing --- being white --- of two different objects. Yet the ideas in my mind (supposing that when I think of these things I have a an image of the paper, and an image of the horse) might have qualitatively different shades of white. Moreover the truth of my judgement does not seem to depend on the qualitative nature of my idea.
matching that of the subject of predication. For example, the truth or falsity of my judgement that the horse is white does not seem to depend upon whether the whiteness that (we are supposing) I actually experience or have present in an idea is qualitatively the same white that the horse is. Bradley’s (somewhat misleading) way of putting this is that predicates need not always be determinate in the way that images or ideas are. As he says,

I may surely judge that a berry is poisonous, though in what way I know not, and though 'poisonous' implies some traits which I do not attribute to this poison. I surely may believe that AB is bad, though I do not know his vices, and have images which are probably quite inapplicable. (PL, p.9)

Someone might give the following reply. When you are judging that something is white, what you need is an image of white. That is the kind of image in question, and images of white horses and white paper, images that are creamy white and stark fluorescent white, are all white images. The problem with the previous argument is that it just chose the wrong images, or better, the wrong way to characterize the images. For the images in question were images of white, and that’s all that matters. This response is unsatisfactory, and points the way for another argument, or another version of the same argument. For one way of putting the problem with images or other states is that they are instances of too many types of ideas. Does my image of white paper represent being white, being stark white, being paper, being white paper, being rectangular, being a white
rectangle, or what? For the image is an instance of correspondingly many idea types. So there is no one thing or concept that an image or idea naturally represents --- images or ideas have to be interpreted as representing some concept or proposition.

Bradley does not doubt that there must be an idea or other mental phenomenon that occurs when I make a judgement about something. But he does deny, and has gone some way towards justifying his denial, that either particular ideas or the types that they token compose what is judged. It might be complained that he has only shown this in the case that the ideas or mental particulars are taken to be pictorial images. Certainly Bradley does not intend this to be the case, and I think that the argument is stronger than that comment might suggest. For I would contend that the very best case in support of the view that judgements are composed of either particular ideas or types of ideas is the case in which the idea is an image, and its content is composed of pictorial properties. Bradley can simply challenge the proponent of an identification thesis to find some more appropriate particular or type, for certainly the history of the subject had not supplied him with any.

Although logical ideas are not psychological types or universals, they are still universals (PL, p. 6). For what is predicated, and what does compose the judgement, is, in Bradley's opinion, something that he calls 'the universal
meaning'. Some facts or particulars have, besides existence and content, a 'third side'.

They have a meaning; and by a sign we understand any sort of fact which is used with a meaning. The meaning may be part of the original content, or it may have been discovered and even added by a further extension. Still this makes no difference. Take anything which can stand for anything else, and you have a sign. Besides its own private existence and content, it has this third aspect. Thus every flower exists and has its own qualities, but not all have a meaning. Some signify nothing, while others stand generally for the kind which they represent, while others again go on to remind us of hope or love. But the flower can never itself be what it means. (PL, p. 3)

Perhaps a better example that Bradley points to (PL, p. 4) is the written sentence. Some occurrences of ink on paper have or represent a meaning. That meaning is like a universal at least in that it is not a particular concrete thing that exists in a particular time or place. The meaning is also like a universal in that it can be had, represented, or even (one might say) tokened by all manner of concrete particular things. Bradley certainly takes no pains to distinguish the way in which meanings are universals (we could also call them abstract objects) from the way in which kinds or types are universals. But we can ferret out this distinction from what Bradley says, and at any rate we have already seen that Bradley denies that meanings are types of psychological entities.

The point of this is that Bradley maintains that among the particular things that can have meaning are particular ideas; indeed he briefly suggests the view (although he does
not actually go on to defend it) that at some ultimate level of analysis the only signs are ideas (PL, p. 5). So just as some truth (such as the truth that the horse is white) may be represented by some patch of ink on a paper, it may also be represented by some particular idea in my mind. That idea certainly has particular traits of its own, which may be difficult to seize, but which, we are bound to suppose, are present. It is doubtless unique, the same with no other.... But, for logic, and in a matter of truth and falsehood, the case is quite changed. The 'idea' has become an universal, since everything else is subordinate to the meaning. (PL, pp. 5-6)

So far, then, it seems that Bradley has managed to steer clear of psychologism with respect to logic, at least in the form of an identification thesis between truth-bearers and concepts, on the one hand, and psychological types or tokens, on the other. But in his paper "The Nature of Judgment" G. E. Moore still tries to convict Bradley of holding a version of psychologism. Moore says that he agrees with Bradley that the ideas of logic, the ideas that compose judgements, are 'universal meanings'. But what he objects to is Bradley's suggestion that this meaning "consists of a part of the content (original or acquired) cut off, fixed by the mind, and considered apart from the existence of the sign" (PL, p. 4, and quoted in NJ, p. 177)). What Moore wants to show is, on the contrary, that the 'idea used in judgement' is not a part of the content of our ideas, nor produced by any action of our minds, and that hence truth and falsehood are not dependent on the
relation of our ideas to reality. (NJ, p. 177)

Moore makes a useful terminological innovation by using the term 'concept' for the ideas of logic, and reserving 'idea' for psychological particulars. The first argument that Moore raises is against the contention that the ideas used in judgement (that is, concepts) are part of the content of our psychological ideas, and are produced by any mental activity.

My question is, whether we can thus cut off a part of the character of our ideas, and attribute that part to something else, unless we already know, in part at least, what is the character of the idea from which we are to cut off the part in question. If not, then we have already made a judgement with regard to the character of our idea. But this judgement again, requires, on Mr. Bradley's theory, that I should have had an idea of my idea, and should have already cut off a part of the content of that secondary idea, in order that I may make a judgement with regard to the character of our idea. And similarly it is impossible that I should know what the content of my secondary idea is, until I have made it in its turn the object of a third idea, by taking part of this tertiary content. And so on ad infinitum. The theory would therefore seem to demand the completion of an infinite number of psychological judgements before any judgement can be made at all. But such a completion is impossible; and therefore all judgement is impossible. It follows, therefore, if we are to avoid this absurdity, that the 'idea used in judgement' must be something other than a part of the content of any idea of mine. (NJ, p. 178)

I certainly think that Moore has found a crucial issue in Bradley's theory that needs to be elaborated and explored. For Bradley to say that the meaning of an idea, a concept, is a part of its content that has been cut off from the rest of the content does make it sound as though he
takes the existence of a concept to presuppose some mental activity. Perhaps this presupposition is problematic, but my first point is that Moore has not shown it to be problematic. In fact at the beginning of the argument Moore's assumption is not just that on Bradley's view the existence of a concept presupposes this special mental activity, the process of 'cutting it off' from the content of some psychological idea, but rather that the existence of the concept presupposes that I know the content of that psychological idea. But my knowledge of the idea must presuppose that I have judged about it; and my judgement about it must presuppose the existence of another concept, which in turn has been cut off from another psychological idea; and that process presupposes that I know the content of the second psychological idea --- and the regress commences. But even if Bradley really does think that the existence of a concept in a judgement presupposes this psychological process of being cut off from the content of a psychological idea, I do not see that this commits him to supposing that one has to know, and so judge about the content of the psychological idea. And I find no grounds for independently attributing this view to Bradley, although he often talks as though we sometimes are, or can be, aware of the content of the psychological idea.

Moore continues from the previous quotation with a second argument, or possibly an elaboration of or supplement to the first argument. He writes:
Mr. Bradley’s theory presupposes that I may have two ideas, that have a part of their content in common; but he would at the same time compel us to describe this common part of content as part of the content of some third idea. But what is gained by such a description? If the part of content of this third idea is a part only in the same sense, as the common part of the other two is a part of each, then I am offering an explanation which presupposes that which was to be explained. Whereas if the part, which is used in explanation, is a part in the only sense which will make my explanation significant, i.e., an existent part, then it is difficult to see how that which belongs to one idea can also come to belong to the other ideas and yet remain one and the same. In short, the idea used in judgement is indeed a "universal meaning"; but it cannot, for that very reason, be described as part of the content of any psychological idea whatever. (NJ, p. 178)

There is a difficulty in the very first sentence. Moore claims that on Bradley’s theory, when two ideas have a common content, this must also be part of the content of some third idea. I do not see that Bradley is committed to this at all. What he seems to be committed to is this, that for me to judge or know that two ideas have a common content, then I must have some third (psychological) idea which has, as part of its content, that common content as well. The terminology I would prefer to use is that this third idea represents the common content of the other two ideas, and then we can say that what it represents is part of the content of the judgement that the first two ideas have a common content. But of course if I do not happen to judge or know about the common content, then I need not have any third idea with that content!

Still I think there may be a legitimate worry behind
Moore's arguments here. The question is whether Bradley really propounds a kind of abstractionism about the origin of meanings or concepts, and from this perspective I think that Moore's considerations do have some point. Bradley says that the concept, the idea of logic, is 'cut off from' the 'original or acquired' content of a psychological idea. This sounds as though it is part of an explanation of the origin of the ideas of logic, or at least of the way in which those concepts are related to mental states. But I think that Moore's considerations can be turned into a kind of challenge for Bradley, about whether he has really given an explanation of this. For if Bradley does think that meanings or concepts are somehow abstracted or otherwise derived from psychological states, then by Moore's first argument this process cannot involve any conscious judging about the qualities or properties of the psychological states on pain of regress or circularity. So the challenge for Bradley is to come up with some other explanation of the process in question; but until he does his turn of phrase is only an empty metaphor.

I am sympathetic with this response to Bradley, except that I think that it gets the emphasis wrong. For I think that Bradley is not really concerned about giving any psychological explanation of (the origin of) the relation between psychological ideas and their meanings. A better way of looking at it, I think, is that Bradley has done
nothing more than to apply the more general sign-meaning relation, a relation which is at least commonly recognized, and to that extent understood, although it has not been explained or further analyzed by anyone. In other words Bradley should embrace the fact that he has not explained how it is that some meanings or concepts get 'hooked up' with, or related to, particular psychological ideas or kinds of ideas. He has given the outline of a theory, but not the details. No more has Frege shown how senses of sentences and their parts have become related to sentences and their parts. So, in summary, Bradley’s thesis is that concepts or meanings, the ideas of logic, are represented by psychological states or ideas. This is an interesting hypothesis that deserves serious consideration, and I do not think that this hypothesis is made illegitimate by its appeal to an unanalyzed relation.

Endnotes

1. The major difference with Frege being that Bradley is explicitly raising these questions about predication and predicates rather than about truth-bearers. I am not planning to explore in any detail the consequences of this difference for Bradley’s theory of judgement. But it is fairly clear that the powerful systematic treatment of 'judgement' in Frege’s system does depend on taking truth-bearers and not predicates as the fundamental entity.

2. This point is reminiscent of the kinds of arguments that Frege gives, to show that images or ideas cannot be properly speaking true or false (T, pp. 18-19). To
be sure his main point there is that truth is not the correspondence of an idea or picture to reality. But he plays on the same features of images. Since it is obvious that the picture cannot have all of the properties of what is pictured (it is after all distinct from what is pictured) then the question always arises: in what respects must the picture be like the pictured in order for it to be correct or true.

3. In various places Bradley makes it quite clear that he does not accept the myth that psychological particulars are images, although he does sometimes fall into that trap. The most appropriate example is in a footnote appended to part of the exposition of his positive theory (discussed in the next paragraphs). He writes:

I was wrong to speak, here and elsewhere, as if with every idea you have what may be called an 'image'. How far and in what sense the psychical existence is always capable of being verified in observation is a difficult point... Still every idea, I must assume, has an aspect of psychical event, and so is qualified as a particular existent. (This is appended as note 8 to p. 6 of PL, and occurs on p. 38.)

The theory in the following paragraphs will make clearer how Bradley can maintain that the actual content of the psychicial phenomenon is, if not irrelevant, at least arbitrary when the judgement is concerned.

4. G. E. Moore, "On the Nature of Judgment", in Mind 30, 1899, p. 179. I will refer to this work as "NJ".

5. I find the unexamined fame of this paper a little disturbing. I intend to show that the major criticism of Bradley's view is successful only against an ungenerous reading of his position. I do not want to minimize the difficulties with Bradley's position, but in what follows I hope to show that its difficulties are no more serious than those that face the opposition. Of course this criticism of Moore does not impugn his work. But it is very clear that Moore has no sympathy for Bradley, and what disturbs me is that he has so little interest in getting him right. The very first paragraphs of his article provide a case in point. He illustrates, with a number of quotations, that Bradley accepts the thesis that as far as logic is concerned ideas are signs. Then in the next paragraph he convicts Bradley of inconsistency because of his view that the ideas of logic are meanings. I find it difficult to see how any honest reading of Bradley could lead Moore to make this criticism, since the
quotations that are supposed to illustrate the contradictory positions come from very closely related passages. The explanation (which I gave in my exposition of Bradley's view) is quite simple --- Bradley has suggested that there are really two notions of idea. There are the ideas of psychology, mental particulars, that are mere signs as far as logic is concerned. And there are the ideas of logic which are what is meant or represented by the ideas of psychology. Another example of this kind of cavalier treatment of Bradley's position occurs in the second of Moore's arguments against Bradley that I consider in a little more detail.

6. An innovation which, if used by Bradley, might have forstalled Moore's misreading that I mention in note 5.

7. In the passage quoted in note 3, Bradley is pretty clearly denying the assumption that Moore makes. Unfortunately this clear denial does not occur in the first edition that Moore would have read. Still, I do not see that Bradley commits himself to the assumption that Moore has foisted on him.

8. As I think Bradley pretty clearly shows in the passages that I have quoted in note 2. Indeed one of Bradley's arguments against empiricist psychology is its attempt to derive psychological concepts from ideas. One accessible source of for this is PL, Book II, Part II, Chapter 1. However the issues are a little difficult to untangle in a brief discussion.
7: Is Bradley's View Psychologistic?

The question still remains: is Bradley's position, or at least the position that I am attributing to him, in any sense a version of psychologism? Frege would say that we apprehend or grasp thoughts, and someone who agrees with this could also maintain that what it is for someone to grasp a thought, or what occurs when someone grasps a thought, is that he bears a particular idea (or complex of ideas) that represents what is true or false --- the point of the Bradleyan theory. But since Frege holds that thoughts or truth-bearers are objective, independent entities, his position is clearly non-psychologistic. And the consequence is surely that the supplementary position, that truth-bearers are represented by psychological states or ideas, would also be non-psychologistic --- or else it would be a perfectly innocuous and uninteresting form of psychologism. For what is represented is in no sense a mental entity, and the fact that mental states can represent such entities is only to be hoped for.

Certainly these considerations are enough to show that the Bradleyan theory is not, in and of itself, psychologistic. Indeed once it is realized that the Bradleyan view is compatible with the Fregian position, and more particularly when all of the constraints that Frege has placed on truth-bearers (and so on what is represented) are remembered, then the question really becomes whether there is any way in
which the Bradleyan theory can be construed as psychologistic. What I will do in this section is to consider a passage in which Frege does seem to be arguing in defence of this position that truth-bearers are completely independent of human minds. It is one argument that is suggested by Frege that at least appears to go beyond the previous constraints on what a thought or truth-bearer must be. I will try to show that the argument is not insurmountable, and at least a certain amount of room is left for the person who does not want to accept Frege's ontological commitments. On the other hand I do not think that the alternatives are either plausible or attractive.

Frege writes that

A proposition may be thought, and again it may be true; let us never confuse these two things. We must remind ourselves, it seems, that a proposition no more ceases to be true when I cease to think of it than the sun ceases to exist when I shut my eyes. Otherwise, in proving Pythagoras' theorem we should be reduced to allowing for the phosphorous content of the human brain; and astronomers would hesitate to draw any conclusions about the distant past, for fear of being charged with anachronism, -- with reckoning twice two as four regardless of the fact that our idea of number is a product of evolution and has a history behind it. It might be doubted whether by that time it had progressed so far. (FA, p. vi)

There may be more than one argument that is suggested by this passage. The first one is based on the observation that there is truth or falsehood independently of our thinking about what is true or false. For example, that the moon circles the earth is true (or false) whether or not anyone
now, or at any other time, thinks of this. That two plus two is four has always been true, and would have been true had there been no human beings to apprehend it. That in any possible situation there are stars and there are no stars is false, whether or not there are human or other minds, and no matter what those minds are like. Perhaps these are 'just intuitions', but they are intuitions that are pretty much unassailable. But one thing that a Fregian wants to conclude from this is that there must be truths and falsehoods that exist independently of human or other minds, just as the sun exists whether or not anyone sees it.

Now, it is not absolutely clear how one is supposed to get the conclusion from the premises. But the most plausible reading is along these lines. That the moon circles the earth is true independently of anyone's thinking or apprehending it; so something is true whether or not anyone thinks of it; so some thing is true whether or not anyone thinks of it. We know of numerous ways in which this kind of argument can be attacked. Some such as McTaggart, have attacked the first premise, denying that strictly speaking there is truth independently of human beliefs or thoughts.

Take the case of a man who was selfish without his selfishness being suspected or contemplated either by himself or by any other person. Then there would be no real truth, 'X is selfish', but there would be the real fact of X's selfishness. (NE, p. 16)[2]

While McTaggart would claim that only beliefs are truth-bearers, so that "there is no truth independent of the
beliefs, there is something else which is independent of the beliefs --- the facts to which the beliefs correspond". (NE, p. 16) Alternatively the premises can be accepted but the conclusion denied. The best known argument here would make use of Ramsey's redundancy theory of truth, which explains the truth ascriptions in the premises in a way that blocks the conclusion: they do not involve the ascription of a property (possibly a relational property) to some object, the truth-bearer.

I am not going to explore any farther these or other alternative views that undermine the first argument. They are indeed beset with problems. My point is rather that if this is all the first argument comes to, and I do not see anything else in it, then there is still at least some conceptual room for the philosopher who denies that truth-bearers are non-mental entities. I am not interested in defending the non-realist view, and I think that it would be hard to do so. But there is at least an issue here, and someone who accepts the view that I have attributed to Bradley is not thereby committed to realism or platonism about truth-bearers.

However, there is a second kind of argument that is at least suggested by the passage I last quoted from Frege. This is an argument about the laws of logic and mathematics, as opposed to the previous argument that was directly about truth-bearers. Just as laws of physics would hold whether or not there are human beings, and so are not just about
human beings, so laws of mathematics and logic would hold. Indeed the case of logic and mathematics is even stronger, for unlike the laws of physics they seem to hold counterfactually. In every possible situation, even those in which there are no human or other intelligent beings, two plus two would be four; and in every possible situation, even those in which there are no human or other intelligent beings, it is not the case that both a proposition and its negation are true. Since the laws of logic and mathematics hold independently of the existence of human beings and the laws of psychology, then they can not be about, or dependent on, human beings or elements of human psychology. In particular, since laws of logic are about truth-bearers, then truth-bearers can not in any way be dependent on human beings or their psychology.

The question is whether this second argument goes beyond the first one in any way. That two plus two is four, or that it is not the case both that there are stars and that there are not stars are, or follow from, laws of mathematics and logic. Not only are they in fact true, but, runs the special claim in this second argument, they are true in every possible situation or state of affairs. Surely the claims that these truths hold in every possible situation are simply an expression of our intuitions that laws of mathematics and logic are necessarily true. Perhaps not everyone shares that intuition, but those who do would
likely be willing to accept these claims as a way of expressing their intuitions about necessity. So given this intuition, do we have a way of bolstering the first argument? Of course the intuition that logical laws are necessary supports the premise that laws of logic are independent of human beings and human psychology. In the jargon of an earlier section, laws of logic meet some condition \( P \) that laws of psychology do not meet. But this is not yet the conclusion that truth-bearers exist independently of human beings, and it seems to me that to reach that conclusion a move similar to that in the first argument must be made.

For, the argument continues, since laws of logic are about the truth and falsity of propositions, propositions must exist independently of human beings. It is easiest to see this is the same kind of move that is made in the first argument by looking at the following example. The intuition is that in every possible circumstance, that it is not the case both that there are stars and that there are no stars is true. So, we could argue, there is something that is true in every possible situation --- that is, some \textit{thing}, a particular proposition, that is true in every possible situation.

So the upshot is that this second argument does not take matters substantially farther than the first argument. But surely that is far enough. Indeed it is not that one has to accept these particular arguments. We might put it this way: whether or not the Fregian theory is accepted, the
whole point of the representation theory is that mental states can represent something else --- something non-mental. It would only be from the point of view of metaphysical idealism that the representation view would collapse [4] into anything like a psychologism --- but from that point of view all scientific theories would be psychologistic in the same sense.

Endnotes

1. This is not much of an advance in theory, since we have made no progress in saying what the relation of representation is (and it is here assumed to be a relation). But this just brings out the parallel with Frege, who has not been able to fill in any more details about what the relation of apprehension or grasping is.


4. And in just this way Bradley may in the end be committed to psychologism.
8: **Concluding Remarks**

This search for an identification of logic with psychology, or for an identification of truth-bearers with psychological entities, has ended pretty much as expected. Perhaps neither thesis has been shown to be impossible, but their tremendous implausibility has surely been demonstrated. In Part II I will look at another possible route to psychologism with respect to logic, a route that I think is much more plausible, and much more in need of clear refutation.

However before I turn to that project I want to sketch some considerations which, I contend, would remove all possibility of either metaphysical thesis about psychologism, at least if they were fully defended. Although I take these considerations to be the beginnings of a conclusive theory, I have left them to the end, and will discuss them only briefly; for they are supported by other considerations that go far beyond the scope of this thesis. So I will just state them in outline form, and illustrate their relation to the present concerns.

One of the first things I was taught by Richard Cartwright was that there are too many demands on the notion of a proposition. No one kind of entity can perform all of the functions that propositions are supposed to: being truth-bearers, being the objects of knowledge and belief, and being the senses of sentences. It is the realization that it is impossible for one entity to meet these demands that is behind a great deal of recent literature which
argues that meanings are not psychological entities, and that the objects of belief are not (or are not the primary) truth-bearers. Of course I have in mind Putnam’s twin earth argument, and arguments about demonstratives by Perry and Kaplan. And I have found an explicit acknowledgement of this point in a recent article by Dennett.

It can be plausibly argued both that there are circumstances where there are two things believed (two objects of belief) but one truth-bearer, and that there are circumstances where there is only one thing believed but two truth-bearers. The first half of the claim can be argued with considerable generality (this way of putting the argument is, as far as I can recall, Cartwright’s). An important assumption is that there are connotationless singular terms, although if that assumption is not accepted, a version of the argument can be reconstructed using demonstratives. The following two principles are justifiable and are fairly commonly accepted:

I If \( b \) and \( c \) are connotationless and coreferential singular terms, and \( S \) and \( T \) are sentences such that \( T \) is like \( S \) save for having a referential occurrence of \( c \) where \( S \) has a referential occurrence of \( b \), then the proposition expressed by \( S \) is the proposition expressed by \( T \).

and

II If \( S \) and \( T \) are sentences, and there is a person \( x \) such that \( 'x \) knows (or believes) that \( S' \) is true but \( 'x \) knows (or believes) that \( T' \) is not true, then the proposition expressed by \( S \) is not the proposition expressed by \( T \).
But it also seems that

III There are connotationless and co-referential singular terms b and c and sentences S and T such that (i) T is like S save for having a referential occurrence of c where S has a referential occurrence of b, and (ii) there is a person x such that ’x knows (or believes) that S’ is true but ’x knows (or believes) that T’ is not true.

There are hosts of traditional examples that arguably satisfy III. Given that ’Cicero’ and ’Tully’ are connotationless singular terms, then the sentences ’Cicero is Cicero’ and ’Cicero is Tully’ satisfy condition (i) of III. And condition (ii) is also satisfied, for surely there are lots of people who believe that Cicero is Cicero, but do not believe that Cicero is Tully. But now it is apparent that I, II, and III are jointly inconsistent. For by I, the two sentences express the same proposition, and by II they express different propositions.

This certainly shows that given condition III, I and II cannot be true of the same objects. What further conclusions can be drawn are debatable. But assuming that I and II do (at least partially) characterize different notions of proposition, I will call the propositions that are determined via I linguistic propositions or simply propositions, and I will call the propositions that are determined via II objects of belief or what is believed. We are certainly licensed to conclude that linguistic propositions are not objects of belief; their ’arithmetic’ is different, since in this example there are two objects of belief but only one
linguistic proposition.

This first argument does not provide grounds for saying that one or the other notion of proposition is more appropriately the truth-bearer. But I think that there is a second argument that does. For it aims to show that there are cases where there is just one object of belief but two linguistic propositions, one of which is true and one is false. The most straightforward argument for this point has been made by Perry and Kaplan, using facts about demonstratives. For example, it seems that I can believe that today is Memorial Day over a continuous span of time, from May 30, 1982 (Memorial Day itself) through the wee hours of May 31, 1982 --- and not realize that it is past midnight. It is plausible (though I will not defend this in detail here) that the notion of a linguistic proposition should be extended so that the sentence 'Today is Memorial Day' expresses a true proposition at one minute before midnight, May 30, 1982, but a false one at any time on May 31, 1982. Roughly, the occasion of the use of the sentence determines a referent for the demonstrative (independently of the knowledge and beliefs of the user), and so determines a truth-value. Thus if I expressed my continuing belief by uttering the sentence first before midnight, and then after midnight, the sentence would express first a true (linguistic) proposition and then a false one. From that point of view one might say that what I believe has changed. Yet it
seems that from another point of view my belief, what I believe, has continued unchanged throughout --- but the truth of that belief has changed.

There is little doubt that in this example what I believe in the first sense is just a linguistic proposition. I also contend that what I believe in the second sense is the kind of thing I called an object of belief in the first argument. If this contention is right, then we have the desired result: one object of belief but two truth-bearers. The object of belief does not determine a truth-value --- and so cannot be a truth-bearer. And of course even if you do not accept these identifications, there is still a moral for psychologism. Forget the whole first argument, and concentrate on the second. What is believed in the first sense is a truth-bearer, and what is believed in the second is not. But only what is believed in the second sense is plausibly a psychological entity or state. The truth-bearer can not be a psychological entity, since it is not a function only of my mental states but also of the time. And by changing the example one can make it a function of physical objects as well. So this kind of argument further supports the previous conclusion that logic cannot be about psychological entities, and that condition S cannot be met. And these considerations stand at the beginning of a systematic explanation of the relation between mental states, what is believed (known or judged), and what is true and false.
Endnotes


2. The demands that Frege placed on them, which I point out on pp. 42-3.


5. Daniel Dennett, "Beyond Belief", unpublished manuscript.

6. It is likely that a version of this argument can be made using demonstratives, although the principles must be rather different to accommodate the very different function of demonstratives. But let me just give an example, without attempting to formulate the principles --- which would be a very difficult task. In line with the linguistic notion of proposition (explained in the next paragraph of text), we would agree that on May 30, 1982 the sentence 'Today is Memorial Day' (or an utterance of it) expresses the same proposition as the sentence 'Yesterday was Memorial Day' (or an utterance of it) on May 31, 1982. That proposition is a true proposition. But we can well imagine that on May 30, 1982 at one minute before midnight, the sentence 'Tim Appelt believes that today is Memorial Day' is true, but one minute later, on May 31, 1982, the sentence 'Tim Appelt believes that yesterday was Memorial Day' is not true. (Or perhaps the argument should go in another way: at one minute before midnight I would agree to the truth of 'Today is Memorial Day', but at one minute after midnight I might not agree to the truth of 'Yesterday was Memorial Day'.)
PART II:

DEDUCTIVE LOGIC AND PRINCIPLES OF REASONING
Introduction

In Part II I want to examine some aspects of the connection between deductive logic and our practice of reasoning and inference. My guess is that the fundamental source for traditional psychologistic claims about logic is puzzlement about this connection. For example, a traditional answer to the question of what logic is, is that logic encodes or describes principles of reasoning --- "general principles in accordance with which we think about things, whatever things they may be". But principles that describe or codify our practice of reasoning may well be psychologistic --- that is, they may be principles about what beliefs we do or should accept depending on what other beliefs we have. Thus if laws of deductive logic are (or provide) such principles of reasoning, then they will be about what beliefs we do or should have --- and this is certainly an interpretation of the psychologistic slogan.

Philosophers who accept this kind of suggestion, that logic encodes or provides principles about how we think or reason about things, put their views in different ways. They may say such things as: logic encodes, or provides, principles of correct reasoning; logic provides principles that we ought to follow when we reason; logic provides principles that describe how we reason when we reason correctly; or perhaps principles of logic are principles of rationality. There may be perfectly acceptable and
straight forward construals of such remarks that avoid commitment to incorrect versions of psychologism. And I will certainly make no attempt to try to show that all psychologism is based on some fairly gross mistake associated with these kinds of claims. But some philosophers have taken these suggestions in ways that immediately generate problematic psychologistic implications, and it is pretty clear that they can lead to ways of interpreting the psychologistic slogan, as illustrated above. In the course of examining the relation between logic and reasoning we will find some ways in which these suggestions can and do tempt philosophers to make psychologistic claims. And certainly if any coherent psychologistic claims were to be made, the role of deductive logic in our practice of reasoning and inference would have to be made clear.

