

Unit 3 Notes
Empiricism: Naive Materialism and Idealism

§I. Introduction

I.1. Locke's *Essay* and Berkeley's *Principles*

Our third unit focuses on two of the most important of the British Empiricists: Locke and Berkeley. (Our fourth unit focuses on a third, Hume.)

The empiricists try to avoid the grandiose metaphysical speculation of Descartes and Spinoza, for example, by restricting their accounts of our abilities to acquire and justify our beliefs.

We have seen that Hobbes claims that all knowledge comes from sense experience.

With Hobbes, the empiricists depict humans as born with just a blank mental slate and some naturally developing capacities to acquire and create ideas.

In evaluating their views, it will be important to look carefully at their conception of sense experience and reflection.

Locke presents an optimistic view about accounting for our knowledge with these limited tools.

His metaphysics can be classified as a naive materialism.

His optimism runs into some severe limitations developed, in different ways, by Berkeley and Hume.

Berkeley's metaphysics is called idealism.

Locke's 1690 *Essay Concerning Human Understanding* is over-written and long-winded.

It also contains some of the most insightful and fecund work of his time.

Reading Locke's *Essay* has been compared to going into Grandma's attic.

There's a lot of cool stuff in there.

But you have to find it amid the dust and clutter.

Ariew and Watkins present just a portion of the *Essay*.

We will read only a portion of their selections.

Berkeley's work is mainly found in his *Principles* (i.e. *A Treatise Concerning the Principles of Human Knowledge*), which was not well-received at the time (1710), and his *Three Dialogues Between Hylas and Philonous* (1713), which was Berkeley's attempt to present a popular version of his work.

In the *Three Dialogues*, Hylas (man of matter) presents Locke's materialism and Philonous (lover of mind) is Berkeley's idealistic mouthpiece.

We will read the first two dialogues, but I prefer the earlier exposition in the *Principles*.

Ariew and Watkins present only the Introduction and the first thirty-four (of 156) sections of the *Principles*.

In addition to the sections printed in AW, I have assigned §86 to the end of the *Principles*, and made copies [available on the course website](#).

I have also posted §34-§84, in which Berkeley presents objections and replies and which is an excellent source of paper topics.

The *Three Dialogues* are fun and contain more useful exposition of a few points, but both works cover the same material.

I.2. Locke and the Rationalists

Locke's work comes in large part as a response to Descartes and other rationalists.

The rationalists embrace intuition and reasoning, what Locke calls *koinai ennoiai* (primary notions) or

innate ideas, as central aspects of their work.

Descartes claims that we have pure intuitions, clear and distinct perceptions of innate ideas.

For Descartes, ideas of the self, God, and mathematics are innate, built into our minds.

Laws of physics, depending as they do on mathematics, are also innate, the result of pure, intellectual judgment.

Spinoza relies on innate ideas, as well, calling them rational and intuitive knowledge.

The rationalists built grand metaphysical systems and claimed that reality is much different from our ordinary interpretations of sense experience.

Locke wants to limit the scope of pure understanding and reign-in speculative metaphysics.

It may be of use to prevail with the busy mind of man to be more cautious in meddling with things exceeding its comprehension, to stop when it is at the utmost extent of its tether, and to sit down in a quiet ignorance of those things which, upon examination, are found to be beyond the reach of our capacities (Locke, *Essay*, I.I.4, AW 317a).

Locke's belief that many philosophers claim to know more than they can know might seem to lead to skepticism, a denial that we can know anything.

Recall that Descartes seemed unable to justify any of his beliefs without relying on the existence and goodness of God, the arguments for which he supposed to be innate.

Descartes is driven to his position by his claim that we must be certain of something beyond any doubt if we are to know it.

Unless we defeat the deceiver, we know almost nothing.

One might thus believe that rejecting speculative metaphysics entails conceding to the skeptic and ceding all of our beliefs.

Locke, in contrast, believes that Descartes's standard for knowledge is too high and that we can know about the world around us without proving the existence of God.

If we disbelieve everything because we cannot certainly know all things, we shall do quite as wisely as he who would not use his legs, but sit still and perish, because he had no wings to fly (Locke, *Essay*, I.I.5, AW 317b-318a).

While knowledge may not, contra Descartes, entail certainty or the KK thesis, it does require justification and truth.

If we know that p, then p must be true and we must have good reasons to believe that p.

But, according to Locke, it does not follow that I must not be able to doubt that p.

Locke thus does not worry about defeating a deceiver.

And he thinks that there are easy refutations of the dream doubt, ones which do not depend on reasoned belief in an omnipotent creator.

If anyone says a dream may do the same thing, and all these *ideas* may be produced in us without any external objects, he may please to dream that I make him this answer: 1. That it is no great matter, whether I remove his scruple or not; where all is but dream, reasoning and arguments are of no use, truth and knowledge nothing. 2. That I believe he will allow a very manifest difference between dreaming of being in the fire and being actually in it (Locke, *Essay*, IV.II.14, AW 392a).

Instead of working to overcome such doubts, Locke just pursues good justifications for the beliefs he will count as knowledge.

We will cover four central topics in Locke's work:

- Arguments against innate ideas
- The primary/secondary distinction
- An account of personal identity, including Locke's approach to the mind/body problem
- Locke's philosophy of language, including the doctrine of abstract ideas

Locke, like Hobbes, is known for his work on political theory and the social contract. In this course, though, we will hardly mention those aspects of his work.

§II. Innate Ideas

II.1. Sense Experience and Innateness

Locke, like most philosophers of the modern period (Berkeley is one significant exception), defended the new science and its method of experimentation.

The new science posits a world of material objects available to sense perception.

We think about material objects through our imagination, our capacity to represent sensory images.

The rationalists derogated beliefs that were based on sense perception.

For Descartes, sense images are confused and the only real properties are those we can understand by pure reason, our innate ideas.

An innate idea is one that is implanted in our minds rather than learned from sense experience.

We are born with innate ideas, according to their proponents, which is why everyone has them, and everyone agrees about them.

Locke argues that he can avoid appealing to innate ideas by accounting for all of human knowledge on the basis of sense experience.

Men, barely by the use of their natural faculties, may attain to all the knowledge they have, without the help of any innate impressions, and may arrive at certainty without any such original notions or principles (Locke, *Essay*, I.II.1, AW 319a).

He points out that we do not know some of the ideas which Descartes alleges are innate. For example, children do not know lots of them.

It is evident that all *children...*do not have the least apprehension or thought of them. And the lack of that is enough to destroy that universal assent which must be the necessary concomitant of all innate truths... (Locke, *Essay*, §I.II.5, AW 319b).

For accounts of innate ideas on which mathematical claims are innate, like all of those we have studied, we need not appeal to the limitations of children to support Locke's claim.

Consider Goldbach's conjecture, that every even number can be written as the sum of two odd primes.

There is no proof, yet discovered, of Goldbach's conjecture.

Even the best mathematicians do not know if it is true.

Thus we can not claim that there is universal assent to Goldbach's conjecture.

Given that every one doesn't know some of their innate ideas (e.g. Goldbach's conjecture) and some people (e.g. small children) do not know any of them, the defender of innate ideas might claim that such ideas require development.

We have to reason to them, or unfold them from within.

Locke takes such recourse on the part of the rationalist to be a concession.

It [seems] to me near a contradiction to say that there are truths imprinted on the soul which it does not perceive or understand (§I.II.5, AW 319b).

Remember that for Descartes, consciousness is the mark of the mental.

Perhaps we need not recall all of our clear and distinct ideas in order to know them.

But to think that there are innate ideas that are inaccessible to us seems, to Locke, to be implausible.

II.2. Poverty of the Evidence

None of the rationalists we have read appeal to a doctrine of universal assent to defend innate ideas. Instead, they appeal to an argument that has come to be known, in contemporary work, as a poverty of the stimulus or poverty of the evidence argument.

According to poverty of the evidence arguments, sense experience is insufficient to account for some kinds of knowledge.

Descartes argued that all ideas must be innate, acquired, or produced by me; but some ideas could neither be acquired nor produced by me.

There must be innate ideas because other evidence is too weak to account for our knowledge of mathematics or God.

In contemporary linguistics, Noam Chomsky has argued that children learn both the vocabulary and grammar of their first language too quickly to be explained by behavioral conditioning (i.e. sense experience).

Chomsky argues that the poverty of the stimulus shows that our brains are hard-wired to learn language, with universal grammar built into them.

We call Chomsky's view linguistic nativism.

Note the similarity between Chomsky's argument and Descartes's argument for innate ideas.

II.3. The Doctrine of Universal Assent

In contrast, Locke focuses on the doctrine of universal assent.

It is difficult to discern precisely the argument he attributes to the rationalists.

Here are three possibilities, for any proposition p .

UA1 Everyone agrees that p if and only if p is innate.

UA2 If everyone agrees that p , then p is innate.

UA3 If p is innate, then everyone agrees that p .

UA1 is just the conjunction of UA2 and UA3.

Locke argues that there are no propositions for which UA3 holds.

The consequent of UA3 is false for some people no matter what proposition we consider.

Small children don't know any innate ideas.

Even the best mathematicians lack knowledge of Goldbach's conjecture.

We need experience to learn some supposedly-innate ideas.
Those without that experience do not hold those ideas.
For any purportedly-innate idea, there will be someone who does not assent to it.

The examples of children and Goldbach's conjecture undermine UA3 but leave UA2 alone.
Locke provides further examples which undermine using UA2 to conclude that there are innate ideas.
He presents claims that engender widespread agreement while being tied to sense experience.
For example, he considers the claim that green is not red.
No one believes that experience of color is innate.

I imagine everyone will easily grant that it would be impertinent to suppose the *ideas* of colors innate in a creature to whom God has given sight and a power to receive them by the eyes from external objects... (Locke, *Essay*, I.II.1, AW 319a).

It is likely that some of the defenders of innate ideas contemporary with Locke did hold some form of a doctrine of universal assent.
But no one I have read appeals explicitly to such a doctrine.
And none of UA1-UA3 seem particularly plausible principles to ascribe to the defender of innate ideas.
No one questions whether experience is necessary for us to have knowledge.
Here's Leibniz, from his detailed study of Locke's work, *New Essays on Human Understanding*.

I cannot accept the proposition that whatever is learned is not innate. The truths about numbers are in us; but we still learn them... (Leibniz, *New Essays*, 85).

The defender of innate ideas does not deny that some people do not assent to the supposedly innate ideas.
The question is whether experience is sufficient to account for what we know.

Although the senses are necessary for all our actual knowledge, they are not sufficient to provide it all, since they never give us anything but instances, that is particular or singular truths. But however many instances confirm a general truth, they do not suffice to establish its universal necessity; for it does not follow that what has happened will always happen in the same way (Leibniz, *New Essays*, 49).

The defender of innate ideas need not give up the project on the basis of the kind of evidence that Locke uses against invoking UA1–UA3.
Something like II would be more plausible to ascribe to the rationalists.

II An idea is innate if it is not possible to learn it from experience.

Indeed, II is very close to what Descartes actually says about mathematical propositions.
We can't acquire them and we can't create them, so they must be innate.
If the empiricist opponent of the doctrine of innate ideas wants to undermine II, she should show that experience is sufficient to account for our knowledge of the purportedly innate ideas.
That's Locke's positive project.

§III. Locke's Positive Project

III.1. Restriction and Reclamation

Locke's empiricist claim is that we are born with no innate knowledge, no principles imprinted on the understanding.

Thus he does not appeal to claims that depend on the rationalists' innate ideas, especially claims about the nature of God and the soul.

Locke doesn't reject the claim that we have knowledge of God.

He argues that our idea of God comes from experience rather than from imprinted first principles.

Some of us saw arguments like this from Hobbes in the *Objections and Replies*.

If we examine the *idea* we have of the incomprehensible supreme being, we shall find that...the complex *ideas* we have both of God and separate spirits are made of the simple *ideas* we receive from *reflection*: e.g. having, from what we experiment in ourselves, got the ideas of existence and duration; of knowledge and power; of pleasure and happiness; and of several other qualities and powers, which it is better to have than to be without. When we would frame an *idea* the most suitable we can to the Supreme Being, we enlarge every one of these with our *idea* of infinity; and so putting them together, make our complex *idea of God* (Locke, *Essay*, II.XXIII.33, AW 366b).

As a rule, the empiricist has difficulty explaining our knowledge of mathematics.

It is difficult to see how experience can support universal claims about mathematical objects, which are not sensible.

Locke's account of our knowledge of mathematics, like his account of our knowledge of God, does not rely on innate ideas.

Instead, it relies on intuition and demonstration, starting with ideas of sensation, and then using reason to discover relations among them.

I do not doubt but it will be easily granted that the *knowledge* we have of *mathematical truths* is not only certain, but *real knowledge*, and not the bare empty vision of vain insignificant *chimeras* of the brain. And yet, if we will consider, we shall find that it is only of our own *ideas* (Locke, *Essay*, IV.IV.6, AW 404b).

Locke's empiricist strategy thus has two lines of attack.

In one direction, Locke gives up some of the general principles supposedly known innately.

We can call this the restriction strategy.

In the other direction, Locke attempts to justify some of the beliefs that might be thought to rely on innate ideas without appealing to innate ideas.

We can call this the reclamation strategy.

Locke has two sets of tools for that reclamation project.

First, he has sensation and any ideas which can be attributed to our sense experience.

Second, he has the psychological capacities of our minds, including memory and reflection.

While Locke rejects innate principles, he does not deny our natural capacity to reason and intuit.

III.2. The Blank Slate

Locke claims that the mind begins as a blank slate, or *tabula rasa*.

Let us then suppose the mind to be, as we say, white paper, void of all characters, without any *ideas*. How does it come to be furnished? From where does it come by that vast store which the busy and boundless fancy of man has painted on it with an almost endless variety? From where does it have all the materials of reason and knowledge? To this I answer, in one word, from *experience*; our knowledge is founded in all that, and from that it ultimately derives itself. Our observation employed either about *external sensible objects* or about the *internal operations of our minds, perceived and reflected on by ourselves, is that which supplies our understandings with all the materials of thinking*. These two are the fountains of knowledge, from which all the *ideas* we have, or can naturally have, do spring (Locke, *Essay*, II.I.2, AW 323a).

Starting with just some bare capacities, we acquire knowledge of the world.

We learn particulars first, beginning with sense experience.

We get simple ideas of sensation from individual sense experiences of particular objects.

Then, we can combine the simple ideas into more complex ones, eventually developing science.

III.3. Particularism and the Molyneux Problem

Individual perceptions are, for Locke (and Berkeley and others of the time) taken to be simple.

They are so simple, in fact, that impressions of the same object under different sense modalities are independent.

The taste of the lemon is independent of its yellowness and texture and odor.

Locke's claim that the sense modalities are independent explains his response to the Molyneux problem.

Suppose a man born blind, and now adult, and taught by his touch to distinguish between a cube and a sphere of the same metal, and nearly of the same bigness, so as to tell, when he felt one and the other, which is the cube, which the sphere. Suppose then the cube and sphere placed on a table, and the blind man be made to see. Quære, whether by his sight, before he touched them, he could now distinguish and tell which is the globe, which the cube? (II.IX.8, AW 338b).

Locke denies that the blind person could tell which was the sphere and which was the cube without touching the objects.

