John Locke on Perception (1690)

1. *Primary vs. Secondary Qualities:* Let’s consider the properties of material objects:

**Ideas:** Locke uses the term ‘idea’ as the general label for all objects of consciousness. He seems to include under this label: Sensations, beliefs, thoughts, concepts, knowledge (pretty much whatever goes on in the head). For instance, when you turn your eyes toward a tomato, you get the ideas (i.e., visual sensations) of *redness* and *roundness*.

**Qualities:** But, do these sensations of redness and roundness really correspond to something IN the object itself? Locke uses ‘qualities’ to refer to whatever it is in the object that produces these sensations in us. How do they produce sensations? Locke takes a corpuscularian view:

“it is evident some singly imperceptible bodies must come from them to the eyes, and thereby convey to the brain some *motion* which produces these *ideas* which we have of them in us.” (II.8.12)

Material objects seem to have two fundamentally different kinds of properties:

1. **Primary Qualities:** The REAL, objective properties of objects; e.g., size, shape, and motion. All material objects really have these properties, and have them necessarily. Furthermore, our sensations (or ideas) of these properties correspond to or resemble the way that these objects REALLY ARE.

2. **Secondary Qualities:** The powers of objects to produce non-resembling, subjective sensations in observers. These properties are separable from objects, and our sensations (or ideas) of them do not even remotely resemble something that is really in the object.

Two Observations: When contemplating the qualities of material objects, he notices:

(a) *Secondary qualities are relative to the perceiver; primary qualities are not.*

Consider an experiment:

**The Lukewarm Bucket of Water** Imagine that I have a lukewarm bucket of water. In one hand, I hold ice cubes for 10 minutes and in the other I hold a very hot mug of coffee for 10 minutes. If I then put both hands in the bucket, to the hand that held the ice, the water will feel warm, while to the hand that held the hot coffee the water will feel cool.
One and the same water felt both warm and cool at the same time. And many properties are like this (e.g., the flavor of orange juice before and after brushing your teeth). But, some are not. For instance, a table top would never feel rectangular to one hand, but circular to the other!

(b) *Secondary qualities are separable from matter; primary qualities are not.*

Take any material object (e.g., some bread, or a piece of paper) and tear it in half. And then tear those pieces in half, and those pieces, until the pieces are invisible. The pieces will ALWAYS have size, shape, solidity (i.e., no other matter can exist in exactly the same place at the same time), and some degree of motion (or rest). In short, these qualities are INSEPARABLE from matter. But, the pieces WILL lose their color, scent, flavor, etc. (Things actually lose their color REALLY easily—just turn out the lights!) These other qualities ARE separable from matter.

**Two Conclusions:** This leads Locke to conclude the following:

(c) *Secondary qualities depend upon, or are reducible to, primary qualities.*

For instance, if you pound an almond, all one really does is alter the texture (sizes, shapes) of the almond’s parts. But, in doing so, somehow its color and flavor are also altered. Locke writes,

“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. ... 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.”

(II.8.15, 17)

(d) *Ideas produced by secondary qualities do not resemble anything in the object.*

Recall Galileo’s observation that ‘tickling’ (i.e., the tingling sensation) is not in the feather. Rather, it is in YOU. All that is in the feather itself are its particles, arranged in certain shapes and sizes, having various degrees of motion.

Locke (and Galileo) believe that ALL sensations are like this. For instance, there is nothing like the **sourness of a lemon** in lemons, or the **scent of a rose** in roses. There is no **pain** or **heat** in fire. Remove all observers, and these all cease to exist.
2. Toward Skepticism: Consider the implications of this:

(a) The world is utterly different than it seems: The world doesn’t have anything like the sensation of colors, odors, pain, or warmth, etc. in it. Rather, these things are only in US. The world is not colorful, the world is not fragrant. The world is neither hot, nor cold. The world is painless, and pleasureless. It contains no tickling, no tingling. In short, very much of what we experience as “The World” is not really in the world at all. It’s merely in us. Locke writes,

“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.” (II.8.15)

(b) The connections are utterly mysterious: So, then, every time you feel the sensation of warmth, it is just an increase in the motions of the particles in your hand.

Similarly, the sourness of a lemon corresponds to nothing in reality but a specific arrangement of particles. And so on.