Let me give just one example of how philosophers can get tangled on these issues. Dennett suggests that principles of logic are constitutive of what he calls intentional systems. But

the assumption that something is an intentional system is the assumption that it is rational; that is, one gets nowhere with the assumption that entity x has beliefs p,q,r,... unless one also supposes that x believes what follows from p,q,r,...; otherwise there is no way of ruling out the prediction that x will, in the face of its beliefs p,q,r,... do something utterly stupid, and, if we cannot rule out that prediction, we will have acquired no predictive power at all. [5]

Dennett has it in mind that we might predict or explain the fact that a mouse runs to the right, and not to the left,
for we ascribed to it the beliefs: (a) there is a
cat to the left, and (b) if there is a cat to the
left I had better not go left, and our prediction
relied on the mouse’s ability to get to the con-
clusion. (Dennett, p. 11)

This kind of example is supposed to show that the "mouse
follows or believes in modus ponens" (p. 11), or at least
that our intentional ascription of these beliefs carries
with it such a supposition. If we call the principles or
rules that describe or encode "the mouse’s ability to get to
the conclusion" principles of inference, then Dennett seems
to be suggesting that the mouse ’follows' (at least in the
sense of ’conforms to’) a rule or principle something like
this:

if x believes p, and also believes a conditional
with p as antecedent and q as consequent, then x
also believes q. [6]

Of course such a rule is true of neither mice nor men, and
Dennett is quite aware of this. But his comment would be
that in so far as mice or men are rational they follow such
a rule; only an ’ideally rational’ mouse or man could
always follow this rule. This suggests that there is
another principle that Dennett would endorse, that

if x believes p, and also believe a conditional
with p as antecedent and q as consequent, then if
x is rational he also believes q.

I shall return to Dennett’s mouse later, but for now I
want to raise several questions. First, is it at all clear
that even the ’ideally rational’ mouse or man should follow
or conform to the first stated rule? This amounts to much
the same thing as asking whether the second stated principle
is true. Later I shall argue (section 10) that there is good reason to doubt the correctness of this rule as a standard of rationality --- or that if it is maintained, it can be maintained only within a fairly elaborate framework for characterizing rationality. Second, forgetting the previous worry, in what sense is either of these principles modus ponens? Modus ponens might be phrased as a 'rule of truth': if the proposition $p$ and a proposition with $p$ as antecedent and $q$ as consequent are both true, then the proposition $q$ is true. Or it might be phrased as a claim about the validity of a certain argument form: any argument with premises $p$ and a conditional with $p$ as antecedent and $q$ as consequent, and conclusion $q$, is valid. The classical notion of validity guarantees the equivalence of the two statements of modus ponens. But evidently neither statement of modus ponens is equivalent to either of the stated rules. Perhaps there is some obvious and close relation between them --- many people suggest, or seem to suggest, that there is. But again I will argue to the contrary later (sections 8 and 10).

I shall discuss these specific questions after I have spent some time on the original and more general question of the relation between logic and reasoning. I shall approach this problem by looking at Mill's work on logic, and I do this for a number of reasons. First, Mill is often cited as a philosopher who holds psychologistic views about logic,
and I want to explore the extent to which this is true. Second, and more importantly, Mill deals with this issue quite explicitly. He was not the first to try to do so, but he is one of the first to have any tolerable success in making headway on the question. Moreover, I think that few commentators on Mill have seen the point of his discussion of logic --- and I will show that a great deal of sense can be made of Mill’s work when one sees the correct point of it.

To be specific, I will show that Mill has the outlines of an objective and non-psychological account of deductive validity, and reacts against what he takes to be subjectivist or psychologistic accounts of validity given by earlier philosophers. The heart of this exposition is section 6, in which I show that Mill distinguishes principles of deductive validity from principles of correct reasoning. He concludes that principles of validity are not, and do not provide, principles of reasoning. This is the point of his claim that any syllogistic argument is a petitio principii. And while I do not agree with all of his arguments for this point, I accept and defend his general conclusion. This conclusion is important in understanding the rest of Mill’s views on logic, and I show that there is no important sense in which Mill holds psychologistic views about logic (sections 7, 8, and 9).

During the course of this discussion I examine a number of ways in which one might try to relate principles of
validity to principles about our practice of reasoning. But there are no results that undermine Mill's general conclusion. I suggest that the proper conclusion of all of this be put in the following way: principles of deductive logic are not, and do not provide, principles of reasoning or justification; but facts about deductive logic, facts about the deductive relations between propositions, are among the facts that we use in our practice of reasoning and justification.

Endnotes


2. For example, Brian Ellis in Rational Belief Systems, Rowman and Littlefield, Totowa, N.J., 1979; Dan Dennett (at least by implication) in "Intentional Systems", Brainstorms, Bradford Books, Montgomery, Vermont; and many more.

3. So Brian Ellis, in Rational Belief Systems, argues that laws of logic are "laws governing the structure of ideally rational belief systems on idealized languages which model, always less than perfectly, ordinary human belief systems on natural languages." (Ellis, p. v) I am not sure that this needs to be taken in a psychologistic way, but Ellis wants to, and does.

A psychologistic interpretation of these matters that I do find attractive in some ways but that still ia, I think, problematic, is given (or at least sketched) by Elliott Sober in his article "Psychologism". There he argues that laws of logic are "laws of cognition" (p. 167) and have psychological reality. Laws of logic are said to be part of an 'information processing model' of psychological processes. Rather similar suggestions seem to arise from some remarks that Dennett makes, and I will challenge several of the
implications of this view that I take to be unacceptable. (Still, surely this is the way to work out a version of psychologism, if any serious attempt is to be made. See 'Further Issues', p. 226.)

4. Several examples will occur in the following sections, but see especially sections 2, 6, 7, and 9.


6. Dennett does not explicitly state this rule, but it is hard to see what else he has in mind, given the previous quotations.
In the opening pages of A System of Logic Mill presents some general remarks about the nature and purpose of logic. Logic is concerned with the "operation of the human understanding in the pursuit of truth". In particular Mill thinks that logic concerns the acquisition of truth, or of knowledge, through reasoning and inference — as opposed to the direct acquisition of knowledge through intuition, sense perception, and so on. This latter, the study of the non-inferential acquisition of knowledge, is the subject of human psychology. Thus

the province of logic must be restricted to that portion of our knowledge which consists of inferences from truths previously known; .... Logic is not the science of Belief, but the science of Proof, or Evidence. In so far as belief professes to be founded on proof, the office of logic is to supply a test for ascertaining whether or not the belief is well grounded. (SL, Intro., sec. 4)

So logic provides principles for correct or valid inference, rules by which inferences can be tested or evaluated.

To begin, we need at least a rough characterization of what reasoning or inferring is. Unfortunately Mill does not make much attempt to characterize what it is to infer something, or to reason to some conclusion; and these notions are by no means straightforward. In the first place Mill seems to talk pretty much interchangeably about both inference and reasoning, as though the two notions are equivalent. In the second place, he often talks about inference as a 'process', "a progress from the known to the unknown; a
means of coming to a knowledge of something which we did not know before" (II,III,1). This makes inference a kind of activity (though, he might want to add, a paradigmatic mental activity): it is something we do, starting at some time, and lasting over a period of time. In the third place, if inference or reasoning is a mental process, then it is a process that involves mental states. The 'mental' states involved in this mental process, the 'progress from the known to the unknown', are states of knowledge or belief. It is tempting to summarize all of this in a loose formula that seems to have been accepted by many philosophers:

inference or reasoning is the process of coming to have new beliefs on the basis of old beliefs.

But, at least on the face of things, all three of these [2] points are questionable. There are numerous examples of both reasoning to and inferring the same conclusion from the same 'premises' which at least suggest that (a), cases of inferring are distinct from cases of reasoning; that (b), cases of inferring are apparently not examples of a process or activity, and that (c), inferences need not be 'based upon' beliefs, or any other mental state.

Consider the following examples:

(1) Your coat was hanging up, so I inferred that you had returned,

and

(2) I inferred from the way he said it that he didn't believe it.
Does either the fact that I inferred that you were there, or the fact that I inferred that he didn’t believe it, indicate that I performed some activity or went through some process? At least when I give such descriptions about my situation I need not be aware that I had undergone any particular process, or had partaken in any particular activity. This is emphasized when (1) and (2) are contrasted with two additional examples:

(1’) Your coat was hanging up, so I reasoned that you had returned, and

(2’) I reasoned from the way he said it that he didn’t believe it.

To be sure both (1’) and (2’) are a little peculiar, but that is at least in part because one wonders what reasoning I would have gone through in these cases. That peculiarity is absent in the following example:

(3) Since it was raining, and I had neither an umbrella nor a rain coat, I reasoned that if I still wanted to go I would have to call a taxi or get you to drive me.

Here there is more clearly some ‘process of reasoning’, and in this case, the substitution of ‘inferred’ for ‘reasoned’ is at least a little less natural. And compare (1) and (1’) to the following:

(1’’) Your coat was hanging up, so I reasoned that you hadn’t returned; for since you never hang it up when you come in you couldn’t have worn it, and yet if you’d left without it you’d have returned by the bus, which hadn’t yet come by.

Of course there are numerous other examples in which
the choice between 'inferred' and 'reasoned' is, as far as I can tell, quite neutral, as in

(4) When I saw it was raining, I reasoned (I inferred) that if we were still going to get together we wouldn't be picnicking.

But even granted that I am right about (4), and that we do talk about people making inferences in cases where it is plausible that there is a 'process of reasoning', the existence of the other cases should make us wary both about ignoring the possibility that there is an important distinction between reasoning and inferring, and also about supposing, without any further justification, that there is a process of inference. It might be contended that there really is such a process — perhaps a 'subconscious' process in any inference — but that claim certainly needs to be defended, and should not just be assumed without question.

Finally, note that in most of the examples the reasonings or inferences are not explicitly 'based upon' beliefs or other mental states. The inferences in (1) and (2) are respectively based upon your coat's hanging up and the way he said it. The reasoning in (3) was based on its raining, and my having neither an umbrella nor a raincoat. Only in (4) is the reasoning explicitly based on what might be a mental state, my seeing that it was raining. So apparently the third of Mill's assumptions is also called into question by these examples.

I will not pretend to handle all of these difficulties
by theorizing further about whether or not there really is a distinction between reasoning and inferring. I propose to bypass the problems with the first two assumptions by only talking about cases of reasoning, where reasoning is possibly to be distinguished from inferring. Most philosophers have ignored the apparent fact that in lots of cases which are naturally described as inferences (and not as cases of reasoning) there is no obvious process or activity, and I will try to sidestep that problem by looking only at cases where it is natural and plausible to say that there is some process or activity —- a process of reasoning.

I should add here that Mill is extremely interested in the question of what 'the real process of inference' really is, and we shall find that he is quite prepared to say that the real process may be quite different from what it appears to be on the surface. So if this problem were brought to his attention it would be possible for Mill to argue that in all cases where there really is an inference, there is a (mental) 'process of inference'. But I will not pursue this suggestion any further.

We could handle the problem with the third assumption by taking a similar sidestep. Notice that for any case of reasoning which does not appear to be based only upon beliefs or other mental states, we can generate cases that are. For example, we can easily make a parallel to (3):

Since I believed (or saw) it was raining, and I believed (or knew) that I had neither an umbrella
nor a rain coat, then I reasoned that if I still wanted to go I would have to either call a taxi or get you to drive me;

and new cases can be generated from the other examples in a similar way. So even if it is agreed that not all cases of reasoning are based upon beliefs or other mental states, we could limit the scope of Mill's discussion to that subset of all the cases of reasoning that are.

In fact I suggest that the argument against assumption (c) is not very plausible. For surely when I say that my inferences and reasonings are based upon some facts or states of affairs, such as (in (1)) that your coat was hanging up, what goes without saying is that I am aware of those facts --- I know or believe them to obtain. Indeed it would be incomprehensible for me to describe my situation by using (1) or (1'), but then to go on to add: "but I wasn't aware, and certainly neither knew nor believed, that it was raining. I am not supposing that there is anything wrong with descriptions such as (1), (2), (3), and so on; nor am I suggesting that they 'mean' something other than they appear to mean. But since any sensible application of those claims seems to presuppose an awareness of, or a belief in, the facts or circumstances that the inference or reasoning is based on, then I think this shows that assumption (c) is quite harmless, and can be accepted without any loss of generality.

All of this is by way of defending, or at least delimiting a plausible range for, Mill's assumptions about rea-
soning. To repeat once again, the model that results is:

reasoning is the process of coming to have new beliefs on the basis of one's old beliefs

Although this way of summing up is inadequate for a number of reasons, many examples of reasoning do fall under this characterization. For example, my coming to believe that Erdmann is a psychological logician because of (on the basis of) my belief that Frege thought that Erdmann was a psychological logician, is surely a case of reasoning --- though perhaps not a case of sophisticated reasoning. Examples that conform to this characterization abound.

I will mention just two blatant inadequacies of this model of reasoning that are not removed by my previous comments about Mill's assumptions. First, even if all cases of coming to believe one thing on the basis of believing other things are cases of reasoning, there are lots of other kinds of reasoning. For example, coming to hope for (or fear, or expect) something on the basis of other hopes and beliefs (fears, expectations, and so on) seem to be cases of reasoning. Indeed we can reason hypothetically, from assumptions, and then come to conclusions that are not thereby believed, hoped for, feared, and so on (although it might be argued that in such cases we come to believe conditionals). Second, the characterization is not really very helpful anyway, because the notion of believing something on the basis of other beliefs is an extremely difficult notion. One might say that this notion of believing 'on the basis
of something else is the central notion of reasoning or inference, and is the notion that particularly demands explanation. It is what distinguishes acquiring a belief by inference as opposed to acquiring it by perception, by being hit on the head, or by taking a pill. (Some indication of just how difficult this notion is will arise at several points --- see especially sections 6 and 7.)

Still, I have no better characterization of reasoning (or, as Mill would say, inferring), and this one will do for my purposes. I do not think that anyone has a good explanation of the 'on the basis of' relation and a solution for this second additional problem. It is definitely a shortcoming of this crude model, and the issue will be spoken to briefly. I will handle the first additional difficulty by once again sidestepping the issue, and narrowing the focus of the discussion to that part of reasoning which is from and to what is known or believed. This sidestep really does conform to what Mill says about the nature of inference. For example, at one point he says that he intends his notion of inference to be quite general, to be understood in what he calls the 'wide sense'. He writes that

> to infer a proposition from a previous proposition or propositions; to give credence to it, or claim credence for it, as a conclusion from something else; is to reason, in the most extensive sense of the term. (SL, Bk. II, Ch. 1, sec. 1)

Presumably to give or claim credence for some proposition is to accept or claim that the proposition is true --- it is to
believe it. And it would make sense to give or claim credence for something as a conclusion from something else, only if that something else is also something believed or otherwise entertained. So Mill seems to be agreeing that to reason or to infer is to come to believe (give credence to) one thing on the basis of other things we believe.

If to infer (or, as I will say, to reason) is to believe something on the basis of other beliefs, what is a correct inference or case of reasoning? Although Mill does say that the goal of logic is the attainment of truth, he is quite aware that the worth of an inference is not judged solely on the basis of the truth of its conclusion --- or even on the truth of its conclusion at all. What he says in the opening quotation is that logic, in providing principles for evaluating inferences, ascertains "whether or not the belief (ie. the conclusion) is well grounded", that is, whether the basis for the conclusion grounds, is good evidence for, or justifies the conclusion. And of course there are lots of cases in which an inferred belief is well grounded but false. Since inferring (or rather, once again, reasoning) is clearly a mental activity, and Mill claims that logic provides rules for correct or valid inference, Mill seems to be endorsing, and in no way opposing, the kinds of suggestions about the nature of logic that I raised in the Introduction to Part II.

But Mill's position is more complicated than this. There is a suggestion in the previous quotation that Mill
sees a contrast between this wide or extensive notion of reasoning and some other, narrower notion. He is referring to what he takes to be the traditional usage "in which the name reasoning is confined to the form of inference which is termed ratiocination, and of which the syllogism is the general type" (SL, Bk. II, Ch. 1, sec. 1). But in a certain way Mill is being disingenuous in his apparent support of this distinction --- and to see this is the crucial point to understanding Mill's views on logic.

What I mean is this. It looks as though Mill is simply suggesting that 'logic' should be applied in a broader way than was traditional. That is, Mill suggests that traditionally the notion of reasoning or inference applied only to what he (apparently) would be willing to call deductive inferences, while he wants to apply the term both to deductive inferences and also to what he calls inductive inferences. But this is far from correct. For Mill goes on to argue that while inductive inference is, as he would put it, a "real process of inference", deduction or ratiocination is not a real process of inference. This is the point of Mill's famous but much maligned argument that all syllogistic inference is a petitio principii. I contend that the correct interpretation of this argument is that Mill is trying to prove that there are no deductive inferences (see Section 6). That is, he wants to show that there are no inferences or (in my preferred terminology) cases of reason-
ing in which what we come to believe deductively follows from the beliefs that are the basis for that new belief. This strong conclusion is very hard to accept, and must be wrong. But I will show that Mill has the basis for an independent and good argument for a weaker, and I think correct, conclusion, that deductive logic does not provide any rules or principles for evaluating the correctness or validity of the conclusions of inferences or cases of reasoning.

Let me rephrase what I take the situation to be in more modern jargon. I will take the term 'inference', as Mill uses it, to refer to cases of reasoning --- cases of coming to believe something on the basis of one's other beliefs. And I will always use the term 'argument' to refer to sets of propositions, one of which is designated the conclusion, and the others jointly the premises. So I would say, in accordance with modern usage, that deductive logic (and inductive logic, for that matter) is, in the first instance, about the validity (or inductive strength) of arguments. Indeed I will show that Mill quite agrees with this. But we can easily extend our notion of a deductive argument to talk about deductive reasoning. That is, my coming to believe p on the basis of my belief that q and my belief that r is a deductively valid reasoning only if p follows from q and r. So Mill's strong (and admittedly false) conclusion is that there are no cases of deductively valid reasoning. What I want to defend is a weaker claim that Mill could have made, and that he really was committed to (since it is plausible
that it follows from the stronger claim) that deductive logic does not provide principles for evaluating the correctness, validity, or justification of the conclusions of inferences or reasonings.

So the problem that Mill sets out to explore in his discussion of deductive logic and inference is this: is so-called deductive inference a real process of inference? And my interpretation of the problem turns out to be: are any cases of reasoning cases of deductively valid reasoning?

The important point behind my examination of Mill's views on this topic is that he is actually trying to sever the apparently obvious link between deductive logic and our practices of reasoning and inference. Initial appearances to the contrary, he is quite opposed to the suggestion in the Introduction to Part II, that the laws of logic (that is, in the restricted or narrow sense of the laws of deductive validity) are laws of reasoning. Of course Mill does consider the correctness of inference or reasoning to be within the domain of logic, and so he will say that some principles of logic do provide principles of reasoning. But no such principles of reasoning or inference are (or are based on) principles of deductive validity. Mill's arguments here are well worth exploring, and I think that they take us a long way towards getting clear about the issues here — for example about how to deal with Dennett's mouse.

This by no means closes the book (to the negative) on
whether Mill holds psychologistic views about logic, and I do want to explore that question as well. Of course no one who has thought about these matters for a moment would admit to making the crude mistake of identifying the laws of logic with empirical psychological generalizations about how people actually think. As Mill puts this,

there is nothing to prevent us from thinking contrary to the laws of logic: only if we do, we shall not think rightly, or well, or conformably to the ends of thinking, but falsely, or inconsistently, or confusedly. [3]

And Mill’s argument that the laws of deductive logic are not ‘principles of reasoning’ should remove any remaining temptation to make this identification. But the possibility that Mill holds other psychologistic views about logic remains. For in his later work on Sir William Hamilton he does say about logic that "its theoretical grounds are wholly borrowed from Psychology, and includes as much of that science as is required to justify the rules ..." of logic (WH p. 359). These later writings of Mill on logic and reasoning bear special scrutiny, for at first glance they appear to be very different from the earlier work, and possibly at odds with it. I will explore the force of this apparent psychologistic claim in section 9. This turns out to be especially interesting because this psychologistic claim is made in the context of a discussion of whether or not logic is prescriptive —— whether it provides laws about how we ought to reason. Mill’s conclusions here are clearer than those of his earlier work, and I will show that he is
pretty much in line with Frege's later discussion of these matters.

Endnotes

1. Mill, J.S., *A System of Logic*, Harper & Brothers, New York, 1848, Introduction, Section 3. All further references to this work will cited by the abbreviation "SL", followed by the book, chapter, and section. There are some crucial additions in the eighth edition of 1872. When I make special reference to those parts, I will cite the fact specifically. All other citations can be found in all the editions.

2. My awareness of the depth of these problems, and the argument in the following paragraph, are both due to Professor Cartwright.

Mill was not the first to question the worth or significance of the syllogism (and deductive logic generally) in reasoning. I want to preface Mill’s work by examining a traditional and fairly influential scepticism about the usefulness or point of the syllogism --- a line of reasoning that is antithetical to Mill’s position. The criticism I have in mind sometimes surfaces as a kind of anti-formalism; and this, in turn, seems to be based in part on a subjectivist or psychologistic interpretation of what a correct or deductively valid inference is. Consider, for example, Descartes’ characterization of the 'precepts of the Dialecticians' as

formulae of argument, which lead to a conclusion with such necessity that, if the reason commits itself to their trust, even though it slackens its interest and no longer pays a heedful and due attention to the very proposition inferred, it can nevertheless at the same time come to a sure conclusion by virtue of the form of the argument alone. [1]

Even if we agree that forms of deductive argument are sometimes mindlessly applied, it is natural to suppose that this is the fault of the thinker who applies the argument and not the fault of the argument forms themselves. Yet Descartes’ conclusion from this is to reject the propriety of any appeal to formal arguments when we reason. As he engagingly puts it, when we want "to be particularly careful lest our reason should go on holiday while we are examining the truth of any matter, we reject those formulae as being opposed to
our project". (Rules, p. 32)

I do not think that it is absolutely certain what prompts Descartes to this conclusion, but a strikingly simi-
lar conclusion seems to be drawn by Locke, whose discussion
of the problems is somewhat more thorough. He asks
"conerning Reason, ... whether Syllogism, as is generally
thought, be the proper instrument of it, and the usefulllest
way of exercising this Faculty." Locke clearly distin-
guishes our actual reasoning from correct or 'right reason-
ing'. For whenever I reason or make an inference, which is
"by virtue of one Proposition laid down as true, to draw in
another as true" (Essay, p. 672), there is always a further
question as to whether "the Mind has made this Inference
right or no" (Essay, p. 672). Locke does not challenge the
idea that "all right reasoning may be reduced to his (Aris-
totle's) Forms of Syllogism" (Essay, p. 671) --- at least
when this 'reduction' is understood in the proper way. But
this is neither an endorsement of the utility of the syllo-
gism nor of (as we might say) formal logic in general. The
main lines of argument can be reconstructed as follows.

In the first place, and perhaps in part by way of
softening the opposition, Locke observes that as a matter of
psychological and behavioural fact, most people (on most
occasions when they are reasoning) do not use syllogisms and
do not, we might add, use any other deductive argument forms
either. Moreover many such cases of reasoning are cases of
'clear and right' reasoning. Now, one might think that
Locke is merely getting at the fact that there are correct or reasonable forms of reasoning or inference that are non-deductive. But even if he does intend to point this out, it can not be all that he intends to do here. For in this context he is discussing that portion of right or correct reasoning that is reducible to syllogistic (or more generally, deductive) reasoning.

I think that what Locke is really getting at is this. Often when we reason, we do not explicitly formulate (in speech, writing, or thought) premises that deductively imply the conclusions we draw, even though we may be in some sense committed to such premises. Perhaps it is this implicit commitment to suppressed premises that underlies Locke's willingness to agree that all correct reasoning may be 'reducible' to syllogistic (or deductive) argument forms. That is, reconstructions of such cases of reasoning may turn out to be instances of syllogisms or other deductively valid argument forms.

In the second place, possibly getting a little closer to the heart of the matter, Locke makes the additional point that one's facility for reasoning correctly apparently has nothing to do with having any explicit knowledge of syllogistic (or other deductive) argument forms. As he puts it,

If Syllogisms must be taken for the only proper instrument of Reason and means of Knowledge, it will follow, that before Aristotle there was not one Man that did or could know any thing by Reason; and that since the invention of Syllogisms, there is not one of Ten Thousand that doth. (Es-
say, p. 671)
For suppose I infer, and so come to believe (or otherwise entertain) some proposition $p$ on the basis of my believing some set $S$ of propositions. The previous paragraph suggests first that the argument with all the members of $S$ as premises and $p$ as conclusion may not be deductively valid, but second that it still could be a piece of correct reasoning. Given Locke's agreement that all correct reasoning can be reduced to syllogistic (or deductively valid) arguments, we might conclude that third, if the inference of $p$ on the basis of my belief in the members of $S$ is correct, then either the members of $S$ do imply $p$ or else the members of $S$ conjoined with some other beliefs that I have (beliefs that serve as suppressed premises) together imply $p$. But there is apparently no need to suppose that I must have any knowledge of the forms of valid syllogism in order to reason correctly. For example, for me to reason correctly it does not seem that one of my beliefs must be a conditional with the conjunction of the members of $S$ as antecedent and $p$ as consequent. We can support the suggestion that rules of logic codify, characterize, or describe those arguments (or at least a subset of those arguments) that we accept as correct, without thereby supposing that we know or in any way explicitly follow those rules. To explain this in another way, we can say that the rules of logic characterize or describe our accepted standard for the correctness of arguments. But in general it is not necessary or even
plausible to suppose that in order to conform to some standard a person has to know what the standard is. And in this case it seems to be possible, at least, that people could by and large conform to the standard of correct reasoning without having any knowledge of what that standard is. This could be all that Locke has in mind when he says that God has given man "a Mind that can reason without being instructed in Methods of Syllogizing". (Essay, p. 671)

So far the objections are very modest. Few would deny that people often do not use, and may not even know, the forms of deductively valid arguments. But Locke does not stop here. He has several more serious arguments that are based on rather more contentious claims about the nature of reasoning and correct reasoning. He writes that

the Understanding is not taught to reason by these Rules; it has a native Faculty to perceive the Coherence, or Incoherence of its Ideas, and can range them right, without any such perplexing Repetition. (Essay, p. 671)

In this passage at least two points come to light. The first thing, which may not immediately strike one as important, is that Locke takes reasoning to be essentially a kind of examination and manipulation of one’s ideas. This way of thinking pervades Locke’s discussion of reasoning. When we reason, we reason about our ideas: "... Man’s Reasoning and Knowledge is only about the Ideas existing in his own Mind ..." (Essay, p. 680). This underlying view of what it is to reason makes it inevitable that argument forms such as the
syllogism are interpreted, as Locke indeed does interpret them, as encoding or describing relations between ideas. For example, we are told that a syllogism "shews that if the intermediate Idea agrees with those it is on both sides immediately applied to, then those two remote ones, or as they are called Extremes do certainly agree ..." (Essay, p. 674). This talk of ideas agreeing, and in other cases of ideas being connected, is pretty vague; but the result seems to be that syllogisms are schemas of roughly this form: if ideas \( x \) and \( y \) are connected (or agree) in a certain way, and ideas \( y \) and \( z \) are connected (or agree) in a certain way, then ideas \( x \) and \( z \) are connected (or agree) in a certain way, where each of these 'certain ways' of being connected or of agreeing needs to be specified. This suggestion that we reason about our ideas, and the consequence that syllogisms encode relations between ideas, I shall call Locke's first subjectivist thesis.