In other words, our sense of touch is independent of our vision.

There is experimental research supporting Locke's solution, but the question [has not been resolved completely](#).

III.3 Memory and Reflection

Once we receive simple sense impressions, we can hold the ideas of them in memory and recall them.

Our ability to recall simple ideas is facilitated by our use of language, which primarily consists of names of our simple ideas.

We can also reflect on those simple ideas, think about them and draw conclusions based on them.

The other fountain from which experience furnishes the understanding with ideas is the *perception of the operations of our own mind* within us, as it is employed about the *ideas* it has gotten - which operations, when the soul comes to reflect on and consider, do furnish the understanding with another set of *ideas*, which could not be had from things without. And such are *perception, thinking, doubting, believing, reasoning, knowing, willing*, and all the different actings of our own minds, which we, being conscious of and observing in ourselves, do from these receive into our understandings as distinct *ideas* as we do from bodies affecting our senses... I call this REFLECTION (Locke, *Essay*, II.I.4, AW 323b).

Using our natural ability to reflect, we can go beyond the limits of particular sense experience and memory of such experience.

Locke uses 'reflection' to cover a wide variety of psychological capacities, including contemplation, memory, discerning, comparison, composition, and abstraction.

We can, for example, generalize, or abstract, to find universals, like those of mathematics.

The senses at first let in particular *ideas*, and furnish the yet empty cabinet, and the mind by degrees growing familiar with some of them, they are lodged in the memory, and names got to them. Afterwards the mind proceeding further abstracts them, and by degrees learns the use of general names (Locke, *Essay*, I.II.15, AW 321a).

Thus, despite Locke's rejection of innate ideas, he believes that we have some innate, if developing, capacities to reflect on our own ideas.

III.4. Intuitive and Demonstrative Knowledge

Our abilities to reflect, for Locke, can be analyzed into different categories.

For example, we can recognize similarities and differences among our ideas, an activity which yields what he calls intuitive knowledge of the agreement or disagreement of ideas.

If we will reflect on our own ways of thinking, we shall find that sometimes the mind perceives the agreement or disagreement of two *ideas* immediately by themselves, without the intervention of any other. And this, I think, we may call *intuitive knowledge* (Locke, *Essay*, IV.II.1, AW 389a).

For those of you who took Ancient, you might recall Plato's argument, in the *Phaedo*, that we can not learn about equality merely by seeing equals, that we must have knowledge of equality in order even to see two objects as equals.

Plato uses that argument to conclude that we are born with knowledge, foreshadowing the moderns' doctrine of innate ideas.

Locke uses the argument to deflate the innatists' claims.

Locke claims that there are really four kinds of agreement or disagreement among ideas.

These comparisons can be intuitively apprehended without appealing to innate ideas.

1. Identity or diversity;
2. Relation;
3. Coexistence or necessary connection; and
4. Real existence.

Locke claims that our ability to recognize identity and diversity is undeniable, but does not reflect our having been born with innate principles.

This is so absolutely necessary that without it there could be no knowledge, no reasoning, no imagination, no distinct thoughts, at all. But this the mind clearly and infallibly perceives each *idea* to agree with itself, and to be what it is, and all distinct *ideas* to disagree, i.e., the one not to be the other, And this it does without pains, labor, or deduction, but at first view, by its natural power of perception and distinction (Locke, *Essay*, IV.I.4, AW 386b).

All we need to perform these kinds of reflections is a natural power of perception and distinction.

In addition to intuitive knowledge, Locke claims that reflection yields demonstrative knowledge. Demonstrative knowledge requires proof and each step of the proof must be intuitive. Because demonstrative knowledge requires chains of reasoning, doubt, which does not infect intuitive knowledge of agreement of ideas, can arise even though the individual steps are intuitively justified by sense perception. Demonstrative knowledge grounds both mathematical and moral claims.

The picture of mathematical beliefs as being justified by a combination of intuitive first principles and secure methods of proof has a long history.

In mathematics, as in philosophy, though, the kinds of claims that are made on the basis of intuition have given that capacity a bad name.

By the late 19th Century, serious worries about the consistency of calculus, which relied on intuitive claims about infinitesimals, combined with strange results in non-Euclidean geometries and transfinite mathematics, impelled mathematicians to seek a more secure standard of proof.

Gottlob Frege replaced Locke's intuitive guarantee of the steps in a proof with a syntactic criterion, and revolutionized logic, creating what we now know as modern symbolic, or mathematical, logic.

In moral philosophy too, Locke claims that we have intuitive knowledge of some primitive relations among ideas.

And in both cases, we derive more complex ideas by reflecting and abstracting from them.

*Morality [is] among the sciences capable of demonstration; in which I do not doubt but from self-evident propositions, by necessary consequences, as incontestable as those in mathematics, the measures of right and wrong might be made out to anyone who will apply himself with the same indifference and attention to the one as he does to the other of these sciences... "Where there is no property, there is no injustice," is a proposition as certain as any demonstration in Euclid (Locke, *Essay*, IV.III.18, AW 397b-398a.).*

We have seen that Locke criticizes innate ideas, and argues that we have psychological capacities for attaining reflective knowledge.

Further, he criticized Descartes's demand for indubitable certainty.

Still, if he is not to beg the question of whether knowledge is possible, he should explain, in greater detail, how sense experience leads to veridical beliefs.

Can Locke account for the errors which motivated Descartes, the false beliefs that he had taken as true in his youth, and demonstrate ways to avoid such errors without relying on innate ideas?

§IV. The Primary/Secondary Distinction

IV.1. Appearance and Reality and Descartes

As we saw, Locke rejects a contentious form of the doctrine of innate ideas.

He doesn't seem to be arguing against specific arguments in Descartes or Spinoza, say, but against a position which holds claims like UA1–UA3.

Locke has thus been accused of attacking a straw person rather than a serious argument.

Still, that criticism holds only against the negative arguments against abstract ideas.

Locke's positive claim, that our beliefs can be justified by appeal only to sense experience and some basic mental capacities, is independent of his criticisms of innate ideas.

If he can show how we acquire knowledge while avoiding any appeal to innate ideas, we might prefer his empiricist account to a more tendentious rationalist system.

We might, that is, appeal to Ockhamist principles of simplicity to support Locke's account.

So it will be worthwhile to return to Descartes's criticisms of sense experience.

We want to see how Locke deals with the problems that impel Descartes to denigrate sense experience.

Descartes presents three considerations against the veridicality of sense experience, or the Resemblance Hypothesis:

1. The illusion and dream doubts;
2. The wax argument; and
3. The example of the sun.

The moral of the illusion argument is to take care to use one's senses in the best way possible.

It impugns sense evidence when we are in poor conditions, looking at distant or very small objects, say.

We need not dismiss all of our sense evidence on the basis of illusion, as Descartes admitted.

Descartes dismissed the dream argument, in Meditation Six, almost without argument.

There, he relies on the goodness of God not to deceive.

If we withhold the divine guarantee, Descartes's argument against the possibility of systematic deception due to dreaming is weak.

Locke's arguments against the dream doubt, recall, are no stronger than Descartes's, but he holds them with more conviction.

Where all is but dream, reasoning and arguments are of no use, truth and knowledge nothing...[there is] a very manifest difference between dreaming of being in the fire and being actually in it (Locke, *Essay*, IV.II.14, AW 392a).

But the dream doubt is a skeptical hypothesis, difficult, perhaps impossible, to defeat.

One reasonable response to the skeptic is merely to ignore her.

In any case, Descartes's other two arguments are more serious.

The wax argument proceeds by demonstrating a physical object with contradictory sense properties.

Just as I can not both be in my office and not in my office, or both tall and short, the wax can not be both yellow and clear, both smell of flowers and lack odor.

Descartes's conclusion is that the wax is an extended body which can take various manifestations, hot or cold, sweet or tasteless, but is identified with none of these particular sensory qualities.

Physical objects are essentially things which can have sensory qualities but which need not have any particular ones.

The same object may have many different appearances.

The appearance of an object is distinct from its real qualities.

The obvious question for us metaphysicians is which qualities are real and which are mere appearances.

As we saw, the distinction between the real and merely apparent qualities of objects has come to be known as the primary/secondary distinction.

The primary qualities are the real ones, and the secondary properties are the apparent ones.

Descartes, recall, believes that the only real property of physical objects is their extension.

The only principles which I accept, or require, in physics are those of geometry and pure mathematics; these principles explain all natural phenomena, and enable us to provide quite certain demonstrations regarding them (Descartes, *Principles of Philosophy* II.64, AT VIII.A.78)

Further, mathematical claims are not derived from sense evidence, since our imagination is not capable of representing true extension.

We think of extension mathematically, using pure thought.

Descartes's view that extension is the only essential property of physical objects was not standard during the modern era.

Many philosophers of that era believed that physical objects really had primary qualities of size, shape, mass, motion, and number.

Those philosophers, like Galileo who wrote that the book of nature is written in the language of mathematics, argued for the reality of other mathematically-describable properties.

The expansion of the list of real properties from Descartes's extension to the other qualities does not indicate any difference in principle.

The primacy of mathematical properties explains Descartes's rejection of the Resemblance Hypothesis on the basis of the example of the sun.

Descartes contrasts our sense idea of the sun (as very small) with the mathematical idea of the sun (very large) and favored the latter.

Again, Descartes dismisses sense properties, taking only mathematical properties as real.

He thinks of the secondary, sensory properties, as artifacts of interactions between our bodies and other bodies, and not as real properties of those external bodies.

Most philosophers maintain that sound is nothing but a certain vibration of the air which strikes our ears. Thus, if the sense of hearing transmitted to our mind the true image of its object then, instead of making us conceive the sound, it would have to make us conceive the motion of the parts of the air which is then vibrating against our ears (Descartes, *Le Monde*, AT XI.5).

If my experience of sound really resembles the sound, then I should hear motion, not music.

Thus, Descartes is a nominalist about secondary properties.

IV.2. Locke's Arguments for the Primary/Secondary Distinction

While the primary/secondary distinction pre-dates Locke by at least a century, and we saw it in our discussion of the work of both Descartes and Hobbes as well as Galileo's formulation, Locke provides a comprehensive argument for the distinction.

Locke agrees with Descartes and other earlier philosophers that at least some sense qualities are not

veridical.

The debate between Locke and Descartes concerns whether no sense experience is veridical.

We will look first at Locke's arguments for the primary/secondary distinction and then turn to his use of that distinction in the service of his empiricism.

Locke's water experiment (II.VIII.21) plays a role in his epistemology similar to the wax example for Descartes.

Consider three buckets, each containing water of a different temperature: hot, lukewarm, and cold.

Put one hand into the hot water and one into the cold water, and let them sit for a short while.

Then, take them out, and put both hands into the lukewarm water.

The lukewarm water will feel hot to one hand, and cold to the other.

The water, like the wax, displays incompatible sense properties.

Note that Locke's example is even more compelling than Descartes's.

In the water experiment, the same object displays incompatible properties at the same time.

I mentioned that one possible response to the wax argument is Heraclitean.

The Heraclitean argues that any change in the properties of an object entails a change in the object itself.

Or, for two objects to be the same object, they must share all properties.

The Heraclitean claims that the wax before melting and after melting are different objects, and so no contradiction arises among the sensory properties.

There are just two different objects, loosely tied together merely by a name, 'wax'.

Locke's solution to Descartes's problem is roughly Heraclitean.

No one subject can have two smells or two colors at the same time. To this perhaps will be said, has not an opal, or the infusion of *lignum nephriticum*,¹ two colors at the same time? To which I answer that these bodies, to eyes differently placed, it is different parts of the object that reflect the particles of light. And therefore it is not the same part of the object, and so not the very same subject, which at the same time appears both yellow and azure. For it is as impossible that the very same particle of any body should at the same time differently modify or reflect the rays of light, as that it should have two different figures and textures at the same time (Locke, *Essay*, IV.III.15, AW 396b).

The Heraclitean response, though effective in the wax example, is unavailable in the water case.

The exact same water displays the incompatible properties.

If we are going to base our knowledge on our sense experiences, we have to have some account of the error that will not force us to abandon all sense experience.

That is the role to which Locke puts the primary/secondary distinction.

We might have the following ideas of an apple:

Red

Round

Cool to the touch

Sweet, though a bit sour

Shiny

Smooth

¹ Now known as *pterocarpus indicus*, it is a wood that takes on a blue-ish tone after being infused with water.

Sits still on the table
Crunchy
Weighs 4 oz.
Has a mass of 120 grams
Is one apple
Is being considered by you
Smells apple-like

Locke tacitly presumes two principles to distinguish veridical ideas from misrepresentative ones. The first principle is destructive, yielding misrepresentative properties.

LP1: If one perceives an object as having two (or more) incompatible ideas, then those ideas do not represent real properties of the object.

Besides hot and cold, other sense ideas are not veridical, according to LP1. The example of porphyry in the dark (II.VIII.19) shows that color is a secondary quality. Taste and odor are shown secondary by LP1, because an almond changes taste and odor when mashed (II.VIII.20). Applying LP1 to Descartes's wax example, we can see that we have ideas of secondary qualities in all five sense modalities.

Consider tasting [orange juice before and after brushing your teeth](#). What tasted sweet before, tastes sour (for want of a better word) after. Thus, the sweetness and sourness are not real qualities of the orange juice. The orange juice example leads to a corollary to the first principle, LP1C1.

LP1C1: Even if a change in us entails the change in the perceived quality, the ideas which vary can not be veridical.

Now, consider the color impressions of a normal-sighted person and a color-blind person. The differences show, once again, that color is not a real quality of an object. We can infer a second corollary, LP1C2.

LP1C2: Qualities that appear different to different observers are not veridical.

LP1 and its corollaries support Locke's primary/secondary distinction by allowing Locke to account for sense error.

Locke's second principle is constructive, yielding veridical properties.

LP2: If an idea of an object is the same under all conditions, that idea is veridical.

We can see Locke's use of LP2 in his discussion of the globe and square.

We may understand how it is possible that the same water may, at the same time, produce the sensations of heat in one hand and cold in the other; which yet figure never does, that, never producing the *idea* of a square by one hand, which has produced the *idea* of a globe by another (Locke, *Essay*, II.VIII.21, AW 335b).

While I take LP2 to concern an individual's perceptions, it also appears to have a corollary which concerns multiple observers.

LP2C: If every observer receives the same idea from an object, then that idea is veridical.

LP1 and LP2 allow us to distinguish among our sense experiences.

Some sense experience is veridical and can be trusted.

Some sense experience is misrepresentative, and can not be trusted.

Let's apply the principles to our apple

Red	Misrepresentative
Round	Real
Cool to the touch	Misrepresentative
Sweet, though a bit sour	Misrepresentative
Shiny	Misrepresentative
Smooth	Misrepresentative
Sits still on the table	Real
Crunchy	Misrepresentative
Weighs 4 oz.	Misrepresentative
Has a mass of 120 grams	Real
Is one apple	Real
Is being considered by you	Misrepresentative
Smells apple-like	Misrepresentative

IV.3. Locke's Formulation of The Primary/Secondary Distinction

We have arrived at the primary/secondary distinction via argument.