But, what is the explanation for why, e.g., the sensation of WARMTH should always be connected, in nature, to MOTION? (Note: Locke has here identified centuries in advance what we now call ‘The Hard Problem’ of consciousness in philosophy of mind!) We get a glimpse of a possible answer:

“a violet, by the impulse of such insensible particles of matter of peculiar figures and bulks and in different degrees and modifications of their motions, causes the ideas of the blue color and sweet scent of that flower to be produced in our minds—it being no more impossible to conceive that God should annex such ideas to such motions with which they have no similitude than that he should annex the idea of pain to the motion of a piece of steel dividing our flesh with which that idea has no resemblance.” (II.8.13)

Elsewhere:

“whiteness and coldness are no more in snow than pain is, yet those ideas of whiteness and coldness, pain, etc., being in us the effects of powers in things without us, ordained by our Maker to produce in us such sensations, they are real ideas in us ...” (II.30.2)

In short, it seems that God just DECIDED to match up certain sizes, shapes, and motions of particles in nature with certain sensations in observers—even though the sensations and the actual properties in nature are utterly disimilar.
(c) Our brains alter our perceptions: Even our perceptions of primary qualities cannot always be trusted—because what we experience partly relies on JUDGEMENT.

Consider, for instance, what it feels like to look at a globe, or sphere. REALLY, all that appears to you is a flat disc, with various shades on it.

For instance—unless you are reading this in the future on some weird, three-dimensional monitor—the sphere to the left is literally only a flat image on a 2-dimensional screen.

However, having seen this particular pattern of shading repeatedly, I judge it to be not flat but spherical; i.e., I have been habituated to associate this 2-D sensation with a particular 3-D shape.

**Molineaux’s Thought Experiment:** Or, consider a blind person who knows how to differentiate between cubes and spheres by touch. Now imagine that their sight is instantly restored and they are shown (but not allowed to touch) a sphere and a cube. Could they, merely by looking, accurately say which one was the sphere, and which the cube? Molineaux thought (and Locke agrees) that the answer is clearly ‘No’. (Do you agree?) In short, the sensations themselves do not indicate things like sphere or cube. Rather, judgement does.

But, judgements cannot always be trusted. For instance, stare at this *Spinning Girl* illusion for a while. Which way is the dancer spinning?

About 50% of people say she’s spinning clockwise, and 50% say she’s spinning counter-clockwise. For some people, she changes direction repeatedly without warning. Don’t believe me? Stare at her a little longer and see if you can get her to change directions.

In reality the figure is a merely 2-dimensional silhouette of someone spinning—and this silhouette looks the same no matter which direction someone is spinning—but our brains IMPOSE 3 dimensions on the image and, to make sense of this third dimension of depth and the appearance of spinning, also imposes a DIRECTION upon that spinning.

Consider also this *T-Rex Illusion*. Or this chalk art, which looks wildly distorted from every angle except one:
(d) The veil of perception: Let’s try an experiment:

Camera One Camera Two: Place your finger a few inches in front of your nose. Hold one eye closed and then the other. What do you see? Your finger seems to move against the background image. Now, keeping your finger there, focus your eyes on the room past your finger. What do you see? Two fingers?

Due to observations like this, philosophers like Locke and Descartes concluded that perception is ‘representational’. We do not DIRECTLY perceive the things in reality, but only the IDEAS (or mental IMAGES) that those things produce in us. This is the **Representationalist Theory of Perception**. Locke writes, “It is evident the mind does not know things immediately, but only by the intervention of the ideas it has of them.” In short, we experience the world as if we were watching a little movie inside our heads, filmed by the cameras of our eyes, like this:
But, having a mental idea or image of something does not guarantee that this thing really EXISTS in reality. For instance, I can “see” the ocean in my mind, even if I am not looking at it. I can “hear” my favorite song, even if it is not playing.

So, the question arises: How can we KNOW that the experiences that we are having are an ACCURATE REPRESENTATION of what is really out there? How can we KNOW what the world outside of our head is really like? Locke writes,

“It is evident the mind does not know things immediately, but only by the intervention of the ideas it has of them. Our knowledge therefore is real only so far as there is a conformity between our ideas and the reality of things. But what shall be here the criterion? How shall the mind, when it perceives nothing but its own ideas, know that they agree with things themselves?” (IV.4.3) For, “having the idea of anything in our mind no more proves the existence of that thing than the picture of a man evidences his being in the world ...” (IV.11.1)

If we cannot have direct access to anything beyond what is inside of our own heads, then it is as if there is a veil of perception between us and reality; between what we experience, and what really IS. Is there any way to know what is on the other side of that veil?