The second point that I want to make about the previous quotation is perhaps more readily apparent. Locke appeals to the existence of a faculty that perceives the coherence and incoherence of ideas, and hence (by the consequences of the first subjectivist thesis) that perceives the correctness or incorrectness of inferences or cases of reasoning. Locke is not just suggesting that there is a 'native Faculty' that can perceive the correctness of incorrectness of inferences (that certain relations hold between ideas), but that what it is to reason or to infer correctly is to under-
go some (psychological) process that leads to the 'perception' or awareness of certain relations between ideas. For if the mind makes an inference, and so comes to believe some conclusion,

by finding out the intermediate Ideas, and taking a view of the connection of them, placed in a due order, it has proceeded rationally, and made a right Inference. If it has done it without such a View, it has not so much made an Inference that will hold, or an Inference of right Reason, as shewn a willingness to have it be, or to be taken for such. (Essay, p. 672)

The second sentence is unequivocal: having a view of the connections between the intermediate ideas (between \(x\) and \(y\), and \(y\) and \(z\)), is a necessary condition for making a correct inference (on the basis of the connections between \(x\) and \(y\), and \(y\) and \(z\)) that the extremes (\(x\) and \(z\)) are connected. Certainly the first sentence is not quite so clear, and actually seems to assert something rather weaker. It seems to be saying that when the mind infers that \(x\) and \(z\) are connected, then if it has a view of the connection between the intermediate ideas then the inference is correct. This is weaker because it does not follow that having the 'view of the connection' is actually a necessary condition for making a correct inference. But Locke does often assert the stronger claim. For the peculiar feature of inference is that the conclusion is believed on the basis of the premises, and Locke wants to say that it is somehow because of, or a result of, the viewing of the connections between the intermediates that one correctly infers the conclusion:
it is in vertue of the perceived Agreement of the intermediate Ideas with the Extremes, that the Extremes are concluded to agree, and therefore each intermediate Idea must be such, as in the whole Chain hath a visable connection with those two it is placed between, or else, thereby, the Conclusion cannot be inferred or drawn in ... . What it is shews the force of the Inference, and consequently the reasonableness of it, but a view of the connexion of all the intermediate Ideas that draw in the Conclusion, or Proposition In­ferr’d. (Essay, p. 673)

Locke is certainly saying that if I infer, and so come to believe (or otherwise entertain) a conclusion in this special way (by having a certain perception of the agreement or connection between the ideas contained in the premises), then my inference is in fact correct. Of course it is a difficult problem to say what this special way of coming to [?] the conclusion really amounts to. But this suggestion, that it is a necessary condition of correct reasoning that that the reasoner has a perception of the agreement or coherence of appropriate ideas (through a special mental faculty), is what I shall call Locke’s second subjectivist thesis.

Notice that there is at least a hint that Locke holds a stronger version of the second subjectivist thesis. For he says that having this special perception of the relations between the intermediate ideas and the extremes actually shows the force and reasonableness of the inference. Thus when Locke claims that there is a ’native faculty’ that perceives the correctness or incorrectness of any inference, he may be claiming that there is a faculty which, if exer-
cised (or a procedure which, if followed) guarantees that one's inferences are known to be correct or justified. This slide from believing the conclusion of an inference that is (in fact) a correct inference, to believing with justification (or knowing) that the inference is correct, is easy enough to make given Locke's terminology of ideas and the first subjectivist thesis. For Locke says that believing something is just to entertain an idea and to assent to it. And when one has made an inference and believes its conclusion, it seems that the ideas of the connections between the intermediate and extreme ideas must actually be 'before the mind'. Thus it is hard to see how one could believe the premises and believe the conclusion --- thereby having the ideas of the connection between premises and conclusion before the mind --- but not assent to (and so believe) the idea of the connection.

Now we are in a position to state Locke's third and major criticism of the syllogism, which is based on the two subjectivist theses. It amounts to a denial that syllogisms (or other deductively valid argument forms) have any useful application in our practice of reasoning. Locke points to at least three ways one might think that we can or do use or apply formal arguments in reasoning: first, that they could somehow help us to discover new truths; second, that we do (or perhaps could choose to) follow syllogisms when we reason; and third, that we can use syllogisms to check or
justify the correctness of our reasoning.

In reaction to the first suggestion Locke points out that rules of formal logic are not rules for discovering new truths. I am not sure that this possibility was ever taken very seriously by philosophers --- but of course Locke is correct. The syllogism, for example, does not tell us anything about how to discover or learn new truths, for it does not tell us how to do anything at all. As Locke interprets it, the syllogism amounts to a conditional which states that if certain connections hold between ideas x and y and between y and z, then some other connection holds between x and z.

The second and third suggestions are more interesting and plausible, and Locke responds to them by (implicitly) appealing to what I have called the two subjectivist theses. Locke can argue against the second suggestion on the basis of the first subjectivist thesis. Suppose that at some point you discover, and so have a view of, some connections between ideas x and y and y and z, and suppose further that the fact that these connections hold corresponds to the premises of a valid syllogism. Locke does not quite bring himself to say that in this circumstance you would automatically see the further connection between x and z. For he knows that we do not always see that connection --- that is, we do not always believe the conclusions of syllogisms whose premises we believe. Locke appeals to what he takes to be the mechanism of reasoning:
For the natural order of the connecting Ideas must direct the order of the Syllogisms, and a Man must see the connexion of each intermediate Idea with those that it connects, before he can with Reason make use of it in a Syllogism. And when all those Syllogisms are made, neither those that are, nor those that are not Logicians will see the force of the Argumentation, i.e. the connexion of the Extremes one jot the better. (Essay, p. 674)

If we interpret my believing the premises of a syllogism as my being aware of the connection between ideas x and y, and y and z that are before my mind, then it is hard to see how I could be blind to the connection between x and z. Certainly there seems to be no room for applying or employing the syllogism in those cases where I successfully see the conclusion --- for it seems as though seeing the conclusion to hold just is to see the connection between the intermediate and the extremes. But we sometimes do fail to believe conclusions of syllogisms whose premises we believe, and might the syllogism be of use here? Again the answer seems to be no. For suppose that you see the connections between ideas x and y and y and z (all 'before your mind'), but somehow do not see the connection between x and z. On Locke's interpretation the syllogism would say, roughly, that if the connections in question hold between x and y and y and z, then a certain connection holds between x and z. Perhaps it is likely that if you were told this, and understood it, then you would see the connection between x and z --- but is there any guarantee about this? After all, if you are somehow blind to the connection between x and z when
you have the ideas of the connections between $x$ and $y$ and $y$ and $z$ directly before you, is it not at least possible that you could see the connections between $x$ and $y$ and $y$ and $z$, and see the truth of the syllogism, but not see the connection between $x$ and $z$? There is no guarantee that applying the syllogism in this way will make you "see the force of the argumentation, i.e. the connexion between the Extremes one jot the better".

Locke can argue against the third suggestion, that the syllogism can be used in checking or justifying our reasoning, on the basis of the second subjectivist thesis. For example, supposing that in some case I do make an inference based on beliefs that are the premises of some syllogism, one might wonder why the syllogism would not be useful to check and justify the result, to determine whether or not the inference really was correct. Locke replies that a searcher after truth would

never use Syllogisms to convince themselves ... . Because, before they can put them (i.e. their ideas) into a Syllogism they must see the connexion, that is between the intermediate Idea, and the other two Ideas it is set between, and applied to, to shew their Agreement, and when they see that, they see whether this inference be good or no, and so Syllogism comes to late to settle it. (Essay, p. 675)

The point seems to be this: if you have already made the inference, then you see (and believe) the conclusion because you see (and so know) the connection between the extremes. And what better guarantee could you have that the inference is correct? Presumably you could compare the inference with
a syllogism, but that seems to involve a further and much more complicated comparison of ideas than was involved in the original inference. What I have called the subjective standard of correctness, Locke's 'native Faculty', is the ability to 'see connections' between ideas that lie before the mind. From Locke's point of view there is no reason to think that a further comparison with the complex of ideas that compose the formal syllogism is any more secure than the original comparison of ideas. "A Man knows first, and then is able to prove syllogistically. So that Syllogism comes after Knowledge, and then a Man has little or no need for it." (Essay, p. 679)

Endnotes

1. Descartes, Rene, "Rules for the Direction of the Mind", in The Philosophical Works of Descartes, Vol I, Cambridge University Press, 1975, p. 32. Other references to this work will be made using the abbreviation "Rules".

2. I do not mean to imply that this is Descartes' only criticism of the syllogism. For example, he also gives a version of Mill's claim that all syllogisms are a petitio principii when he argues that "the Dialecticians are unable to devise any syllogism which has a true conclusion, unless they have already ascertained the very truth which is deduced in that syllogism. Whence ... they can gather nothing that is new...". (Rules, p. 32) But this claim is not really defended, and it is also not at all clear from the context what the point of the claim really is. It almost seems as though the only point is that the syllogism is not a useful 'rule of discovery'. I will discuss Mill's more substantive remarks on this kind of argument in section
3. In fact it seems that a great deal of Locke's discussion of reasoning and inference is a commentary on, and elaboration of, large parts of Descartes' *Rules*.


5. The interpretation I am giving to these passages is in line with one of the most common readings of Locke, a reading that makes him into a subjectivist. While this reading is plausible, I certainly admit that it is very local and narrow. There may be other explanations of these passages that undermine this subjectivist reading.

6. This is the charitable interpretation of Locke's claim that all right reasoning is reducible to the forms of syllogism --- in the face of his (possible) acceptance of justifiable but merely 'probable' reasoning.

7. That is, to make any headway here one would have to tackle the problem of interpreting the 'because' in the claim that an inference is correct because the conclusion was derived in a certain way. There is at least a hint that this is supposed to be a causal connection: one infers correctly (on the basis of such and such premises) when one's views or ideas of the connections between the intermediates (the ideas in the premises) causes one's view of the connection between the extremes.

8. One problem with this line of argumentation is that it makes it very hard to see how Locke can, in fact, agree that we do not always believe the consequences of our beliefs. That is, one wonders how one could ever be blind to the relation between the extremes $x$ and $z$, given that the idea of that connection, composed of the ideas of the connections between $x$ and $y$, and $y$ and $z$, seems to be before the mind. This point occurs again in section 5.
3. Mill's Rejection of the First Subjectivist Thesis

I am not very interested in working through the problems with the Lockean view in great detail. Rather I will point out what I take to be its major problems in the course of setting out the central core of Mill's views. This way of proceeding is particularly interesting because Mill apparently agrees with the conclusion of Locke's criticism of the syllogism, that the syllogism has little or no utility in determining correct reasoning or inference. But Mill's grounds for accepting that conclusion are very different. My strategy will be to highlight four major features of Mill's view. In the first place, Mill rejects Locke's first subjectivist thesis, that we reason about our ideas and that syllogisms describe connections between ideas (this section). In the course of this rejection, Mill offers a very different (though not particularly original) account of propositions, of the syllogism, and of the validity of the syllogism. This is the second feature of Mill's view that I want to point out, that he argues for a fairly systematic and non-subjective account of the validity of formal arguments (section 4). This in turn leads to the third point, the implausibility of the second subjectivist thesis (that correct reasoning involves the perception of the agreement between or coherence of the intermediate and extreme ideas). Although Mill does not speak to the second thesis very directly in *A System of Logic*, it is clear that he does not accept it, and this is confirmed in a later work (section
Finally, I shall turn to what I take to be Mill’s most important insight, and show that Mill’s acceptance of Locke's conclusion is based on an important distinction between the validity of syllogisms, or other deductively valid argument forms, and the correctness of reasoning or inference (section 6). In the remainder of Part II I will look at some further points that Mill makes about our notions of reasoning and inference, and evaluate Mill’s own tendency to psychologism. Let us turn to the first point.

Of course thinking and reasoning are mental activities, and certainly Mill would agree that it follows from this that when one reasons or infers, a sequence of mental phenomena or ideas occurs. But Mill properly rejects Locke's inference from this fact to the first subjectivist thesis, that "Man’s Reasoning and Knowledge is only about the Ideas existing in his own Mind". Mill clearly distinguishes judgements or beliefs, which are psychological states or acts, from both propositions and objects of belief. This distinction is crucial because

Logic, according to the conception here formed of it, has no concern with the nature of the act of judging or believing; the consideration of the act, as a phenomenon of the mind, belongs to another science. Philosophers, however, from Descartes downwards, and especially from the era of Leibniz and Locke, have by no means observed this distinction; and would have treated with great disrespect any attempt to analyze the import of Propositions, unless founded upon an analysis of the act of Judgment. (SL, I,V,1)

Judgements and beliefs are the objects of psychological
study --- they are mental particulars. A theory of judgment would be a description of the psychological processes that occur in an act of judgement. For example, when I judge (and so believe) that gold is yellow, there is a mental event, or series of events, that does occur. "We have the idea of gold, and the idea of yellow, and these two ideas must be brought together in our mind." (SL, I,V,1) Mill realizes that this much is not even an adequate description of the belief state itself, since it seems that these same ideas would occur whether I believed or dis-believed that gold is yellow. But even if one did have a complete account of the mental state or process of judging, this would not describe the object of belief, what the belief is about or (to use a more current jargon) what the content of the belief is. For when I believe that gold is yellow,

my belief has not reference to the ideas, it has reference to the things. What I believe is a fact relating to the outward thing, gold, and to the impression made by that outward thing upon the human organ; not to a fact relating to my conception of gold, which would be a fact in my mental history, not a fact of external nature. (SL, I, I, 2)

To put this another way, that I have the belief that gold is yellow is a fact about me, and that gold is yellow is a fact about gold and yellow. Whatever the consequences for truth, Mill accepts the distinction between the belief itself and what is believed: the former is a psychological state and the latter is a fact and not, in the usual case, a mental
fact. Finally, Mill accepts a terminology in which a proposition is a part of discourse, a verbal expression of what is believed. Thus what is expressed by a proposition is (or can be) what is believed.

Whatever can be an object of belief, or even disbelief, must, when put into words, assume the form of a proposition. All truth and error lie in propositions. (SL, I,1,2)

Mill is aware that it is not enough merely to make the distinctions between judgements or beliefs, the objects of judgement or belief, and propositions. He rightly points out that the logician has to support those distinctions by advancing a theory of propositions, a theory both of the structure of propositions and of the functioning of their elements. In particular Mill presents what he calls a theory of the import of propositions — a theory of what it is that is expressed by propositions and their elements, and a theory of the relation between what does the expressing and what is expressed. If this could really be carried out it would provide a theory of truth for propositions and an explanation of the validity of deductive arguments.

One should not ignore that fact that this admirable attempt at systematization brings a number of problems to the surface that Mill does not always see and respond to. For example, since Mill seems to be committed to the view that what is expressed by a proposition can be believed, he also seems to be committed to saying that what we believe, the objects of our beliefs, are facts. Now, Mill has given
himself room to explain how we can say that beliefs can be true or false without embroiling himself in talk of true and false facts. For given that what is believed (apparently facts of one kind or another) are usually expressable by propositions, and given that Mill can make good his claim that there is a systematic relation between the elements of propositions and facts (his theory of the import of propositions), then Mill can explain the truth and falsity of beliefs in terms of the truth and falsity of propositions that express what is believed. But the avoidance of this one problem leads immediately to another: what is the object of belief in cases where beliefs are false; and equally, what is expressed by a false proposition? The apparent answer, a fact, is surely unsatisfactory, and as far as I know Mill does not speak directly to this crucial problem.

But the positive aspects of Mill's view that I want to emphasize appear as a contrast to part of Locke's theory. Mill takes logic to be concerned with propositions and, through the theory of import, with what is believed. This means that there will still be a sense in which logic is concerned with judgements. For the term 'judgement' can be taken to be ambiguous as between acts of judgement and what is judged or believed. So logic is concerned with two of the three elements in the three-fold distinction --- with judgements in the sense of what is believed, and with propositions. Thus this distinction removes any temptation to
support the first subjectivist thesis, that we reason only about our ideas. And so Mill says that Locke’s notion, the notion that what is of primary importance to the logician in a proposition, is the relation between two ideas corresponding to the subject and the predicate (instead of the relation between the two phenomena which they respectively express), seems to me to be one of the most fatal errors ever introduced into the philosophy of logic. (SL I, V, 1)

From this perspective we can say that Locke implicitly proposes a psychologistic theory of the import of propositions (roughly that what is expressed by a proposition is some relation between ideas) and Mill rejects such a theory and proposes to offer an alternative non-psychologistic theory.

Endnotes

1. Mill does not attempt to distinguish acts of judgment from states of belief, as some later writers have. In general he treats acts and states interchangeably as 'mental phenomena'.

2. We might prefer to change the example from believing or disbelieving a proposition to believing the proposition or its negation. So the claim would be that the same ideas occur whether I am believing that gold is yellow or believing that gold is not yellow.

3. I qualify this claim with "usually" because Mill does seem to leave open the possibility that some beliefs are not expressable by propositions. As far as I know Mill does not discuss this point explicitly, and there may be lots of different kinds of considerations that would lead him to leave this possibility open. One good reason would be this: given that propositions are parts of discourse, and that what is believed is a fact, then there are just too many objects of belief to map onto the propositions that exist.
4: A Sketch of Mill's Theory of Import

My point here is to give a brief summary of part of Mill's theory of import and his discussion of validity, by way of contrast with his later discussion of correct reasoning. In Mill's words, the question under consideration is:

What is the immediate object of belief in a Proposition? What is the matter of fact signified by it? What is it to which, when I assert the proposition, I give my assent, and call upon others to give theirs? What is that which is expressed by the form of discourse called a Proposition, and the conformity of which to fact constitutes the truth of the proposition? (SL, I,V,1)

Mill takes the most important competing theory to be that of Hobbes, who argues that every proposition signifies "the belief of the speaker that the predicate is a name of the same thing of which the subject is a name; and if it really is so, the proposition is true." (SL, I,V,2) It turns out that Mill accepts most of the assumptions that are implicit in this statement. He agrees that (1) there is a systematic syntax and semantics that allows for a subject-predicate distinction in propositions and yields a taxonomy of names; (2) it makes sense to talk of predicates and general terms as names; and (3) every proposition is essentially a subject-predicate proposition. Indeed Mill's objection to this theory is not that it is false, but that it is incomplete. For he says that "what is stated by Hobbes as the definition of a true proposition, must be allowed to be a property which all true propositions express." (SL, I,V,2) In other words Mill agrees that Hobbes has properly
expressed the truth conditions of propositions: a proposition is true if and only if its predicate names or denotes what its subject names or denotes.

Mill contends that this theory of truth conditions, which Hobbes "gives as the meaning of propositions, is part of the meaning of all propositions, and the whole meaning of some" (SL, I,V,2). The class of propositions for which Hobbes' theory is a sufficient theory of meaning is the class of what Mill calls verbal propositions. The most common examples of verbal propositions are what we would call identities --- "that limited and unimportant class in which both predicate and subject are proper names" (SL, I,V,2). For Mill accepts that the import or significance of a proposition such as the proposition that Cicero is Tully is fully expressed by this: that what is named by "Cicero" is what is named by "Tully". This latter is all there is to the meaning of the proposition that Cicero is Tully --- that is, Mill takes it to be the very same proposition. Indeed it is because the proposition that Cicero is Tully turns out to be (on the accepted analysis) a proposition about the use of names that Mill calls it a verbal proposition.

It is interesting to note that Mill (mistakenly) takes his celebrated view that there is nothing more to the meaning of a proper name than that it refers to some individual thing as being compatible with, and support for, this analysis of identities. The slide seems to be that since there
is nothing more to the meaning of "Cicero" then that it names Cicero, then "Cicero" just means "what is named by 'Cicero'". I will return shortly to the question of whether the Mill-Hobbes analysis of identities really is adequate.

Given that Mill thinks that this analysis applies to identities, what does it miss in the case of non-identities, propositions such as that all men are mortal and that Socrates is wise? Mill agrees with Hobbes that these propositions are true because everything that is named by "man" is also named by "mortal", and that what is named by "Socrates" is named by "wise". Mill does argue independently for his well known claim that general terms have connotation as well as denotation (a distinction which I do not intend to discuss here), and from this point of view it immediately follows that Hobbes' theory misses "part of the meaning" of these propositions. But Mill points to a problem that can be raised about Hobbes' theory, which is initially independent of the connotation-denotation distinction, and which is indeed a way of motivating that distinction. He asks the question of the terms "Socrates" and "wise":

But how came they to be names of the same person? Surely not because such was the intention of those who invented the words. When mankind fixed the meaning of the word wise, they were not thinking of Socrates, nor when his parents gave him the name Socrates, were they thinking of wisdom. The names happen to fit the same person because of a certain fact, which fact was not known, nor in being, when the names were invented. (SL, I,V,2)

The implication seems to be that in the case of proper
names one can suppose this --- that is, one can suppose that
the use of a proper name does depend, at least in the first
instance, on an intentional fixing of its reference, a
baptism of some known individual thing. But, runs a first
argument, the reference or denotation of terms such as
"man", "mortal", and "wise" cannot be fixed by literally
tagging a number of things with the name. For the group of
people who determined the conventions of language could not
have known all the things that are denoted by the general
terms they created --- at any one time there are too many
men, mortals and (one hopes) wise things, and the men, mortals, and wise things that exist from one time to the
next may change substantially. That is, these terms apply
to objects that did not exist at the time of the setting of
the conventions.

This first argument can be extended into a second and
more rigorous argument that foreshadows (and perhaps in-
spired) a Fregian point. That all men are mortal, or that
Socrates is wise seem to be truths that we discovered at
some time, and that do not follow just from the conventions
of our language. As Mill puts this,

... the possibility of a concurrent application of
two names [that is, two non-proper names ---
T.J.A.], is a mere consequence of the conjunction
between ... two attributes, and was, in most
cases, never thought of when the names were in-
vented and their significance fixed. That the
diamond is combustible, was a proposition certain-
ly not dreamed of when the words Diamond and
Combustible received their present meaning; and
could not have been discovered by the most ingen-
ious and refined analysis of the signification of
those words. (SL, I, V, 2)

So propositions such as that Socrates is wise or that all men are mortal are not merely verbal; they do not report facts about the conventions of our language. Not knowing that diamonds are combustible or the all men are mortal is not, Mill plausibly suggests, an indication of linguistic incompetence. On this ground Mill argues that such propositions must have some additional meaning that is not characterized by Hobbes' theory, and he uses this for another support of his view that general terms (i.e. non-proper names) have a connotation as well as a denotation. The resulting theory would actually explain the success of the Hobbesian theory as a correct theory of the truth conditions of propositions, for

objects are brought under the name by possessing the attribute connoted by it; but their possession of the attribute is the real condition on which the truth of the proposition depends, not their being called by the name. (SL, I, V, 2)

It is not my purpose here to evaluate these arguments, but there is one curious feature of Mill's discussion that I will point out. Mill does accept Hobbes' view as a complete theory of meaning for the class of identity statements. As I mentioned earlier he takes it to follow from this that the meaning of an identity such as that Cicero is Tully is that what is called "Cicero" is also called "Tully". It is a proposition about the conventions of language, and he thinks that what follows from this is that

since names and their signification are entirely
arbitrary, such propositions are not, strictly speaking, susceptible of truth or falsity, but only of conformity or disconformity to usage or convention ... . (Sl, I, VI, 1)

Mill does not realize that Hobbes' theory is no more successful as a theory of the meaning of identities than as a theory of meaning for other propositions. Exactly the same kinds of arguments can be raised against it in this context. Frege eventually saw this parallel, and used the epistemological problems with identity claims to set up his arguments that even proper names must have a sense. But I am not going to rehearse Frege's arguments here. For, in the first place, it is not at all clear that they are very conclusive. Even if we accept the point that the proposition that Cicero is Cicero has a different 'cognitive value' from the proposition that Cicero is Tully, it is not at all clear to me why Mill would have to accept this as being incompatible with Hobbes' theory of the import of proper names. In particular, I do not see why he would have to accept Hobbes' theory as giving a representation of the objects of knowledge and belief, so that the judgement that Cicero is Tully is necessarily the judgement that what is named by "Cicero" is what is named by "Tully". The point is that since Mill has a framework in which propositions (essentially linguistic entities) are distinguished from judgements or what is believed, it is at least possible for him to take Hobbes' theory as a semantics for certain propositions without accepting it as giving a representation of
what is believed.

Moreover, in the second place, the inadequacy of the Hobbes-Mill view as applied to identities can be seen without exploring these epistemological arguments and the questions of whether they work and of what they show. For even if we agree that the Hobbesian view gives the proper (material) truth conditions for identities, and deny that the Fregian arguments in any way undermine this, we can see that the Hobbesian view fails to capture the modal properties of identities. For example, it is quite possible that Cicero not be called Tully, but not possible that Cicero not be Tully (i.e. Cicero). This shows that Mill is not really a Kripkean about proper names (or perhaps I should say that Kripke’s theory is not Mill’s). For the Hobbes-Mill analysis of identities, which they take to be supported by their treatment of proper names, does not generate the correct modal properties of identities that Kripke properly demands.

These complicated issues aside, the upshot is that in general propositions are not about the relations between words and things, but rather are about the things themselves. We see the beginnings of a systematic semantic theory, in which the import of a proposition is a function of the the denotation of proper names and the connotation of general terms. Thus

every proposition asserts, that some given subject does or does not possess some attribute; or that some attribute is or is not (either in all or in some portion of the subjects in which it is met with) conjoined with some other attribute. (S1,
This framework provides the background for Mill's account of deductive validity. Mill contends that every case of what he calls "valid ratiocination", "reasoning by which, from general propositions previously admitted, other propositions equally or less general are inferred" (SL, II,II,1), is (or is transformable into) a syllogism. A syllogism is valid or legitimate on condition that "if the premises be true, the conclusion must necessarily be true" (SL, II,II,1). It turns out that all valid syllogisms can be converted or reduced to four syllogisms of the first figure --- major premise being universal and either negative or affirmative, minor premise being either universal or particular affirmative, and conclusion having the number of the minor premise and being affirmative or negative as the major premise. Thus the search for a unified explanation of the validity of ratiocination or deductive arguments can be satisfied by an explanation of the validity of these four kinds of syllogism.

The traditional explanation of validity that Mill examines and rejects is the dictum de omni et nullo. Mill's rendering of this 'principle of reasoning' is "that whatever can be affirmed (or denied) of a class, may be affirmed (or denied) of everything included in that class" (SL, II,II,2). I am less interested in the adequacy of this formulation of the dictum than in Mill's attitude towards it. Certainly on the face of things this is an unhappy formulation. For
example, consider that is a class is predicable of the class
of men but not of everything in that class; but perhaps more
[7] can be said to defend or explain this formulation.
Mill's reaction to the dictum parallels his objection to
Hobbes' theory of import: it is not so much that the dictum
is wrong --- "as far as it goes it is a true account" (SL,
II,II,2) --- but that it is incomplete and not very informa-
tive.

Mill does think that the dictum, as he formulates it,
was originally a substantive principle, "a statement of what
was conceived as a fundamental law of the universe" (SL,
II,II,2). It made sense in the context of a system of
metaphysics in which universals (or for that matter classes)
are "regarded as a peculiar kind of substance, having an
objective existence distinct from the individual objects
classed under them" (SL, II,II,2). The idea is that under
such a system the dictum expresses the crucial relation that
[8] holds between universals and their exemplars. But Mill
rejects the reality of classes and universals, and so he
asks:

when it is known that a class, an universal, a
genus or species, is not an entity per se, but
neither more nor less than the individual substan-
ces themselves which are placed in the class, and
that there is nothing real in the matter except
those objects, a common name given to them, and
common attributes indicated by the name; what, I
should be glad to know, do we learn by being told,
that whatever can be affirmed of a class, may be
affirmed of every object contained in the class?
(SL, II,II,2)
Mill would say that a class is nothing more than the objects contained in it, and so he concludes that the dictum can be translated into this: that whatever can be affirmed of objects with such and such common attributes can be affirmed of the objects with those attributes. As Mill says, this is a 'solemn trifling', and it is not at all clear how it could be the basis of any genuine explanation of the validity of the syllogism. On the other hand, if there is no further explanation of the validity of syllogisms, then syllogisms themselves would seem to be just as trifling.

Mill's argument here parallels his objection to Hobbes' theory of import. He allows that (this rendering of) the dictum would be a sufficient explanation of the validity of the syllogism if Hobbes' theory of import were true and complete. Given Hobbes' theory of import, the principle behind the correctness of a syllogism would be "nothing except that the classification is consistent with itself" (SL, II,II,3). But there are propositions that convey real information, for which Hobbes' theory is not a complete theory of import, and there are syllogisms that are composed of such propositions. So it seems that there is more to the validity of a syllogism then a fact about the way words are used.

What Mill proposes, from the point of view of his theory of import, are the following two principles.

The first, which is the principle of affirmative
syllogisms, is, that things which coexist with the same thing, coexist with one another. The second is the principle of negative syllogisms, and is to this effect: that a thing which coexists with another thing, with which other a third thing does not coexist, is not coexistent with that third thing. These axioms manifestly relate to facts, and not to conventions; and one or other of them is the ground of the legitimacy of every argument in which facts and not conventions are the matter treated of. (SL, II,II,3)

Unfortunately Mill does not discuss how these principles are supposed to work. Given a proper elaboration of "coexists", no one would question their truth. But it is not very clear how they can support the apparent necessity of the connection between the premises and conclusion of a syllogism.

But the main point I want to draw from all of this is Mill’s general position about the nature of validity. Whether or not these revised principles do improve the earlier formulations of the dictum, they are certainly objective and non-psychological --- they are pretty trivial truths about all things that exist. Since Mill maintains that these two principles alone explain and legitimate the deductive validity of arguments, it is quite clear that in his system validity itself is an objective and non-psychological concept.