These I call *original* or *primary qualities* of body, which I think we may observe to produce simple *ideas* in us, namely, solidity, extension, figure, motion or rest, and number. *Secondly*, such *qualities* which in truth are nothing in the objects themselves but powers to produce various sensations in us by their *primary qualities*...these I call *secondary qualities* (Locke, *Essay*, II.VIII.9-10, AW 333a-b).

Primary Qualities	Secondary Qualities
Solidity	Color
Extension	Odor
Figure	Hot/ Cold
Motion/ Rest	Sound
Number	Texture
	Taste

Locke continues to classify as tertiary ideas those that we impute to an object on the basis of its power to change the appearance of another object.

He uses the example of the power of the sun to make wax white.

We need not concern ourselves with tertiary qualities.

No one takes the tertiary qualities to be real properties of an object.

The point of appealing to the primary/secondary distinction is to show that empiricism is plausible, that we can justify our beliefs on the basis of sense experience without worrying that we will be forced to accept errors as true because we are relying on our senses rather than pure reason.

I believe that LP2 and LP2C accurately reflect Locke's intentions.

But, Locke can be sloppy in his discussions of the veridical properties.

Qualities thus considered in bodies are, first, such as are utterly inseparable from the body in whatever state it is, such as in all the alterations and changes it suffers, all the force can be used upon it, it constantly keeps, and such as sense constantly finds in every particle of matter which has bulk enough to be perceived, and the mind finds inseparable from every particle of matter, though less than to make itself singly perceived by our senses - e.g., take a grain of wheat, divide it into two parts, each part has still *solidity*, *extension*, *figure*, and *mobility*; divide it again, and it retains still the same qualities; and so divide it on until the parts become insensible, they must retain still each of them all those qualities (Locke, *Essay*, II.VIII.9, AW 333a).

Here, I worry that Locke's examples undermine his claims.

If we divide the grain of wheat in half, it has half the extension.

Thus, extension seems unstable.

The change in the taste of an almond upon mashing was supposed to show that taste is a secondary quality.

So, why doesn't the change in extension of the wheat show that extension is a secondary quality?

Locke's claim is that any divisions will not remove extension, or solidity, or shape, even if it alters those qualities.

These properties of the wheat contrast with the way objects lose all color in the dark, and the way that the wax can lose its odor and flavor.

The wheat still has a size and a shape, but, with enough division, the primary qualities may lose shape.

Do electrons have shape?

Certainly, the solidity of an object will change after enough division.

There are some serious worries here for Locke's primary/secondary distinction.

But the general idea should be clear.

Let's set these worries aside to how Locke applies the distinction.

IV.4. The Primary/Secondary Distinction and the Resemblance Hypothesis

Locke presents the primary/secondary distinction in defense of his claim that we can justify our beliefs without appeal to innate ideas.

Putting skepticism aside, Descartes's strongest argument against the veridicality of sense experience relies on his examples of the wax and the sun in support of his rejection of the Resemblance Hypothesis.

While the primary/secondary distinction preceded even Descartes, we often associate the distinction with Locke because of his use of the distinction in his arguments for empiricism.

The distinction allows Locke to defend a weakened version of the Resemblance Hypothesis.

Locke accepts the Resemblance Hypothesis for primary qualities only.

The *ideas of primary qualities* of bodies *are resemblances* of them and their patterns do really exist in the bodies themselves, but the *ideas produced* in us by these *secondary qualities* have *no resemblance* of them at all. There is nothing like our *ideas* existing in the bodies themselves (Locke, *Essay*, II.VIII.15, AW 334a).

Our ideas of extension resemble extension in the world.
For example, I have an idea that this piece of paper is 11 inches long.
So, the paper really is 11 inches long.
My idea of the motion of a car resembles the real motion of that car.
The car really is moving.
My ideas of secondary qualities do not resemble anything in an object.

On the basis of my ideas of primary qualities, then, I can justify significant conclusions about the world (i.e. the new science) without appealing to innate ideas.

IV.5. Descartes and Locke (and Galileo)

Locke and Descartes do not disagree substantially about the nature of the physical world.
We should expect this, since both Descartes and Locke were writing in support of modern science.
Descartes believes that the essential characteristic of physical objects is extension, whereas Locke believes that extension is just one of several primary qualities.
They disagree about how we know about those properties.
But their disagreement is epistemological, not metaphysical.

The metaphysical upshot of the primary/secondary distinction, then, is that the world is nothing but particles in motion, and that the sense qualities of objects are not really in the world.
Lemons are not really yellow or sour.
They are made of particles (atoms or corpuscles) that appear yellow or sour to normal human senses.
These minute particles unite in varying ways.
Depending on how they unite, they affect us in different ways.
Their arrangement determines how we experience an object.
The lemon can take on other appearances, in other circumstances, to other observers, who will all agree on the size and shape of the lemon.
We might say that the lemon has a 'dispositional property' which makes us see it as yellow.
But the dispositional property is not yellowness, which is, properly speaking, a property only of my experience.
We have ideas which arise from the interaction between our senses and the material world.
The material world exists independently of us, and has its primary qualities truly, but depends on us for sensory (secondary) properties.

Here's Galileo again on the primary/secondary distinction:

...that external bodies, to excite in us these tastes, these odours, and these sounds, demand other than size, figure, number, and slow or rapid motion, I do not believe, and I judge that, if the ears, the tongue, and the nostrils were taken away, the figure, the numbers, and the motions would indeed remain, but not the odours, nor the tastes, nor the sounds, which, without the living animal, I do not believe are anything else than names (*Opere* IV, 336).

Compare Galileo's formulation to Locke's:

Take away the sensation of them; let the eyes not see light, or colors, nor the ears hear sounds; let the palate not taste, nor the nose smell; and all colors, tastes, odors, and sounds as they are such particular *ideas* vanish and cease, and are reduced to their causes, i.e., bulk, figure, and motion of parts (Locke, *Essay*, II.VIII.17, AW 334b).

§V. The Mind-Body Problem and Locke's Humble Mysterianism

While Locke was suspected of Hobbesian materialism, he is actually a dualist, accepting the existence of the soul and God, as well as material objects.

So Locke, like Descartes, is saddled with a mind-body problem.

The slight metaphysical differences between Locke and Descartes do nothing to change the essential nature of the problem.

Given what Locke says about the primary qualities, we can see that bodies have several essential properties, not merely extension.

Similarly, minds are not essentially thinking; they are just the kinds of things that do think.

Still, nothing in these changes in the characterizations of each substance mitigates the problem.

Locke does not provide a Cartesian-style solution to the mind-body problem, despairing of any satisfactory account.

His discussion of mind-body interaction is humble, though, rather than skeptical.

He begins with a standard Galilean account, like the one we saw in Hobbes.

Supposing the sensation or idea we name whiteness be produced in us by a certain number of globules, which, having a verticity about their own centres, strike upon the retina of the eye, with a certain degree of rotation, as well as progressive swiftness; it will hence easily follow, that the more the superficial parts of any body are so ordered as to reflect the greater number of globules of light, and to give them the proper rotation, which is fit to produce this sensation of white in us, the more white will that body appear, that from an equal space sends to the retina the greater number of such corpuscles, with that peculiar sort of motion... I cannot (and I would be glad any one would make intelligible that he did), conceive how bodies without us can any ways affect our senses, but by the immediate contact of the sensible bodies themselves, as in tasting and feeling, or the impulse of some sensible particles coming from them, as in seeing, hearing, and smelling; by the different impulse of which parts, caused by their different size, figure, and motion, the variety of sensations is produced in us (Locke, *Essay*, IV.II.11, not in AW).

Locke describes how the communication of motion of light to the retina will impel us to see a color, without any serious speculation about the communication of motion or worries about transeunt causation. He provides no explanation of why a particular wavelength of light should correspond to a particular color, or why the vibration of the ear should correspond to the sound it does.

Why do lemons appear yellow?

Both the moderns like Locke and contemporary neuroscientists lack an explanation of the connection between my conscious experience and its cause.

Why is it that such and such motions in the air cause me to hear a symphony?

Why is it that certain wavelengths of light cause me to see blue?

That the size, figure, and motion of one body should cause a change in the size, figure, and motion of another body is not beyond our conception. The separation of the parts of one body upon the intrusion of another and the change from rest to motion upon impulse, these and the like seem to have some *connection* one with another. And if we knew these primary qualities of bodies, we might have reason to hope we might be able to know a great deal more of these operations of them one upon another. But our minds not being able to discover any *connection* between these primary qualities of bodies and the sensations that are produced in us by them, we can never be able to establish certain and undoubted rules of the consequence or *coexistence* of any secondary qualities, though we could discover the size, figure, or motion of those invisible parts which immediately produce them. We are so far from knowing what figure, size, or motion of parts produce a yellow color, a sweet taste, or a sharp sound that we can by no means conceive how any *size, figure, or motion* of any particles can possibly produce in us the *idea* of any *color, taste, or sound* whatsoever; there is no conceivable *connection* between the one and the other (Locke, *Essay*, IV.III.13, AW 395b-396a).

This is the kind of statement that worries those of us who like to think of philosophy as a science-like discipline seeking progress on specific problems.

We haven't made any progress in the last three centuries of trying to answer that question.

That question is essentially what [David Chalmers](#) calls the hard problem of consciousness.

The easy problem is to map the brain and to know all its functions.

Once we have done that, though, we still won't be any closer to an answer to why certain neural firings correspond to certain conscious experiences.

Locke's claim concerning our conscious experience is merely that there are lawful correspondences between physical events and some mental states.

If these lawful correspondences are possible, it seems possible for matter to think.

Moreover, it seems equally unlikely for whatever substance in which thought resides to be the seat of thought as for matter to be the seat of thought.

We have the *ideas* of *matter* and *thinking*, but possibly shall never be able to know whether any mere material being thinks or not, it being impossible for us, by the contemplation of our own *ideas*, without revelation, to discover whether omnipotence has not given to some systems of matter fitly disposed a power to perceive and think, or else joined and fixed to matter so disposed a thinking immaterial substance - it being in respect of our notions not much more remote from our comprehension to conceive that God can, if he pleases, superadd to matter a faculty of thinking than that he should superadd to it another substance with a faculty of thinking, since we do not know in what thinking consists, nor to what sort of substances the Almighty has been pleased to give that power... (Locke, *Essay*, IV.III.6, AW 393b).

Locke thus draws a humble conclusion.

The extent of our knowledge comes not only short of the reality of things, but even of the extent of our own *ideas* (Locke, *Essay*, IV.III.6, AW 393a).

The materialist and the dualist each make the error of claiming to know something that is beyond the reach of our ideas.

§VI. Personal Identity

VI.1. The Body Theory and the Ship of Theseus

The question of how to define or characterize [personal identity](#), what identifies us or makes us the same over time, is deep and compelling.

Two standard, if limited accounts, might be called the body theory and the soul theory.

According to the body theory, which we might attribute to Hobbes, we are our bodies.

This view would be consistent with our general, contemporary preference for materialism.

The problem with the body theory is that our bodies are changing all the time.

We lose skin and hair constantly.

Every seven years, all the cells in our bodies are replaced.

If we identify ourselves with our bodies, we are not the same person we were, say, a moment ago.

(And, my son is identical to chicken nuggets and noodles.)

The problem of personal identity is related to a more general problem called the problem of material constitution.

Consider the ship of Theseus.

We can replace every plank on the ship, one at a time.

It could change its material composition completely, but remain the same ship.

We can even make a new ship with the old wood and find ourselves confused about what to say.

Is the ship that Theseus uses, with all new materials, his ship?

Or, is the new ship made of the old wood his ship?

The body theory is undermined by the inconstancy of material constitution.

We might believe that there is a constant, underlying self, a haecceity which has the experiences, and undergoes the changes.

In that latter case, the body theory has no plausibility.

VI.2. The Soul Theory

The soul theory, at which Descartes hinted, claims that we are essentially thinking things, our souls.

According to the soul theory, the self is an immaterial substance completely distinct from our bodies.

There are two sorts of objections to the soul theory.

The first sort of objection denies that there are souls distinct from bodies.

This (usually materialist) response argues that the soul theory of personal identity must be false since there are no souls.

One argument for the first kind of response relies the problem of interaction.

If we identify ourselves with our souls, then we have a puzzle about how we interact with our bodies.

The second sort of objection to the soul theory of self, which we see in Locke's work, does not oppose the existence of souls.

Locke points out that the soul theory is committed to the independence of bodies and souls.

Souls [are], as far as we know anything of them, in their nature, indifferent to any parcel of matter... (Locke, *Essay*, II.XXVII.14, AW 372a).

Thus the body in which the soul is placed is inconsequential.

The same soul could be put into two bodies.

If the *identity* of soul alone makes the same man, and there be nothing in the nature of matter why the same individual spirit may not be united to different bodies, it will be possible that those men living in distant ages, and of different tempers, may have been the same man. This way of speaking must be, from a very strange use of the word *man*, applied to an *idea* out of which body and shape are excluded (Locke, *Essay*, II.XXVII.6, AW 369a).

Imagine that a soul had two different incarnations.
We wouldn't say that there were only one person.

Suppose it to be the same soul that was in *Nestor* or *Thersites* at the siege of *Troy*...which it may have been, as well as it is now the soul of any other man. But he now having no consciousness of any of the actions of either of *Nestor* or *Thersites*, does or can he conceive himself the same person with either of them? Can he be concerned in either of their actions, attribute them to himself, or think them his own more than the actions of any other men that ever existed? Thus, this consciousness not reaching to any of the actions of either of those men, he is no more one self with either of them than if the soul or immaterial spirit that now informs him had been created and began to exist, when it began to inform his present body... (Locke, *Essay*, II.XXVII.14, AW 372a).

The soul is not identical to the self, Locke says, since there can be more than one self using the same soul. Moreover, Locke argues that the problem works in the other direction, too. Locke believes that it is possible for the same self to be transferred between souls, as we will see when we get to Locke's positive account of the self.

So, we can distinguish between two different types of objections to the soul theory, one which accepts the existence of souls and one which rejects them.

On either objection, the soul theory of self meets counter-intuitive consequences.

To avoid these unfortunate consequences, Locke provides a different account of self, which we can call the consciousness theory.

Locke's account is both controversial and revolutionary.

VI.3. Identity, Sortals, and the Sophisticated Body Theory

One of Locke's lasting contributions to the literature on personal identity is his observation that identity generally is relative to a sortal, to a kind of thing.

We can not know what our identity is until we know what kind of thing we are.

There are three main types of things for Locke, as for Descartes: God, finite minds (souls), and bodies. These categories are too coarse to help us identify our selves.

We must consider what is meant by Socrates, or the same individual *man*. First, it must be either the same individual, immaterial, thinking substance; in short the same numerical soul, and nothing else. Secondly, or the same animal, without any regard to an immaterial soul. Thirdly, or the same immaterial spirit united to the same animal (Locke, *Essay*, II.XXVII.21, AW 374a).

Let's say that my daughter re-forms her plasticine sculpture of a horse into the shape of a house. The lump of plasticine is the same lump, but it is a different statue.

The ship of Theseus may be the same ship while being a different material object.
We can not know how to identify something unless we know what kind of thing it is.
The same mass of matter may be a different statue while being the same toy.
So, we can not know what our identity is until we know what kind of thing we are.