Locke Against Skepticism

1. No Innate Ideas: Let’s rewind a bit. We have all of these IDEAS in our minds. Where does Locke think they come from? In Locke’s time, many thought that certain ideas were INNATE (i.e., already in us prior to having any experiences). He thought this was absurd. To see why, it may help to consider the following thought experiment. Locke writes,

“if a child were kept in a place where he never saw any other but black and white until he were a man, he would have no more ideas of scarlet or green than he who from his childhood never tasted an oyster or a pineapple has of those particular relishes.” (II.1.6)

Alternatively, imagine that someone has just popped into existence in a sort of sensory deprivation tank (similar to 12th century philosopher Avicenna’s ‘Floating Man’ example). They experience NO sensations at all. Now ask: Could such a being begin thinking? If so, what sorts of things could they think about?

Locke’s answer: Not very much. On his view, we begin our existence without any “built in” concepts. We have to ACQUIRE them by having experiences. According to Locke, we are born as blank slates, the mind like “white paper, void of all characters”.
Simple Ideas: So-called ‘simple’ ideas are acquired in one of two ways:

(a) Sensation: Most of our simple ideas are derived from objects out there in the external, physical world. When we look outward, we perceive things being yellow, white, hot, cold, soft, hard, bitter, and sweet.

(b) Reflection: Some of our simple ideas are derived from the perception of our own inner, mental world. For instance, when we look inward, we perceive our mind thinking, doubting, believing, reasoning, knowing, and willing.

Locke would probably say that, without any sensations, our floating man (or locked up child) would still acquire simple ideas of type (b) [Do you agree?], but none of type (a).

Complex Ideas: We are then capable of forming new ideas out of these simple ones, by:

- combining them (e.g., horse + horn = unicorn),
- comparing them (e.g., elephants are bigger than mice), or
- abstracting from them (e.g., a rose, the Mona Lisa, the Grand Canyon are all beautiful).

Conclusion: All knowledge is formed from ideas, and all ideas are (ultimately) acquired via experience (i.e., perception of external objects and internal mental operations). In short, all knowledge is ultimately grounded in experience. (This is called empiricism.)

“In this faculty of repeating and joining together its ideas, the mind has great power in varying and multiplying the objects of its thoughts infinitely beyond what sensation or reflection furnishes it with, but all this still confined to those simple ideas which it received from those two sources and which are the ultimate materials of all its compositions.” (II.12.2)

[Recall our classroom exercise of drawing the weirdest, most foreign alien creature we could imagine. Every single one of them drew from prior experiences, and was nothing more than a re-combination of shapes and features that we’d all seen before. Simply put, the human imagination cannot produce anything NEW by itself, but rather derives every idea from experience. This seems to support Locke’s claim that there are no innate ideas.]

2. What We Can Know: So, how can we have knowledge of external objects?

Let’s step back first. Locke says there’s no question that we possess knowledge of the following things with certainty:

(a) Self: Following Descartes.
(b) God: Again, following Descartes.
(c) **Complex ideas which do not require any existing substance**: For instance:

(i) **Mathematical Truths**: Truths such as <Triangles have three angles> or <The interior angles of a square are all 90 degrees> are things we can know with certainty MERELY by contemplating ideas in our minds. For, these would be true even if there did NOT exist a single triangle or square in the world.

(ii) **Moral Truths**: The same goes for moral truths. For instance, if <It is morally wrong to cause gratuitious suffering in a sentient creature> is true, then it is true REGARDLESS of whether there actually ARE any sentient creatures or not.

Locke writes, “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.” (IV.4.8)

(d) **There is “conformity between our simple ideas and existing things”** (IV.4.4): Recall that Locke thinks we are born as **blank slates**. As such, we are incapable of creating our own simple ideas out of thin air. They MUST have an external source. So, when I taste something bitter (e.g., beer), I can know with certainty that there IS something out there that IN FACT has the (secondary) quality of bitterness! *(Keep in mind that, for Locke, ‘having the quality of bitterness’ JUST MEANS ‘having the power to produce the idea/sensation of bitterness in us’).* He writes,

"we are sure they [i.e., our ideas] agree to the reality of things. For, if sugar produce in us the ideas which we call whiteness and sweetness, we are sure there is a power in sugar to produce those ideas in our minds, or else they could not have been produced by it." (II.31.2)

*(Isn’t Locke ignoring a crucial question: What is the thing with the power to produce the idea of sweetness LIKE? For all I know, it is not sugar, but an evil demon!)*

3. **Against External World Skepticism**: Even if Locke has proven that there must be SOMETHING outside of my head to produce the ideas of sweetness, redness, roundness, solidity, motion, etc., how do we know what that thing is really LIKE? What reason do I have for thinking their source is something other than an evil demon?