Endnotes

1. Mill also discusses and rejects a class interpretation of the import of propositions which, he suggests, is
really the Hobbesian view in another form (sec 3 of Bk I Chapter 5). One problem that mars that discussion is that Mill seems to have two different notions of what a class is. But once this is sorted out, his arguments can be seen to parallel those that are raised against Hobbes.

2. Mill takes some pains to make these distinctions, but I will not explore the details of his attempt.

3. I take it that all verbal propositions turn out to be identities under analysis --- but they may not look like identities.

4. There is some interest to the question of how Mill's connotations relate to Frege's senses, but just as I am not prepared to discuss Mill's theory of connotation I cannot discuss this further question.

5. I want to add one caveat. At several points Mill talks about the import of propositions not only in terms of conjunctions of attributes in objects, but also in terms of the sequence and co-existence of 'phenomena'. In fact the passage just quoted occurs after one such statement, and is said to be a 'less abstruse' statement of the theory that, "though stopping short of in an earlier stage of the analysis, is sufficiently scientific for many of the purposes for which such a general expression [of the theory] is required". (II, I, 1) The full and complete analysis, which I have not gone through, involves Mill's grand reduction of attributes and objects to phenomena. For example, he says that

If it is remembered that every attribute is grounded on some fact or phenomenon, either of outward sense or of inward consciousness, and that to possess an attribute is another phrase for being the cause of, or forming part of, the fact or phenomenon upon which the attribute is grounded; we may add one more step to complete the analysis. The proposition which asserts that one attribute always accompanies another attribute, really asserts thereby no other thing than this, that one phenomenon always accompanies another phenomenon.... (I, V, 4. See other following parts of part I, and especially discussion of the five 'predicables'. See also the passage at the beginning of II, I, 1, that precedes the 'less abstruse' statement of the theory of import.)

My primary reason for pointing this out is to forestall someone's reading these passages out of con-
text, and consequently rejecting my analysis of Mill's theory of import and my claim that his theory is not a subjectivist theory. I do not think that this more 'abstruse' analysis represents any change in Mill's views or calls into question my analysis of them. Indeed I think that it will be arguable as to whether or not the kind of reduction of things and attributes to phenomena of sense and consciousness is subjectivistic. But if it is, this is a function of Mill's reduction of objects and attributes, and not, in the first instance at least, of his theory of import. (See also note 4 of section 9. There again I mention Mill's grand reduction, and suggest that it does not lead to any special psychologicistic view about logic.)

6. In other words to these four types of syllogism:

   All B's are C's;   No B's are C's;
   All/Some/ A's are B's;   All/Some/ A's are B's;
   Therefore

   All/Some/ A's are C's.   Therefore
   No A is/Some A is not/ a C.

Singular minor premises and conclusions such as that Socrates is a B, are generally treated as universal propositions, and so syllogisms with such minor premises (and conclusions) do not form two additional types of syllogism.

7. For example, if you took 'all men' to refer to a subset of the class of men, 'some men' to refer to a subset of the class of men, 'Socrates' to refer to a singleton, and so on, then one could try to explain predication as the holding or not holding of a subset relation. (Or at least if this would not capture the complete import of propositions, one could argue that it would give the truth conditions of propositions.) Of course this interpretation runs into problems as soon as we get past these simple cases of predication --- though I am not sure that it is worse than Mill's alternative. But it does escape the objection that I raised in the text (since the the subject of the proposition that the class of men is a class refers to, on this interpretation, the singleton whose member is in the class of men). The dictum de omni thus becomes:

   whatever is predicated of a class is predicable of every subset of that class.

Peter Geach, in Reference and Generality, gives a much more sophisticated formulation of the dictum de omni et nullo that does work in the context of a much more sophisticated (but still medieval) theory of reference.
8. But again, this cannot really be the point of the dictum! As I pointed out in the brief objection I gave, not all that is true of universals (or classes) is true of their exemplars (or their members).

9. But presumably these principles will have whatever necessity any laws of logic have. Further questions about the status of of laws of logic will be briefly raised and discussed in section 9.
5: Some Remarks about the Second Subjectivist Thesis

Mill does not formulate and discuss what I have called the second subjectivist thesis directly in A System of Logic, as he does the first thesis, although it is quite clear that he would not endorse it. The second subjectivist thesis really is the claim that it is a necessary condition for a case of reasoning to be correct that the reasoner has a certain perception of the agreement between, or coherence of, certain ideas --- as Locke would say, through a special "faculty". It is plausible to argue that a rejection of the first subjectivist thesis already undermines the second thesis, since Mill is denying that we (generally) reason about our ideas. Certainly this would undermine Locke's implicit defence of the thesis (pp. 112-115 of Part II, Section 2), which does seem to depend on that assumption. But I would rather step back from Locke's particular defence and briefly consider the thesis itself, and at what Mill might have to say about it.

The first comment that I want to make is that this second subjectivist thesis at least suggests that there is some kind of internal or subjective standard for the correctness of inferences in particular and beliefs in general. But Mill tends to reject appeals to various kinds of subjective standards or tests for correctness. For example, he vigorously denies the efficacy of one traditionally accepted subjective test for the truth of any belief, that the negation of the proposition believed is inconceivable:
...there is such ample experience to show that our
capacity or incapacity of conceiving a thing has
very little to do with the possibility of the
thing itself; but is in truth very much an affair
of accident, and depends upon the past history and
habits of our own minds. (SL, II,V,6)

So the fact that a proposition is inconceivable to me is no
guarantee that the negation of that proposition is true. Of
course this is no proof that Mill could not accept a subjec-
tive standard for the correctness of reasoning. But it is
strong evidence that Mill would not accept a mere examina-
tion of the agreement or coherence of ideas as a guarantee
of the correctness of inferences that lead to conclusions
that are not simply about ideas.

But this consideration leads directly to a second point
that can be worked into an argument against the second
subjectivist thesis; it turns on the problem of error in our
reasoning. Mill, and for that matter Locke as well, would
agree that we make mistakes when we reason, that we do not
always correctly evaluate the worth of arguments, and that
we often hold inconsistent beliefs. Perhaps these apparent
facts are open to various interpretations. But when they
are combined with Mill's other views, and in particular with
his rejection of the first subjectivist thesis and his
theory of import (from which it follows that what is believ-
ed is, in general, independent of the mind), there is little
motivation for supposing that we have any special access to
or knowledge of the correctness or incorrectness of infer-
ences.
This is not yet a hard argument against Locke, but there is a fairly obvious problem that can be raised for his view. For it is not easy to see how, on his view, he can explain the fact that we make genuine mistakes in reasoning --- that is, how there can be genuine cases of reasoning that are mistaken --- even though he agrees that we do make such mistakes. At one point Descartes actually seems to accept it as a consequence of his view that if one does really reason then one can not make mistakes. For Descartes acknowledges that at least in the case of a simple deductive inference "though it may be passed over, if it is not seen through, (it) cannot be erroneous when performed by an understanding that is in the least degree rational" (Rules, pp. 4-5). I take it that 'not seeing through' and so 'passing over' the inference is not really to infer. So cases of mistaken reasoning are not really cases of reasoning at all. Locke says something like this in a passage I have already used to illustrate a different point. Locke writes that if a mind has made an inference

by finding out the intermediate Ideas, and taking a view of the connexion of them, placed in a due order, it has proceeded rationally, and made a right Inference. If it has done it without such a View, it has not so much made an Inference that will hold, or an Inference of right Reason, as shewn a willingness to have it be, or be taken for such. (Essay, p. 672)

In fact Locke does want to say that these inferences made 'without a view' are genuine inferences. He talks of how the mind is often "very forward to make Inferences, and

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therefore often makes too much haste, before it perceives
the connexion of the Ideas that must hold the Extremes
together" (Essay, p. 672). And it seems that a view of the
appropriate connections might also be prevented by the con-
fusion or obscurity of the ideas in question (Essay, p. 682).
But if it is really "in vertue of the perceived
Agreement of the intermediate Ideas with the Extremes, that
the Extremes are concluded to agree" (Essay, p. 673, and
also see pp 113-115 of section 2 of this part), and if in
cases where the mind is hasty or its ideas are confused the
mind does not have such a view of the relations between
intermediate and extremes, then how has an inference been
made at all? In these cases some 'conclusion' is believed,
but I am questioning whether, on the Locke-Descartes view,
there has been an inference --- whether the belief in the
'conclusion' is based on or in virtue of one's beliefs in
the proposed premises.

This internal criticism of the Lockean theory sets the
stage for a third and final comment about the second subjec-
tivist thesis. The flip side of the question of how Locke
can account for the existence of genuine cases of reasoning
that are mistaken is the question of how we can ever reason
to conclusions that were previously unknown or not believed.
Or to put the argument another way, how we can ever fail to
believe the consequences of our beliefs. This point was
really raised in the initial exposition of the Lockean view.
By hypothesis, believing the premises of an argument involves being aware of certain relations between ideas that are before the mind. But how can one ever fail to be aware of the further relations between those same ideas that embody the conclusion of the reasoning? Since by hypothesis the ideas in question are not indistinct or incomplete, it is hard to understand how any of the relations between the ideas could be 'forgotten' or ignored --- and how the conclusion of the reasoning could be unknown given one's belief in the premises. None of these comments are knock-down arguments against the Lockean view. But they do point out that the theory as it stands is unable to explain all that it purports to explain.

For all of the differences between Mill and Locke that I have so far elaborated, one of the most important difference is still to come. For Mill shows that there is a radical problem with the way in which philosophers talk about principles of inference or principles of reasoning; and we will see that he lays the ground for a distinction between two senses in which philosophers have confusedly used the terms 'correct inference' and 'principle of inference'.

**Endnotes**

1. In WH, pp. 342-344, Mill makes similar comments in somewhat more detail.
6: Deductive Logic and Inference

Mill has explained the validity or legitimacy of certain forms of the syllogism; he has given principles that explain why it is necessary that if the premises of a valid syllogism are true then the conclusion is true (section 4). But this is only the background for Mill’s discussion of what he takes to be a more important topic, the relation of the syllogism (and of deductive logic in general) to reasoning. This topic is more important because Mill takes the primary goal of logic to be the development of a theory of reasoning or inference. Remember that "to infer a proposition from a previous proposition or propositions ... (is) to give credence to it, or claim credence for it, as a conclusion" from those propositions (section 1). So if to infer is to give credence to or to justify a proposition, then logic, as a theory of inference, is a theory of giving credence or justification. But this contention naturally raises a problem about traditional deductive logic and the theory of the syllogism. Mill’s problem about deductive logic is this:

(P) Is the theory of the syllogism (and deductive logic in general) a theory of inference (does it provide rules of justification or proof)?

I think that it is this question, and the giving of a negative answer, that is the underlying concern of Chapter III Book II of A System of Logic, entitled "On the Function, and Logical Value, of the Syllogism". And while I disagree with some of Mill’s arguments for that conclusion, I will
argue that this conclusion is both correct and justified. Eventually, (sections 9 and 10) I will show the importance of giving a negative answer to this question for any anti-psychologistic account of deductive logic --- though a negative answer does not close the book on psychologism about deductive logic. But in this section the issues will remain narrower. Here I am interested in clarifying Mill's position, in order to show that Mill is indeed concerned with problem (P) and that there is good reason to accept a negative answer to (P). This result is important in its own right, quite apart from the underlying questions about psychologism. For it is a crucial first step in understanding the role that is played by deductive logic in inference or justification.

Mill does not state the issue quite as I have formulated it. He writes:

We have now to inquire, whether the syllogistic process, that of reasoning from generals to particulars, is, or is not, a process of inference; a progress from the known to the unknown; a means of coming to a knowledge of something which we did not know before. (II,III,1)

Now the force of Mill's question

(Q) Is the syllogistic process ... a process of inference?

is not immediately clear. Just from looking at (Q) it is tempting to think that Mill's primary interest must be in a psychological enquiry. For his reference to inference as a progress from the known to the unknown seems to indicate
that he is interested in a kind of activity; and his reference to inference as a means of coming to knowledge we did not have before seems to indicate that his interest is in a rule or principle that governs that activity, a principle that can be used to obtain new knowledge.

However, we shall see that the primary focus of (Q) is not psychological, or at least that Mill has legitimate concerns that are not about psychological matters. It would certainly be a mistake to downplay the prominence of psychological questions in Mill’s work, and in Section 7 I will disentangle another thread in Mill’s thought that does explore what the real nature of the psychological process of inference is. For Mill also wants to show that the syllogism does not describe or correspond to what really goes on in the mind when we make inferences.

But even when we keep these psychological issues to one side, there is still a certain amount of confusion in the text. For it turns out that (Q) and related forms of words express a number of rather different questions that Mill does not clearly distinguish, and only one of them approximates the problem (P). Moreover, Mill invariably answers no to these questions. That is, he claims that deductive inference, and syllogistic inference in particular, is not 'a process of inference'. This is in contrast with inductive inference, which is always said to be a process of inference. So it turns out that Mill is defending a number of negative theses about deductive logic (one of which is an
answer to \( (P) \)), and a corresponding number of positive theses about inductive logic --- none of which he clearly separates.

Of course my intention is to discover what these theses are. The text of Chapter III of Book II is confusing, and Mill himself seems to be genuinely confused at times. He shifts between different arguments, and between different interpretations of \( (Q) \), with frustrating abandon. But once we distinguish various arguments, and determine which considerations support which conclusions, then I think it can be seen that there is a central point that Mill makes about inference, his answer to problem \( (P) \), that bears close examination.

It is important to introduce some of Mill's terminology about inference. Prior to his discussion of the validity of the syllogism Mill distinguishes real from apparent inference. "Merely apparent" inferences are those in which "the proposition ostensibly inferre'd from another, appears on analysis (my emphasis) to be merely a repetition of the same, or part of the same, assertion which was contained in the first." (II,1,2) Mill gives four cases of apparent inference. The first is inference based on the equivallence or equipollence of propositions. His illustration is: "All men are mortal, for no man is exempt from death". The second is inference from a universal proposition to a proposition "which differs from it only in being particular". 

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An illustration is the inference from all men are mortal to some men are mortal. The third is an inference "where, the antecedent having a predicate of a given subject, the consequent affirms of the same subject something already connoted by the former predicate" (II, I, 2); for example, all men are animals from all men are mammals. The fourth is inference based on the conversion of propositions. Mill gives a number of examples of conversion, but a simple illustration is this: since some men are mortal, some mortals are men. Mill comments that

in all these cases there is not really any inference; there is in the conclusion no new truth, nothing but what was already asserted in the premises, and obvious to whoever apprehends them. The fact asserted in the conclusion is either the very same fact, or part of the fact, asserted in the original proposition. This follows from our previous analysis of the Import of Propositions.

(II, I, 2)

That two propositions express the same fact, and that one expresses part of the same fact as another, are notions that are notoriously difficult. But it is not difficult to see what these four cases of apparent inference have in common. The second and fourth cases are ones in which anyone would agree that the premise logically implies the conclusion. The first is likely intended to be such a case, the only problem being a trivial change in the predicate of the consequent. But if we are allowed, as Mill suggests, to consider the analysis of propositions through the doctrine of the Import of Propositions, in which we can suppose that the import of complex terms is analyzed in some
canonical way, then it may be that all four cases are cases of logical implication. In any event what is certainly common to all four cases is this: it would be impossible for the premise to be true but the conclusion false. So we do not have to decide when two propositions express the same fact, or when one proposition expresses part of the fact expressed by another. We can agree that in cases of apparent inference, if it is a fact that the premises are true then it must be a fact that the conclusion is true. For example, if it is a fact that all men are mortal, then it is certainly a fact that some men are mortal (see note [1]), and so on. Moreover it does not matter for our purposes whether or not these are all genuine cases of logical implication. The important point, as Mill asserts, is that these cases all have the same status, which is based on, or results from, an analysis of the propositions through the doctrine of the Import of Propositions: they are inferences such that it is impossible that the premises be true but the conclusion false. As a shorthand, but so as not to beg any questions about logical implication, I will say that the premises strictly imply the conclusion, and of course all logical implications are cases of strict implication. Thus my suggestion is that where there is only an apparent inference (that is, where there is no real inference) the premises strictly imply the conclusion.

The contrast with apparent inference is with "cases of
inference in the proper acceptation of the term, those in which we set out from known truths, to arrive at others really distinct from them."(II,I,3) These are real inferences. Mill thinks that it has generally been supposed that the set of real inferences is composed of both inductive inferences and syllogistic inferences or 'ratiocination'. Mill agrees that induction, which he characterizes as reasoning from particulars to generals and from particulars to particulars, is real inference. The conclusion of an induction "embraces more than is contained in the premises"; a generalization induced "covers a much larger extent of ground than the individual experiments which are said to form its basis;"(II,I,3) and the conclusion asserts a 'new' fact, a fact distinct from what is asserted in the premises. These notions of 'contains more than', 'has a greater extent than', asserts a 'new' fact, and so on, seem to imply that there is a real inference (the conclusion contains more than the premises) if it is not necessary that when the premises are true the conclusion is true. This confirms my earlier suggestion that an inference is not real (it is only apparent) if and only if the premises strictly imply the conclusion. We can also say that a conclusion expresses a new fact (relative to the premises), or is a new truth (relative to the premises), if and only if it is not strictly implied by the premises. And this is just to say that it is the conclusion of a real inference.

Using this newly introduced terminology Mill concludes
that inductive inference is variously 'real', a 'real process of inference', and a 'process of real inference' (eg. II,II,3). And it is from this perspective that Mill first raises the question of whether syllogistic inference is a real process of inference, a question reminiscent of (Q). Now I will use the term 'real inference' only as I have defined it, (in contrast with anything else that Mill might mean by 'a real process of inference', or 'a process of real inference', and so on). So we can already give an answer to a first interpretation of Mill's question (Q). This first interpretation of the question is:

(Q1) Is syllogistic inference real inference?

It follows from the theory of the import of propositions that for valid syllogisms, just as for the given examples of apparent inference, it is necessary that if the premises of the syllogism are true then the conclusion is true. Indeed the whole point of the doctrine of the import of propositions, and its use in defending the fundamental principles of the syllogism (section 4), was to explain and justify this result. For as Mill points out (II,II,1) a syllogism is legitimate or valid if and only if when "the premises are true, the conclusion must necessarily be so". Granted this, we have an easy (if not very exciting) answer to question (Q):

(A1) Syllogistic inference is not real inference.

Unfortunately this easily answered question is not the
question that Mill is really concerned with in his discussion of "the process of inference", and it is certainly not (P). For the contrast between real and apparent inference, the notion of a new truth, and the notion of one truth being contained in another, are not, as far as we have seen, epistemological notions at all. And while we have not yet made much headway in clarifying Mill's notion of a "process of inference", it is apparent that his notion of a progress from what is known to what is unknown is epistemological. Consequently (A1) is not really the thesis that he is most concerned to defend, although it is fair to say that Mill slides between (A1) and more striking theses, and that he trades on the obviousness of (A1) when he enumerates them.

Mill makes the slide from (A1) to an epistemological claim quite openly. When we agree that syllogistic inference is not real inference, we are agreeing with what Mill says is "universally allowed", "that a syllogism is vicious if there be anything more in the conclusion than was assumed in the premises". (II,III,1) In other words the conclusion of a syllogism is not 'new' --- that is, the conclusion is implied by the premises. "But", Mill continues, "this is, in fact, to say, that nothing ever was, or can be, proved by syllogism, which was not known, or assumed to be known, before." (II,III,1) If this latter really were true, then it would not be surprising to find that the syllogism is not a process of inference, a progress from the known to the unknown. But have we been shown that this is true? Does it
follow from the 'universally accepted claim', which is equi-
valent to (A1), that no proposition can be "proved by syllo-
gism" unless the conclusion is previously known? To say
this, that any instance of a syllogism which is a proof of
the conclusion is a case where the conclusion must have been
previously known, is pretty much to say (as Mill explicitly
does) that any syllogism "considered as an argument to prove
the conclusion ... is a petitio principii" (II,III,2), a
begging of the question. So Mill wants to defend this
thesis:

(A2) Every instance of a syllogistic proof is a
case of begging the question. [2]

The corresponding question

(Q2) is any instance of a syllogism a genuine proof?
is a second, and more important, interpretation of (Q), and
is closely related to (P) itself. Certainly if (A2) is a
defensible answer to (Q2) then it is likely that we have an
answer to (P) as well. To show that every purported proof
or justification by syllogism is a case of begging the
question is to show that there are no cases of proof or
justification that are instances of a syllogism. This, if
ture, would show that the syllogism cannot be a rule of
proof or justification, and surely it would also be an
important first step toward showing that the syllogism does
not provide any such rules either.

If (A2) follows from (A1) it is not obvious that it
follows, for it is not obvious that (A2) is true. Surely
there are lots of cases in which we have thought that we were proving a conclusion when we had used a syllogism to justify it. There is really just one main passage in which Mill offer something of an argument for (A2) that might be more than a restatement of (A1). The passage begins:

It must be granted that in every syllogism considered as an argument to prove the conclusion, there is a petitio principii. When we say,

All men are mortal,
Socrates is a man,
therefore
Socrates is mortal;

it is unanswerably urged by the adversaries of the syllogistic theory that the proposition Socrates is mortal, is presupposed in the more general assumption, All men are mortal... (II, III, 2)

Every syllogistic proof of a conclusion is a petitio principii because the conclusion is presupposed by the 'more general assumption', in this case the proposition that all men are mortal. But in what way is the proposition that Socrates is mortal presupposed by the proposition that all men are mortal? Let me get one fairly minor point out of the way. Mill often ignores the minor premise, as he seems to in this quotation. I say that he is ignoring the minor premise because there simply does not seem to be any sense in which the proposition that Socrates is mortal is presupposed by the major premise alone. This is so even given that the proposition that all men are mortal is taken to imply that there are men. For even with that assumption the proposition that all men are mortal neither implies nor
semantically presupposes that Socrates is a man. So I will always be talking about, and will assume that Mill is talking about, the relation between the conjunction of both premises and the conclusion.

We could take this 'presupposes' to be a logical or semantic relation, and then the claim would just amount to a restatement of (A1), that the conclusion is not a new truth. This would not advance my search for a justification of (A2), since it is not obvious that (A2) follows from (A1). But I do not think that Mill is simply restating (A1), for he goes on to give a series of elaborations of the claim that the conclusion is presupposed by the major premise, which are supposed to be arguments in support of (A2), the petitio principii claim. Those who argue that the premises of a syllogism presuppose the conclusion are claiming

(1) that we cannot be assured of the mortality of all men, unless we were previously certain of the mortality of every individual man; (2) that if it be still doubtful whether Socrates, or any other individual you choose to name, be mortal or not, the same degree of uncertainty must hang over the assertion, All men are mortal; (3) that the general principle, instead of being given as evidence of the particular case, cannot itself be taken for true without exception, until every shadow of doubt which could affect any case comprised with it, is dispelled by evidence aliunde; and then what remains for the syllogism to prove? that, in short, no reasoning from generals to particulars can, as such, prove anything: since from a general principle you cannot infer any particulars, but those which the principle itself assumes as foreknown. (II, III, 2)

There is a way of reading the first observation (much less so with the second and third ones) that is clearly
wrong and has to be put to one side. It is wrong, I think, to take 'assurance' and 'certainty' (and 'being doubtful' in the second and third observations) as psychological notions --- feelings of assurance and certainty (and feelings of doubt). For it is not true, and Mill has no stake in claiming it to be true, that one could not feel certain or assured of (or have no feelings of doubt towards) the proposition that all men are mortal, without feeling certain and assured (and not doubt) of each individual man, that he is mortal. So he must mean something else --- assurance and certainty (and being doubtful) are epistemic notions.

I will argue that all three observations are really ways of getting at the same point. Indeed the first two observations are plausibly synonymous. For the first says, roughly, that if we have not already gotten assurance (or been made certain) of every individual man that he is mortal, then we have not gotten assurance (or been made certain) that all men are mortal. But "for it to still be doubtful" that p is just to say that I have not gotten assurance (or been made certain) that p. So the first observation amounts to the claim that if it is still doubtful for any individual man that he is mortal, then it is still doubtful that all men are mortal; and surely this is just the second observation, without the added complication, which I will not bring into the discussion, of the suggestion that there may be various degrees of doubt or uncertainty (or belief and certainty). I will discuss the third
observation separately, because it explicitly mentions a
notion of evidence. But I will show that it is also suscep-
tible to the same analysis as the first two points, and
represents the same important ambiguity that undermines
Mill's argument.

Now, given that 'assurance' and certainty in (1), and
'being doubtful' in (2) are epistemic notions, then to be
assured or have assurance, to be certain, and for it to not
be doubtful, are to be understood as variants of to be known
(or to be verified or believed with justification). So in
(1) and (2) Mill can be taken to be making the very strong
claim

(a) A universal proposition all A's are B's
cannot be known (verified, or believed with
justification) unless it is independently or
antecedently known (verified, or believed
with justification) of each thing which is an
A, that it is a B.

There are a number of ways that one might try to use (a) to
argue for (A2). Let us suppose I know the premises that all
men are mortal and that Socrates is a man, and that the
conclusion in question is that Socrates is mortal. Certain-
ly if my knowledge that all men are mortal depends upon the
fact that I independently know of each man that he is mortal
(principle (a)), then in particular I have to know of So-
crates that he is a man and is mortal. This knowledge is
'presupposed' by my knowledge of the universal proposition.
Notice that this presupposed knowledge is not yet knowledge
of the conclusion of the syllogism, that Socrates is mortal.
The difficulty is (roughly) that I might know of each man (and hence of Socrates) that he is both a man and mortal without knowing who, which man, Socrates is, or without having an adequate command of the name 'Socrates'. However given Mill's treatment of identities (section 4), I rather doubt that he would have been aware of this distinction; thus I am fairly certain that Mill would conclude at this point that I know the conclusion of the syllogism, that Socrates is mortal. For without being aware of the distinction between 'knowing of Socrates ...' and 'knowing that Socrates ...', then Mill's desired conclusion is extremely difficult to avoid.

But even if we do not assume that Mill was making this mistake we may be able to take the argument a little further. For remember that I have also supposed that I know the minor premise of the syllogism, that Socrates is a man. In other words I do have command of the name 'Socrates', and I do, to some extent, 'know who Socrates is'. But then it is at least arguable that since I know who Socrates is, it follows that however I have obtained my knowledge of Socrates that he is both a man and a mortal would have given me knowledge that Socrates is both a man and mortal.

A difficulty with this last argument is (to put it rather crudely) that my 'way of knowing' of Socrates that he is a man and is mortal might be quite independent of, and unrelated to, my 'way of knowing' that Socrates is a man.
But then it is hard to see why it should follow that the sense in which I know who Socrates is guarantees that I know that Socrates is mortal.

What Mill apparently wanted to prove on the basis of (a) was

(b) The premises of a syllogism cannot be known (verified, or believed with justification) unless the conclusion is known (verified, or believed with justification).

But (b) implies (A2), given the assumption that an argument taken as a proof of its conclusion begs the question if one cannot know the premises without knowing (verifying, or believing with justification) the conclusion. Thus if (a) implies (b), then he would have a slightly longer argument for (A2). Certainly (b) is no more obviously an implicand of (A1) than (A2) is, and is as much in need of defence. For it seems possible, at least, that someone could know the premises of a syllogism without knowing the conclusion. For one thing he might never have thought about the conclusion. Perhaps if such a person were to think about the conclusion, and believe it, then we would say that he knew it. But if he does not believe the conclusion then it does not seem that he knows it. (b) is a substantive (and apparently false) thesis.

If we agree that (b) follows from (a), these considerations are grounds for taking (a) to be false as well. But (a) is implausible on its own accord, whether or not we accept the shaky arguments for (b) on the basis of (a). (a)
is extremely implausible because it would make any interesting generalization unknowable. In most case we simply cannot survey all of the things that are A's, and verify that they are B's. However, we do have, or claim to have, knowledge of some universal propositions. And surely if we know any universal claims at all, we know that all men are mortal; and even in this simple case we cannot survey all past and future men. So (a) is, on the face of things, false.

What many philosophers have found plausible, although I do not want to endorse it, is a thesis about evidence:

\[(E) \text{ That alpha, which is an A, is a B is (at least some) evidence or reason for believing that all A's are B's.}\]

But (a) does not follow from (E) any more than (A2) or (b) follows from (A1).

