

Locke (1632-1704)

Locke:

Essay Concerning Human Understanding: 1689

Descartes (1596-1650)

Meditations: 1642

Newton (1642-1727)

Mathematical Principles of Natural Philosophy (the Principia): 1686-7

Leibniz (1646-1716)

Discourse on Metaphysics: 1686

Monadology: 1714

Locke's project:

The commonwealth of learning is not at this time without master-builders, whose mighty designs, in advancing the sciences, will leave lasting monuments to the admiration of posterity: but every one must not hope to be a Boyle or a Sydenham; and in an age that produces such masters as the great Huygens and the incomparable Mr. Newton, with some others of that strain, **it is ambition enough to be employed as an under-labourer in clearing the ground a little, and removing some of the rubbish that lies in the way to knowledge ...** (pp. 9-10. All quotations are from the Nidditch edition of An Essay Concerning Human Understanding.)

The task of the under-laborer here is to provide the philosophical underpinnings for scientific advances from Newton

What's the rubbish that lies in the way of knowledge?

1. Aristotelian/ scholastic teleology, scientific methodology
2. Platonic innate ideas and rationalist epistemology
 - a. Includes Descartes

Background:

Where do our ideas come from?

More specifically: are there any ideas in our minds at the moment of our creation, before any experience of the world? Are there any *innate* ideas?

Second question: does all knowledge come from experience?

- Rationalists: knowledge goes beyond experience

- One way to go beyond experience: know via reflecting on ideas that don't come from experience, i.e. *innate* ideas
- NB: there could be other ways
- Empiricists: knowledge does not go beyond experience

In our period:

- rationalism and innate ideas go together
- empiricism and rejection of innate ideas go together

Aristotle (simplified version):

- Things are combinations of form and matter
- Through experience, forms of things are conveyed to the mind
 - So forms/ ideas are acquired through experience
- Epistemic upshot: forms/ ideas are very robust, include essential properties of objects
 - So, we come to *know* essential properties of objects through experience
 - This includes causal properties (via teleology)
- Aristotle rejects innate ideas, but he's hard to categorize on rationalist/ empiricist spectrum (due to weird views about nature of experience)

Plato:

- student of Aristotle
- thought all ideas are innate
- Epistemic upshot: doctrine of recollection
 - So Plato accepts innate ideas, and he's a rationalist

Scholastics were Aristotelians

Descartes and Leibniz embrace Platonism and innate ideas over Aristotle and ideas obtained through experience

Descartes:

- Nonsense: most important ideas are innate
- *Epistemic* reasons to think so:
 - Wax example: we know that
 - the essence of the wax is extension
 - wax can be an infinite number of shapes
 - this knowledge does not come from experience
 - Instead: follows from innate idea of a material substance
 - Proof of the existence of God:
 - M3 proof of God's existence comes from the fact that we have the idea of God
 - Where does the idea of God come from?
 - It's the 'mark of the creator': it's innate
- Are *all* ideas innate?

- No: the whiteness/ hardness/ sweet smell/ coolness of the wax are adventitious
- So, Descartes accepts innate ideas, and he's a rationalist

Hobbes's objection to Descartes's innate ideas:

I should like to know if the souls of people who are in a deep, dreamless sleep are thinking. If they are not, they do not have any ideas at the time. It follows that no idea is innate; for what is innate is always present. (35)

Hobbes is objecting to *naive innate ideas thesis*

Naive innate ideas thesis: A's being innate is a sufficient condition for A's being present to the mind

- nb: 'present' here is strong. Consider 'Austin is the capital of Texas'.
 - This is present to your mind in the sense that it's in your memory
 - So it's at least *weakly* present to the mind
 - But not present in the sense that you weren't considering it five minutes ago
 - So it's not *strongly* present to the mind

Descartes's response to Hobbes indicates that he holds a *dispositional account of innate ideas*:

...when we say that an idea is innate in us, we do not mean that it is always there before us. This would mean that no idea was innate. We simply mean that we have within ourselves the faculty of summoning up the idea. (36)

Dispositional innate ideas thesis: A's being innate is a sufficient condition for A to be present to the mind *when the relevant faculty is exercised*

Newton:

- Scientific method:
 - Rejects first principles
 - Compare: Descartes's explicit Eucclideanism, Leibniz's PSR, PNC, etc
 - Instead, start with observations, make inductive inferences to scientific conclusions
- Worth noting:
 - Looking back, Descartes and Leibniz can seem sort of crazy, their scientific worldviews and methodologies implausible
 - But, Descartes at least thought all causal interactions among material substances are the results of bumping
 - Centerpiece of Newtonian science - theory of gravity - involves action at a distance

- This was viewed by many with extreme skepticism, akin to appealing to the occult. Paradigmatically anti-scientific.
- Point: in context, Descartes looked sober and restrained, Newton looked crazy

Back to Locke:

- To clear the underbrush for Newton, Locke wants to vindicate the method of limiting ourselves to data from the senses
 - No innate ideas
 - No weird Aristotelian knowledge of essences and purposes from observations from experts
- Book 1 of the Enquiry is dedicated to arguments against innate ideas

What do we mean by ‘idea’?