(a) **Sensory Organs are Required for Certain Ideas.** It is clear that ideas of sensation (rather than reflection) derive from something EXTERNAL, which communicate these ideas to us through our sensory organs. Sensory ideas REQUIRE sensory organs. For instance, a blind person will never acquire the ideas of ‘redness’. And it is not the organs themselves that generate the ideas (since, e.g., I can make my eyes stop producing redness merely by turning out the lights).
(b) Sensation is Unavoidable. I can turn my imagination and memory on and off. But, if I look to the sky at noon, I will unavoidably have sensations of brightly lit objects. These experiences are IRRESISTIBLE. I cannot turn them on and off at will. [He also mentions writing something down, but (a) being unable to change it with his mind, and (b) leaving, forgetting, coming back and it still says the same thing.]

(c) Sensations Do Not Accompany Memories. Recall a terrible headache. Does the memory hurt? No. When I SENSE heat, by putting my hand in a fire, it is accompanied by pain. However, when I REMEMBER the heat, it is not painful at all; nor warm. If pain were merely a fancy of our imagination, then imagining it should HURT. The fact that it doesn’t—and no amount of mental concentration can bring forth a vivid sensation of pain—is an indication that the sensation of pain requires the accompaniment of some external object to CAUSE the pain.

(d) The Senses Corroborate One Another. If I see a fire, and doubt that it is there, I can verify its presence with my OTHER senses. For instance, I can draw near and it will feel WARM. If I touch it, it HURTS. Thus, the senses seem to verify one another in a way that supports the conclusion that there is an external world.

Locke adds two more observations:

(e) Skepticism is Impractical. It would be impossible to actually LIVE as a skeptic. Locke invites you to try it for just a short while. You’re in for a rude awakening!

“if our dreamer pleases to try whether the glowing heat of a glass furnace is barely a wandering imagination in a drowsy man’s fancy, by putting his hand into it, he may perhaps be wakened into a certainty greater than he could wish, that it is something more than bare imagination.” (IV.11.8)

If someone really persisted in living as a true skeptic, they would quickly die:

“He who in the ordinary affairs of life would admit of nothing but direct plain demonstration would be sure of nothing in this world but of perishing quickly.” (IV.11.10)

In short, our actions betray that we are not skeptics. Furthermore, skepticism as an action-guiding philosophical position is untenable.

(f) Skeptics Deserve No Reply. Finally, Locke notes that, if the skeptic insists that he is dreaming, then I need not answer him, since according to him, I am not even real. The skeptic will never be able to have any true disagreement with others, since he can never be certain that there exists any disagreement, or disagreeer! He writes,
“I think nobody can, in earnest, be so skeptical as to be uncertain of the existence of those things which he sees and feels. At least, he that can doubt so far ... will never have any controversy with me, since he can never be sure I say anything contrary to his own opinion.” (IV.11.3)

(Is Locke missing the point here? Sure, perhaps someone who has BECOME a skeptic cannot consistently believe that her opponent must reply to her, since she is agnostic about her opponent’s existence. But, don’t WE, to remain intellectually honest, have a duty to be able to justify our rejection of skepticism to OURSELVES?)

Not Certainty, but Good Enough: Locke ultimately admits that we do NOT have CERTAIN knowledge of the external world. What he has given us here has merely been an inference to the best explanation. That is, the real existence of external objects seems the best way to EXPLAIN all of the phenomena listed above.

Why should we ever expect beliefs like <There is a table in front of me> to have the same degree of confidence as <Triangles have 3 sides>; i.e., 100% absolute certainty, admitting of zero doubt? One does not need to be certain in order to have knowledge.

Expecting certainty in these matters is both ridiculous and unnecessary. Locke writes,

“how vain, I say, it is to expect demonstration and certainty in things not capable of it, and refuse assent to very rational propositions, and act contrary to very plain and clear truths because they cannot be made out so evident as to surmount even the least (I will not say reason, but) pretense of doubting.” (IV.11.10)

“The notice we have by our senses of the existing of things without us, though it is not altogether so certain as our intuitive knowledge or the deductions of our reason employed about the clear abstract ideas of our own minds, yet it is an assurance that deserves the name of knowledge.” (IV.11.3)

“the certainty of things existing [in reality], when we have the testimony of our senses for it, is not only as great as our frame can attain to, but as our condition needs. For our faculties being suited not to the full extent of being, nor to a perfect, clear, comprehensive knowledge of things free from all doubt and scruple, but to the preservation of us in whom they are and accommodated to the use of life, they serve to our purpose well enough if they will but give us certain notice of those things which are convenient or inconvenient to us. For he who sees a candle burning, and has experimented the force of its flame by putting his finger in it will little doubt that this is something existing without him which does him harm and puts him to great pain. This is assurance enough, when no man requires greater certainty to govern his actions by, than what is as certain as his actions themselves.” (IV.11.8)