In contrast to (a), (b), and (A2), there is another, and in a sense weaker, kind of thesis that Mill could be getting at in (1) and (2). For when Mill says that "if it still be doubtful whether Socrates, or any individual you chose to name, is mortal or not, the same degree of uncertainty must hang over the assertion, All men are mortal", he may be thinking of this perfectly acceptable thesis (again removing the complication of considering degrees of belief):

\[(B1) \text{ that alpha is an A but not a B is reason for doubting that all A's are B's;}\]

or, as I prefer to put it,

\[(B1) \text{ that alpha is an A but not a B is reason for believing (it is evidence) that not all A's are B's.}\]
That an individual A is not a B is reason for believing that not all A's are B's because it is impossible both that there is something which is an A but not a B and that all A's are B's. To put this another way, that alpha is an A but not a B is reason for believing that not all A's are B's, because it follows from the theory of the import of propositions that the proposition that alpha is an A but not a B strictly implies that it is not the case that all A's are B's. A variant of (B1) might be

(B2) That the conclusion of a syllogism is false is reason for believing (it is evidence) that the conjunction of its premises is false;

and of course (B2) can be defended exactly as (B1) has been defended.

What is the nature and significance of these new 'principles of evidence' or 'principles of reasoning'? In the first place, in defending (B1) and (B2) I am not defending any psychological claims. For example, I am not denying the possibility that someone could believe that Socrates is a man who is not mortal, but also believe that all men are mortal. Nor am I denying the possibility that someone could doubt the conclusion of a syllogism, but also strongly believe both of its premises. What I take these principles to be asserting is the existence of some objective fact about the evidential relations between propositions. That is, we take it that the fact that certain propositions are true (that such and such facts obtain) is reason for believing, or is evidence, that some other proposition is true.
(that some other fact obtains). In the case of (B1) and (B2) this is justified by the strict implication relations between the propositions in question. We can get at the objective nature of these principles in another way. For example, what (B1) expresses might be put like this: if someone were to have good reason for believing that alpha is an A but is not a B then he would have reason to believe that not all A's are B's --- whether or not he does in fact have such good reason. And what (B2) expresses might be put in a similar way: if someone were to have reason for doubting the conclusion of a syllogism then he would have reason for doubting the conjunction of its premises --- again whether or not he actually has some reason for doubting the conclusion.

While observation (2) is plausible if interpreted as (B1) or (B2), and while I think that (B1) captures what is correct about the second observation, I want to argue that (B1) does not support any of the strong theses (a), (b), or (A2). Indeed I want to argue that these B-principles are radically different from the strong theses about knowledge or justification. But it will be easier to make this case if we first proceed to a discussion of the third observation. This observation is that (c) the universal proposition that all A's are B's "cannot itself be taken for true without exception" (that is, it cannot be known, verified, or believed with justification) "until every shadow of doubt
which could affect any case comprised with it, is dispelled by evidence aliunde”. And on the basis of this Mill further claims that (d) the universal proposition cannot (properly) be given as evidence for the particular proposition (the conclusion of the syllogism). This terminology (in (d)) of being ‘given as evidence’ is slippery, but I take it that Mill intends (d) to have roughly the force of (A2). The notion that one proposition is or is not properly given as evidence for another, and, we might add, the notion that a proposition is properly accepted as evidence for another, should be contrasted with the notion that one proposition is evidence for (or reason for believing) another. To say that

\[(d) \text{ the premises of a syllogism cannot (ever) be properly given or accepted as evidence for the conclusion of that syllogism}\]

is roughly equivalent to saying that

\[(e) \text{ the premises of a syllogism cannot (ever) be a justification or proof of the conclusion of the syllogism.}\]

Certainly one could argue that it is because (according to (A2)) the premises of a syllogism beg the question if given as a proof of the conclusion that the premises cannot be properly given or accepted as evidence for the conclusion. (A2) explains the truth of (d) (and of (e)).

(c) has a weaker and a stronger interpretation. When Mill talks about ‘cases comprised with’ the proposition that all men are mortal, the intuitive picture is easy enough to grasp. The cases comprised with the proposition that all men are mortal compose the class of propositions that alpha
is mortal, where alpha is a man. These are propositions that are evidence for the universal proposition that all men are mortal, in accordance with (E), and whose falsity would guarantee the falsity of that universal proposition. Thus a first weak interpretation of (c) is simply that

If there is reason to doubt that alpha, which is an A, is a B, then there is reason not to accept or believe the proposition that all A’s are B’s.

This is not exactly (B1), although it is one of the ways I characterized the force of (B1). And it may be defended by (B1), or by the arguments that justify (B1).

Here is the second, stronger interpretation of (c). Perhaps Mill is saying that in order for all A’s are B’s to be accepted by someone, he must remove the possibility of doubt from any case comprised with it. That is, he must remove any possibility of doubting any proposition which, if doubted, would cast doubt on the universal proposition. Comparing this suggestion with (B1) and (B2) informs us that this is an extremely strong claim. On this interpretation we would have to remove the possibility of doubt from, that is, verify, at least every piece of possible evidence for the universal, which evidence (according to (E)) includes every proposition that predicates being a B of every individual that is an A. In other words this is to say that

In order for someone to accept the proposition that all A’s are B’s he has to verify of every individual that is an A that it is a B.

Here we have (a) all over again.
Just as Mill believes that (A2) follows from (a), he will be persuaded that (d) follows from this strong interpretation of (c). The arguments, and the difficulties with them, will mirror those discussed previously, and have no more plausibility than the previous arguments. Moreover, since we have already suggested that (a) and (b) (and so (A2)) are implausible principles, even if we did agree that (d) follows from this strong interpretation of (c) (which amounts to (a)) this would be no recommendation for it at all.

This still leaves the weak interpretation of (c), as well as (B1) and its variants. How are we to evaluate these principles? I said that I would argue that (B1) and its variants do not support any of the the strong theses (a), (b), and (A2) (and now (d) as well). The easiest way to see this is to reflect on the argument for the truth of (B1) and (B2). (B1) and (B2) do not literally follow from the theory of import (the facts that support (A1)), but they are justified by it. For example, (B2) says that the fact that the conclusion of a syllogism is false is reason for believing that the conjunction of its premises is false. This is correct because it is impossible that the conclusion is false and the premises true. And that this last is true follows from an analysis of the propositions that compose the syllogism by using the theory of the import of propositions.

Now, observe that we can justify hosts of principles by
analogous arguments. For example,

(B3) The premises of a syllogism are reasons for believing (evidence for) its conclusion.

(B3) is justified because it follows from the analysis of the propositions of the syllogism through the theory of import, that it is impossible for the premises to be true but the conclusion false.

What I want to emphasize is that (B3) is quite distinct from (d), and in no way conflicts with it. In particular, it is not the denial of (d). (I suppose that it is the denial of another interpretation of the form of words that I interpreted as (d), and which might be confused with (d).)

To get clear about this, let us compare (B3) more closely with (d) itself. (d) says that

the premises of a syllogism cannot (ever) properly be given as, or accepted as, evidence for its conclusion.

(B3) says that

the premises of a syllogism are evidence for (reason for believing) its conclusion.

The first important difference is that (B3) (and of course its denial) are completely impersonal and context-free. All of the B-principles make claims about the evidential relations between propositions that stem from the (strict) implication relations that hold between them. They make claims which, if true, are true whether or not people ever understand that those evidential relations hold.

But (d), as it turns out, is not impersonal and context
free, although this formulation of the principle misleadingly obscures that fact. (d) really is about people, about what people accept as the proper or correct evidence, and about what people give as a justification or proof. (d) is logically compatible with (B3), for while I claim that (B3) is true and (d) is false, it seems to be possible that (d) be true. For it seems to be possible that we could never be in a position to know, or to believe with justification, the premises of a syllogism without thereby knowing its conclusion. Looking at this a little more abstractly, we can imagine a B-principle that says: propositions of type I are reasons for believing (evidence for) propositions of type II; and this is justified because propositions of type I strictly imply propositions of type II. The analogue of (d) would be: propositions of type I are never properly given or accepted as evidence for propositions of type II. These two claims are logically compatible because, for example, it may be that no one could have good reasons for believing propositions of type I; after all, surely there are some propositions that we can never know, verify, or believe with justification (for one thing, there are propositions that we cannot believe). But it still could be true that if we were to have reason for believing a proposition of type I, then we would have reason for believing a (corresponding) proposition of type II (as the B-principle implies). Or as Mill tries to argue in the case of the syllogism, it may be that we can never accept propositions of type I as evidence for
propositions of type II because, while we can know or believe with justification propositions of type I, any justification that we might have for believing or accepting propositions of type I 'presupposes', or otherwise involves, a prior justification of the corresponding proposition of type II. In all of this I do not mean to be arguing that there never is good reason to believe principles analogous to (d); it is only that if there is, then such principles are independent of the B-principles.

Of course Mill would not accept the prima facie refutation of (a) and (b) (and so (A2) and (d)) that I have given. My purported refutations are based on what I take to be counter examples to the principles. In the first place, there seem to be cases in which we know or have justified belief in universal propositions, but do not, and could not, survey all possible evidence (contrary to principle (a)). In the second place, there seem to be cases in which the premises of a syllogism are known but the conclusion is not known (contrary to principle (b)). Moreover in the paragraph following his argument in support of the petitio principii claim, he illustrates what is apparently a perfectly good case of justification (if not proof) which is given by an instance of a syllogism. Mill writes:

We believe that the Duke of Wellington is mortal. We do not know this by direct observation, since he is not yet dead. If we were asked how, this being the case, we know the duke to be mortal, we should probably answer, Because all men are so. Here, therefore, we arrive at the knowledge of a
truth not (as yet) susceptible of observation, by a reasoning which admits of being exhibited in the following syllogism ---

All men are mortal,
The Duke of Wellington is a man, therefore
The Duke of Wellington is mortal. (II,III,2)

I take this syllogism, in the context that Mill has set up, to be a counter-example to both (A2) and (d). In this context the premises of the syllogism provide an acceptable justification of the proposition that the Duke of Wellington is mortal, contrary to (A2). They are properly acceptable as evidence for the conclusion, contrary to (d). Of course Mill must treat this case differently, and I will look at his reaction in the next section. But for me there is no puzzle: both (A2) and (d) are false.

Still, I think that Mill has shown more than that there are countless B-principles, although my insistence on the falsity of principles (a), (b), (A2) and (d) may obscure this. For I think that there is something behind Mill’s defence of (A2) and (d) (though not behind his defence of (a) and (b)). As we have seen, there is reason to think that

(A2*) Some cases of syllogistic proof are cases of begging the question.

and

(d*) In some cases the premises of a syllogism cannot be accepted as evidence for its conclusion.

If in fact, as Mill suggests is the case for him, the proposition that the man Socrates is mortal is part of his evi-
dence (the evidence he accepts) that justifies his belief that all men are mortal, then he is not entitled to justify his belief that Socrates is mortal by the syllogism: all men are mortal, and Socrates is a man. In this case the premises are not part of his evidence for the conclusion ((d*) is proven), on pain of begging the question (and (A2*) is proven). So as a partial answer to (Q2), whether there is ever any genuine syllogistic proof, I would support (A2*). But I would quickly add that there are, surely, at least some cases of syllogistic proof. That is, there are cases of proof or justification in which the premises of a valid syllogism are accepted as a justification or proof of the conclusion of the syllogism.

Notice again that this is quite compatible (as it must be) with (B1) and its variants. In this example I was careful to emphasize the personal, or more generally contextual nature of acceptance, or justification, or proof. A general diagnosis of the plausibility of the strong theses, all of which are false, is that the contextual nature of what they really assert is hidden by their formulations. They are principles about acceptability, or justification, or knowledge; and they are easily confused with B-principles which, as generalizations about evidential relations between propositions, really are context-free.

However I do not think that in showing that Mill has justified only (A2*) and (d*), I have shown Mill to have
failed completely. For (A2*) and (d*) are strong enough to support the central point that Mill wants to make, which is to justify a negative answer to the basic question (P):

(A) The theory of the syllogism (and deductive logic in general) is not, and does not, provide rules of justification or proof.

There are lots of cases like the ones that support (A2*) and (d*), which undermine any suggestion that the syllogism is or provides a rule of proof or justification. Some instances of a syllogism are instances of a proof of the conclusion based on the premises, and some are not. The syllogism itself is not, or does not provide, any rule of proof or rule of justification. The point of the examples which prove (A2*) is that whether or not a case of a syllogism is a case of proof depends on all sorts of contextual matters. These have not been elaborated, but from the examples one obvious point arises: whether or not the premises of a syllogism provide a justification or proof of the conclusion (for a person, or from some point of view), depends on the origin of the the knowledge of, or justification for, the premises.

Mill takes the goal of logic to be the discovery of general principles of justification, or acceptance, or inference. Whether or not we accept this as the goal of logic seems to be a verbal question. For Mill has argued that deductive logic does not provide any such rules of acceptance or justification, and that is surely the important point. Another way of putting this lesson is that there is
an often overlooked ambiguity in the terms 'correct inference' and 'principle of inference'. For philosophers often talk of syllogisms and other deductively valid argument forms such as modus ponens as correct inferences, and call formulations of those argument forms principles of inference. Doing this is perfectly fine if it is also realized that principles of inference in this sense are not 'real' principles of inference --- principles of justification.

But when Mill argued that every case of proof or justification by syllogism is a petitio principii, he was arguing for the stronger claim that no proof by syllogism (or by extension, no proof whose premises deductively imply the conclusion) can ever be acceptable and justify our beliefs --- and this seems to me to be clearly wrong. It is wrong because we sometimes do, without circularity, justify a belief q by appealing to (justified) beliefs that deductively imply q. So I summarize matters this way: while deductive logic does not provide any general principles of acceptance or justification, we can sometimes appeal to facts about the deductive relations between propositions as part of our justification of our beliefs. The possibility of such appeals to deductive relations as evidence for (reasons for believing) propositions is encoded by the B-principles; and these are derived by simple transformations from statements about the implication relations between propositions. But as I pointed out at some length, these B-
principles do not tell us under what circumstances we are entitled to appeal to deductive relations as part of a justification. I should add that it is an interesting and important question whether there are any general (and impersonal and context-free) principles of justification or acceptance --- but this is a question that I cannot pursue in this thesis.

There are lots of loose ends. More needs to be said about the status of the B-principles and about the role of deductive logic in inference and justification, and more needs to be said about the nature of principles of acceptance or justification. But I take it that what I have shown is sufficient to establish a negative answer to Mill's problem (P). I will return to these loose ends in my last section on Mill, and in the discussion which is generated from that work.

Endnotes

1. With the caveat, of course, that the truth of the universal proposition that all A's are B's presupposes the existence of A's --- and so is not translatable as "\( \forall x (A x \rightarrow B x) \)". Mill clearly does suppose this. For example, he explicitly states at another point "that of two subalternate propositions, the truth of the universal proves the truth of the particular ...". (II,1,2)

2. Mill as often talks about justification and justified belief as about proof and knowledge, and he frequently just interchanges these notions. So I will assume that Mill is as willing to defend a version of (A2) in which 'proof' is replaced by 'justification': any purported
justification of the conclusion of a syllogism from the premises is a case of begging the question.

3. Mill's examples, and mine as well, are generally cases of a syllogism with a major premise that is universal and affirmative, and a minor premise and conclusion that are singular. There is no loss of generality in this limited choice of examples. Remember that as Mill points out (section 4) all valid syllogistic forms are reducible to four first figure forms (counting singular minor premises as universals). In any case where I argue from an example, it is easy to see that analogous arguments can be formulated for syllogisms in the other valid first figure forms.

4. Unless it is possible to believe the conclusion but not, somehow, see the connection between it and one's beliefs in the premises. If this is possible, then even in these circumstances belief in the conclusion is not sufficient for knowledge of it.

5. Perhaps it is Mill's willingness to accept something like (a) that explains why one commentary on the passages under consideration (W. Kneale and M. Kneale, The Development of Logic, Oxford, 1962, pp. 375-6.) suggests that Mill "reverts to the mistaken view that a universal statement is never more than a summary of the cases which it covers." This is a pretty desperate suggestion, given that Mill has, within the page, reaffirmed his own doctrine of the import of propositions, and given that one of the motivations for Mill's theory of import was his opposition to this very suggestion about the significance or import of universal propositions (section 4). It is true that Mill makes an extravagant claim in (a), but it is surely more plausible that he is making a mistake about evidence and knowledge, rather than that he is (for a moment?) giving up his whole semantic theory, the theory of the import of propositions.

6. It will suffice to look at only those propositions expressed by sentences that consist of alpha, followed by "is mortal", where alpha is replaced by a Milllean proper name.

7. It may not be that any time one has a principle analogous to (B1) of the form p is reason for believing (doubting) that q, there is a principle analogous to this weak interpretation of (c) of the form reasons for believing p are reasons for believing (doubting) q. But in any case that p strictly implies q it is hard to see how there could be any objection to this reformulation. The problem seems to arise for cases where p does
not strictly imply q, and yet p (or p's being true) is reason for believing q. For example, someone who thought that (E) was acceptable could not agree that every reason for believing that some individual A is a B is a reason for believing that all A's are B's. On the other hand, (E) simply is not true --- and maybe the fact that this reformulation can not be accepted is just a consequence of the falsity of (E).

8. The arguments were along these lines. If one really did have to verify of each man that he is mortal in order to accept the proposition that all men are mortal, then he would have verified of Socrates that he is a man and is mortal. One possibility is that Mill simply stopped at this point, and assumed that one would thereby have verified that Socrates is mortal. Another possibility, if we not make this assumption, is that the argument can be continued by appealing to the verification of the minor premise, that Socrates is a man. The claim might be that since I have a way of verifying that Socrates is a man, then however it is that I verify of Socrates that he is both a man and mortal would have been a verification that Socrates is mortal.

Thus the conclusion (for the person who finds these arguments acceptable) would be that the premises of a syllogism cannot be part of one's evidence for verifying the conclusion on pain of begging the question.

9. We can imagine that there are B-principles that will never be understood and never be recognized as holding, because they obtain between propositions that are too complicated for us to comprehend.

10. In other words, B-principles are very weak --- perhaps not to the point of triviality, but as trivial, or nontrivial, as implication relations are. Principles analogous to (d) are not trivial.

11. Now, refutations of (a) and (b) are not refutations of (d) and (A2), although (a) and (b) are the only support for the latter principles that Mill can be understood to be giving. But from my point of view, (A2) and (d) are as susceptible of direct counter examples as (a) and (b) are --- there appear to be cases of syllogisms which are cases of acceptable and non-question-begging proof or justification. Indeed Mill sets out such a case as a kind of puzzle, which I go on to discuss in the next paragraphs.

12. I had originally put this point incorrectly (as Profes-
sor McCann pointed out to me). For I had originally said that Mill’s stronger point is that we can never use syllogisms, or deductive relations in general, as part of our practice of justifying our beliefs. But of course Mill is aware that we use syllogisms as part of our practice of justifying our beliefs — it is just that he questions the analysis of that practice which would have it that the role of the syllogism is to prove the conclusion. In fact one of the tasks that Mill sets himself is to actually explain what the role of the syllogism actually is — since he cannot deny that it plays some role (eg. see the quotation from II,III,2 that occurs on p. 146). I am not going to look at all that Mill says on this matter, but some of the main points do surface in the next section.

13. For example, I doubt that I have said enough about justification to convince the sceptical that it really is a contextual matter, and I cannot do that claim full justice here. But at least I want to prevent one kind of response. I can foresee that someone may think that I have simply made terrible blunder and overlooked an obvious point; for, it may be claimed, the problem is simply that the antecedent beliefs in our examples have to be justified — whatever it takes for that. But given that they are justified, it is then really a trivial matter to derive principles of justification that are universal and context-free. For example, we would have the principle that

if one is justified in believing the premises of a syllogism, then one is justified in one’s belief in the conclusion.

And ever so many similar principles immediately come to mind. Notice that this principle escapes Mill’s successful objection, that one’s beliefs in the premises of a syllogism do not always justify one’s belief in the conclusion. For it does not follow from this principle that what it is that justifies the belief in the conclusion is the beliefs in the premises — it just asserts that the belief in the conclusion is justified when beliefs in the premises are, whether or not it is the beliefs in the premises that provide the justification for the belief in the conclusion.

My response to this new kind of principle is that they have exactly the force of B-principles, and, if you like, are really just B-principles in disguise. Consider the analogous B-principle:

the premises of a syllogism are (conclusive) evidence for its conclusion.

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Both of these principles would be defended and explained in exactly the same way --- by appealing to the impossibility of the premises being true and the conclusion being false. And I have already agreed (pp. 164 & 168-9) that it follows from this B-principle that if one were to have (conclusive) evidence for the premises of a syllogism (and such evidence would surely justify one's beliefs in those premises) then one would have (conclusive) evidence for its conclusion (and so one's belief in the conclusion would be justified). Pointing this out does not close the book on these issues, but at least it makes it plausible that this new kind of 'principle of justification' actually follows from the appropriate B-principle.

In the concluding section of Part II I look briefly at another 'principle of justification'.

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7: The Real Process of Inference

As I mentioned earlier, Mill reacts rather differently than I do to the Duke of Wellington case. We both agree that it is a 'real process of inference', that it is a case where belief in (or knowledge of) the conclusion of the syllogism has been correctly justified. I take this to mean that in the circumstances that Mill describes, we have a genuine example of a syllogism whose premises, which are believed with justification (or perhaps known), justify belief in the conclusion, which was not previously believed with justification (or known). It is because I interpret the example in this way that I take it to be a disproof of (A2), that every case of syllogistic proof or justification is a case of begging the question.

However, Mill thinks that he has defended (A2). So he thinks that the Duke of Wellington case is not a counter example to (A2). But how can Mill avoid inconsistency, when he admits that the Duke of Wellington case is a 'real process of inference', an example of the correct justification of the belief that the Duke is mortal? The answer is simple if unexpected. The case in question is an inference, so it must have some premises; but Mill denies that it is an inference or justification based on the premises of the syllogism. He suggests that it is really an inference based on what he has accepted as the evidence for the major premise (that all men are mortal) plus the minor premise --- that evidence being composed of 'particular facts' such as
that Tom is a man who is mortal, Dick is a man who is mortal, Harry is too, and so on, in accordance with (E).

It is not at all clear what the force of Mill's suggestion is. At one point Mill summarizes his discussion by asserting that he has established that

\[(C) \text{ All inference is from particulars to particulars (eg. II,III,4, p. 129)}\]

But this is hard to decipher. A first, and perhaps most obvious, interpretation might be that

\[(C1) \text{ Every inference, that is, every proof or justification of a belief, is an inference from a set of singular propositions to some singular proposition. [2]}\]

But it does not seem that Mill could accept (C1). For he allows that there are inferences with general conclusions: "Generalization", by which Mill means something like the making of a generalization, "is not a process of mere naming, it is also a process of inference." (II,III,3 p. 124) For example, the observation of a number of particular facts (in accordance with (E), and under the right circumstances) may make us "feel warrant... in concluding, that what we found true in those instances, holds in all similar ones, past, present, and future...". (II,III,3 p. 124) So some warranted conclusions, some justified general beliefs, are inferences from propositions about particulars. Thus not all inductive arguments have singular conclusions, and Mill accepts (contrary to (C1)) that some instances of such arguments are good arguments.
What Mill would accept is the proposition that

(C2) Every inference, that is, every proof or justification of a belief, is non-syllogistic (or stronger, is non-deductive).

(C2), at least in the weaker version, follows directly from (A2), that no instance of a syllogism is a non-question-begging proof or justification of its conclusion. But this is not a plausible interpretation of (C) for at least two reasons. In the first place, it emerged from the previous paragraph that Mill does not equate either non-syllogistic or non-deductive argument with arguments whose premises and conclusions are all singular propositions. So it would be odd to use (C) if (C2) were really intended. In the second place I do not find any additional arguments for (C2) other than the original arguments for (A2) (in sections I and II of Chapter III) that have already been discussed in section 6. So it seems that Mill is trying to make some additional point that goes beyond (A2) and (C2). I should add that even if (C2) were the focus of Mill’s interest, then (if I am right that (A2) is the only defence for (C2)) this latter proposition would be of no special interest to us.

It is clear from what I have already said that Mill would want to defend the view that there are at least some correct or justified inferences with only singular premises and a singular conclusion. As Mill sometimes puts this,

We may reason from particulars to particulars, without passing through generals. (II,III,3 p. 125)

And this claim can, I think, be fairly rendered as a weak-
ened version of (C1):

(C3) Some inferences (that is, some warranted conclusions or justifications of beliefs) are from singular propositions to singular propositions.

Mill seems to argue quite explicitly for this point:

If, from our experience of John, Thomas, &c, who once were living, but are now dead, we were entitled to conclude that all human beings are mortal, we might surely, without any logical inconvenience, have concluded at once from these instances, that the Duke of Wellington is mortal. (II,III,3 p. 125)

This is so because

The mortality of John, Thomas, and company is, after all, the whole evidence we have for the mortality of the Duke of Wellington. Not one iota is added to the proof by interpolating a general proposition. (II,III,3 p. 125)

I think that there is actually no general argument here in support of (C3). We could take Mill to be making an appeal to the plausible principle that if, in certain circumstances (as yet unspecified), one’s belief in a set of propositions of the form alpha is an A and alpha is a B, are jointly a justification for believing that all A’s are B’s, then in those circumstances one’s belief in that set of propositions conjoined with one’s belief in the proposition that a is an A justifies one’s believing that a is a B. Indeed the converse is just as plausible, and so we get the biconditional

(f) In some circumstances C, believing the truth of the members of a set G of propositions of the form alpha is an A and alpha is a B justifies one’s belief in the proposition that all A’s are B’s if and only if believing
the members of the set $G$ in addition to believing that $a$ is an $A$ justifies one's belief that $a$ is a $B$.

But this still leaves us short of the desired conclusion (C3), that there are any correct or justified inferences with only singular premises and singular conclusions. Of course if Mill has a proof that there are justified inferences with only singular premises and a general conclusion, then by this plausible principle of justification we would have a proof of (C3). But how does he get a proof that there are correct cases of inference or justification with particular premises and general conclusions short of giving examples (as we did in the correct defense of (A2*) and (A))? And then he may as well give examples that bear directly on (C3) --- examples of correct inferences with only singular premises and singular conclusions. And I suppose that such examples can be given, although it may be difficult (if not impossible) to characterize such inferences in general terms. (Some indication of this difficulty was given in section 6, with the discussion of the contextual nature of correct or justified inference, and some further issues are raised incidentally in the remainder of this section.)

I think that it is possible to fall into a confusion here that is similar to the confusion between B-principles and principles of justification (section 6), and perhaps the temptation to look for a general argument in defense of (C3) is an indication of the confusion. Remember that it does
not follow from the fact that one proposition or set of propositions is reason for believing another proposition that anyone is ever justified in believing or inferring the latter proposition on the basis of the former propositions. And some philosophers would endorse principles about non-deductive evidential relations quite analogous to the B-principles, which are about evidential relations based on deductive relations. For example, reformulating (E) from section 6 explicitly as a principle about relations between propositions we have:

(E1) A set \( G \) of propositions of the form \( \alpha \) is an \( A \) and \( \alpha \) is a \( B \) is reason for believing (evidence) that all \( A \)'s are \( B \)'s.

Indeed anyone who accepts (E1) will find it to be just as plausible that

(E2) A set \( G \) of propositions of the form \( \alpha \) is an \( A \) and \( \alpha \) is a \( B \), conjoined with the proposition that \( \alpha \) is an \( A \), is reason for believing (evidence) that \( \alpha \) is a \( B \).

And the relation between (E1) and (E2) seems to be expressed by

(E3) A set \( G \) of propositions of the form \( \alpha \) is an \( A \) and \( \alpha \) is a \( B \) is reason for believing (evidence) that all \( A \)'s are \( B \)'s if and only if the set \( G \), conjoined with the proposition that \( \alpha \) is an \( A \), is reason for believing (evidence) that \( \alpha \) is a \( B \).

Those philosophers who find (E) plausible will, presumably, accept (E1) and (E2). In fact (E) is false, and so (E1) and (E2) must be false as well --- but let's put that aside for now. The point is that even the philosopher who accepts
(E1), (E2), and (E3) must distinguish these E-principles from claims about justification. For (E3) is different from (f), and (E1) and (E2) must be distinguished respectively from such claims as that

in some circumstances C, believing the truth of some propositions of the form alpha is an A and alpha is a B justifies a belief in the proposition that all A's are B's;

and that

in some circumstances C, believing the truth of some propositions of the form alpha is an A and alpha is a B, plus believing the proposition that α is an A, justifies a belief in the proposition that α is a B.

If the 'circumstances C' could ever be specified then instances of this latter schema would imply (C3). But the assumption that (E2) is true does not guarantee that any such instance is true --- that there are any circumstances in which belief in the appropriate premises guarantees that one's belief that α is a B is justified. (And perhaps more to the point, (E2) is in fact false while it is likely that some instances of this schema are true.) In sum, it does not follow from these E-principles that there are any cases of justified inference that would support (C3), for the E-principles, like the B-principles, are not principles of proof or justification.