An idea is ‘whatever is the object of the understanding when a man thinks... or whatever it is which the mind can be employed about in thinking...’ (1.1.8)

- NB: excellent philosophical methodology
- NB also: the presumption that the mind is only ever in contact with ideas, never with objects themselves
 - This is a presumption of indirect realism

How do ideas come to be in the mind?

Hypothesis: at least *some* are innate

Locke thinks this hypothesis is false.

Importantly, he treats it *as a hypothesis* intended to explain the knowledge that we do in fact have.

So, he can argue against it by either

1. showing that innateness isn’t such a good explanation after all
2. providing a better explanation

The real proof is that innate ideas are unnecessary to explain the knowledge that we have:

“It would be sufficient to convince unprejudiced readers of the falseness of this [hypothesis], if I should only show (as I hope I shall in the following parts of this discourse), how men, barely by the use of their natural faculties [i.e. by experience], 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.” (1.2.1)

This uses strategy (2) we already think that at least *some* ideas come from the sense, so why posit another source if it's not absolutely necessary?

NB: this isn't an argument, it's a promissory note. Only convincing once he can show that positing another source is *not* absolutely necessary

In the meantime he's got (i) refutations of arguments *for* innate ideas, and (ii) some direct arguments *against* direct ideas

Refutations of arguments *for* innate ideas:

Locke takes the strongest argument for innate ideas to be:

Argument from Universal Consent (AUC):

- (1) There are speculative and practical principles to which every human assents.
- (2) If every human assents to P, then P is innate.
- (3) So, There are innate speculative and practical principles.

First Problem: this sort of argument is vulnerable to a better explanation: an account of how universal consent is attained without having to posit some new source of knowledge

- Example: from experience
- NB: that's Locke's main strategy

Second problem: no propositions actually enjoy universal assent

Small children and the insane don't assent to PNC, so no universal assent

But this observation motivates an argument *against* innate ideas:

Argument against innate ideas:

“...it [seems] to me near a contradiction to say, that there are truths imprinted on the soul, which it perceives or understands not: imprinting, if it signify anything, being nothing else but the making certain truths to be perceived. For to imprint anything on the mind without the mind's perceiving it, seems to me hardly intelligible. If therefore children and idiots have souls, have minds, with those impressions upon them, they must unavoidably perceive them, and necessarily know and assent to these truths; which since they do not, it is evident that there are no such impressions. For if they are not notions naturally imprinted, how can they be innate? and if they are notions imprinted, how can

they be unknown? To say a notion is imprinted on the mind, and yet at the same time to say, that the mind is ignorant of it, and never yet took notice of it, is to make this impression nothing.” 1.2.5

More rigorously:

1. Children and insane people can't *perceive* the truth of PNC
2. If a truth is innate, then it can be perceived
3. So, the truth of PNC isn't innate (for children and insane people)

Same goes for any other candidate for innateness

Response: reformulate account of innate ideas to patch up AUC and avoid Locke's argument.

Recall Descartes's dispositional account:

Dispositional innate ideas thesis: A's being innate is a sufficient condition for A to be present to the mind when the relevant faculty is exercised

This sounds like a condition on *all humans*, including children and the insane

Proposed weakening:

Dispositional innate ideas thesis: A's being innate is a sufficient condition for A to be present to the mind when the relevant faculty is exercised, understanding that some humans might not possess that faculty (due to childhood, illness, deep sleep, etc)

Reformulated version of the AUC (AUC*):

- (1*) There are speculative and practical principles to which every human assents *when he comes to the use of reason*.
- (2*) If every human assents to P *when he comes to the use of reason*, then P is innate.
- (3) So, There are innate speculative and practical principles.

Two interpretations of (2*)

First interpretation: an idea/ proposition is innate iff it's known via the use of reason

Problem:

- Locke assumes that his opponents all grant that mathematical axioms are innate, but derived theorems are not
- Given the first interpretation, that distinction collapses: theorems become known via the use of reason, so they count as innate

- So, Locke's opponent's view is incoherent

Second interpretation: an idea/ proposition is innate iff one comes to know it around the time they reach the age of reason

Problem: some children know PNC before that age, some over that age still don't know it. So the hypothesis that PNC is innate in this way is empirically false.