We might, for example, think that we are a biological kind of thing.
Locke takes 'man' to refer to a type of animal, like 'human being'.

The idea in our minds, of which the sound "man" in our mouths is the sign, is nothing else but of an animal of such a certain form (Locke, *Essay*, II.XXVII.8, AW 369b).

An animal is not merely its matter.
The matter remains after the animal's death while the animal itself does not.
The principles of identity of the sort 'man' (I'll use 'human' here) are biological.
Biological criteria are not strictly material.
The identity of a human is determined functionally, by its organization and not by its matter.

The identity of the same *man* consists...in nothing but a participation of the same continued life, by constantly fleeting particles of matter, in succession vitally united to the same organized body (Locke, *Essay*, II.XXVII.6, AW 369a).

Note that a body theorist of the self could make this kind of appeal to a biological sortal.
In contrast to the naive body theory theorist who attempts to identify our selves with our constantly-changing bodies, the sophisticated body theorist could say that we are humans: material objects with a certain sort of functional organization.

But even the sophisticated body theory is insufficient.
The sort 'human' can not serve as the sort of our selves.
A human is identified by the functional organization of the body; it is a biological thing.
But, 'person' and 'self' are moral terms used for practical purposes of ascribing responsibility.
One can see an argument for the distinction between (biological) humans and (moral) persons clearly when we consider the question of whether aliens, or sentient machines, could be persons.
Since such a case is possible, our personhood must not be identical with our biology.

In addition, Locke's account arises in part from the worry, raised by Robert Boyle, about the resurrection of bodies in the presence of cannibals.

Imagine that some portion of one person's body is eaten by another person, and so becomes part of both of them.

It is a puzzle to determine into whose body that portion of matter will go at the resurrection when souls are supposed to be reunited with their bodies.

Does it go with the eaten person or with the cannibal?

I'm not sure how much Locke's rejection of the body theory and his claim that 'human' is the proper sortal for personal identity are responses to Boyle's worry.

But Boyle's puzzle seems to have had some influence on Locke.

VI.4. Locke's Consciousness Theory

We are looking for a criterion for identity for personhood: what makes us the same people over time.
It's not sameness of soul.

It's not sameness of body.

For Locke, what makes the same person over time, is consciousness, especially connection through memory, which Locke calls consciousness extending backwards.

Locke's view is sometimes called the psychological continuity theory and sometimes the memory theory. I'll call it the consciousness theory.

[A person] is a thinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing in different times and places; which it does only by that consciousness which is inseparable from thinking, and, as it seems to me, essential to it... (Locke, *Essay*, II.XXVII.9, AW 370a).

Locke argues for the consciousness theory from premises similar to those that Descartes invoked for the soul theory.

In thinking about ourselves, we think about our thoughts.

For Descartes, consciousness is the essential characteristic of mental life and what distinguishes us from (other) animals.

Locke denies Descartes's conclusion that we are our souls.

But, he maintains an emphasis on conscious thought.

Since consciousness always accompanies thinking, and it is that which makes every one to be what he calls self, and thereby distinguishes himself from all other thinking things, in this alone consists personal identity (Locke, *Essay*, II.XXVII.9, AW 370a).

Locke's view is called the psychological-continuity theory because of its claim that continued consciousness is a mark of sameness of self.

We know of continued consciousness through memory.

So memory is also essential to the criteria for identifying ourselves over time.

For as far as any intelligent being can repeat the idea of any past action with the same consciousness it had of it at first, and with the same consciousness it has of any present action; so far it is the same personal self (Locke, *Essay*, II.XXVII.10, AW 370b).

Locke's argument for the consciousness theory invokes a series of thought experiments.

He considers a prince who transfers his consciousness to a cobbler.

Though he inhabits a different human being, Locke argues, it is the same prince in the pauper's body.

Locke also considers the day and night case, a single biological human who has one consciousness in the day and one in the night, like Jekyll and Hyde.

In this case, Locke says, we are tempted to say that there are two people in one biological human.

Locke's solution to the problem of personal identity helps explain his objection to the soul theory.

The soul theory says that sameness of soul, taken as a substance, suffices for sameness of person.

Locke considers a case in which consciousness varies but substance remains.

He is taking the soul to be a conduit for thought and imagining that different consciousnesses (especially memories) are placed in the same container soul.

If the soul theory were correct, then we should have the same person.
But, Locke says that we have two different people, and so the soul theory is wrong.

If the same consciousness...can be transferred from one thinking substance to another, it will be possible that two thinking substances may make but one person. For the same consciousness being preserved, whether in the same or different substances, the personal identity is preserved (Locke, *Essay*, II.XXVII.13, AW 371b).

The soul theory of self posits a constant haecceity, a thing underlying our experiences. Locke's consciousness theory attempts to maintain a consistent thing, the self, without positing a particular substance called the self. Another option, which we will see in Hume's work, is to give up the notion of a self in response to the constant changes of both material constitution and conscious experience.

§VII. The Doctrine of Abstract Ideas

VII.1. Meanings of Words

Our final topic in studying Locke concerns language. Locke believes that words stand for ideas in our minds. This claim is controversial because we take many words to stand for objects outside of our minds. We normally take 'this table' to refer to the table, not to my idea of the table. Locke holds what we can call a representational theory of mind on which ideas are like pictures in the mind. Terms stand for ideas, which somehow correspond to objects like chairs, people, or even circles.

Here is an argument for Locke's claim, drawn from the first two chapters of Book III, which are not reprinted in Ariew and Watkins.

- LL LL1. Society depends on our ability to communicate our ideas, so words must be able to stand for ideas.
- LL2. Since my ideas precede my communication, words must refer to my ideas before they could refer to anything else.
- LL3. If words refer both to my ideas and to something else (e.g. your idea, or an external object), then they would be ambiguous.
- LL4. But, words are not ordinarily ambiguous.
- LL5. So, words ordinarily do not stand for something other than my ideas.
- LLC. So, words stand for my ideas.

Locke claims that while names refer to our own ideas, we just suppose them to refer to other people's ideas or for external objects.

A child having taken notice of nothing in the metal he hears called gold, but the bright shining yellow colour, he applies the word gold only to his own idea of that colour, and nothing else; and therefore calls the same colour in a peacock's tail gold. Another that hath better observed, adds to shining yellow great weight: and then the sound gold, when he uses it, stands for a complex idea of a shining yellow and a very weighty substance. Another adds to those qualities fusibility: and then the word gold signifies to him a body, bright, yellow, fusible, and very heavy. Another adds malleability. Each of these uses equally the word gold, when they have occasion to express the

idea which they have applied it to: but it is evident that each can apply it only to his own idea; nor can he make it stand as a sign of such a complex idea as he has not...(Locke, *Essay*, §III.II.3).

Unfortunately, according to Locke, people consistently make errors by thinking that their words stand for objects outside of themselves.

[It is] perverting the use of words, and bring[ing] unavoidable obscurity and confusion into their signification, whenever we make them stand for anything but those ideas we have in our own minds (Locke, *Essay*, §III.II.5).

Concomitant with his claim that words stand for ideas, Locke claims that general terms stand for abstract ideas, as we saw in §III.3 of these notes.

A particular term, like a name, stands for one specific object.

A general term, in contrast, can stand for more than one thing.

‘Apple’ can be used for any of various apples.

‘Green’, ‘motion’, and ‘body’ are similarly general terms.

For Locke, they stand not for a particular idea or specific sensation, but for abstract, general ideas.

There are too many particular things for them all to have particular names, and our capacity to learn and remember names is limited.

Further, you don’t have names for my ideas and I don’t have names for yours.

Moreover, science depends on generality, as we see in the next subsection.

We have to use general terms.

Thus, Locke argues that we use particular names for particular ideas (which correspond to particular things) when it is useful.

And we use general terms which stand for abstract ideas, for communication and for science.

Berkeley denies Locke’s doctrine of abstract ideas.

Indeed, he believes that it is the source of the error of materialism.

He agrees with Locke that our terms stand for our ideas.

But Berkeley denies that there are any abstract ideas, and thus that general terms have any real meaning.

We’ll look first at Locke’s arguments for abstract ideas, and then at Berkeley’s arguments against them.

VII.2. General Terms in Science and Mathematics

General terms are the foundation not only for empirical science, but for formal sciences like mathematics and logic that motivated (in part) the rationalists to posit innate ideas.

Locke argues that we get knowledge of mathematical objects, which we do not experience, by a process of abstraction.

We see doughnuts and frisbees and focus on their common shape to arrive at the idea of a circle.

We leave out other properties, form an abstract idea, and coin a general term to stand for it.

Abstraction is required in other areas, as well.

We experience extended things, but not extension itself.

Any ideas of extension, size, or shape must arise from abstraction.

Let us consider this process of abstraction in a bit more detail.

We start with our sense experiences, of several chairs, for example.

We notice that they have common properties: backs, seats, legs.

We give a name to whatever has these common properties.

This name, 'chair', is abstract, in the sense that it doesn't refer to a particular chair.

Instead, it is a general term which applies to any chair.

The same process yields 'table'.

We can consider the commonalities among tables and chairs, and sofas and desks.

This yields, given a further mental act of abstraction, an even more general term, 'furniture'.

The same process gives us other terms like 'house' and 'apartment building'.

We can abstract from those to get 'domicile'.

Similarly, we arrive at names like 'animal', and 'person'.

All of the objects we have considered are extended.

We can abstract again and arrive at the terms, 'extension', 'physical object', and 'substance'.

A progression of abstraction leads us from particular terms for individual sensations to general terms for bodies.

Similarly, we get the term 'motion' from abstracting from particular ideas of particular things in motion.

Ideas of bodies and motion are the foundations of physical science.

Scientists use 'motion', for example, when they assert that velocity is equal to the change in displacement over time, ' $v = \Delta s / \Delta t$ '.

The laws of physical science include unavoidable uses of general terms.

In sum, we have a term 'bodies'.

The term stands for an abstract idea, 'bodies'.

An idea is a representation of an external object.

The term 'bodies', which we have constructed to stand for an abstract idea, refers to bodies, which are physical objects.

To account for mathematics, we abstract as well, from frisbees and pizzas to circles, and from collections of objects to numbers.

Both the use of general terms and our ability to remember the distinct parts of a proof are essential to mathematics.

If...the perception that the same *ideas* will eternally have the same habitudes and relations is not a sufficient ground of knowledge, there could be no knowledge of general propositions in mathematics, for no mathematical demonstration would be any other than particular (Locke, *Essay*, IV.I.9, AW 388b).

The abstract generality of mathematical claims supports their certainty.

We abstract the triangularity of triangular-shaped drawings from their specific properties: the chalk, the slight curve in one side, the location on the board.

We ignore some properties and focus on others, like the triangularity.

General terms, and the abstract ideas to which they refer, apply to particular objects, but only to certain aspects of those objects.

[A general] *idea* [of man] is made, not by any new addition, but only...by leaving out the shape, and some other properties signified by the name *man*, and retaining only a body, with life, sense, and spontaneous motion, comprehended under the name *animal* (Locke, *Essay*, III.III.8, AW 378a).

When we leave out the particular elements of our ideas and focus only on the mathematical elements, we can attain perfect generality.

This generality yields the certainty of mathematics, since mathematical claims are only about our abstract ideas, and not about the external world.

[The mathematician] is certain all his knowledge concerning such *ideas* is real knowledge, because intending things no further than they agree with his *ideas*, he is sure what he knows concerning those figures, when they have barely an *ideal existence* in his mind, will hold true of them also when they have real existence in matter, his consideration being barely of those figures which are the same, wherever or however they exist (Locke, *Essay*, IV.IV.6, AW 404b).

Furthermore, ethical ideas are, like mathematical ones, based on abstractions and thus liable to certainty.

For certainty being but the perception of the agreement or disagreement of our *ideas*; and demonstration nothing but the perception of such agreement, by the intervention of other *ideas* or mediums, our moral *ideas*, as well as mathematical, being archetypes themselves, and so adequate and complete *ideas*; all the agreement or disagreement which we shall find in them will produce real knowledge, as well as in mathematical figures (Locke, *Essay*, IV.IV.7, AW 404b).

VII.3. Nominalism

‘Nominalism’ is the claim that some words are merely names and do not denote real objects or properties. We are all nominalists about fictional objects like the Easter Bunny.

Some people are nominalists about numbers.

Locke is a nominalist about color and other secondary properties.

Locke is also a nominalist about the referents of abstract ideas.

General terms stand for to abstract ideas, but abstract ideas do not correspond to anything in the world.

Universality does not belong to things themselves, which are all of them particular in their existence, even those words and *ideas* which in their signification are general. When therefore we quit particulars, the generals that rest are only creatures of our own making, their general nature being nothing but the capacity they are put into by the understanding of signifying or representing many particulars. For the signification they have is nothing but a relation that, by the mind of man, is added to them (Locke, *Essay*, III.III.11, AW 379a).

Similarly, Locke does not have much to say, positively, about essences.

Since we do not have sense experience of the essence of an object, there is little to be said.

Mainly, he says that the essence of a thing is that which makes it what it is.

The real internal, but generally, in substances, unknown constitution of things on which their discoverable qualities depend, may be called their *essence* (Locke, *Essay*, III.III.15, AW 380a).

To arrive at an idea of essence, we must generalize from particular sensation, and form an abstract idea. But, strictly speaking, essences, being abstract ideas, are not real, either.

That which is *essential* belongs to it as a condition, by which it is of this or that sort; but take away the consideration of its being ranked under the name of some abstract *idea*, and then there is nothing necessary to it, nothing inseparable from it (Locke, *Essay*, III.VI.6, AW 383b).

Still, for all his nominalism, we are not supposed to think that Locke denigrates mathematical or moral knowledge.

All the discourses of the mathematicians about the squaring of a circle, conic sections, or any other part of mathematics, *do not concern* the *existence* of any of those figures, but their demonstrations, which depend on their *ideas*, are the same, whether there is any square or circle existing in the world or not. In the same manner the truth and certainty of *moral* discourses abstract from the lives of men and the existence of those virtues in the world of which they treat (Locke, *Essay*, IV.IV.8, AW 405a).

In contrast, our knowledge of the external world, the causes of our sensations and the laws that govern physical interactions, contains deep mysteries, inexplicable absent something like a rationalist's principle of sufficient reason.

I think not only that it becomes the modesty of philosophy not to pronounce magisterially where we want that evidence that can produce knowledge, but also that it is of use to us to discern how far our knowledge does reach, for the state we are at present in, not being that of vision, we must in many things content ourselves with faith and probability (Locke, *Essay*, IV.III.6, AW 394a).

VII.4. Perception and the Veil of Ideas

When we discussed Hobbes, we called his view the stamp theory of perception.

It is as if the external world stamps a copy of itself on our minds.

Like Hobbes, Locke believes that perception is the creation of ideas as internal representations of an external world.

We have direct and certain knowledge of these internal representations.

Locke believes that we can also have certainty of the consequences of our reflections on our internal representations, as of mathematics and morality.

A problem arises for such empiricists when we notice that on their view, we experience only our sensations, not the causes of those sensations.

Our experience is of our perceptions of objects, not of the objects as they are in themselves.

We perceive the lemon as yellow, not as colorless molecules in motion.

But we believe that the lemon itself is not yellow; it is just molecules in motion.