Now, in this section I am primarily interested in exploring what Mill might have had in mind by thesis C, that all inference is (really) from particulars to particulars. Certainly Mill accepts C2, though I have argued that it is
indefensible, and C3 is really too weak to be a plausible interpretation. But before I go on to look at what I take to be the most important and interesting (though usually overlooked) interpretation of C, I want to point out an historically important thesis that can also be connected with the Duke of Wellington example. This thesis, which might be called the Empiricist Thesis about Evidence, is, roughly, that all evidence is ultimately evidence of particulars or particular facts. Mill's treatment of the Duke of Wellington case can be seen as a rudimentary but fairly plausible defence of this thesis. For the argument can be turned in this way: my belief that all men are mortal justifies my belief that the Duke is mortal only if the former belief is first known or justified. But from whence do we derive our knowledge of that general truth? No supernatural aid being supposed, the answer must be, by observation. Now, all which man can observe are individual cases. From these all general truths must be drawn .... (11,111,3)

So all the evidence that we have for our beliefs is ultimately knowledge of particular things or facts.

This is not really an argument about evidence, in the way I have been using the term, that is it is not about evidential relations between propositions. It is rather an argument about what evidence we have for our beliefs, or as I have put this kind of point, it is about the justification we have for them. For in my terminology, the argument is really trying to show that all justification ultimately rests on observation, and thus (given the empiricist thesis
about observation) on the observation or knowledge of particular things or facts. So perhaps we should call this thesis the Empiricist Thesis about Justification.

Many philosophers have thought that the Empiricist Thesis about Justification is very plausible. However, it depends on a number of claims that are at least controversial. The most obvious of these claims are, first, that all observation is only of particulars or particular facts, and second, that all justification of beliefs must resolve (only) to observations. But in this context, what I am most concerned to make clear is that this thesis is not a possible interpretation of Mill’s claim C, whether or not it is one of the points he implicitly wants to argue in the Duke of Wellington discussion, and no matter how important it is for Mill’s work or his legacy. For one thing it is quite compatible, as it must be, with Mill’s rejection of C1, and his recognition that some inferences are to general conclusions. And for another, it is compatible with my rejection of C2 and A2. That is, one could agree with my claim that there are some circumstances in which my beliefs that all men are mortal and that the Duke is a man really do justify my belief that the Duke is mortal, and still accept that, when you resolve the chains of justification for my beliefs, those chains are always anchored by, or based upon observations of, particulars. Thus while this thesis about justification is pretty clearly in the offing here, I claim
that it is not Mill's concern when he is trying to defend C.

Now, Mill does make it clear that he want to claim more than just (C3). For after giving his argument in support of (C3) Mill writes:

Not only may we reason from particulars to particulars, without passing through generals, but we perpetually do so reason. From the first dawn of intelligence we draw inferences, but years elapse before we learn the use of general language. The child, who, having burnt his fingers, avoids to thrust them again into the fire, has reasoned or inferred, though he has never thought of the general maxim, Fire burns. He knows from memory that he has been burnt, and on this evidence believes, when he sees a candle, that if he puts his fingers into the flame of it, he will be burnt again. He believes this in every case which happens to arise; but without looking in each instance, beyond the present case. He is not generalizing; he is inferring a particular from particulars. In the same way, also, brutes reason. (II,III,3 p. 125)

This shift from "we may reason from particulars to particulars", which I take to have the import of (C3), to "we do reason from particulars to particulars", needs some amplification. It could be that Mill is now just trying to give examples of correct reasoning from particulars to particulars, the examples that would prove (C3). But I think that something else is going on. Mill is now trying to characterize the psychological process of thinking or reasoning, what he sometimes seems to refer to as the real process of inference, not all cases of which need be cases of correct thinking or reasoning. As part of this characterization Mill proffers the thesis that we seldom, if ever, actually employ universal propositions in reasoning. As he puts
this, "We are constantly reasoning from ourselves to other people, or from one person to another," or, we might add, from particular experiences or particular cases, "without giving ourselves the trouble to erect our observations into general maxims of human or external nature." (II,III,3 p. 126) So Mill wants to claim that (in the usual case at least) the content of our reasoning is not general, and that a correct description of the premises and conclusion of our reasoning does not posit any general propositions. Indeed Mill goes on for several more pages giving further examples of what he takes to be reasoning 'from experience', or from particular cases, to conclusions about particular cases.

It is after these examples that Mill concludes with what I have called (C), that "All inference is from particulars to particulars", (II,III,4 p. 129) and this provides some support for the suggestion that (C) is really an attempt to describe a psychological phenomenon. But the difficulties with (C) are not yet solved, for Mill does allow that in some cases, some people (particularly philosophers, and educated people generally) do employ universals in reasoning. So if (C) is a 'psychological claim', a claim about the content of our actual reasoning, it seems that Mill has no grounds for accepting it.

In fact the only reasonable interpretation of (C) that I can find is F.H. Bradley's interpretation. He takes (C), and related claims, to fall out directly from Mill's psychological theory. On the associationist theory, all psycholo-
gical generalizations turn out to be generalizations about the association, that is the sequential occurrence, of ideas. Moreover ideas are said to be particulars. This slightly peculiar claim has at least two different interpretations, both of which are intended (and perhaps confused) on the standard theory. In the first place it is a metaphysical claim: ideas are particular things as opposed to universals. In the second place, it is a claim about the content of ideas: ideas represent particular things (if considered by analogy with names or descriptions), and ideas represent facts or propositions about particular things (if thought of as truth-bearers). Generality is not represented at this fundamental level, and on a standard account it might enter as a disposition to use certain kinds of language.

Of course this thumbnail sketch of associationist psychology does not do justice to the potential complexity and richness of the theory, but it is enough to show the general form of explanations given by the theory. As Bradley points out, in so far as inference is taken to be a psychological process, it will be treated as a case of the association, the sequential occurrence, of a number of ideas. So the set of psychological generalizations about inference will be a subset of the psychological generalizations about the association of ideas. From this point of view, (C) is a perfectly trivial claim that follows directly from the theo-
ry of ideas. Certainly all inference is from particulars to particulars because all inference is ultimately to be analyzed in terms of the association, that is the sequential occurrence, of particular ideas (in either sense of "particular"). In fact the associationist may want to make what appears to be a stronger claim, (though he may take it to be merely a rephrasing of the claim in different terms): all inference is from particulars to particulars in the sense that all inferences are cases of one idea causing (the occurrence of) another. Let me just register this psychological interpretation of (C) in the following way:

(C4) All cases of inference are cases of the association of particular ideas.

On the one hand this makes (C) into a claim that Mill would likely want to defend. And Mill does say that he is looking for the 'real process of inference', whatever it is that lies behind the use of language. Moreover (C4) is safe from the original objection about interpreting (C) as a psychological claim. The problem was that Mill is quite willing to say that we sometimes have general beliefs (beliefs whose content is general) and that we sometimes reason to such general conclusions. For (C4) is part of a psychological theory which (attempts to) explain away generality in terms of particular ideas. Of course the theory may not succeed in doing this, but the interpretation of (C) as a consequence of the associationist theory shows how Mill could accept (C) in the face of his awareness of the various
phenomena of generality. On the other hand (C4) limps as an interpretation of (C) simply because Mill gives no details of the associationist view in these pages. Still, it is the only interpretation of (C) that has some plausibility from Mill’s point of view, and it is the interpretation given to Mill’s ‘theory of inference’ by his idealist critics.

For this last reason alone (C4) would deserve serious attention. And in fact there are no alternative interpretations in plain view. One of the foremost concerns of Bradley and Green is to undermine the foundations of associationist psychology, and Bradley’s Principles of Logic is a prime example of this. The associationist theory treats the psychological process of inference as just a special case of association. Thus if it can be shown that associationist explanations of psychological phenomena are inadequate in principle, then the associationist account of inference (and so (C4) in particular) would fail. But I will not here look at this general attack on associationist psychology. Bradley’s discussion does raise some important metaphysical and ontological questions, some of which are discussed elsewhere in this thesis. But Bradley does develop at least one interesting line of thought that can be abstracted (at least in the first instance) from the debates about the proper nature of psychology, and which does threaten to undermine not only the psychological claim (C4) but (C3) as well. Although I am fairly sure that Bradley would not approve, I will tentatively characterize the argument in
this way: it is a feature of our conception of what an inference is that rules out the possibility of there being any inferences with only singular premises and a singular conclusion. In the remainder of this section I will discuss this one set of arguments, and the possible ramifications there may be for any attempt to characterize 'the real process of inference'.

Let me preface my examination of this argument by emphasizing that Bradley is not about to deny that there appear to be Millian inferences from particulars to particulars. He would say that there are inferences that are not only based on experience — what he calls 'experience of particulars' — but that also have as a conclusion some other singular proposition. But what he debates is the proper way to characterize this kind of inference. Bradley looks at a case that he agrees is an inference from experience — an inference based on particular pieces of evidence and to a conclusion about a particular fact — but that is also clearly bad or erroneous. "A child has come to know that, when the dog is pleased, he wags his tail. On this he argues that, when the cat wags its tail, it must be pleased." (PL p. 350) Bradley uses this example to argue that in any inference from particulars to particulars, there really must be what I shall call a general connecting principle or rule. He writes:

Reasoning from a particular to a particular is obviously an argument from analogy. ... It was an
inference by analogy that deceived the child. He took from the dog a relation of qualities and transferred it to the cat. What he argued from was this general relation, and it was a false analogy, just because it was a bad generalization. Again, why do we object to false analogies? Is it not because in them we treat some fact as another instance of a rule, when there is no common rule, when there is no common rule and the facts are not instances? And is this not a hint that in true analogy we use a principle though we can not state it? (PL p. 351)

This passage suggests to me at least two different kinds of arguments that can be reconstructed. They both seem to lead to the conclusion that inferences from particulars to particulars require a connecting principle, which apparently is expressible as a general proposition. To turn to the first argument, suppose that someone argues just as the child does, but is unwilling, even under cross-examination, to agree to the truth of a generalization such as that all mammals wag their tails when pleased, that all little animals wag their tails when pleased, that all my pets wag their tails when pleased, or any other generalization that would 'connect' the premises with the conclusion. In such a case we would have a strong tendency to question whether any inference was made at all. To say that the child has made an inference is to say that it is not a mere accident that the child has this new belief — it is a belief based upon, that is, inferred from a number of other beliefs. But if the child refuses to acknowledge any further general belief that connects the premises and conclusion, then it is hard to see why his new belief is not just the result of an
accidental (though opportune) occurrence of ideas, and so no inference at all. I think that this is what is behind Bradley's suggestion that inference from particulars to particulars is really an argument from analogy. The analogy, whatever it is taken to be, is expressible as a generalization. Without any such connecting belief, expressed as a generalization, it would seem to be merely an accident that the child believes that the cat is pleased after seeing it wag its tail.

Turning to the second argument, we want to say that the child has made a false, or bad, or erroneous inference. But in saying this we are saying something more than that his belief that the cat is pleased is false. It is the inference that is erroneous, not merely the belief in the conclusion of the inference, or a belief in a premise, that is false. The suggestion that there must be a connection, a generalization that links the premises and conclusion, seems to give Bradley a way of accounting for the falsity of inferences, as opposed to the falsity of the conclusion of an inference. The inference is bad because the proposition that connects the premises with the conclusion is false.

These arguments are supposed to undermine Mill's characterization of the real process of inference (as essentially from particular propositions or beliefs to particular propositions or beliefs) by demonstrating the necessity for a general principle or proposition that connects the premises with the conclusion. If these arguments are correct
then they would undermine (C3) as well, for if there are no inferences with only singular premises and a singular conclusion then there are no correct ones either. I am not supposing that these arguments would have any force against associationism per se, and indeed the associationist could say that he has provided a principle that connects the premises with the conclusion by making it a case of association. For now let me just mention what seems to me to pose a real problem for this response by the associationist. Presumably there are occurrences of beliefs that are not inferred from previously occurring beliefs; and Bradley’s argument suggests that there must be a connecting principle in any case of of inference or inferred belief, that distinguishes it from any belief that is not the result of inference. The problem stems from the fact that on the associationist theory, any occurrence of an idea that is not a Humean impression (and so is not, to put it crudely, a result of external causes) occurs as a consequence of the mechanisms of association. Since even non-inferential beliefs are the result of association, it is hard to see how the principles of association could be used to distinguish cases of inference from non-inferential beliefs in the requisite way. However, if the associationist can find a way to make this distinction, then he seems to have fallen into agreement with Bradley’s argument. For then he seems to be agreeing that inference involves in some special way a
(presumably general) connecting principle, and this agreement seems to undermine Mill’s general characterization of the process of inference as merely being from particular ideas or propositions to other particular ideas or propositions. Since I am not going to pursue any special problems with associationist theories here, I will not try to follow out this possible argument against associationist psychology. In fact this problem, which here appears to be directed against associationism, will arise again at the end of this section in a slightly different form — and I will discuss it a little more at that point. For now I will just work through the ramifications of Bradley’s arguments that seem to tell against Mill’s characterization of the process of inference.

I think that both of these arguments are challengable, and we shall see that Bradley fails to make his full case, that every inference from particulars to particulars invokes a general principle. But I will try to show that he makes an important part of the case, and illustrates an important feature about inference.

There is a first objection that Bradley anticipates. It is the observation that in many cases we simply are not aware of any general belief that connects the premises with the conclusion. Remember Mill’s claim that brutes and children never employ general propositions, and that only highly educated people employ them with any regularity. Bradley’s reply is that he is not supposing that we do always expli-
citly formulate or believe the general principle that must accompany inferences from particulars to particulars. Mill wants to prove that some (and in the end all) inferences are (as Bradley says) "made direct from particulars, as such, to other particulars". (PL p. 349) But Bradley argues that "to prove the thesis in dispute it is necessary to assume that either we go direct from particulars to particulars, or else advance through an explicit syllogism .... No sort of evidence is offered to show that this alternative exhausts the possibilities ...". (PL pp. 349-50) And Bradley points out that it does not exhaust the possibilities. A third alternative is that there is a general connecting principle in any inference although it may not be explicitly or consciously formulated. In such cases "we use a principle though we can not state it" (PL, p. 351).

Perhaps this works as an immediate reply to the objection in its original form. But I doubt that it speaks to the puzzlement that provoked the question. If the connecting principles are not, or at least do not have to be, conscious beliefs, then what are they, and what can be said about their role in inference? If it turned out that there were no other problems with the position that is emerging, then I think that Bradley has the apparatus to give the beginning of at least one answer. For in one place Bradley makes a distinction between occurrent or conscious beliefs, which he would call judgements, and beliefs as long term
states or dispositions (possibly dispositions to make judg-
ments under appropriate circumstances). With this dis-
tinction in hand one can agree that connecting principles
need not be consciously or explicitly believed or enter-
tained when the inference is made, without thereby denying
that the connecting principles are still beliefs. That is,
one can agree that there need be no act of judging the
connecting principle to be true when an inference is made,
but allow that the person who makes the inference must
believe the connecting principle in the dispositional sense
of 'believe'. In fact this accords nicely with the intui-
tion that the person who makes the inference is committed
to the connecting principle, so that even if he is not able to
assert it at will, and perhaps has problems formulating it,
it can sometimes be drawn out by careful thought, by inter-
rogation, and so on.

This clears the way for several more serious objec-
tions. The first objection is simply this: accepting for
the moment that there must be such 'connecting principles'
in any genuine case of inference, is it at all clear that
they must be general? Bradley's suggestion that inference
from particular cases to other particular cases is an impli-
cit argument by analogy does tend to support the idea that
the connecting principles are general. For example, the
weak claim that there is an analogy, that the cat's beha-
viour is analogous to, or is in some way like, the dog's
behaviour, amounts to a general (though vague) claim about
kinds of behaviour. But consider some additional beliefs to which the child could be implicitly appealing in the cat inference:

if my dog wagged its tail when it was happy then
if my cat now wags its tail then it must be happy too;

or

that my dog wagged its tail when it was happy is reason for believing that since my cat now wags its tail it is happy too.

and so on. Surely these would serve as adequate connecting principles. That is, if we were in doubt as to whether or not the child was making an inference, but found that he defended his conclusion by appealing to one of these non-general propositions, we would have a reasonable assurance that he had indeed made an inference --- that he was supposing there to be some connection between the premises and the conclusion, and that it was not just an accident that he first believed the premises and then believed the conclusion. This point is well taken, and it shows that the suggestion of both arguments that the connecting principles must be generalizations is gratuitous.

I want to brush aside a possible misconception of the argument here. I am not, and as far as I know Bradley was not, supposing that all inferences are really deductive. Perhaps it is tempting to think this, but the point of positing the connecting principles is not, as far as I have argued, to make an apparently non-deductive argument into a
deductive argument by uncovering a suppressed premise. For one thing, it is just not true that every possible general connecting principle, taken as a premise, makes the cat inference into a deductively valid argument. (For example, that the cat's behaviour is analogous to, or in some respects rather like, the dog's behaviour is likely to be understood as a complex generalization, but the conjunction of it and the singular premise do not imply the singular conclusion.) Similarly, only one of the non-general connecting principles that I mentioned would render the argument deductive if it were added as a premise. The suggestion was merely that there does need to be a connecting principle, what seems to be a suppressed premise, as a consequence of there being an inference to the conclusion (a case of reasoning) as opposed to a mere sequence of (as we would say) unconnected ideas or beliefs.

But this heralds a second objection, which is mainly directed at the first of the Bradleyan arguments. Is it really so clear that there must be connecting principles or suppressed premises in every case of inference? What comes to mind is the Lewis Carroll puzzle of Achilles and the Tortoise, or at least an analogue of it. The child reasoned in this way:

PREMISES: (1) The dog wagged its tail when it was pleased;
          (2) The cat is wagging its tail;
and so

CONCLUSION: (3) The cat is pleased.
We then argued that for the child to be making a genuine inference he must be committed to a further connecting principle or suppressed premise. Perhaps it need not be general, contrary to Bradley, and no attempt was made to suggest that it must turn the argument into a deductively valid argument. So let me just represent the connecting premise this way:

\[
\text{SUPPRESSED PREMISE: (4) Premises (1) and (2) are connected with (3).}
\]

But now the question can be raised of the inference, taking the premises to be (1), (2), and (4), and the conclusion to be (3): what is the connecting principle that prevents this new inference from being merely a sequence of beliefs or association of ideas? If we were right in the first case, that for the child to be making a genuine inference there must be some connection between the premises and the conclusion, then the argument seems to apply here again, and so on ad infinitum. So, it seems, the introduction of connecting principles is of little help. If there is a need for one then there is a need for infinitely many.

I think that there are several lines of reply to this attempted regress. In the first place one can just be hard-headed. Yes, there must be a connecting principle if the child is really making an inference, and perhaps we can have good reason for ascribing one and not another connecting principle to the child. Moreover, if in another case some-
one utters (1), (2), and perhaps

(4*) That my dog wagged its tail when it was happy
is reason for thinking that the cat is happy
when it wags its tail.

and then utters (3), we would expect that person to hold
some further belief about the relation between (1), (2), and
(4*), on the one hand, and (3) on the other. And if we
could find no evidence that the person had some such further
belief we would have reason to doubt, as odd as it might
seem, that an inference really had been made. But this is
another case, and another inference. The hard-head empha-
sizes this point. Adding the connecting principle as a
premise is a perfectly legitimate thing to do; if one were
to make an inference with those premises then, by the first
Bradleyan argument, there would be a further connecting
principle. But one need not do this --- one need not add
the connecting principle as a premise. In the case of the
child's inference there is no reason to think that more than
the one additional connecting principle is necessary.

This hard-headed reply has a certain force against the
regress argument, at least as I formulated it. In that
formulation I took the connecting principle to be a sup-
pressed or hidden premise, and took the new set of premises
to require a connection with the conclusion. But what the
hard-head is really acknowledging is that the connecting
principle cannot be taken to be a suppressed premise. If
you do take it in this way, then you end up asking a ques-
tion about a different inference. So the conclusion seems
The claim that any inference must involve a connecting principle cannot be taken to be an argument for the existence of a suppressed premise.

Let me point out that it does not follow that there will never be cases in which it is appropriate to take unuttered or inexplicit beliefs to be suppressed premises. But the hard-head thinks he can get out of the regress problem by denying that connecting principles can always be represented as suppressed premises.

In fact the second of the Bradleyan arguments can be construed as supporting the claim that connecting principles can not be suppressed premises. In that argument the motivation for supposing there to be a connecting principle is that it provides a way for distinguishing a bad or false inference from an inference with a false premise or conclusion. It was suggested that a bad inference is one in which the connecting principle (as opposed to a premise or the conclusion) is false. But if you suppose after all that the connecting principle is a premise, then you are right back where you started from, with no way to distinguish a bad inference from an inference with a false premise and a false conclusion.

I think that there may be something in these replies to the regress argument, but enough has already been given up to dispell any illusion that Mill’s (C3) has been refuted. For not only have we backed down from the suggestion that
the connecting principles are general, we have given up the suggestion that the connecting principles (general or not) must be among the premises of an inference. So it seems that nothing that Bradley has said undercuts the claim that there are correct or justified inferences with only singular premises and a singular conclusion.

Getting quite clear about this may help uncover an underlying confusion about what the point of the Bradleyan arguments really is. What Bradley is concerned with is to characterize acts of inference or cases of reasoning, so that he can distinguish cases of inferring or reasoning from other kinds of mental acts (such as mere associations of ideas). Thus it is crucial to make a distinction between the project of determining what acts of inference really are (that is, what the proper (psychological) description of such acts is), on the one hand, and the project of determining which acts of inference are correct or incorrect, good or bad, on the other. And these two projects must be distinguished from a third project (which we have not been overly concerned with here), that of characterizing what patterns of inference or forms of argument are correct or incorrect, valid or invalid, strong and weak, and so on. Perhaps the distinction between the first two projects is easy enough to see, but I want to underscore the difference between the second and third projects, a difference which should be evident from the discussion in section 6. We might say: in the second case we are studying the worth of
acts of inference, in the third case we are studying the worth of forms or patterns of arguments. In the latter case that worth is couched in terms of deductive validity or inductive strength. Of course we can extend these notions to acts of inference in a trivial way: the premises and conclusion of an act of inference can compose a deductively valid or inductively strong argument. This is exactly what I was showing in section 6, when I argued that some justified inferences or proofs are syllogistic --- their premises and conclusions compose valid syllogisms. But in that section I also used the appropriate term of commendation or worth for acts of inference, and distinguished the question of the worth of acts of inference from the question of the worth of argument forms. Here we are interested in whether inferences are justified or not, and clearly (again given the results of section 6) that question does not reduce to the question of whether or not the premises and conclusion of the inference compose either a deductively valid or inductively strong argument.

Now, my contention is that Bradley is mainly concerned with the first project. I had originally suggested that the two Bradleyan arguments might have consequences for the second of the projects as well --- that is, I suggested that those arguments might undermine (C3). But this has now been shown to be wrong. The argument was quite simple: if Bradley were correct that no acts of inference were from
only singular premises to singular conclusions, then of course no correct inferences would be either. No reason has been given to show that there are no inferences with only singular premises, and so (C3) has not been undermined. Moreover it is only when we confuse the first two projects with the third that we automatically treat the connecting principles as if they were really suppressed premises (which might make the inference valid). For when we are concerned with the third project any proposition has to be categorized as either a premise or a conclusion --- or as irrelevant to the argument. There are no other options. But this may not be the case for the first two projects. However, to point this out immediately return us to an important question that has already been raised: if the connecting principles are neither premises nor conclusions of the inference, then what are they?

Before I finally return to that question, I want to make several comments about the second of the Bradleyan arguments, which is apparently about what constitutes the correctness or incorrectness of inferences. In that argument we are reminded of our practice of distinguishing the question of the worth (correctness or strength) of the inference (or of an inference pattern) from the question of the truth of its conclusion. The question of the correctness of the argument is not a matter of the content, and hence the truth or falsity, of the premises and the conclusion. So, the argument went on to conclude, it must be a
matter of the truth or falsehood of something else, something not in either the premises or conclusion.

This argument could be taken to be about either acts of inference (their worth or justification) or about patterns of inference (their validity or strength), and the language I used to make the argument blurs that distinction. As I have said before, I think that Bradley's main concern is with acts of inference, and so it would be better to construe the argument as directed toward the first question, if that is possible. But it is important to see that if it is taken to be an argument about what constitutes the worth or validity of patterns of inference, then it's conclusion is completely unwarranted. Yes, we can agree that the worth of an argument form has to do with something other than the (truth and falsity of) the premises of the inference --- it is natural to say that the worth of the argument has to do with the relation between the premises and the conclusion. But it is not obvious that this is a question about the truth of some proposition --- even of the truth of a proposition not contained in the premises. Of course for any argument, say the argument with premises p and q and conclusion r, there will be propositions such that the argument is valid if and only if those propositions are (necessarily) true. Some examples of propositions that so correspond to this argument would be that if p and q are true then r is true, that if p is true then, if q is true then r is true,
and so on. The argument would not be valid if those propositions were not necessarily true, and those propositions would not be necessarily true if the argument were not valid. Maybe this gives a sense in which the validity of an argument 'depends' on the truth of some propositions not in the premises of the argument --- but that dependence is then a perfectly trivial matter. We might also put it this way: whatever it is about the relation of the premises to the conclusion that makes the argument valid also is what makes those propositions necessarily true.

It may be that this illusion, that the worth of an argument form has to do with the truth of some "connecting proposition", is a consequence of thinking about acts of inference, and about what is going on in the mind of the person making the inference. Perhaps the worth (the warrant or justification) of a particular act of inference has to do with the truth or falsity of some connecting principle, a further belief that the person making the inference has. At least nothing that has been said so far in this section would imply that this is wrong, and remember that one of the suggestions at the end of section 6 was that the question of the warrant or justification of acts of inference was a contextual matter, and had to do with what other beliefs the person had. So let us see how the Bradleyan arguments about the necessity of connecting principles bear on the question of justifying inferences.

We have provisionally accepted (or at least have not
rejected) one conclusion from Bradley’s arguments, the claim that in any case of inference, say the child’s inferring (3) on the basis of (1) and (2), there must be some further principle that connects the premises with the conclusion. This principle cannot be a suppressed premise, and it need not be general. And we have not yet settled the important question about what this principle really is, although it has been tentatively suggested that it could be another belief. This first conclusion must be distinguished from the point of Bradley’s second argument. When it is applied to acts of inference rather than to inference patterns, that argument seems to characterize the worth or justification of an inference in terms of the truth or falsehood of the connecting principle.

At least one point needs to be clarified before this suggestion can be pursued. If I am asked to justify my inference to some conclusion, say (3), that my cat is pleased, I am being asked to do more than simply justify that belief. An inference or an inferred belief is based upon, or believed because of, some other beliefs --- in this case my beliefs in (1) and (2). So if I am asked to justify my inference to some conclusion I am being asked to justify my way of coming to believe that conclusion. In this case I am being asked to demonstrate the worth of (1) and (2) as the basis for my belief in (3).

With this in mind I think that we can say a little more
about the suggestion that emerges from Bradley's second argument. What I take the suggestion to be is roughly this, that if I make an inference that is justified then there will be some connecting principle or belief that is true, and it is the existence of this belief that justifies my inference. This suggestion is quite plausible. If I were asked to justify my inference of (3) from (1) and (2), and not just my belief in (3), then there may be some circumstances in which by giving (4*) or some comparable alternative, I would have given reasonable or acceptable justification of my inference. Of course after I have given (4*), that (1) and (2) are reasons for believing (3), it might be natural enough for someone to ask whether this claim is justified. But notice that this is now to ask for a justification of the truth of (or for my belief in) the proposition (4*) --- it is not to ask for the justification of any inference. Moreover, if someone were to ask the odd, tortoise-like question: "I agree with (4*), and I agree that it is justified, but how does that help justify your belief in (3)?", then I think that one has the option to reply much as the hard-head did in another context. The objector is, in effect, questioning the worth of a different inference to (3), an inference based on the beliefs (1), (2), and (4*); and why should the proponent of the original inference have any obligation to defend or justify it?

Certainly one important point that has emerged in the previous paragraph is that in these circumstances, the con-
necting principle must not only be true but justified. As I pointed out there may be questions about whether or not the connecting principle is really justified, but the possibility of such questioning does not in itself undermine the suggestion that if (in those circumstances) such a connecting belief were justified, then the inference would be justified. Of course, even if we accept all of this, it is fairly evident that there is more to justifying an inference then appealing to a justified belief that connects the premises and conclusion. For example, it is reasonable to demand that the beliefs that the inference is based on --- its 'premises' --- must themselves be justified. So I take the suggestion that emerges from Bradley's argument to be this: if any act of inference is justified, then there is a connecting principle (a further belief) that is true and justified.