Third proposal: an idea is innate iff it is assented to as soon as it is proposed

Problem: immediate assent can't be *sufficient* for innateness

Counterexample: we immediately assent to 'green is not red'. But,

- Can't understand that principle unless you have the ideas 'red' and 'green'
- So if the principle is innate, so are the ideas 'green' and 'red'
- But they aren't, so it isn't

Locke's positive account of the origins of ideas

Locke's broad method: treat the existence of innate ideas, determine whether it's the best explanation of our data (= the fact that we know the things that we do in fact know)

Above he argues that the innate ideas hypothesis is a poor explanation of that data

Here he presents his alternative picture:

- The mind starts out as a 'tabula rasa' (blank slate): has no innate ideas
- All ideas are acquired from *experience*. Two types:
 - *Sensation*: observation of external sensible objects
 - ex: yellow, white, heat, cold, soft, hard, bitter, sweet...
 - *Reflection*: observation of the internal operations of the minds, i.e. thinking (initially, at least, with ideas from sensation)
 - Ex: perception, thinking, doubting, believing, reasoning, knowing, willing

All ideas come either from sensation or reflection. Locke's challenge:

“Let anyone examine his own thoughts and thoroughly search his understanding - and then let him tell me whether all the original *ideas* he has there are any other than of the object of this *senses*, or of the operations of his mind, considered as objects of his *reflection* - and however great a mass of knowledge he imagines to be lodged there, he will, upon taking a strict view, see that he does not have any idea in his mind, but what one of these two have imprinted, thought perhaps with infinite variety compounded and enlarged by the understanding we shall see hereafter.” (1.2.5)

Simple vs Complex Ideas

The idea *red sock* is a compound of the simple ideas *red* and *sock*

Experience provides only simple ideas

- When I see a red sock I'm not presented with the idea *red sock*, I'm presented with the ideas *red* and *sock*
- I can create compound ideas like *red sock* by sticking together two or more simple ideas
- Importantly: though I can create complex ideas at will from pre-existing simple ideas, I can't create simple ideas: those have to come from the passive faculties of experience

Question: is it plausible that all of our ideas are either simple and acquired through sensation or reflection, or else compounded of those ideas? Is Locke's challenge met?

Primary and Secondary Qualities

Ideas are mental entities, like concepts.

What's the non-mental analogue of an idea? What can be said of the non-mental qualities of material objects?

Locke defines quality as "the power to produce [an] idea in our mind". (II.8.8)

That is, qualities (or properties) of material objects are just powers of those objects to cause certain reactions in our minds: the having of an idea in mind.

NB: Locke occasionally confuses his own definitions, speaks as if ideas really are in objects. He's being sloppy, as he acknowledges at a point. Ideas only exist in minds.

Two kinds of qualities of material objects:

Primary qualities are "such as are utterly inseparable from the body, whatever the state it is in, such as it constantly keeps through all the alterations and changes it suffers and whatever the forces to which it is subjected" (II.viii.9)

Examples: Solidity, extension, figure, mobility.

[to be clear: it's *having some extension or other* (figure/ mobility/ solidity) that's the primary quality, not having its *particular* extension]

Secondary qualities "in truth are nothing in the objects themselves, but powers to produce various sensations in us by [means of] their primary qualities, *i.e.* by the bulk, figure, texture, and motion of their insensible parts" (II.viii.10)

Examples: Colors, sounds, tastes, feelings of warmth.

Problem: does this really distinguish primary and secondary qualities?

- *All* qualities are 'powers to produce ideas in our mind'
- *Secondary* qualities have this power 'by means of their primary qualities'
- But don't *primary* qualities *also* have that power by means of primary qualities, *i.e.* by means of themselves?
- So how are primary and secondary qualities distinct?

The problem is resolved by Locke's additional comment:

Moreover:

“...the ideas of primary qualities 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... only a power to produce those sensations in us.” (II.viii.15)

What motivates this distinction?

Boyle’s motivation: (Boyle’s law: in a gas, temp and pressure are inversely proportional)

That, then, which I chiefly aim at is to make it probable to you by experiments...that almost **all sorts of qualities**, most of which have been by the Schools [i.e. scholastic philosophers] either left unexplicated, or generally referred to I know not what incomprehensible substantial forms, may be produced mechanically mean by such corporeal agents as do not appear either to work otherwise than by virtue of the motion, size, figure, and contrivance of their own parts...; or to produce the new qualities, exhibited by those bodies their action changes, by any other way than by changing the texture, or motion, or some other mechanical affection, of the body wrought upon. (OFQ, p. 17)

This is a *parsimony* argument:

- Everything that needs to be explained can be explained ‘mechanically’, i.e. by appeal to ‘motion, size, figure’ etc
- In Locke’s terminology: all of the ideas that objects cause us to have can be explained by the primary qualities of the objects, so only those *need* to be there in the object to explain the data

Locke’s arguments are different:

- Primary qualities (he claims) are ‘really in their objects’/ ‘utterly inseparable’ from them: it’s impossible to separate a material object from it’s qualities of having some solidity/ extension/ shape/ mobility
- But material objects can be separated from their secondary qualities.