If all knowledge is of our perceptions, it follows that we have no knowledge of what causes our sensations.

We have no knowledge of external objects in the (presumably) material world.

We seem to be isolated from the external world behind a veil of ideas.

So long as men thought that real things subsisted without the mind, and that their knowledge was only so far forth real as it was conformable to real things, it follows they could not be certain they had any real knowledge at all. For how can it be known that the things which are perceived are conformable to those which are not perceived, or exist without the mind? (Berkeley, *Principles*, §86).

Descartes, recognizing the limitations of sense experience in this crude form, argues that we can judge that there is an external world, and what it is like, with our minds.

We can appeal to our innate ideas of mathematics and physics.

Such judgments extend beyond experience and so are unavailable to the empiricist.

Locke argues that our ideas of primary qualities of objects resemble real qualities of those objects.

So we have some knowledge of the external world in that way.

Berkeley observes that to assert that there is a resemblance between two things, we have to be able to perceive both of them and compare those perceptions.

On Locke's view, we are stuck on one side of the comparison.

Furthermore, Locke admits that the real objects are not available to our senses, that the secondary qualities are mere artefacts of the interaction between our sensory apparatus and the insensible portions of matter.

[The secondary qualities] are, in the bodies we denominate from them, only a power to produce those sensations in us (Locke, *Essay*, §II.VIII.15, AW 334a).

If we are going to adhere to the strict principle that all knowledge arises from sense experience, then both Descartes's argument for knowledge of the external world and Locke's argument are fruitless attempts to justify our beliefs.

The empiricist is stuck with our mere sensations, our perceptions and not their causes.

VII.5. Idealism

In response to this problem, Berkeley argues that there are no material objects.

He starts with a commitment to empiricist principles.

It is indeed an opinion strangely prevailing among men that houses, mountains, rivers, and, in a word, sensible objects have an existence, natural or real, distinct from their being perceived by the understanding... What are the aforementioned objects but the things we perceive by sense? And what do we perceive besides our own ideas or sensations? (Berkeley, *Principles*, §4, AW 447a)

He concludes, a mere five sections later, that there is no material world.

By matter...we are to understand an inert, senseless substance, in which extension, figure, and motion do actually subsist. But it is evident from what we have already shown that extension, figure, and motion are only ideas existing in the mind, and that an idea can be like nothing but another idea, and that consequently neither they nor their archetypes can exist in an unperceiving substance. Hence it is plain that the very notion of what is called matter, or corporeal substance, involves a contradiction in it (Berkeley, *Principles*, §9, AW 448b).

For Berkeley, there are only ideas and their perceivers.

Putting Spinoza's pantheist weirdo-monism aside, there are three positions concerning the existence of minds and bodies: materialism, dualism, and idealism.

For the materialist, like Hobbes, everything, including minds, is material.

Even ideas are merely motions of matter in the brain.

For the dualist, some things are mental and some things are physical.

Descartes and Locke are both dualists.

For idealists like Berkeley, everything is mental.

VII.6. Berkeley and the Doctrine of Abstract Ideas

According to Locke, our ideas of primary qualities like extension correspond to real properties of real, material objects.

But those ideas do not correspond to particular sensations.

We experience an extended chair, say, but not the extension itself.

In order to form the idea of extension in general, or even the extension of a particular chair, we have to strip away the other qualities in our minds to form a new and abstract idea.

For Locke, ideas of primary qualities all arise from abstraction, as do mathematical ideas.

We create general terms to stand for the abstract ideas in our minds.

Our term 'bodies' stands for an abstract idea of bodies, which corresponds to actual material bodies.

The same process of reasoning applies to terms for individual bodies, like 'apple', and to other general terms, like 'physical object', 'the physical world', and 'the universe'.

Berkeley argues that we can not form an abstract idea of body.

The term 'bodies' stands for no idea at all.

Thus, there is no reason to claim that there are any bodies.

There are two kinds of processes which might be called abstraction and which Berkeley believes lead to the false belief in material objects.

If we can abstract in either way, then we can have ideas of material objects.

And if we have ideas of material objects, then they correspond to matter; there is a physical world.

But Berkeley denies that we can have these abstract, general ideas.

If we thoroughly examine this tenet [materialism] it will, perhaps, be found at bottom to depend on the doctrine of *abstract ideas*. For can there be a nicer strain of abstraction than to distinguish the existence of sensible objects from their being perceived, so as to conceive them existing unperceived? Light and colors, heat and cold, extension and figures - in a word, the things we see and feel - what are they but so many sensations, notions, ideas, or impressions on the sense? And is it possible to separate, even in thought, any of these from perception? For my part, I might as easily divide a thing from itself. I may, indeed, divide in my thoughts, or conceive apart from each other, those things which, perhaps I never perceived by sense so divided. Thus, I imagine the trunk of a human body without the limbs, or conceive the smell of a rose without thinking on the rose itself. So far, I will not deny, I can abstract, if that may properly be called *abstraction* which extends only to the conceiving separately such objects as it is possible may really exist or be actually perceived asunder. But my conceiving or imagining power does not extend beyond the possibility of real existence or perception. Hence, as it is impossible for me to see or feel anything without an actual sensation of that thing, so is it impossible for me to conceive in my thoughts any sensible thing or object distinct from the sensation or perception of it. In truth, the object and the sensation are the same thing and cannot therefore be abstracted from each other (Berkeley, *Principles* §5, AW 447b-445a).

The first kind of abstraction, which is also described in §7 of the Introduction to the *Principles*, involves focusing on one part of an idea.

For example, we can consider the blackness of a chair apart from its size, shape, or texture.

We can think of the taste of an apple apart from its crunchiness, or color.

We can just focus on one of the sensations that is bundled together with the others.

A1 Considering one property of an object independently of others.

A1 is unobjectionable.

For Berkeley as for Locke, our ordinary ideas of objects are actually collections of independent particular sensations.

The independence of our sensations, recall, supported Locke's response to Molyneux's problem of whether a blind person, given sight, could discriminate by vision the shapes of those objects whose differences he/she knows by touch.

Berkeley considers an apple.

A certain color, taste, smell, figure and consistency having been observed to go together, are accounted one distinct thing, signified by the name *apple*. Other collections of ideas constitute a stone, a tree, a book, and the like sensible things - which as they are pleasing or disagreeable excite the passions of love, hatred, joy, grief, and so forth (Berkeley, *Principles* §1, AW 447a).

The particular sensations (e.g. the feel of the apple, its taste, its odor) are all perceivable.

But all we really perceive is a passing show, a stream of particular sensations in five different sense modalities.

Thus, A1 is really not a process of abstraction at all.

It is just the recognition of the independence of the separate ideas of sensation.

A1, used properly, will not lead to beliefs in a material world because any sensation is just a sensation.

The second kind of abstraction, which Berkeley also describes in §8 of the Introduction, involves creating, in reflection, a positive idea.

Locke claims that we can form ideas of redness and color by abstracting from our visual idea of the apple.

A2 Forming an abstract, general idea.

If we did have a capacity A2, as Locke believes we do, then, Berkeley believes, we could use it to construct an idea which represents a material object.

But Berkeley insists that we have no ability A2.

Consider an abstract idea that corresponds to the general term 'triangle'.

Locke claims that such an idea stands for all triangles whether scalene, isosceles, or equilateral.

Berkeley denies that any such idea is possible.

If any man has the faculty of framing in his mind such an idea of a triangle as is here described, it is in vain to pretend to dispute him out of it, nor would I go about it. All I desire is that the reader would fully and certainly inform himself whether he has such an idea or not. And this, methinks, can be no hard task for anyone to perform. What is more easy than for anyone to look a little into his own thoughts, and there try whether he has, or can attain to have, an idea that shall correspond with the description that is... given [by Locke] of the general idea of a triangle, which is *neither oblique nor rectangle, equilateral, equicrural nor scalenon, but all and none of these at once?* (Berkeley, *Principles*, Introduction §13).

This claim is the core of Berkeley's argument against abstract ideas.

No idea, no picture in our minds, could have all of these properties at once.

An idea of a triangle would be of one particular kind of triangle, not all kinds of triangles.

We can not have an idea of chair, because it would have to apply to all chairs.

Some chairs are black, others are blue or green.

But an idea of a (uniformly colored) chair could have only one kind of coloring.

A single idea of all kinds of uniform colorings, one which is black and blue and green, is impossible.

No image will do as the idea of man, for it would have to be an image of a short man and a tall man, of a hairy man and of a bald man.

Berkeley concludes that Locke's claim that we have a psychological capacity A2 is false.

According to Berkeley, there are two particular kinds of misuses of abstraction.

When we attempt to abstract extension and motion from all other qualities, and consider them by themselves, we presently lose sight of them, and run into great extravagances. All which depend on a twofold abstraction; first, it is supposed that extension, for example, may be abstracted from all other sensible qualities; and secondly, that the entity of extension may be abstracted from its being perceived (Berkeley, *Principles* §99).

Both of the alleged capacities Berkeley mentions here are misuses of A2.

- M1 Abstracting extension from other properties of an object.
- M2 Abstracting the extension of an object from our perception of it.

Sometimes, Berkeley phrases M2 as:

- M2* Abstracting *existence* from perception.

Berkeley runs M1 and M2 together, but they seem distinct.

The first is the creation of a new idea by reflecting on existing ideas.

The second is the acceptance of a material world independent of any perceivers.

M1 and M2 are similar in that they each involve believing that the so-called primary qualities are real properties of external, physical objects.

Berkeley's claim against both M1 and M2 rests on his denial that we can form a general idea.

Philonous: It is a universally received maxim that *everything which exists is particular*. How then can motion in general, or extension in general, exist in any corporeal substance?

Hylas: I will take time to solve your difficulty.

Philonous: But I think the point may be speedily decided. Without doubt you can tell whether you are able to frame this or that idea. Now I am content to put our dispute on this issue. If you can frame in your thoughts a distinct abstract idea of motion or extension, divested of all those sensible modes, as swift and slow, great and small, round and square, and the like, which are acknowledged to exist only in the mind, I will then yield the point you contend for. But if you cannot, it will be unreasonable on your side to insist any longer upon what you have no notion of.

Hylas: To confess ingenuously, I cannot (Berkeley, *Three Dialogues*, First Dialogue, AW 467a–b).

Hylas proposes that mathematicians use abstract ideas.

Similarly, Berkeley, in the *Principles*, considers whether scientists use abstract ideas.

In both cases, we need terms like 'triangle' and 'motion' which stand as universals which refer to various different objects or properties.

Berkeley claims that we can use particular terms generally, for legitimate purposes, without forming abstract ideas.

A word becomes general by being made the sign, not of an abstract general idea, but of several particular ideas, any one of which it indifferently suggests to the mind. For example, when it is said *the change of motion is proportional to the impressed force*, or that *whatever has extension is divisible*, these propositions are to be understood of motion and extension in general, and nevertheless it will not follow that they suggest to my thoughts an idea of motion without a body moved, or any determinate direction and velocity, or that I must conceive an abstract general idea of extension, which is neither line, surface, nor solid, neither great nor small, black, white, nor red, nor of any other determinate color. It is only implied that whatever particular motion I consider, whether it is swift or slow, perpendicular, horizontal, or oblique, or in whatever object, the axiom concerning it holds equally true (Berkeley, *Principles* Introduction §11, AW 442a).

So Berkeley says that we can use general terms if we wish.

We should be careful not to be misled into thinking that such terms correspond to some things.

Misuse of language can lead, as Hobbes counseled, to serious errors.

Since we can not abstract, we can have no ideas of material objects.

Only discrete sensations and their perceivers exist.

Locke is a nominalist or a conceptualist about secondary qualities: terms for color, for example, refer only to my ideas and not to real qualities of external objects.

Berkeley extends Locke's view to all terms for general properties, and even to terms which collect several sensations into an object.

We have a bundle of sensations which form an experience which we call a red chair, say, or an apple.

We use the term 'apple' to refer to a collection of sensory ideas.

It does not correspond to any abstract idea of apple, or of red or of sweet.

The terms 'apple' and 'chair' and 'red' are convenient labels.

They do not indicate the existence of any apple or chair or color beyond my current experiences.

To refer to a thing, 'chair' must refer to red chairs and blue chairs and tall chairs and short chairs.

We can give a name to commonalities among particular sensations, but this is just a name.

In such things we ought to *think with the learned, and speak with the vulgar* (Berkeley, *Principles* §51).

We have no positive idea of man or triangle or matter.

All such terms are empty abstractions from the only things we can know from experience: our perceptions themselves, the ideas which Descartes observed can not be false.

VII.7. Metaphysics and Epistemology

Note that the metaphysical differences among the philosophers we have studied are independent of the epistemologies they espouse.

Locke and Descartes agree on dualism despite their disagreement over epistemology.

Berkeley disagrees utterly with Hobbes about metaphysics though he mainly agrees about epistemology.

The beginning of Berkeley's introduction to the *Principles* may be taken as criticism of Descartes's work (and that of other rationalists) in the spirit of Locke's criticism of innate ideas.

No sooner do we depart from sense and instinct to follow the light of a superior principle, to reason, meditate, and reflect on the nature of things, but a thousand scruples spring up in our minds concerning those things which before we seemed fully to comprehend. Prejudices and

errors of sense do from all parts discover themselves to our view; and, endeavoring to correct these by reason, we are insensibly drawn into uncouth paradoxes, difficulties, and inconsistencies, which multiply and grow upon us as we advance in speculation, till at length, having wandered through many intricate mazes, we find ourselves just where we were, or, which is worse, sit down in a forlorn skepticism (Berkeley, *Principles*, Introduction §1).

Berkeley and Locke agree on methodology: one should avoid innate ideas and account for all knowledge on the basis of sense experience.

Compare the following quotes from Locke and Berkeley:

If by this inquiry into the nature of the understanding, I can discover the powers thereof; how far they reach; to what things they are in any degree proportionate; and where they fail us, I suppose it may be of use to prevail with the busy mind of man to be more cautious in meddling with things exceeding its comprehension; to stop when it is at the utmost extent of its tether; and to sit down in a quiet ignorance of those things which, upon examination, are found to be beyond the reach of our capacities... The discoveries we can make with this ought to satisfy us; and we shall then use our understandings right, when we entertain all objects in that way and proportion that they are suited to our faculties, and upon those grounds they are capable of being proposed to us; and not peremptorily or intemperately require demonstration, and demand certainty, where probability only is to be had, and which is sufficient to govern all our concernments. If we will disbelieve everything, because we cannot certainly know all things, we shall do much as wisely as he who would not use his legs, but sit still and perish, because he had no wings to fly (Locke, *Essay*, Introduction §4-§5, AW 317a-318a).

It is said the faculties we have are few, and those designed by nature for the support and comfort of life, and not to penetrate into the inward essence and constitution of things...But, perhaps, we may be too partial to ourselves in placing the fault originally in our faculties, and not rather in the wrong use we make of them...We should believe that God has dealt more bountifully with the sons of men than to give them a strong desire for that knowledge which he had placed quite out of their reach...I am inclined to think that the far greater part, if not all, of those difficulties which have hitherto amused philosophers and blocked up the way to knowledge, are entirely owing to ourselves - that we have first raised a dust and then complain we cannot see (Berkeley, *Principles*, Introduction §2-3, AW 439a-b).