Although there is some core truth to this suggestion, that reflects what we frequently do to justify inferences, the question of the worth or justification of an inference is just a much more complicated matter than the suggestion can account for. The main point is that our practice of giving justifications, and our expectations about receiving justifications, are simply not as systematic as the suggestion would have us believe. For it is a serious question as to whether it always reasonable to ask for, or to give, a justification of an inference --- for example, when the pre-
mises obviously imply the conclusion. Certainly a person who is making an inference whose premises and conclusion compose a case of modus ponens, or other very simple argument form, may legitimately refuse (or in fact be quite unable) to give any justification for it --- yet this need not undermine the worth of the inference. One way of putting this is that for some cases of inference there is no need for justification, and it would be unreasonable for an observer to press for one. Here I am supposing that there is no doubt that an inference has been made; for example, that someone believes $q$ on the basis of his justified beliefs $p$ and if $p$ then $q$. (We will turn shortly to the question of what it is for an inference to have been made --- but of course it is not enough that someone merely have justified beliefs $p$ and if $p$ then $q$, and believe $r$ --- for he may believe $r$ for some unjustified reason, and not on the basis of his beliefs $p$ and if $p$ then $q$.) Once we accept this point about certain paradigm cases, any previous conviction that a person generally has an obligation to justify his inferences by citing some independently justified connecting principle or belief should at least be shaken. Of course if we do choose to justify an inference --- that is, if we choose to give a justification of it --- then it is plausible to suppose that the exhibition of an (independently) justified belief that 'connects' the premises and the conclusions of the inference would justify, or be part of the justification of, the inference. But an inference may
be justified whether or not a justification has explicitly been given, and we have seen that it is not always reasonable to expect or to be able to give a justification.

In sum, the second of the Bradleyan arguments has failed. It does not apply to the third project of characterizing the worth of argument-forms. And while we might agree that it raises questions that are relevant to the second project, since it reflects some of our intuitions about justification, it does not succeed in showing even a necessary condition for evaluating the worth of acts of inference. For there is a lot of slack in our notion of justification, and it is unlikely that there is an obvious hard and fast way to characterize our practice of justifying the correctness of our inferences.

What remains is to return to the question of what the connecting principles could possibly be, and more generally to examine the force of Bradley's arguments when they are applied to the psychological question, the issue of how we can properly characterize the psychological process of inference. Unfortunately, as soon as we turn to this question we run into trouble again. The basis of the Bradleyan worry about the associationist account is the difficulty of distinguishing acts of inference from cases of merely fortuitous associations of ideas. The obvious suggestion is that there must be some special connection between the premises and conclusion. Indeed it is plausible to suppose that the
person making an inference must see, or make, or use a connection between the premises and conclusion of the inference. So the point of positing a connecting principle, which has been cast as a further belief (but not a premise of the inference), is to express this connection between the premises and conclusion of the inference. But now a new question can be asked on the basis of which another regress argument can be formulated: is any such further belief really sufficient to guarantee that a genuine inference has been made?

Take any purported inference such as that of the child from (1) and (2) to (3). By the first Bradleyan argument it seems that if there really is an inference then there must be some further belief, a connecting principle, of which (4*) is an example. But consider, does the supposition that there is this additional belief really settle the question of whether or not the child is making an inference? Is it not at least possible that a person could accept the premises, and the connecting belief, but not see the connection between the premises and the connecting belief, on the one hand, and the conclusion on the other? After all, the belief in the connection is just itself another state of mind. If this is so, then it seems that the child must be committed to yet another connecting belief, that the premises and the first connecting belief are reason to believe the conclusion. But again, is this really sufficient to guarantee that the child has made an inference? Is it not
at least possible that a further connection (between the original premises and the two connecting principles on the one hand, and the conclusion on the other) is not seen? And so the argument continues.

Given the original worry about distinguishing cases of association from genuine cases of inference, I take this argument to show that the needed connections between one’s (belief in the) premises and (belief in the) conclusion cannot merely be represented as additional beliefs. But if the connection between the premises and conclusion can not be represented simply by further beliefs, then how else could the psychological process of inference be properly characterized? I think that this second regress argument shows how hard a problem it is to characterize an inference — that is, to characterize what it is for a person to make an inference. The psychologist will want to say that there is a psychological connection, but this is no help unless we can get a grip on the notion of the existence of psychological connections that are not just further psychological states, like further belief states. And recall a problem that I posed for the psychologist who says that the connection is just an ordinary instance of a psychological law —- for the associationist, an instance of association. The problem then is to distinguish inferences from other kinds of psychological connections and relations. I questioned whether the principles of association were sufficient
to make such a distinction, and certainly we want to distinguish inference from beliefs that occur merely as the result of some association.

To push this question about psychology any farther would require an excursion into psychology that I cannot undertake. What I have illustrated, I think, is that my attempt to generate an argument against (C4) really cannot be separated from a deeper inquiry about the nature of psychological laws. And while this objection to associationism (that principles of association cannot distinguish cases of inference from other psychological connections) is rather plausible, a genuine evaluation depends on a more serious discussion of associationism --- the kind of discussion that Bradley does provide elsewhere (see footnote [8] for a brief sketch). But the underlying problem of distinguishing inferences from non-inferences, of characterizing what it is that makes my belief that $q$ to be based on my beliefs $p$ and if $p$ then $q$, as opposed to other beliefs I may have, must be faced by any psychological theory. Someone may say: we have dispositions to believe the consequent of a conditional if we believe the antecedent and the conditional itself. But this is just another way of stating the kind of fact that we want explained. Thus Bradley’s first argument, when it is shorn of all the likely misinterpretations --- that the connecting principle is a premise, that it is general, and (most importantly) that it is a belief --- raises important questions for the psychologist about
the nature of psychological laws and 'psychological connections'.

We have come close to an appropriate stopping point in our inquiry about 'the real process of inference'. (C3) accords with our intuitions, and it has not been undermined by Bradley's arguments, and (C4) seems to turn on a genuine debate about psychology. But what worries me is that questions can be raised from this discussion, particularly from the last regress argument, that tend to question the coherence of our notions of belief and inference. What I have in mind is this. The considerations that lead to that regress argument seem to show, on the one hand, that it is at least possible that someone could believe the premises and conclusion of some simple deductive argument (such as a syllogism, or a case of modus ponens) but not see the connection between them, and so not be inferring the conclusion from the premises. Certainly we can not say that it follows from the fact that he has such beliefs in the premises that he believes the conclusion, or from the fact that he believes both premises and conclusion that he sees the connection --- for people are not perfectly rational, they do not see all the consequences of their beliefs, and they do often make (logical) mistakes. On the other hand, when we look at such simple and obvious logical relations and deductively valid inferences, the following reply is at least tempting: someone simply could not have a genuine full-blooded belief in
the premises of a syllogism or a case of modus ponens without both believing the conclusion and also understanding the connection between the premises and conclusion (and so inferring the conclusion). For if the person did not believe the conclusion, and did not see the obvious connection between the premises and conclusion, then we would have good grounds for denying that he understood the premises of the argument --- and if he does not understand those premises then he cannot genuinely believe them.

These considerations indicate that there are two facts here that are at odds with each other, if not in open conflict. First, we are forced to accept the premise of the regress argument, that even in the simplest deductive arguments it is possible that a person believes the premises but not the conclusion, or believes the conclusion but does not see the connection between them. And second, and at the same time, we think that not believing the conclusion and not seeing the connection at least weakens the claim that the person has a genuine understanding (and hence belief) in the premises. If these two facts are not openly contradictory, then they at least force us to question our understanding of our notions of belief and inference, and of our practice of ascribing beliefs and inferences.
Endnotes

1. Mill writes:

The proposition that the Duke of Wellington is mortal is evidently an inference; it is got as a conclusion from something else; but do we, in reality, conclude it from the proposition, All men are mortal? I answer, no. (II,III,3, p. 124)

2. The term 'particular' causes a little confusion in the context of (C). It does not mean 'particular proposition', for Mill uses this term in its traditional sense to mean a proposition of the form Some A's are/are not B's. I will use the terms 'singular proposition', 'propositions about particulars' and 'propositions about particular facts' to refer to propositions such as that Socrates is a man --- that is, propositions of the form alpha is a man, where alpha is replaced by a proper name or other referring expression that refers to an individual. (Mill counts a proposition such as that the teacher of Plato is a man as a singular proposition.)

3. It is worth pointing out that (C3) is quite independent of (A2). It is quite compatible with (C3) that there are also some correct inferences whose premises and conclusion comprise a valid syllogism, or other valid deductive argument. Nor does (C3) depend on any particular analysis of the Duke of Wellington case --- it just depends, as I have tried to suggest, on there being some unequivocal examples of inferences with only singular premises and a singular conclusion.

4. The importance of distinguishing this additional thesis about evidence or justification was made clear to me by Professor McCann.

5. Of course this way of thinking about justification is already to presuppose a great deal that is questionable.

6. One of Mill's examples points to a confusion that he finds hard to avoid. For one of his examples of reasoning from particulars to particulars is a case of reasoning in geometry, in which "one instance only is demonstrated". (II,III,3 p. 128) This kind of example recalls Berkeley's discussion, in the Introduction to his Principles, of the same kind of example with much the same point --- that we can (and Berkeley would want to conclude that we always do) reason to general conclusions via particular instances, and without general
terms or 'abstract ideas'. The problem for Mill is that although we can agree that many such geometrical or other mathematical cases of reasoning can be understood as reasoning via instances or reasoning from particulars to particulars, such cases are also clear examples of deductive reasoning. That is, in the first place, that the non-general premises of the particular example deductively imply the non-general conclusion, and, in the second place, this process of *instantial reasoning* itself is part of our deductive practice for proving general conclusions. Berkeley can agree with this, but it is a problem for Mill. For remember that Mill denies that any 'real' inference can be deductive (that is, he defines a real inference as one in which the premises do not deductively imply the conclusion), and wants to maintain (via (A2)) that in no case the premises of a genuine proof deductively imply its conclusion. So cases of deductively valid reasoning from particulars to particulars actually should pose a problem for Mill's overall view. Like Berkeley, and like the empiricists generally, Mill wants to defend the view that at some ultimate level the contents of mind are particular --- at least in the sense that they are about particulars (see the next paragraphs). But unlike Berkeley, Mill wants to deny that any such cases of reasoning that provide genuine proofs of their conclusion are cases in which the premises deductively imply the conclusion --- and this seems to be a problem.

7. This notion of the "standard theory" is a little vague, but I have in mind the rather austere statement of the theoretical apparatus of the theory that Hume, for example, as well as Mill, will sometimes give (eg. in the opening pages of Hume's *Treatise*).


Bradley agrees with the empiricist on several counts. Bradley defends what he calls phenomenalism in psychology, in which "the mere course of psychical events, as such, happening within a single organism, and the laws of coexistence and sequence between these events, (are) ... the object of psychology" ("A Defence of Phenomenalism in Psychology", in *Collected Essays*, p. 367). So in the first place Bradley agrees that ideas are particulars, particular occurring events (eg. *Principles of Logic*, p. 5). And in the second place, he agrees that there is what he calls a 'psychological fact of association' (eg. *Principles*, p. 299). Where Bradley begins to differ with the empiricist is in his treatment of this fact of association. For "the school
of Empiricism, in its most consistent development, has turned the metaphorical expression of one fact into a theory which may be said to cover all. It has a doctrine as to the ultimate constituents of mind. They are particular feelings and particular ideas, in either case repellent units. And they have absolutely no internal bond of connection." (Principles of Logic, p. 301) For Bradley the fact of association is not the foundation of any theory, but rather a fact or problem that needs explanation.

Bradley characterizes the empiricist theory by the following four theses (all of which are hinted at in the previous quotation): (a) all ideas are particulars; (b) all psychical relations are associative (from which Bradley argues that they are not internal relations); (c) the only constituents of mind are ideas; and (d) all ideas decompose into simples or atoms. Bradley’s attack on associationist psychology is leveled against all of (b), (c), and (d). Only (a) escapes criticism as part of a theory of psychology. (And in the end Bradley wants to reject even (a), for he thinks he has metaphysical proof that there are no particulars —— that particulars are not real.)


11. But notice that these arguments do not tend to undermine the Empiricist Thesis about Evidence, that all justification resolves into observations of particulars.

12. Bradley makes this distinction (or one very like it) on p. 20 of the Principles of Logic.
8: Is Logic Prescriptive?

In Section 6 I interpreted Mill as arguing that the laws of deductive logic are not, and do not provide, laws or principles of correct reasoning, and I strongly endorsed a weakened version of his argument. However, I want to take a second look at this conclusion. For Mill, in his later commentary on the philosophy of William Hamilton (and in some remarks that occur as additional sections to late \[1\] editions of the *Principles of Logic*) approaches these questions from a slightly different point of view which, at least on the face of things, contradicts the earlier conclusion. In this context Mill argues that principles of logic are prescriptive of thinking --- laws of how one ought to think. But I will show that this later contention is perfectly attuned with the earlier work, and in no way undermines it.

One could argue that I am beating a dead horse. For in the earlier work (Section 6 of Part II) one of my main points was to distinguish laws of deductive validity from genuine principles of reasoning or justification --- though I did not actually give any examples of genuine principles of correct reasoning in that sense, and I am not really sure that there are any (see the last pages of section 6, and section 10). But since Mill includes both kinds of laws under the domain of logic, then it is trivially the case that some laws of logic are prescriptive of reasoning --- for surely the laws of correct reasoning (assuming there are
some) are, or can be transformed into, prescriptions about correct reasoning! Fortunately this is not to be my point. Of course I agree that if there are any Millean principles of correct reasoning (principles of justification or warrant) then such principles would be prescriptive of reasoning. But I will confine my discussion to the case of deductive logic. For, in the first place, despite the arguments of section 6, many people will still believe that there must be some way in which laws of logic (such as modus ponens or principles of syllogism) are principles of correct reasoning, or principles about how we ought to reason. And, in the second place, I want to show that there is a very limited, though perhaps unexciting, sense in which that belief is true.

Mill begins by exploring the sense in which laws of logic can be considered to be laws of thought. Of course there will be psychological laws that describe human behaviour, but laws of logic cannot be identified with such 'laws of thought'. For

there is nothing to prevent us from thinking contrary to the laws of logic: only, if we do, we shall not think rightly, or well, or conformably to the ends of thinking, but falsely, or inconsistently, or confusedly. (WH, p. 359) [2]

Mill actually takes this simple observation to a very strong conclusion: the laws of logic are not law-like generalizations about anything at all. Rather they are precepts or rules for correct thinking. The argument seems to be this.
If the laws of logic were like scientific laws, that is, law-like generalizations, then the fact that people can 'think contrary' to them would seem to falsify them. But the laws of logic are not falsified by cases of incorrect inferring. Hence, Mill seems to conclude, the laws of logic are not generalizations at all. In a footnote (WH, p. 358) Mill suggests that there is an ambiguity in the word 'law', as between a scientific generalization and a precept or rule. A law of psychology would be a case of the former and a law of ethics a case of the latter. Since the laws of logic are laws, they must be precepts or rules.

Of course this argument, that laws of logic must be precepts, is not very persuasive. The fact that we can 'think contrary' to the laws of logic, that is, the fact that we can make incorrect inferences and evaluate incorrectly the validity or non-validity of a purportedly valid argument, does show that the laws of logic are not true generalizations about what inferences we actually make or approve of. But it does not follow that the laws of logic are not true universal generalizations. For example, they could be universal generalizations about the truth relations between propositions --- or about anything else, given what little has been shown by this argument. Of course another way of looking at this argument is to say that Mill accepts the premise that the laws of logic are laws of thought, and so he has to accept one of the two interpretations of 'laws' in 'laws of thought'. In either case, given the results
from section 6, my question becomes: in what sense can the principles of deductive validity really be taken to be precepts of thought?

Mill calls any body of rules or precepts an art, as opposed to a science, but suggests that any "art necessarily presupposes knowledge" (SL, Intro., sec 2) or a science. Thus in so far as logic is an art, a set of rules or precepts, it will also 'presuppose' or be 'justified' by (WH, p. 359) a body of knowledge or a science. As I will discuss in the next section, this is the context in which Mill's psychologism arises, for his psychologism is his commitment to the view that it is the science of psychology that is presupposed by and justifies the art of logic.

Mill treats the notions of an art and of a science, and the relations of presupposition and justification that sometimes hold between an art and a science, as though they are unproblematic. I doubt that this is so, but I also do not intend to push this point. We can recognize particular cases in which some body of knowledge, a set of generalizations and facts, justifies a set of rules or precepts. For example, if it were universally agreed that such and such an act is right (at least in specific circumstances), then there would be no question that one ought to do it (at least in those circumstances).

The first and most obvious result of this discussion is that in order to discover whether principles of deductive
logic are or provide precepts about thinking or believing, it may help to look at how we could generate prescriptions from some science or body of knowledge, such as the laws of truth or validity. However, it turns out that the main problem here is not that it is difficult to find candidate prescriptions, but that it is too easy. There are so many initially plausible ways of generating prescriptions from the laws of logic that the problem is to evaluate them. This leads to the second point --- initially less obviously pressing but ultimately more important --- which is to discover what the force or meaning of an obligation to believe might be.

Let me illustrate why this second issue is so important and cannot be avoided. Certainly there are lots of ways one might try to generate prescriptions from deductive logic. Here are several of the most obvious general methods that suggest countless specific prescriptions:

I-A If one believes the premises of any deductively valid argument than one ought to believe its conclusion;

I-B If one believes the premises of any deductively valid argument than one ought not believe the negation of its conclusion;

II-A One ought to believe every instance of every logical truth; and

II-B One ought not believe any inconsistent propositions.

Now, are any or all of the prescriptions that can be generated in these ways acceptable or correct? For example, consider the following schema that we can obtain using
method I-A:

if a person believes p, and believes a conditional with p as antecedent and q as consequent, then he ought to believe q.

One thing that follows from this prescription is that in some circumstances I ought to believe false things. For if I believe p, and the appropriate conditional, it follows that I ought to believe q --- but since nothing so far guarantees the truth of either p or the conditional, q might be false. I do not take this to be an objection to the principle, since it may be that any reasonable interpretation of "ought to believe p" would allow that there are circumstances in which one ought to believe what is false. For example, one very natural interpretation might be that x ought to believe p if and only if x is justified in believing p. But then it is no problem that I sometimes ought to believe what is false, for it is generally accepted that one can be justified in believing what is false. A second natural interpretation might be that x ought to believe p if and only if he has reason for believing p. And again I can have reason for believing something that is false.

Note that if the first interpretation were accepted there would be grounds for rejecting any principle generated from I-A or I-B, along the lines discussed in section 6. Taking the prescription above, it might be that I am not justified in believing q because my belief in either p or the conditional is not justified, or because I have some other
belief that I have already accepted that justifies the negation of q, and so on. This point extends to any instance of I-A or I-B. For example, here is an instance of I-B:

if anyone believes p, and also believes a conditional with p as antecedent and q as consequent, he ought not believe the negation of q.

But given the proposed interpretation of the "ought", this principle must be wrong. For I might well be justified in believing the negation of q, even though I also believe --- but perhaps without justification --- both p and the conditional.

On the other hand note that if the second interpretation were chosen, then I-A and I-B might be defended --- certainly from the kinds of counter-examples given above. For I can certainly have reason for believing both p and its negation.

These considerations highlight the need to understand or determine the force of the "ought to believe" as part of the process of determining whether or not some particular prescription is acceptable. Unfortunately Mill does not give a definition or translation of his "ought to believe", and he does not formulate specific prescriptions based on deductive logic. However he does give us some indication of how he understands the force of prescriptions based on deductive logic.

Mill says that the goal of logic is the attainment of truth. But the kinds of facts and generalizations that deductive logic is concerned to describe are the conditions
under which sets of propositions are consistent or inconsistent. Thus

the logic called Formal only aims at removing one of the obstacles to the attainment of truth, by preventing such mistakes as render our thoughts inconsistent with themselves or with one another; and it is of no importance whether we think consistently or not, if we think wrongly. It is only as a means to material truth, that the formal, or to speak more clearly, the conditional, validity of an operation of thought is of any value; and even that value is only negative: we have not made the smallest positive advance towards right thinking, by merely keeping ourselves consistent in what is, perhaps, systematic error. (WH, p. 370) [3]

In so far as formal or deductive logic is prescriptive, it guides us not to "material" truth but to consistency --- or better, to avoiding inconsistency. This suggests that for Mill prescriptions of deductive logic will be derived along the lines of methods II-B, and perhaps we can add II-C:

II-C If a set of propositions is inconsistent then one ought not believe all of the members of that set.

Moreover I-A and I-B would maintain the "conditional validity" of a set of beliefs, given that the initial set was consistent to begin with. Only II-A is to some extent at odds with the spirit of the quotation, since it prescribes that (ever so many) particular beliefs be held, while the quotation suggests that deductive logic alone does not prescribe that we have any particular beliefs at all.

It is hard to say anything more substantive about the force of any "ought to believe" that conforms to II-B, II-C, and perhaps I-A and I-B as well. Certainly such prescrip-
tions must be very weak, and one sign of their weakness has already been brought to light. Conforming to the principles (or precepts) of deductive logic is, as Mill says, a pre-condition for attaining "material truth". But from none of the potential prescriptions alone does it follow that there is anything that we ought to believe. Moreover even if we could unfailingly follow (that is, conform to) the prescriptions of deductive logic, we are guaranteed only consistency and not truth --- we still could be prey to some "systematic error". The goal of reasoning (or logic, in Mill's extended sense) is to attain truth or knowledge. So the principles and prescriptions of deductive logic provide only one small, though important, aspect of a theory of reasoning.

Perhaps this point is more dramatic when the (presumably common) case of inconsistent beliefs is considered. Just to give one example, we see that from instances of I-A and I-B it would follow that (for countless cases) one ought to believe p and one ought to believe the negation of p; but from II-C it would follow that one ought not believe p, and also believe its negation, and so on. Indeed it becomes clear that such a system of "obligations" that I am trying to build in accordance with Mill's suggestions could not be obligations to do anything at all. There is no clear sense in which we can be said to follow or act upon them, and in this example they certainly can give no indication of how to remove the inconsistency --- of which beliefs to give up.
Frege saw this point, that ultimately such talk of deductive logic generating obligations to believe must be absolutely trivial. He agreed that "Rules for asserting, thinking, judging, inferring, follow from the laws of truth". That is, given any law of truth, any (true) generalization about the truth relations between propositions, one can find a precept that 'follows' from it along the following lines:

one ought not believe p, believe q, ... and believe z if the conjunction of p, q, ..., z, and X is inconsistent, where X is some law of truth.

And this is just a long-winded way of saying II-C.

But Frege also saw that

any law asserting what is, can be conceived as prescribing that one ought to think in conformity with it, and is thus in that sense a law of thought. This holds for laws of geometry and physics no less than for laws of logic. The latter have a special title to the name 'laws of thought' only if we mean to assert that they are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all. (BLA, p. 12) [5]

That is, precepts about how one ought to think can be derived from any truth whatsoever. Take any truth you like and call it I. Here are some additional, and clearly justifiable precepts --- rules that one ought to follow if one wants to avoid falsehood:

one ought not believe the negation of T;

and

one ought not believe the negation of p, and also believe a conditional with T as antecedent and p as consequent.
In general,

one ought not believe p, believe q, ..., and believe z, where the conjunction of p, q, ..., and z is inconsistent with T.

These precepts are justifiable because anyone who has beliefs contrary to these precepts must have at least one false belief; that is, what he believes is inconsistent with the truth, which is T. I-A, I-B, II-B and II-C are just special case. Thus Frege has collapsed the force of the prescriptions into the following principle:

\[ F \quad \text{One ought not believe any false propositions.} \]

And that is a perfectly useless piece of advice.

Endnotes

1. Particularly sections 8 and 9 of Bk. II Chapter III, and all of Bk. II Chapter VII of the Principle of Logic. All of these changes appear in the final (eighth) edition.

2. J.S. Mill, An Examination of Sir William Hamilton’s Philosophy, University of Toronto Press, 1979. All references to this work will be abbreviated by 'WH' followed by a page number.

3. Similar views are expressed in Section 9, Chapter III, Book II of A System of Logic. This section is one of the late additions to SL, roughly contemporary with the previous quotation from WH.

4. Gottlob Frege, "The Thought, a Logical Inquiry", in Philosophical Logic (Ed. Strawson), Oxford U.P., 1967, p. 17. I shall refer to this paper as "T".


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9: The Possibility of Psychologism in Mill's System

So far I think that the main tenets of Mill's system have been opposed to various forms of psychologism. His theory of import and his explanation of validity give the outlines of a systematic theory that opposes any psychologistic reduction of significance and validity to a subjective and psychological foundation. Mill's crucial distinction between principles of validity and genuine principles of inference (or of justification) bolsters this anti-psychologism even further. For it is quite plausible that principles of reasoning and justification are (or are in part) dependent on or reducible to facts about our practice of reasoning and about what we accept as correct or justified reasoning. Such facts compose at least part of what I called the contextual nature of justification. I have no way of proving this, but I suspect that the apparent psychological nature of principles of inference, coupled with a confusion between principles of inference and principles of validity, is a fundamental motivation for psychologistic claims about the nature of logic. But Mill's clear distinction between principles of validity and principles of justification allows for the possibility that principles of inference really are psychologistic in nature, without undermining the non-psychological nature of principles of validity. Of course Mill chooses to call principles of inference or justification principles of logic --- but if it is only such principles that are psychologistic in nature
then psychologism with respect to logic is not (as far as I am concerned) a troubling thesis.

Even with all of this fruitful thinking about the nature of logic Mill still feels a pull toward some more serious form of psychologism. It is during his discussion of the prescriptive nature of logic that Mill makes his most dramatic and prominent statement that commits him to psychologism with respect to logic. He writes:

Logic is not the theory of Thought as Thought, but of valid Thought; not of thinking, but of correct thinking. It is not a Science distinct from, and coordinate with, Psychology. So far as it is a science at all, it is a part, or branch, of Psychology; differing from it, on the one hand as a part differs from the whole, and on the other, as an Art differs from a Science. Its theoretical grounds are wholly borrowed from Psychology, and includes as much of that science as is required to justify the rules of the art. (WH, p. 359)

We acknowledged this contrast between an art and a science in the previous section, and recognized an example in which a science or a body of knowledge is presupposed by, or justifies, an art. Mill’s psychologism is his commitment to the view that it is the science of psychology that is presupposed by and justifies the art of logic.

We saw how deductive logic can be viewed as an art, providing (very weak) precepts for correct reasoning, and we saw that there is a science, a body of true generalizations, that justifies those precepts. The science that justifies those precepts is composed of the generalizations about truth relations between propositions --- what Frege calls
laws of truth —— and the justification takes place via schema II-B or II-C. Given this groundwork, it seems that Mill’s apparent psychologism can arise in one of two ways. On the one hand it could be that the science of psychology justifies the art of logic because the science of the laws of truth is itself part of (or justified by) the science of psychology. On the other hand it could be that some part of psychology justifies the art of logic independently of the science of the laws of truth. There are certain passages that at least suggest that Mill sometimes endorsed the first alternative, and I have found none that suggest that he supports the second. What I will do first is to lay out what evidence I can find for the first alternative, and evaluate the force of the evidence and the prospects for psychologism based on it. Then I will look at the second alternative, and generate an argument, based on the results of Frege’s argument in the previous section, that undermines the fruitfulness of the second alternative.

I want it to be clear that the first alternative really is open to Mill. In the first place, the distinction between laws of truth and precepts is one that Mill himself makes, and I am not imposing Frege’s distinction on him. Generalizations about the validity of syllogisms, and the principles of apparent inference (section 6) are laws of truth. And in the Hamilton work he explicitly contrasts laws of truth with precepts: "The law of Contradiction does not 'enjoin the absence of contradiction'; it is not an
injunction at all" (WH, p. 377). Those who formulated the law used the terms 'law' and 'principle' in their proper scientific, and not, as Sir W. Hamilton does, in their moral or legislative sense. ... And by the Law of Contradiction they meant one of the properties of contradiction, namely, that what is contradictory cannot be true. (WH, p. 377)

An alternative formulation of the law of contradiction is that "an affirmative proposition and the corresponding negative proposition cannot both be true" (SL, Bk.II, Ch.VII, Sec.5), and this is just a Fregian law of truth. Another law of truth that Mill explicitly acknowledges is the law of excluded middle, and once these two laws have been acknowledged we can assume that they all come in.

In the second place there are some hints, at least, that the precepts of logic are really to be justified by appealing to the laws of truth, as I have suggested. The laws of truth are said to be principles; and for the authors of the laws "... the word Principle ... means a particular kind of Doctrine, namely, one which is the groundwork, and justifying authority, of a whole class of operations of the mind" (WH, p. 377). Mill does not explicitly say that part of what the laws of truth justify are the precepts of logic. But he does say that the end or goal of thought is 'the attainment of truth'. Thus, since

the most important ... and at bottom the only important quality of a thought ... (is) its truth, the laws or precepts provided for the guidance of thought must surely have for their principle purpose that the products of thinking shall be true.
(WH, p. 365)

If the purpose of the precepts of logic is to guide thought to true conclusions (or to true conclusions given that one's premises are true), then surely the precepts must be grounded in, or justified by, an investigation into truth and into the truth relations between propositions. That is, they must be grounded in the laws of truth themselves.