While both Locke and Berkeley believe that we can gain a great deal of knowledge on the basis of sense experience, Locke accepts that certain questions are unanswerable.

Berkeley believes that Locke's limitations arise from his materialism.

Materialism and the materialist element of dualism lead to skepticism.

But this skepticism is unjustified and, he says, avoidable if one abandons materialism for idealism.

§VIII. Berkeley's Idealism

VIII.1. Three Arguments for Idealism

Descartes, Locke, and Berkeley all agree that secondary properties, like color, exist only in the mind.

Berkeley extends the point, arguing that even the primary qualities are only in the mind.

Berkeley wants to show that they too are only perceptions, that they are essentially mental.

Berkeley's idealism is often summarized, as he writes in §3 of the *Principles*, that for objects, their *esse* is *percipi*.

'*Esse is percipi*' means 'being is being perceived'.

In fact, for Berkeley, there are both perceptions and perceivers.

But we perceive only our perceptions, not what is behind them, under them, or causing them.

Since we can have no perception of a material world, Berkeley concludes that there is no reason to believe in one.

There is no extra-mental reality.

Berkeley provides three arguments to show that the world is fully ideal and that primary qualities are not characteristics of material objects but are, like the secondary qualities, mental properties.

- I1 From the sensibility of objects;
- I2 From the relativity of perceptions; and
- I3 A reductive argument.

VIII.2. The Argument from the Sensibility of Objects

Berkeley's argument for idealism from the sensibility of objects is an argument from the concept of a sensible object, an argument from definition.

- BD BD1. Objects are sensible things.
- BD2. Sensible things are things with sensible qualities.
- BD3. The sensible qualities are the secondary qualities.
- BD4. Those secondary qualities are strictly mental properties.
- BDC. So, objects are strictly mental.

Notice that BD, as it stands, is not valid.

To conclude that objects are strictly mental, we need a stronger premise than D2.

Replacing BD2 with BD2* would make the argument valid.

BD2*. Sensible things are things that have no properties other than their sensible qualities.

The dispute between Hylas and Philonous in the *Three Dialogues* seems, at times, to rely on Berkeley's insistence on BD2*, when Hylas has agreed only to BD2.

It seems a little unfair for Berkeley to put BD2* into Hylas's mouth since Locke and other materialists would not, strictly speaking, ascribe secondary qualities to objects.

The lemon appears yellow, but the yellowness is really a property of my experience.

We say that lemons are yellow only as a loose and casual way of speaking.

That casual way of speaking should of course carry no implication that the secondary qualities exhaust the constitution of external objects, as BD2* says.

Still, BD2* seems to be the claim on which Berkeley relies for the argument BD.

The table I write on, I say, exists; that is, I see it and feel it; and if I were out of my study I should say it existed - meaning by that that if I was in my study I might perceive it, or that some other spirit actually does perceive it. There was an odor; that is, it was smelled; there was a sound, that is to say, it was heard; a color or figure, and it was perceived by sight or touch. This is all that I can understand by these and the like expressions. For as to what is said of the absolute existence of unthinking things without any relation to their being perceived that seems perfectly unintelligible. Their *esse is percipi*, nor is it possible that they should have any existence out of

the minds or thinking things which perceive them (Berkeley, *Principles* §3, AW 447a).

Berkeley makes the definition more explicit in the *Three Dialogues*.

This point then is agreed between us - that *sensible things are those only which are immediately perceived by sense* (Berkeley, *Three Dialogues*, First Dialogue, AW 457b).

While ascribing BD2* to Hylas or Locke appears to be unfair, it does represent accurately the letter of the empiricists' principles that all knowledge comes from experience.

Remember, the empiricists' claim is that all we know must originally come to us through the senses.

Berkeley's claim is that to impute further qualities to the sensible objects, qualities beyond their sense properties, is to claim that our knowledge extends beyond what we can perceive.

Such an extension would be an unjustifiable inference.

VIII.3. The Arguments from the Relativity of Perceptions

Berkeley's arguments from the relativity of perceptions are echoes and extensions of Locke's defense of the primary/secondary distinction.

I attributed two general principles, with some corollaries, to Locke.

- LP1 If one perceives an object as having two or more incompatible ideas, then those ideas do not represent real properties of the object.
- LP1C1 Even if a change in us entails the change in the perceived quality, the ideas which change can not be veridical.
- LP1C2 Qualities that appear different to different observers are not veridical.
- LP2 If an idea of an object is the same under all conditions, that idea is veridical.
- LP2C If every observer receives the same idea from an object, then that idea is veridical.

From these principles, Locke argues that some ideas are of primary qualities and resemble properties of external objects, while other ideas are secondary qualities and do not resemble anything in the world. Berkeley uses the same Lockean principles against the primary/secondary distinction in *Principles* §14-§15, and, more explicitly, in the first of the *Three Dialogues*.

Philonous: Have you not acknowledged that no real inherent property of any object can be changed without some change in the thing itself?

Hylas: I have (Berkeley, *Three Dialogues*, First Dialogue, AW 465b).

The disagreement between Berkeley and Locke is over metaphysics, not methodology.

Berkeley's argument against the primary/secondary distinction from the relativity of perception comes in two stages in the *Three Dialogues*.

In the first stage, Berkeley repeats Locke's arguments against the veridicality of the secondary qualities.

There is nothing particularly new in this portion of the dialogue, AW 458a to AW 464b.

At the end of the first stage, Hylas is espousing precisely Locke's view.

Colors, sounds, tastes, in a word, all those termed *secondary qualities*, have certainly no existence without the mind. But by this acknowledgment I must not be supposed to derogate anything from the reality of matter or external objects... (Berkeley, *Three Dialogues*, First Dialogue, AW 464b).

In the second stage of his argument against the primary/secondary distinction, Berkeley shows that each supposedly primary quality is really a secondary quality.

Why may we not as well argue that figure and extension are not patterns or resemblances of qualities existing in matter, because to the same eye at different stations, or eyes of a different texture at the same station, they appear various and cannot, therefore, be the images of anything settled and determinate without the mind? (Berkeley, *Principles* §14, AW 449b).

Each of Berkeley's relativity arguments against the primary qualities attempts to show that LP2 and LP2C are never fulfilled.

There are no properties that do not vary with the perceiver.

He proceeds by example for all the primary properties: number, extension, shape, motion, and solidity.

For the argument for the relativity of number, consider what number we might give to a deck of cards. It is 52 cards, 4 suits, 13 ranks, 1 deck.

The same thing bears a different denomination of number as the mind views it with different respects. Thus, the same extension is one, or three, or thirty-six, according as the mind considers it with reference to a yard, a foot, or an inch. Number is so visibly relative and dependent on men's understanding that it is strange to think how anyone should give it an absolute existence without the mind (Berkeley, *Principles* §12, AW 449b).

The number correctly applied to any object varies as we think of the object in different ways. It seems to be a property of a concept, rather than of an object.

To show that extension is relative to the perceiver, consider a tiny insect (the mite) and a giant.

What appears large to the mite can appear tiny to us, and minuscule to the giant.

The size of an object is relative to perceiver, just as the color or taste is.

I appear large to the mite, but to a giant, I appear small.

Thus extension is a secondary property, too.

The argument against extension is most important because extension is the most plausible primary quality.

For Descartes, it's the only primary quality.

Let's take a moment to consider a possible objection to the argument.

If there were objective facts about extension, ones which were not relative to the perceiver, then Berkeley's argument fails.

Thus, one response to Berkeley's argument about extension is that there is something on which the mite, the giant, and I can agree: I am six feet tall.

The correspondence between a scale of measurement and an object is not relative to the perceiver.

But appeals to measuring tools to provide objective facts about primary qualities like extension are insufficient.

Scales of measurement themselves are relative to a perceiver.

A yard was [once defined](#) as the distance between the end of the king's finger and the tip of his nose.

We have more objective measures now, but even these do not solve the problem.

A [standard meter](#) bar, against which all other meters can be measured, has been maintained by the International Bureau of Weights and Measures at Sevres, outside of Paris, France, since the 1790s.

Problems with changes in temperature and pressure, which lead to expansion and contraction, motivated people to develop standards which vary less.

For a while, the meter was defined as 1,650,763.73 wavelengths of orange-red light emitted from a krypton-86 lamp.

Even more precisely, since 1983, the meter has been defined as the distance traveled by light in a vacuum in $1/299,792,458$ of a second.

The speed of light is, according to our best scientific theories, a constant.

So pinning our measures of extension to the speed of light prevents actual fluctuation in our standard. Still, there are (metaphysically) possible fluctuations.

If we awoke tomorrow and found that everything had doubled in size, including the speed of light, we would have no way of discovering the change.

Dilations and restrictions could happen all of the time without us knowing!

We settle our scales relative to useful sizes and distances because that's the best, most objective way that we can proceed.

Extensions, as perceived by creatures (real or fantastic) of diverse sizes, may vary.

To show that shape is relative to a perceiver, consider what we see under a microscope.

Philonous: Is it not the very same reasoning to conclude there is no extension or figure in an object because to one eye it shall seem little, smooth, and round, when at the same time it appears to the other, great, uneven, and angular?

Hylas: The very same. But does this latter fact ever happen?

Philonous: You may at any time make the experiment by looking with one eye bare and with the other through a microscope (Berkeley, *Three Dialogues*, First Dialogue, AW 465b).

Edges that appear straight to the naked eye can appear jagged when magnified.

Here is another consideration for the relativity of our perceptions of shape that I think works in Berkeley's favor.

Consider our perception of a rectangular object like a book.

If we were to stand directly over the book, we could receive a rectangular image in our field of vision.

But, ordinarily, we are not placed in such a way as to receive a rectangular image, even if we perceive the book as rectangular.

Everyone in our classroom perceives the screen at the front of the room as rectangular, even though we all have different retinal images of its shape, different curvy trapezoidal impressions.

The shape is never received on our retinae as a rectangle but we all see it that way.

What we get from the senses about the shape, strictly speaking, is relative to the perceiver.

The argument for the relativity of our perceptions of motion relies on an argument for the relativity of our perceptions of time, since motion is change in place over time.

Our perception of time varies with the succession of our ideas.

If our ideas proceed more quickly, a motion will appear slower.

Philonous: Is it not possible ideas should succeed one another twice as fast in your mind as they do in mine or in that of some spirit of another kind?

Hylas: I admit it.

Philonous: Consequently, the same body may to another seem to perform its motion over any space in half the time that it does to you. And...it is possible one and the same body shall be really moved the same way at once, both very swift and very slow (Berkeley, *Three Dialogues*, First Dialogue, AW 466a).

Note that just as we can not rely on an external measurement of extension, since we have to agree on a standard unit measure, we can not rely on an external measurement of time like a clock.

Berkeley's argument for the relativity of solidity to the perceiver takes solidity to be resistance to touch. A strong person will find something soft that a weaker person will find hard. This is even more plausible if we consider giants and mites again.

Berkeley thus has considered all of Locke's primary qualities as we experience them. He has shown that these perceptions vary in the same way that perceptions of the secondary qualities do. All perceivable qualities are secondary qualities. If all knowledge comes from sense experience, we have no veridical ideas of primary qualities of a material world.

VIII.4. The Reductive Argument Against the Primary Qualities

Berkeley provides a last, direct argument that the primary qualities reduce to secondary properties.

If it is certain that those original [primary] qualities are inseparably united with the other sensible qualities and not, even in thought, capable of being abstracted from them, it plainly follows that they exist only in the mind. But I desire anyone to reflect and try whether he can, by any abstraction of thought, conceive the extension and motion of a body without all other sensible qualities. For my own part, I see evidently that it is not in my power to frame an idea of a body extended and moved, but I must in addition give it some color or other sensible quality which is acknowledged to exist only in the mind. In short, extension, figure, and motion, abstracted from all other qualities, are inconceivable. Where, therefore, the other sensible qualities are, these must be also, namely, in the mind and nowhere else (Berkeley, *Principles* §10, AW 449a).

Here is a version of Berkeley's reductive argument, which I will call BR.

- BR BR1. We can not have an idea of a primary quality without ideas of secondary qualities which accompany it.
 BR2. So wherever the secondary qualities are, the primary are.
 BR3. Secondary qualities are only in the mind.
 BRC. So, the primary qualities are mental.

To repeat, Berkeley take objects to be those things that we see, hear, smell, touch, and taste.

Philonous: Sensible things are all immediately perceivable; and those things which are immediately perceivable are ideas; and these exist only in the mind. This much you have, if I am not mistaken, long since agreed to (Berkeley, *Three Dialogues*, Second Dialogue, AW 475b).

The *esse* of such objects is to be perceived.

Thus Berkeley claims that there is no reason to posit anything beyond such objects and their cause, i.e. God.

Philonous: Since, therefore, it is impossible even for the mind to disunite the ideas of extension and motion from all other sensible qualities, does it not follow that where the one exists, there necessarily the other exists likewise?

Hylas: It should seem so.

Philonous: Consequently, the very same arguments which you admitted as conclusive against the secondary qualities are without any further application of force against the primary too (Berkeley, *Three Dialogues*, First Dialogue, AW 468a).

Locke believes that our ideas of primary qualities resemble properties of material objects. The inference to an intermediate cause of our ideas (i.e. physical objects) is, for Berkeley, illegitimate. There is no primary/secondary distinction since all qualities are, strictly speaking, secondary.

VIII.5. Substrata, Occasions, and Other Attempts to Infer a Material World

We have seen three arguments that Berkeley provides to show that primary qualities are in the mind:

- I1 From the sensibility of objects
- I2 From the relativity of perceptions
- I3 A reductive argument

Despite these arguments, in the *Three Dialogues*, Hylas is resistant to giving up materialism. He insists, as many of us naturally do, that there must be some external, material object with some real primary qualities to support or cause the ideas that we have.

Hylas: I conclude it exists, because qualities cannot be conceived to exist without a support (Berkeley, *Three Dialogues*, First Dialogue, AW 469b).

For example, Hylas grants Philonous that hard and soft are relative to the perceiver, but insists that the causes of these qualities are not relative.

Hylas and Philonous agree that there is some ultimate cause of everything (call it a first cause or the big bang or God).

They also agree that there are perceptions.

They disagree about whether there are some intermediate causes between the first cause and our perceptions which we ordinarily consider to be material objects.

Hylas makes several attempts to characterize an intermediate cause of our perceptions, using several different names.

- IC1 Absolute extension (AW 467a)
- IC2 Passive object of an active sensation (AW 468a)
- IC3 Material substratum (AW 469b)
- IC4 External object (as opposed to immediately perceived idea; Caesar example) (AW 472b)
- IC5 Causes or occasions in the brain (AW 475a-b)
- IC6 Matter, as whatever causes my ideas (AW 479a)
- IC7 Instrument (AW 480a)

Philonous responds that all such purported causes are not perceived and thus are not sensible objects.

Absolute extension, IC1, is a general idea and can neither exist in a particular object nor in our minds.

Our minds are always passive, when sensing, so that the passive object, IC2, is the sensation itself, not an external object.

The material substratum, IC3, is either itself perceivable (as when we think of it as spreading) or imperceivable, in which case it can not be the object of sensation.