So on this first alternative the question of Mill's psychologism about logic turns on his treatment of the laws of truth. Some well-known passages do appear to commit Mill to psychologism about these laws. One claim that Mill certainly makes is that the laws of truth are derived from, and so are justified by, experience. It is this doctrine that Mill uses in support of his view that the laws of logic (clearly, the laws of truth) are non-necessary and a posteriori. With reference to the law of excluded middle he writes:

The original foundation of it I take to be, that Belief and Disbelief are two different mental states, excluding one another. This we know by the simplest observation of our own minds. And if we carry our observation outwards, we also find that ... any positive phenomenon whatsoever and its negative, are distinct phenomena, pointedly contrasted, and the one always absent where the other is present. I consider the maxim in question to be a generalization from all these facts. (SL, Bk.II, Ch.VII, Sec.5)

The doctrine that laws such as excluded middle are derived from experience is not simply a consequence of some general empiricist thesis, such as the claim that all justification, any evidence that we could have for a generalization, is
from experience. For Mill actually thinks that he knows how the derivation of the law works. He can exhibit the 'positive and negative' phenomena of which it is a generalization. Moreover to say that the law is based on the 'simplest observations of our own minds' is, I suppose, Mill's way of conveying its (relative) indubitability.

One problem is to decide what phenomena are, and in particular what positive and negative phenomena are. It is tempting to suppose that phenomena are just bits of experience, that is, ideas and sensations. This would help us make some sense of the supposition that there are positive and negative phenomena; for in the empiricist tradition it is usual to treat ideas, or complexes of ideas, as (among other things) truth-bearers and beliefs. It is not that truth-bearers are intrinsically positive or negative --- rather that one truth-bearer can be negative relative to another, its negation. If phenomena are ideas or complexes of ideas, and in effect truth-bearers, then the law of excluded middle is actually a generalization about those ideas. It is a generalization about the occurrences of those ideas. This interpretation helps to explain another claim that Mill sometimes makes, that the laws of excluded middle and contradiction are themselves laws of thought, although not in the way that precepts are. The laws of truth

may or may not be capable of alteration by experience, but the conditions of our existence deny
to us the experience which would be required to alter them. Any assertion, therefore, which conflicts with one of these laws --- any proposition, for instance, which asserts a contradiction, thought it were on a subject wholly removed from the sphere of our experience, is to us unbelievable. The belief in such a proposition is, in the present constitution of nature, impossible as a mental fact. (WH, p. 381)

So the laws of truth put certain constraints on what beliefs we can and cannot have. And this is perfectly comprehensible if beliefs are occurrences of ideas, and if the laws of truth are laws about occurrences of ideas (in particular) and phenomena (in general).

The situation can be summarized in this way. Mill has said a surprising number of different things about laws such as the law of excluded middle. In the first place the laws are said to be laws of truth; they are generalizations about truth-bearers and the truth relations that hold between them. In the second place they are said to be about the occurrences of positive and negative phenomena. In the third place they are said to govern or constrain what beliefs we can and cannot have. An interpretation that explains how someone could say all of these very different things about the laws is one that identifies phenomena, beliefs, and truth-bearers. They are ideas.

This is perhaps the most obvious interpretation, but it is problematic on several counts. This certainly would commit Mill to a pretty blatant version of psychologism --- the laws of truth would be laws about the occurrence of ideas, or at least laws about what combinations of ideas
cannot occur. But it is hard to see how this theory could escape Mill’s original objection to an unsophisticated psychologism, that we can think contrary to the laws of truth and to the precepts that are based on those laws. For to think contrary to the laws or precepts is for certain ideas and complexes of ideas to occur in the mind, while the laws of truth are, on this interpretation, laws that determine what combinations of ideas can occur. Moreover this interpretation inherits the hosts of difficulties that beset earlier versions of a theory of ideas --- the kind of theory that Mill himself criticizes when he presents his theory of import (see section 4). For as we have seen, Mill does emphatically distinguish propositions or truth-bearers from what is believed, which is a fact; and what is believed is, in turn, distinguished from mental states of belief. So Mill cannot accept this interpretation of the laws of truth that collapses these three distinct things into ideas.

What is interesting, however, is that when we reject this blatantly psychologistic interpretation of the laws of truth, it becomes very hard to see how we can pin any kind of psychologistic view on Mill, his occasional assertion to the contrary. The error in the previous interpretation was to take phenomena to be simply ‘bits of experience’ --- ideas and sensations. Rather they are what is presented in experience, facts or things, as opposed to the thing that [1] does the presenting, the ideas and sensations. But re-
member that facts are not only expressable by propositions but are also the objects of belief. Thus when Mill says that the law of excluded middle (and other laws of truth) are, variously, generalizations about relations between propositions, generalizations about the occurrences of phenomena, and generalizations about what can be believed, we can see that the term 'law of excluded middle' is systematically (but from Mill's point of view quite innocently) ambiguous. The ambiguity is both systematic and innocent because, in outline at least, Mill's theory of import relates propositions and (a subset of the) facts or phenomena — which is also to say it systematically relates propositions and what is believed.

But nothing on this interpretation shows how laws of truth could be conceived as laws of thought. Mill does actually hint at a solution that is compatible with this second interpretation. Concerning three of the traditional [2] laws of truth he writes:

I readily admit that these three general propositions are universally true of all phenomena. I also admit that if there are any inherent necessities of thought, these are such. I express myself in this qualified manner, because whoever is aware how artificial, modifiable, the creatures of circumstances, and alterable by circumstances, most of the supposed necessities of thought are (though real necessities to a given person at a given time), will hesitate to affirm of any such necessities that they are an original part of our mental constitution. Whether the three so-called Fundamental Laws are laws of our thoughts by the native structure of the mind, or merely because we perceive them to be universally true of observed phenomena, I will not positively decide; but they are laws of our thoughts now, and invincibly so.
Mill offers us two ways in which these laws might turn out to be laws of thought. They could be laws of thought 'by the native structure of the mind', or 'merely because we perceive them to be true of observed phenomena'. I think that the first unsatisfactory psychologistic interpretation of Mill takes the first alternative. The law of excluded middle, for example, would actually be about the 'structure' of the mind', because it is a law about the occurrences of ideas and sensations. But we saw lots of reasons for rejecting this as a viable interpretation of Mill. The whole point of his theory of import, and his rejection of Lockean subjectivism, legislates against this first possibility. So we are left with Mill's second alternative: the law of excluded middle is a law of thought because we perceive the law to hold of all phenomena --- that is, of all facts. They help to determine what we do or do not believe, what thoughts we can and cannot have, simply because they determine what phenomena or facts we actually will experience. For if it is universally true of all phenomena then we could never have experience that would disconfirm it, or in any way run contrary to it. And this holds for any other law of truth.

This is very much the line Mill takes when he criticizes the use of the inconceivability of a state of affairs as a criterion for its impossibility, or for the falsehood of a proposition that expresses that the state of affairs

(WH, pp. 380–81)
obtains. He gives many examples of the occurrence of states of affairs that at one time appeared to be inconceivable, and so were taken by many to be impossible. His analysis is that the apparent bounds of conceivability are set by the laws of association working on the experiences that we do actually have. A state of affairs is difficult to conceive if no closely resembling state of affairs has been experienced.

When we have often seen and thought of two things together, and have never in any one instance either seen or thought of them separately, there is by the primary law of association an increasing difficulty, which may in the end become insuperable, of conceiving the two things apart. (SL, Bk.II, Ch.V, Sec.6)

Mill argues that this mechanism of association can explain all the phenomena relating to the conceivability and inconceivability of states of affairs. And this is exactly the kind of mechanism that is suggested by the second interpretation of the way in which the laws of truth are laws of thought. Given that the laws of truth govern what states of affairs can (or better, cannot) occur, these laws will govern our thoughts in the sense that our lack of experience of cases that contravene them will make it difficult for us to imagine or believe in cases that contravene them.

The upshot is that the laws of truth are laws of thought in a very trivial sense --- true physical, chemical, and biological laws would be laws of thought in exactly the same sense. For they determine what phenomena can and
cannot occur (or at least constrain what combinations of phenomena can occur), and so, by the same mechanisms that work in the case of the laws of truth, determine what beliefs we can and cannot have (and, for that matter, determine what states of affairs we find conceivable). So we have found almost all of the pieces of the puzzle: a sense in which deductive logic provides precepts of thought, a sense in which a body of science (the laws of truth) grounds or justifies the precepts of logic, and a sense in which the laws of truth are laws of thought. The one piece that is missing is a commitment to psychologism! The obvious psychologistic interpretation is just too inconsistent with Mill's central work on the theory of import and his rejection of subjectivism to be at all plausible. This second interpretation gives a much more satisfying picture of Mill's work on all counts — except that it does not substantiate his suggestion that the precepts of logic are justified by or grounded in the science of psychology.

Of course the genuine laws of reasoning or inference (if there are any, as Mill supposes) are likely to be based on a psychological or sociological study — they will be based on what inferences we actually do find justified or warranted. But we have found no reason for thinking that the precepts of deductive logic are grounded in such a study. The only remaining appearance of psychologism is contained in the prescriptive 'ought' or 'ought not', but this triviality is even endorsed by Frege.
At the very beginning of this section I pointed out that in theory at least, there is a second way that psychologism could emerge in Mill's system. Perhaps the precepts of logic are justified by psychology independently of the laws of truth. The attraction of this alternative for psychologism is not hard to see. If the precepts of logic can be justified directly by psychology, it may be that the laws of truth, and hence issues about the nature of the laws of truth, can be completely avoided. Or, if the laws of truth are to be formulated, it may be possible to justify or ground the laws of truth in the precepts of logic, which are themselves justified independently by psychology. I have found no evidence that Mill ever tries to work out his tendency to psychologism in this way. But I want to formulate an argument to the conclusion that it would be pointless even to try to find such a direct psychological justification of the precepts --- for it is not possible to circumvent the laws of truth in this way.

The argument is based on the conclusion of the previous section that result from Frege's considerations. Frege agrees that laws of logic generate precepts for how one ought (or ought not) think, but he goes on to point out that any truth can be used in exactly the same way to generate a prescription about what one ought to believe. What we want to add is that these additional precepts are not logical precepts. But how do we know this? It seems that we know
this only because they are justified by non-logical truths. All of the precepts we can generate are perfectly good precepts about how we ought to think if we want to avoid falsehood. They are "guiding principles of thought in the attainment of truth" (BLA, p. 12). But the force of Frege's observation is that the term 'logical precept' is not co-extensive with 'law of thought' or 'guiding principle of thought in the attainment of truth'. What is essential to the logical precepts is that they are justified by the laws of truth; and we can distinguish the logical from the non-logical precepts only by appealing to the laws of truth. Frege does make one suggestion: perhaps the logical precepts are the most general precepts. But I do not think that we should hold out much hope for this suggestion. Is there any clear sense in which the precept

one ought not believe that anything travels faster than light

is any less general than any precepts generated by II-B or II-C? If not, then the point stands.

The consequences of this are quite interesting. It is not just that there is no point in studying the logical precepts rather than the laws of truth, given the triviality of their derivation. It is rather that one could not go about examining the logical precepts independently of the laws of truth. What we determine to be the distinctly logical precepts depends upon our discovering the laws of truth. One can always move from laws of truth to precepts
(by II-B or II-C), but there is no guarantee that a precept is based on a law of truth. The point can be applied to psychologism in Mill's system. I suggested the possibility of trying to sustain a psychologistic thesis (while avoiding a crude identification of laws of truth with laws of psychology) by looking for a direct psychological justification of the precepts of logic. But if Frege's point is correct we need to determine the laws of truth in order to determine what the logical precepts are. No direct psychological justification of the precepts of logic could sidestep an appeal to the laws of truth, and so it cannot sidestep questions about what the laws of truth are and how they are to be 'justified' in turn. So it is not surprising the question of Mill's psychologism ultimately should turn on his treatment of the laws of truth.

Endnotes

1. For example, see the use of 'phenomenon' in Sec. 5 of SL. Bk.I, Ch.V.

2. That is, the law of excluded middle, the law of contradiction, and the law of identity.

3. It is this more coherent strand of Mill's discussion that I suggest is being picked up by H.W.B. Joseph. He suggests that while the laws of contradiction, excluded middle, and identity are called laws of thought, and in fact we cannot think except in accordance with them, yet they are really statements which we cannot but hold true about things. We cannot think contradictory pro-
positins, because we see that a thing cannot have at once and not have the same character; and the so-called necessity of thought is really the apprehension of a necessity in the being of things.


This passage occurs, by the way, in a parenthetical remark that comments on a distinction that Joseph has made between "questions about our thinking, and what we must think things to be" (Joseph, p. 13). Joseph is clearly accepting the conclusion of this second strand of Mill, that these laws are not really (ie. directly) laws of thought. As it happens, he thinks that laws of logic are laws of thought --- so he concludes that the law of excluded middle, and so on, are not laws of logic (though they are closely related to laws of logic).

4. There is one additional possibility that might seem to lead to a version of psychologism. For there is an idea that surfaces in Mill's work of a final grand reduction of the facts and objects of the external world (the phenomena presented in experience) --- a reduction not to ideas or sensations per se, but to the 'permanent possibilities of sensation' (see WH, p. 184). But again I do not think that this leads to any genuine psychologism about the laws of truth --- at least any more than to psychologism about physics or chemistry. If all laws of phenomena would turn out to be laws about the possibility of the occurrence of ideas, then there would be nothing especially psychologistic about the laws of truth!

5. See section 10 for a brief additional discussion.
Note: A Bad Argument Against Psychologism

Mill has helped us get clear about the enormous difference between principles of reasoning or inference and principles of validity. We have also seen how this distinction helps to dispel a very strong tendency to psychologism that is based on a confusion between principles of validity and principles of inference, coupled with the plausible hypothesis that principles of inference or reasoning are psychological generalizations (about what we accept as correct or justified reasonings), or at least that they are based on or derived from psychological facts. I have come across another case in which this distinction helps to dispell confusion. Interestingly the example generates a line of argument that is supposed to be against psychologism with respect to logic.

Judson Webb has unearthed an argument against psychologism by C. S. Peirce, that comes out of a series of discussions about the logic machines of Jevons and Marquand. In describing the logic machines Webb says that "The machines ... were not designed to check whether a given logical argument is valid, but to indicate implicitly conclusions that could be drawn from given premises which alone were fed into them" (Webb, p. 26). This is not very clear, but I gather that the machines display a disjunction of all the possible conjunctions of terms that occur in the premises. It then computes which conjunctions are falsified by any valuations that make the premises true. Of course there
could be many more than one such conjunction of terms that is compatible with the truth of the premises.

The issue that Bradley raises is whether or not the logic machines draw inferences, and he argues (specifically with reference to Jevons' machine) that they do not. He agrees that "it is impossible to deny that it executes such work, as must otherwise be done by a process of thinking." (PL, p. 383) Rather misleadingly, I think, he adds that "... I do not hesitate to say that it performs mechanically an operation which, if performed ideally, would be an inference" (PL, p. 383). The main reason why the machine has not made an inference is that

The result that comes out and is presented by the machine, is not really the conclusion. The process is not finished when the machinery stops; and the rest is left to be done by the mind. What is called 'reading' the conclusion is to some extent making it. (PL, p. 384)

Peirce wants to challenge Bradley on a number of points. In the first place Peirce argues, quite correctly, that a further examination of the mental process of thinking will have no bearing on logic --- that is, on principles of validity. For logic depends on truth, and describes the truth relations between propositions. To accept this is to deny a version of psychologism, but it is not, as yet, to say anything against Bradley's previous comments. However Webb and, apparently, Peirce think that they have a special argument against Bradley. For Peirce argues the further point, that logical machines really do perform inferences;
If from true premises they always yield true conclusions, what more can be desired? Yet those machines have no souls that we know of. They do not appear to think... in any psychical sense; and even if we should discover that they do so, it would be a fact altogether without bearing on the logical correctness of their opinions... [3]

So Webb concludes that the existence of logic machines provides an argument against psychologism, and against Bradley's psychologism in particular. For "those who insisted, with Bradley, that machines do not really reason or infer were guilty of psychologism" (Webb, p. 27).

I think that Webb and Peirce are subject to great confusion here. It seems to me that Bradley is more or less clear about the distinction between validity and inference --- or at least if he is not, then Webb and Peirce have not shown that he is not. Indeed one indication that Bradley is aware of the distinction is that he admits that the machine does perform operations that could be part of reasoning, and a second indication is that he says, in his admittedly misleading way, that the machine does something which, if done by a mind, would be an inference. But whether or not, in the end, Bradley is completely clear about the distinction, what is clear is that in this particular context Bradley is talking about inference in the Milllean sense. That is, he is talking about real inference --- the assertion of, or belief in, the truth of one proposition on the basis of one's belief in other propositions. What Bradley
is arguing, here, is that Jevon's machine does not infer in that sense. He agrees that it correctly displays relations of validity --- but it does not reason to or infer any conclusion. This is what Bradley means when he says that after the machine does its work the conclusion still has to be 'read' by the operator. The machine displays a whole set of 'conclusions' (conjunctions of terms) that are consistent with the truth of the premises. Sometimes there is just one such possible conclusion, sometimes there is more than one. If there is more than one then there is no way that the machine can be seen as asserting any conclusion --- because the various possibilities, while all compatible with the truth of the premises, are themselves incompatible. And if it is making no assertion in that case, then why think that it is making one in the case where the premises rule out all but one possible conclusion? And even if this argument were somehow rejected for the case where there is only one possible 'conclusion', we could add something more. For the machine does not believe or believe with justification the premises, and so cannot be said to infer the 'conclusion' --- that is, believe it on the basis of its beliefs in the premises.

So it seems to me that Webb and Peirce are the ones who are confused. They certainly have not been arguing that machines assert or believe propositions, or make judgements. Thus, since we know that inference really does involve making assertions, having beliefs, or making judgements,
then they are just wrong that the machines in question infer. Bradley is correct on this point, and both sides can agree that the machine properly displays relations of validity, which are not psychologistic in nature. Apparently Peirce and Webb have not distinguished the two notions of principles of inference: argument forms and principles of validity, on the one hand, and acts of inference and principles of correct inference, on the other. To be sure Bradley's notion of inference is psychologistic. But it is justifiably psychologistic, since inference is, or at least presupposes, mental activity. So this is no argument against psychologism in logic. Bradley may be convicted of psychologism on other grounds --- if, for example, he does not accept a non-psychologistic account of the validity of arguments. But this has not been shown. So it is Webb and Peirce who are subject to confusion, when they say that logic machines 'draw inferences' as a consequence of their failure to distinguish the validity of arguments from the correctness of (acts of) inference.

Endnotes

1. I owe the example to Leslie Burkholder, who recently sent me the reference. He did not send any comment about the argument, so he cannot be blamed for my interpretation of it!

2. Judson C. Webb, Mechanism, Mentalism, and Metamathema-
tics, D. Reidel, Boston, 1980, pp. 26-7. I will refer to quotations from this work with the abbreviation 'Webb', and a page number.


4. Of course someone else could argue that machines do think, do have a mental life... and on that supposition it would make sense to think that they inferred or reasoned. Such a position might be more plausible with more complicated computing machines, but it is certainly not the position of Webb and Peirce in this argument.
10: Concluding Remarks

I want to return to the important issue raised in the Introduction to Part II, Dennett's suggestion that his mouse (and presumably people too) follow logical laws such as modus ponens. The one interpretation of that claim that I offered there was that perhaps there are certain 'rules of rationality' that any rational entity ought to follow such as:

if $x$ believes $p$, and also believes a conditional with $p$ as antecedent and $q$ as consequent, then if $x$ is rational he also believes $q$.

The discussions in sections 6 and 8 suggests a framework from which this principle can be evaluated. On the one hand, in section 6 it was argued that "strong" principles of reasoning, what were called principles of justification, acceptability, or proof, are not obtainable from principles of deductive logic. On the other hand in both sections 6 and 8 "weaker" principles were derived from deductive logic, but such principles did not show that any particular beliefs were justified or acceptable in the stronger sense. Thus depending on how one interprets the "ought to believe", the following prescription may or may not be acceptable:

if $x$ believes $p$, and also believes a conditional with $p$ as antecedent and $q$ as consequent, then he ought to believe $q$.

On the one hand if the "ought to believe" has the force of "believes with justification", then it is not acceptable because the beliefs in $p$ and the conditional may not be justified, or because $x$ may have some other belief that he
accepts, that justifies the negation of q. On the other hand if it is the trivial Mill-Frege "ought to believe", then the principle may well be acceptable. It is just that because of other circumstances it may also follow that x ought to believe the negation of q!

In fact I think that the problems with this proposed principle of rationality do parallel the arguments about justified belief (or about the "ought to believe" that has that force). For I take it that if either my belief in p or my belief in the conditional is not rational, then this may undermine the rationality of believing q. Indeed given my other beliefs, it might be rational for me to believe the negation of q. So this principle of rationality is unacceptable, and it is certainly not identifiable with, and [2] does not in any way follow from, modus ponens.

Still there may be some intuition that this principle of rationality would work within some contexts, and so might be part of a complete systemization of a theory of rationality. For example, suppose that x is justified in believing p and the conditional (ie. it is rational for x to believe them). Well, given the previous argument we would have to add further conditions, for example that x does not believe, and does not have grounds for believing, the negation of q. In this context the principle seems to apply --- because it would be rational for x to believe q. Actually it is not really the previous principle of rationality that applies, but rather a more complicated surrogate (which, for
ease of expression I will state by mixing the 'rationality' and 'justification' talk:

> if \( x \) believes \( p \) and a conditional with \( p \) as antecedent and \( q \) as consequent, believes them with justification, and neither believes nor has grounds for believing the negation of \( q \), then it is rational for \( x \) to believe \( q \).

At one level I have no objection to this as a principle of rationality. It does not get us into any of the kinds of problems that the precepts or the other principle of rationality have gotten us into. For example, as far as I can tell it will never follow from this principle that there are situations in which it would be rational for me to believe something whose negation it would also be rational for me to believe, and so on.

The problem I have with this principle is rather that it could never be applied in any real situation --- it would never be useful to any genuinely rational person. For how could one ever know that the antecedent of the principle is satisfied? My argument is this. I will suppose for the sake of argument that there is no problem knowing of particular beliefs that they are justified --- that is not the point I want to question. So there is no problem with the fact that \( x \) believes \( p \) and the conditional, and I am supposing that there is no problem with (his or our) knowing that both beliefs are justified. But how do either \( x \) or we find out that \( x \) has no grounds for believing the negation of \( q \)?

It is a much harder problem then it looks to be at first
and examining all of x’s justified beliefs in order to see whether or not some subset of those justified beliefs imply, or otherwise justify, the negation of p. Forget about the ‘or otherwise justify’ clause, for the condition that they do not imply the negation of q is hard enough. It amounts to the condition that the set of x’s justified beliefs is consistent, since two of those beliefs already imply q. But how can we, or x, in general be expected to know this? For one thing this set of justified beliefs will not be small in any real situation. Even worse, by Church’s theorem it follows that there is no proof procedure for (first order) consistency. Of course this does not mean that one can never know whether or not a set of justified beliefs is consistent, and so whether or not this final condition of the antecedent is satisfied. For there will be cases in which we do know that a set of sentences is consistent or inconsistent, but such knowledge will be a case by case affair. Since one’s beliefs can be both numerous and complicated this is a practical as well as a theoretical problem, and it is a major difficulty with the principle. Again, I am not denying that the principle reflects some of our intuitions about rationality. I just do not see that it has any real application.

I think that there is a pretty systematic problem here. This last principle of rationality is ‘global’ in that it implicitly sets conditions on all of one’s justified beliefs
--- and it fails in usefulness because of this general appeal. The first principle of rationality, or a modification such as that

if $x$ has justified beliefs in $p$ and in a conditional with $p$ as antecedent and $q$ as consequent then it is rational for $x$ to believe $q,$

are 'local' in that they do not make any appeal to more than a (small) subset of one's justified beliefs. But their inadequacy stems from just this local nature, since what follows from them may contravene what is determined to be rational in the broader context of the whole set of one's justified beliefs. So while I do not claim to have refuted the global principles in the way I have refuted the local principles, it seems that we cannot follow such principles of rationality. And we have come no closer to seeing how it is that we, or Dennett's mouse, can be said to follow modus ponens.

Of course on the one hand there is a sense in which we conform to modus ponens and other laws of truth --- it is just the way in which we conform to laws of physics, mathematics, and indeed any truths whatsoever. For nothing we can do can falsify the (real) laws of physics or mathematics, or falsify any truth --- and the same thing holds for the laws of logic. On the other hand there is another sense in which we can 'think contrary' to the laws of logic --- but again in that sense we can 'think contrary' to the laws of physics and mathematics, and to any other truth whatsoever. Moreover section 8 showed us the sense in which we
ought to conform to the laws of truth (physics, mathematics, and so on), but these are not laws or precepts that one could actively follow except by believing what is true. And it is not any more useful to be told to conform to the truth then it is to be told (as the global principle of rationality in effect told us) to be consistent. Perhaps Dennett has something else in mind when he says that the mouse follows modus ponens --- but again, we have not found what it is.

No substantive interpretation of the psychologistic slogan has been found. This does not mean that deductive logic has no important role in thinking or reasoning. As I have put it, facts about deductive logic, about the deductive relations between propositions, are used in our practice of reasoning. Some fact about the deductive relations that hold between some propositions that I believe may be part of my justification for another belief. That the conclusion of some argument is accepted as correct may result in part from the fact that the premises deductively imply the conclusion. That the mouse is said to act rationally may be because we attribute to it beliefs that deductively imply some conclusion upon which it acts. In all of these kinds of cases facts about deductive implication play a role in decisions about justification, acceptance, and rationality. But we have seen that this is not generalizable into principles about what I am justified in believing, what conclusions I ought to accept, or which of my beliefs
are rational.

Endnotes

1. See page p. 4 of part II.

2. Note that there is an interpretation of this principle that is quite plausible. If we interpret "it is rational for \( x \) to believe" as having the force of "\( x \) has reason to believe", then this principle has the force of one of the B-principles in section 6, and is perfectly acceptable. For my beliefs in \( p \) and the conditional do provide reason for a belief in \( q \) --- it just that they might be poor reason, if they are unjustified or irrational.

3. That is, it follows from Church's result that there is no decision procedure for validity, combined with the fact that there is a proof procedure for validity, that there is no proof procedure for satisfiability. For if there were a proof procedure for satisfiability then we could construct a decision procedure for validity. So there is not in general any way, for arbitrary sets of sentence, to determine their consistency --- that is, the satisfiability of their conjunction.
Further Issues

There are a number of relevant issues that it would be appropriate to canvass further. Except for several passing remarks I have made no attempt to discuss epistemological questions about the nature and justification of principles of logic. In particular there are a number of important issues raised by Brian Ellis in his monograph *Rational Belief Systems*. He argues that laws of logic are "laws governing the structure of ideally rational belief systems on idealized languages". Some of his program meshes nicely with various points I have made in this dissertation, but one of his central goals is to argue for an epistemological account of truth, and a logic of acceptability. While I think that Ellis' arguments for his account of truth are not persuasive, they warrant serious discussion.

There is a second set of issues that also are raised by Ellis' work, as well as by that of Dennett and others, that surround the question: is there any sense in which we follow laws of logic? So far we have found no very interesting sense in which we do follow the laws of logic, or that our beliefs conform to, or are governed by, the laws of logic. Ellis' model of 'ideally rational belief systems' is one attempt to work this out, and another strategy is expressed by Elliot Sober who suggests that "laws of logic and the maxims of epistemology are (among other things) the laws of cognition". He suggests that laws of logic have a
psychological reality, and function as laws of information processing. There are very interesting issues here, not the least of which involve getting clear on the obvious parallel with psychologism in linguistics --- and getting clear on that thesis itself. This is the form of 'psychologism' that I would like to try to defend. But I think it is a perfectly innocent kind of psychologism, and is quite compatible with what has been argued in this thesis. To give a hint about where I think the previous discussions have gone wrong, or at least where I think they have missed an important point, is that the kinds of rules or principles that are likely to be psychologically real (rules of information processing) will be analogous to rules of proof in a system of natural deduction, rather than to principles or theorems of deductive logic.

Endnotes

BIBLIOGRAPHY


Boole, George, The Laws of Thought, Dover, 1958.


Dennett, Danial, 'Beyond Belief', unpublished manuscript.


Kaplan, David, 'Demonstratives', unpublished manuscript.