The external object, IC4, is not perceived but inferred using reason or reflection.
The brain itself, IC5, is not (generally) the sensible object in question.
Moreover, taking motion in the brain to be the cause of my ideas leads to the puzzle, that Locke noticed, about why particular conscious experiences are correlated with particular motions in material objects.

Philonous: This way of explaining things...could never have satisfied any reasonable man. What connection is there between a motion in the nerves and the sensations of sound or color in the mind? Or how is it possible these should be the effect of that? (Berkeley, *Three Dialogues*, Second Dialogue, AW 476a).

Locke responded skeptically to the problem of explaining the correlations between conscious experiences and their material causes.

Berkeley denies the acceptability of such skepticism and so denies the existence of material causes.

VIII.6. Descartes and Berkeley on the Material World

Perhaps the most interesting of the characterizations that Berkeley ascribes to Hylas, IC6 and IC7, employ a functional definition of matter.

Hylas: I find myself affected with various ideas of which I know I am not the cause; neither are they the cause of themselves or of one another, or capable of subsisting by themselves, as being altogether inactive, fleeting, dependent beings. They have therefore some cause distinct from me and them, of which I pretend to know no more than that it is *the cause of my ideas*. And this thing, whatever it is, I call matter (Berkeley, *Three Dialogues*, Second Dialogue, AW 479a).

I call this characterization a functional definition since it defines matter as whatever causes my ideas. It gives no positive characterization of matter.

It only says that matter is whatever functions as the intermediate and objective cause of my perceptions.

Philonous responds that only God can be taken as the true cause of my ideas.

An all-powerful God could have no use for an intermediate instrument.

Though we do the utmost we can to secure the belief of *matter*, though, when reason forsakes us, we endeavor to support our opinion on the bare possibility of the thing, and though we indulge ourselves in the full scope of an imagination not regulated by reason to make out that poor *possibility*, yet the upshot of all is that there are certain *unknown ideas* in the mind of God; for this, if anything, is all that I conceive to be meant by *occasion* with regard to God. And this at the bottom is no longer contending for the *thing*, but for the *name*. Whether therefore there are such ideas in the mind of God, and whether they may be called by the name *matter*, I shall not dispute. But, if you stick to the notion of an unthinking substance or support of extension, motion, and other sensible qualities, then to me it is most evidently impossible there should be any such thing, since it is a plain repugnancy that those qualities should exist in or be supported by an unperceiving substance (Berkeley, *Principles*, §§75-6).

Descartes, in the Sixth Meditation, had rejected the possibility of a Berkeleyan universe.

There clearly is in me a passive faculty of sensing, that is, a faculty for receiving and knowing the ideas of sensible things; but I could not use it unless there also existed, either in me or in something else, a certain active faculty of producing or bringing about these ideas...[I]t is in some

substance different from me, containing either formally or eminently all the reality that exists objectively in the ideas produced by that faculty...[T]his substance is either a body, that is a corporeal nature, which contains formally all that is contained objectively in the ideas, or else it is God, or some other creature more noble than a body, which contains eminently all that is contained objectively in the ideas. But since God is not a deceiver, it is [patently obvious](#) that he does not send me these ideas either immediately by himself, or even through the mediation of some creature that contains the objective reality of these ideas not formally but only eminently. For since God has given me no faculty whatsoever for making this determination, but instead has given me a great inclination to believe that these ideas issue from corporeal things, I fail to see how God could be understood not to be a deceiver, if these ideas were to issue from a source other than corporeal things. And consequently corporeal things exist (Descartes, *Meditations* AT VII.79-80, AW 64b).

Descartes claims that God's nature (God's goodness), combined with our nature (our perceptions), debars a Berkeleyan, idealistic world.

Berkeley claims that God's nature (God's power and simplicity), combined with our perceptions, debars a Cartesian material or dualistic world.

Against Descartes, Berkeley could argue for idealism from a Principle of Sufficient Reason.

- BAD BAD1. God does not do anything without sufficient reason.
- BAD2. God either created physical objects or did not create them.
- BAD3. We do not need physical objects in order to have all of our experiences since God can implant them in our minds directly.
- BAD4. So, there is no good reason for God to have created physical objects in addition to minds.
- BADC. So, God did not create physical objects. God creates our ideas directly instead of mediately through physical objects.

Berkeley does not present BAD himself, though it is implicit in his work. He does insist on BAD3.

In short, if there were external bodies, it is impossible we should ever come to know it; and if there were not, we might have the very same reasons to think there were that we have now (Berkeley, *Principles* §20, AW 451a).

Descartes says that an argument like BAD is clearly and distinctly unsound.

It is worth a moment to consider what Descartes's precise objection to it could be.

Perhaps Descartes would deny the inference from BAD3 to BAD4.

Instead, he could claim that while the reason is obscure, the clarity and distinctness of my perception of the existence of material objects is sufficient evidence for the existence of a good reason.

VIII.7. Locke's Naive Empiricism and Berkeley's Idealism

I leave it to you to adjudicate the debate between Berkeley and Descartes.

Let's instead return to the disagreement between the empiricists Locke and Berkeley.

The question whether we can infer the existence of material objects on the basis of our sense perception is a point of their disagreement.

Berkeley is showing that the claim that material objects exist must be an inference, not a perception. Locke's description of our experiences of primary and secondary qualities makes explicit the danger of relying on such an inference.

The ideas of primary qualities of bodies are resemblances of them and their patterns do really exist in the bodies themselves, but the ideas produced in us by these secondary qualities have no resemblance of them at all. There is nothing like our ideas existing in the bodies themselves. They are, in the bodies we denominate from them, only a power to produce those sensations in us. And what is sweet, blue, or warm in idea is but the certain bulk, figure, and motion of the insensible parts in the bodies themselves which we call so (Locke, Essay §II.VIII.15, AW 334a, emphasis in last line added).

Berkeley is taking advantage of the apparent contradiction in Locke's work between saying, on the one hand, that all knowledge comes from sense experience and, on the other, that we have knowledge of insensible objects.

If we are empiricists, says Berkeley, we can have no experience, no sensation, of insensible parts. Still, even though Locke and Berkeley reject innate ideas, they both have to admit that we have some ability to reason or infer.

For Locke, our ability to reason is just a natural, psychological capacity to compare, contrast, and abstract.

Locke can argue that the inference to material objects is thus the legitimate result of an ordinary psychological process.

If Berkeley's denial of the existence of a material world were based solely, as he sometimes implies, on our inability to know about such a world, his idealism would be poorly motivated.

But Berkeley's idealism is more forcefully motivated by his objections to Locke's psychology.

To block Locke's appeal to a psychological argument for a belief in materialism, Berkeley attacks his claims about our mental capacities.

In particular, as we saw, he claims that Locke's doctrine of abstract ideas is the source of a skeptical, atheistic materialism.

IX. Empiricism, Mathematics, and Science

IX.1. Lockean Accounts of Mathematics

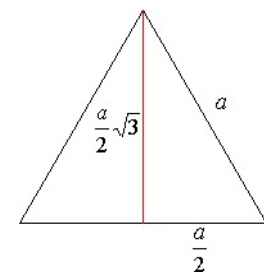
The importance of the doctrine of abstract ideas is easiest to see in Locke's account of mathematics. Let's take a moment to see how the problem of accounting for mathematical knowledge leads Locke to his doctrine of abstraction.

Mathematics appears to be among the most certain of disciplines.

The certainty of mathematics entails that mathematical theorems are true.

For example, consider the claim that the height of an equilateral triangle is the length of one of its sides multiplied by the square root of three, and divided by two.

It is natural to take a proof of this theorem as sufficient for its truth.



True statements require truth makers.

For 'snow is white' to be true, there must be snow and it must be white.

Snow and its whiteness are the truthmakers for 'snow is white'.

For our mathematical theorem to be true, we need its truth makers: a triangle, numbers like three, and functions like 'the positive square root of x '.

Thus the certainty of mathematical theorems standardly entails the existence of mathematical objects.

The rationalists all accounted for the certainty of mathematics on the basis of innate ideas.

We know the truths of mathematics because those theorems are built in to the structures of our minds.

Even if all of mathematics is not innate, the fundamental axioms may be taken as innate, along with our abilities to derive the more complicated theorems from those axioms.

Our substantial capacity for pure thought accounts for our knowledge of mathematical theorems and gives us insight into the nature of mathematics.

The rationalists' account of our knowledge of the physical world may seem implausible, because it impugns the role of the senses.

Descartes says that we learn about physical objects like the wax by the mind alone.

The rationalists' accounts of our knowledge of mathematics, though, is more plausible.

Descartes put these accounts in terms of innate ideas.

In contemporary philosophy, we refer instead to pure reason or *a priori* methods.

Both terms are supposed to indicate a capacity for acquiring and justifying beliefs which is more substantial and robust than mere psychological associations, which vary with the person.

Locke rejects innate ideas and pure reason and produces a more intuitively-satisfying sensory account of our knowledge of the physical world.

But Locke's account of mathematics, which relies on the doctrine of abstraction, is less plausible.

For Locke, mathematics is certain but does not concern real things.

He denies the claim that the truthmakers of mathematical theorems are mathematical objects.

Instead, Locke says that mathematical theorems are about our ideas and their relations.

Thus, Locke defends the certainty of mathematics by understanding mathematical objects to be individual, personal, and psychological.

Strictly speaking, for Locke, everyone's mathematical theorems are about their own mathematical ideas.

Here is another way to put the problem for Locke.

Recall that Descartes parses our ideas into three types: Innate; Acquired; or Produced by me.

Locke rejects anything innate.

Mathematical theorems can not be acquired, for the same reasons that Descartes gives.

Locke agrees that we do not see triangles.

So, our knowledge of mathematics must be produced by me.

In particular, it is produced by abstraction.

We sense particulars like doughnuts and frisbees.

Then we generalize, forming an abstract idea like that of a circle.

IX.2. Berkeley, Mathematics, and the *Minimum Sensibilia*

You might think that Berkeley could, like Locke, take mathematical terms to refer to our mental states. He could understand mathematical terms as he does terms like 'apple', as referring to a collection of particular experiences.

But instead of trying to provide an empiricist account of mathematics, Berkeley denies that there is any mathematical knowledge.

He does not deny that mathematical proofs are valid.

He denies that they have any real content.

That the principles laid down by mathematicians are true, and their way of deduction from those principles clear and incontestible, we do not deny; but, we hold there may be certain erroneous maxims of greater extent than the object of mathematics, and for that reason not expressly mentioned, though tacitly supposed throughout the whole progress of that science; and that the ill effects of those secret unexamined errors are diffused through all the branches thereof. To be plain, we suspect the mathematicians are as well as other men concerned in the errors arising from the doctrine of abstract general ideas, and the existence of objects without the mind (Berkeley, *Principles*, §118).

The posits of mathematical objects, Berkeley argues, rely on the same process of abstraction which led us to the error of positing physical objects.

Thus Berkeley sees mathematics as useful, but mathematical terms as empty names just like ‘physical object’, ‘redness’, and ‘table’.

In both kinds of cases, standard beliefs are infected with the doctrine of abstract ideas.

In mathematics, the problems of abstraction are multiplied.

To take an important example, Berkeley thinks infinite divisibility is paradoxical.

The *infinite* divisibility of *finite* extension, though it is not expressly laid down either as an axiom or theorem in the elements of that science, yet is throughout the same everywhere supposed and thought to have so inseparable and essential a connexion with the principles and demonstrations in geometry, that mathematicians never admit it into doubt, or make the least question of it. And, as this notion is the source from whence do spring all those amusing geometrical paradoxes which have such a direct repugnancy to the plain common sense of mankind, and are admitted with so much reluctance into a mind not yet debauched by learning; so it is the principal occasion of all that nice and extreme subtlety which renders the study of *mathematics* so difficult and tedious. Hence, if we can make it appear that no finite extension contains innumerable parts, or is infinitely divisible, it follows that we shall at once clear the science of geometry from a great number of difficulties and contradictions which have ever been esteemed a reproach to human reason, and withal make the attainment thereof a business of much less time and pains than it hitherto has been (Berkeley, *Principles* §123).

This example is important both because of Descartes’s claim that matter is infinitely divisible and because the calculus of Newton and Leibniz depends on extensions of infinitely small length.

The basic problem that the calculus solves is to calculate, precisely, the area under a curve.

To do so, we divide a finite area into infinitely many infinitesimally-small segments whose infinitely-small areas we can calculate precisely and sum these areas.

Thus, the calculus involves infinite divisibility.

The application of calculus to problems in the real world, to science, seems to carry with it support for Descartes’s view that extension is infinitely divisible.

In contrast, from Berkeley’s idealism and his claims that things are just objects of our perception, it is a short step to the claim that there is a smallest extension.

Despite the fact that the real world is just a world of ideas, it is not, for Berkeley, infinitely divisible. Berkeley calls the smallest possible extension the *minimum sensibilia*; see his *Essay Toward a New Theory of Vision*.

To get a feel for its size, Berkeley estimated that the size of a full moon is about thirty *minima sensibilia*.

The *minimum sensibilia* functions as an atom in Berkeley's metaphysics.

According to Berkeley's account, then, there are limits to the divisibility of objects and their extensions.

There is no such thing as the ten-thousandth part of an *inch*; but there is of a *mile* or *diameter of the earth*, which may be signified by that inch (Berkeley, *Principles* §127).

We might believe that we can divide an inch into ten thousand parts because we can use it to represent a much larger segment, as on a map.

We can divide the 10,000 kilometers from here to Southern Chile into 10,000 kilometer-length segments. Each of those real segments is perceivable.

But on a small map, the inch or two between Clinton and Tierra del Fuego is not divisible into 10,000 perceivable parts.

To think that we can divide a finite segment into arbitrarily many segments violates the constraints of the *minimum sensibilia*.

If Berkeley is correct about infinite divisibility, the calculus, with all its benefits for empirical science, is based on a fundamental error.

IX.3. Berkeley's Science

The process of abstraction that Berkeley rejects serves not only to support our beliefs in mathematical claims but also our knowledge of the laws of motion.

If we were convinced that these laws were universally valid, then we might infer that they are true.

If we think that we have knowledge of the laws of motion and believe that our knowledge is justified by appeal to a process of abstraction, then we can argue for the legitimacy of that process.

Thus it is important for Berkeley to block the inference by denying that laws of motion are veridical.

Those who treat of mechanics employ certain abstract and general words, and imagine in bodies force, action, attraction, sollicitation, etc., which are exceedingly useful for theories, enunciations, and computations concerning motion, although in actual truth and in bodies actually existing, they are sought in vain, as much as are those things imagined by mathematical abstraction (Berkeley, *On Motion*, §39, AW 506b).

Berkeley construes laws of nature as the regularities, or set rules, which guide our perceptions.

We learn [laws of nature] by experience, which teaches us that such and such ideas are attended with such and such other ideas in the ordinary course of things (Berkeley, *Principles* §30, AW 453a).

These rules are useful, but they do not reveal the fundamental causal structure of the universe.

The only true causal ascriptions apply to God.

Berkeley thus separates two different aspects of scientific practice which we have so far run together: laws of nature and laws of efficient causation.

Scientists seek uniformities in nature, which we call laws.

But we do not ordinarily believe that all uniformities are laws.

If we discovered that every person in the room were an eldest child in a family of five, we would not think that we had discovered a law about people in the room.

A law has a predictive aspect.

We would not predict, on the basis of this uniformity, that the next person to enter the room is the eldest child in a family of five.

In contrast, we would predict that the next person to enter the room has a heart and a brain because those features of human beings are lawlike.

Ordinarily, we take the difference between lawlike and non-lawlike uniformities to be the presence of causal connections underlying those uniformities.

Berkeley denies that an understanding of the uniformities in nature leads to ascribing causal powers to any objects other than God.

Indeed, he calls gravity an occult phenomenon.

Reason proves that there is some cause or principle of these phenomena, and this is generally called *gravity*. Since, however, the cause of the fall of heavy bodies is dark and unknown, gravity in that sense cannot be called a sensible quality; consequently, it is an occult quality. But we can scarcely conceive - and indeed not even scarcely - what an occult quality is, and how any quality can act or effect anything. It would be better then, if men would attend only to the sensible effects, putting the occult quality out of view. Abstract words - however useful they are in discussion - should be discarded in meditation, and the mind should be fixed on particular and concrete things, that is, on the things themselves (Berkeley, *On Motion*, §4, AW 504b-505a).

Thus Berkeley separates laws of nature, on the one hand, from laws of efficient causation, on the other.

We can know the laws of nature insofar as we understand them to be uniformities in our perceptions.

But we can not know about causal connections because they are not the objects of any perceptions.

We will return to skepticism about our knowledge of causation when we read Hume, who argues that causal connections are beyond our reach.

Berkeley anticipates Hume's concern, but believes that we can have knowledge of laws of nature construed as regularities in our perceptions arising from God's goodness.

Taking the laws of nature to be mere regularities in our perceptions and ascribing causation only to God allows Berkeley to avoid committing to the universality of laws.

Nature is in many ways uniform.

This uniformity allows us to predict and control nature.

But Berkeley also leaves room for miracles, exceptions to the laws of nature.

He argues that uniformity in nature and these miraculous blemishes support our belief in God's existence.

If we attentively consider the constant regularity, order, and concatenation of natural things, the surprising magnificence, beauty, and perfection of the larger, and the exquisite contrivance of the smaller parts of creation, together with the exact harmony and correspondence of the whole, but above all the never-enough-admired laws of pain and pleasure, and the instincts or natural inclinations, appetites, and passions of animals; I say if we consider all these things, and at the same time attend to the meaning and import of the attributes One, Eternal, Infinitely Wise, Good, and Perfect, we shall clearly perceive that they belong to the aforesaid spirit, *who works all in all*, and *by whom all things consist* (Berkeley, *Principles*, §146).

We should further consider that the very blemishes and defects of nature are not without their use, in that they make an agreeable sort of variety, and augment the beauty of the rest of the creation, as shades in a picture serve to set off the brighter and more enlightened parts... It is plain that the splendid profusion of natural things should not be interpreted weakness or prodigality in the agent who produces them, but rather be looked on as an argument of the riches of His power (Berkeley, *Principles*, §152).

The claim that both uniformity and irregularity each testify to the goodness of God is philosophically troubling.

If an hypothesis is supported by any evidence whatsoever, it seems like an empty hypothesis.

§X. Assessing Berkeley's Idealism

X.1. God, Me, and the Resemblance Hypothesis

To this point in our discussion of Berkeley's work, God has played a very small role.

The arguments against the primary/secondary distinction and abstract ideas do not depend on the existence of God.

Our appeals to God in interpreting Berkeley's work have mainly been limited to invoking an ultimate cause of our perceptions.

Insofar as we have circumscribed the role of God in Berkeley's work, we have taken Berkeley's writings to be philosophical rather than theological.

But Berkeley was an Anglican bishop and God does play a significant role in his world view.

Given Berkeley's strict empiricism, one might wonder how Berkeley could defend knowledge of God.

We have no idea (or image or impression) of God.

Similarly, we have no ideas of our selves or of other persons.

Still, Berkeley allows for beliefs in the existence of our selves, other persons, and God, despite having no ideas of any of them.

Despite his opposition to Lockean abstraction and other psychological processes which would ground belief in the material world, Berkeley allows for some kinds of inferences beyond the evidence of our sense perception.

Let's start with our beliefs in the existence of other persons.

There is no universally accepted argument for the existence of other minds.

Berkeley claims that we can infer the existence of other minds from their effects on us.

From what has been said, it is plain that we cannot know the existence of other spirits otherwise than by their operations, or the ideas by them excited in us. I perceive several motions, changes, and combinations of ideas, that inform me there are certain particular agents, like myself, which accompany them and concur in their production. Hence, the knowledge I have of other spirits is not immediate, as is the knowledge of my ideas; but depending on the intervention of ideas, by me referred to agents or spirits distinct from myself, as effects or concomitant signs (Berkeley, *Principles* §145).

The problem of other minds is perennially troubling and nothing Berkeley says here resolves it.

How do we know that the things we call other people are not craftily constructed robots?

How do we know that the effects Berkeley mentions are really originating in a thinking thing?

Some philosophers say that every one's problem is no one's problem.

You can not responsibly reject a philosophical view just because it fails to solve a problem to which no one has a good solution.

But the problem of other minds seems even worse for Berkeley than for most other philosophers because even our own existence appears to be a contentious inference.

Berkeley agrees that we have no idea of ourselves.

A spirit is one simple, undivided, active being; as it perceives ideas it is called the *understanding*, and as it produces or otherwise operates about them it is called the *will*. Hence there can be no idea formed of a soul or spirit; for all ideas whatever, being passive and inert (see §25), they cannot represent unto us, by way of image or likeness, that which acts... The words *will*, *soul*, *spirit* do not stand for different ideas or, in truth, for any idea at all, but for something which is very different from ideas, and which, being an agent, cannot be like or represented by any idea whatsoever - though it must be admitted at the same time that we have some notion of soul, spirit, and the operations of the mind, such as willing, loving, hating, inasmuch as we know or understand the meaning of those words (Berkeley, *Principles* §27, AW 452b).

Berkeley thus distinguishes ideas, which are images, from notions, which can be conceptual (if not abstract).

Notions can be devised by inference, as Locke claimed that ideas of reflection were formed.

From such notions, we can infer the existence of other persons.

In a large sense, indeed, we may be said to have an idea or rather a notion of *spirit*; that is, we understand the meaning of the word, otherwise we could not affirm or deny anything of it. Moreover, as we conceive the ideas that are in the minds of other spirits by means of our own, which we suppose to be resemblances of them; so we know other spirits by means of our own soul, which in that sense is the image or idea of them; it having a like respect to other spirits that blueness or heat by me perceived has to those ideas perceived by another (Berkeley, *Principles* §140).

Notice that Berkeley is accepting a modified version of the resemblance hypothesis, one that is different from the one that Descartes rejected and Locke partially accepted.

Locke used the resemblance hypothesis as support for his claim that material objects cause our ideas.

Obviously, Berkeley does not follow Locke in this way.

Consider two different refinements of the resemblance hypothesis.

RH1 My ideas resemble material objects.

RH2 My ideas resemble their causes.

Berkeley rejects RH1, but accepts RH2.

Ideas can only resemble other ideas.

But, you say, though the ideas themselves do not exist without the mind, yet there may be things like them of which they are copies or resemblances, which things exist without the mind in an unthinking substance. I answer, an idea can be like nothing but an idea; a color or figure can be like nothing but another color or figure (Berkeley, *Principles*, §8, AW 448b).

My ideas resemble, we presume, the ideas in the minds of other persons.

They also resemble their causes, which are ideas in the mind of God.

Indeed, it is from the need to infer a cause of my ideas that we can infer the existence of God.

When in broad daylight I open my eyes, it is not in my power to choose whether I shall see or not, or to determine what particular objects shall present themselves to my view; and so likewise as to the hearing and other senses - the ideas imprinted on them are not creatures of my will. There is, therefore, some other will or spirit that produces them (Berkeley, *Principles* §29, AW 453a).

Similarly, the long passage about the beauty of the world in the Second Dialogue (AW 476a-b) is intended as a premise in an inference to the existence of God.

Philonous: Men commonly believe that all things are known or perceived by God because they believe the being of a God, whereas I, on the other side, immediately and necessarily conclude the being of a God because all sensible things must be perceived by him (Berkeley, *Three Dialogues*, Second Dialogue, AW 477a).

Berkeley thus claims that we can know of our selves, other persons, and God, despite having no ideas of the objects of our knowledge.

A human spirit or person is not perceived by sense, as not being an idea; when therefore we see the color, size, figure, and motions of a man, we perceive only certain sensations or ideas excited in our own minds; and these being exhibited to our view in sundry distinct collections, serve to mark out unto us the existence of finite and created spirits like ourselves. Hence it is plain we do not see a man, if by *man* is meant that which lives, moves, perceives, and thinks as we do, but only such a certain collection of ideas as directs us to think there is a distinct principle of thought and motion, like to ourselves, accompanying and represented by it. And after the same manner we see God; all the difference is that, whereas some one finite and narrow assemblage of ideas denotes a particular human mind, whithersoever we direct our view, we do at all times and in all places perceive manifest tokens of the divinity: everything we see, hear, feel, or anywise perceive by sense, being a sign or effect of the power of God; as is our perception of those very motions which are produced by men (Berkeley, *Principles* §148).

Our ability to infer affords us knowledge of the existence of God.

Yet, according to Berkeley, inference cannot yield knowledge of a material world.

One might reasonably worry that Berkeley chooses arbitrarily between legitimate and illegitimate invocations of an ability to infer.

If we can infer the existence of our self, other persons, and God, despite having no sense experiences of these things, why can't we infer material objects or abstract ideas?

I'll put this question aside to return to a methodological concern with which we began.

X.2. Skepticism and Atheism

Locke, seeing the limits of sense experience to yield knowledge, accepted some humble skepticism.

Berkeley rejects Locke's materialism to combat skepticism and what he sees as a consequent atheism.

For, as we have shown the doctrine of matter or corporeal substance to have been the main pillar and support of *skepticism*, so likewise upon the same foundation have been raised all the impious schemes of *atheism* and irreligion. Nay, so great a difficulty has it been thought to conceive matter produced out of nothing, that the most celebrated among the ancient philosophers, even of those who maintained the being of a God, have thought matter to be uncreated and co-eternal with Him. How great a friend material substance has been to *atheists* in all ages were needless to relate. All their monstrous systems have so visible and necessary a dependence on it that, when this corner-stone is once removed, the whole fabric cannot choose but fall to the ground, insomuch that it is no longer worth while to bestow a particular consideration on the absurdities of every wretched sect of *atheists* (Berkeley, *Principles*, §92).

Berkeley argues that materialism posits a world which is independent of God. If our sensations depend on a world of objects, we at best push God out of our explanations and at worst dismiss God from our natural science. Berkeley thus sees natural-scientific explanations as evidence of atheism.

Berkeley also argues that materialism entails that we do not experience objects in themselves. We can not get out of our minds in order to experience purportedly-material objects as they are in themselves.

So we are forced into skepticism.

All the properties we experience are sensible and so in us.

If we posit matter in addition to ourselves and our experiences, we can have no knowledge of it.

This is the problem I mentioned at the beginning of the first set of notes on Berkeley.

So long as men thought that real things subsisted without the mind, and that their knowledge was only so far forth *real* as it was conformable to *real things*, it follows they could not be certain they had any real knowledge at all. For how can it be known that the things which are perceived are conformable to those which are not perceived, or exist without the mind? (*Principles* §86).

Skepticism and atheism are wrong, says Berkeley.

Thus, [idealism is right](#).

X.3. Persistence and Intersubjectivity

Locke and Descartes posit matter as the principle cause of our ideas.

This matter has only primary qualities as properties.

But on the materialist view, there is no yellow, no sweetness in external objects.

As applied to objects, terms for secondary qualities are mere names.

Berkeley interprets terms for secondary qualities as referring to our mental states.

The lemon is yellow since I really have a yellow sensory experience.

Philonous: That the colors are really in the tulip, which I see, is manifest. Neither can it be denied that this tulip may exist independent of your mind or mine; but that any immediate object of the senses, that is, any idea or combination of ideas, should exist in an unthinking substance or exterior to all minds, is in itself an evident contradiction (Berkeley, *Three Dialogues*, First Dialogue, AW 468b).

Berkeley's account solves the problem of error for our beliefs based on the senses, like Descartes's wax example and Locke's water experiment.

This is the problem that led both Descartes and Locke to reject the resemblance hypothesis for ideas of secondary qualities.

For Berkeley, there is no problem because all ideas are independent.

We need not ascribe contradictory properties to an external object.

For the wax, I have a yellow idea and then a clear idea; I have a hot idea and then a cold idea; I smell an aroma and then fail to smell it.

For the water experiment, I have two separate, independent ideas.

Since we need not ascribe these conflicting ideas to an external object, other than an infinite God, we find no contradiction.

So the problems of error that motivated Descartes and Locke are obviated.
But Berkeley has a new set of problems.

One of Berkeley's new problems is the problem of intersubjectivity.
How do we account for different people having similar experiences?
How can we explain the confluence of our various experiences if they are not grounded in an objective material world?

A second problem is persistence.
How do we account for the fact that objects do not seem to go in and out of existence as we look at and away from them?
Indeed, if objects really are just our perceptions, it would seem to follow that looking away from something does affect its existence.

Berkeley posits God to ensure both intersubjectivity and persistence.
Our experiences are like peering into the mind of God.
The metaphor of peering into the mind of God is difficult to take literally, though, since the same problem about experiencing sensations and not their causes arises here.

Philosophers...should abstain from metaphors (Berkeley, *On Motion*, §3, AW 504b).

Literally, an idea must subsist in some mind or other, if it is to persist.
Sensible things must be perceived.
But it does not follow that they are frequently created and annihilated.

For, though we hold indeed the objects of sense to be nothing else but ideas which cannot exist unperceived; yet we may not hence conclude they have no existence except only while they are perceived by us, since there may be some other spirit that perceives them though we do not. Wherever bodies are said to have no existence without the mind, I would not be understood to mean this or that particular mind, but all minds whatsoever. It does not therefore follow from the foregoing principles that bodies are annihilated and created every moment, or exist not at all during the intervals between our perception of them (Berkeley, *Principles*, §48).

Here's a helpful limerick concerning Berkeley's view about persistence; I do not know who wrote it.

There was a young man who said, "God	"Dear sir, your confusion is odd.
Must think it exceedingly odd	I am always about in the quad.
When he finds that this tree	And that's why this tree
Continues to be	will continue to be
When there's no one about in the quad."	Since observed by, yours faithfully, God."

In Berkeley's world, there are colors, sounds, and smells.
The apple is just how I experience it.

The ideas imprinted on the senses by the author of nature are called *real things*; and those excited in the imagination, being less regular, vivid, and constant, are more properly termed *ideas*, or *images of things* which they copy and represent (*Principles* §33, AW 453b).

Berkeley's world, while not a material world, is not a world of imagination.

It is a real world of real ideas even if those ideas are just mental states.
Berkeley's world is purely psychological.

The big question for Berkeley is whether we can transcend our own mental states to refer to or understand a world external to us, even if it is not a physical world.

The solipsistic picture of Descartes returns.

Hume shows that the prospects are even worse for empiricism, even if we reject Berkeley's idealism.