Examples:

- Cold hand in a bowl of water feels very different from a hot hand in the same bowl: we sense *warmth* in one hand and *cold* in the other. But the water isn’t both cold and hot, so those (secondary) qualities can’t be in the water
 - This example is extra embarrassing for the scholastic, who thinks that cold *just is* the absence of heat, so this combo is outright contradictory
- Fire feels *warm* from a distance and *hot and painful* up close. But

- Why the change from warm to hot? Which one is really in the fire?
- No temptation to say that *pain* is in the fire
- Whole almonds are sweet and white, pounded almonds are translucent and not sweet.

Lingering problem: what does it mean to say that my primary *ideas* resemble qualities?

- My *idea* of a cube isn't shaped like a cube, so how to make sense of the resemblance?
- Ideas and the properties of objects are very different sorts of things

Related: how could we ever determine that our ideas really do resemble primary qualities?

- Due to the Veil of Ignorance, we never get to examine the qualities

Substance

What's a substance?

Notion of of substance *in general*:

- The chalk is white, cylindrical, hard, etc.
- Whiteness, cylindricality, hardness are properties that the chalk *has*.
- What's the thing that has those properties?
 - Substance

Substances are generally understood to be:

- Basic: not composed of other things
- The things that persist through change
- The objects of predication: the thing in which qualities inhere

Locke's *epistemological* problem for the notion of substance in general:

- All ideas come from the senses
- But we only perceive qualities of objects, nothing else

So,

1. How can we even have the idea of substance?
2. How can we *know* about the nature of substance if we can't even have a clear idea?

Locke: the idea of *substance* is a kind of theoretical posit:

- We can't imagine the qualities of an object existing unsupported

- So, posit something to support the qualities: posit *substance*

Long quote:

So that if any one will examine himself concerning his Notion of pure Substance in general, he will find he has no other Idea of it at all, but only a Supposition of he knows not what support of such Qualities, which are capable of producing simple Ideas in us; which Qualities are commonly called Accidents. If any one should be asked, what is the subject wherein Colour or Weight inheres, he would have nothing to say, but the solid extended parts: And if he were demanded, what is it that Solidity and Extension adhere in, he would not be in a much better case than the Indian before-mentioned; who, saying that the World was supported by a great Elephant, was asked what the Elephant rested on; to which his answer was, a great Tortoise: But being again pressed to know what gave support to the broad-backed Tortoise, replied, something, he knew not what. And thus here, as in all other cases where we use Words without having clear and distinct Ideas, we talk like Children; who being questioned what such a thing is, which they know not, readily give this satisfactory answer, That it is something; Which in truth signifies no more, when so used, either by Children or Men, but that they know not what; and that the thing they pretend to know and talk of, is what they have no distinct Idea of at all, and so are perfectly ignorant of it, and in the dark. The Idea then we have, to which we give the general name Substance, being nothing, but the supposed, but unknown support of those Qualities we find existing, which we imagine cannot subsist, *sine re substante*, without something to support them, we call that support *Substantia*; which, according to the true import of the Word, is in plain English, standing under, or upholding. (E II.xxiii.2: 295f)

Analogy of the tortoise and the elephant:

- What supports the world?
 - Proposal: an elephant, which is supported by a tortoise, which is supported by 'I know not what'
- Analogous explanation of the sort of thing the chalk is: the secondary qualities of the chalk (whiteness, cylindricality) are supported by primary qualities (solidity, extension), which is supported by 'I know not what'
 - In both cases, explanation bottoms out in 'that I know not what'

Methodological point:

Previously, Locke argued that we should reject innate ideas because they're unnecessary:

“It would be sufficient to convince unprejudiced readers of the falseness of this [hypothesis of innate ideas], if I should only show (as I hope I shall in the following parts of this discourse), how men, barely by the use of their natural faculties [i.e. by experience], 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.” (1.2.1)

I.e., he tries to show that experience is sufficient to provide all our ideas and knowledge.

But Aristotle, Descartes, Leibniz, and many others think that they have a clear idea of *Substance in general*, while Locke says that that idea cannot come from experience.

Justification seems to be: if we reflect, we'll all come to see that we don't really have a clear idea of substance after all.

What should his opponents say to this? What if they just insist that they have that clear idea?

Idea of *types of substances* (gold, chalk):

- Scholastics: the gold nugget is *gold* - it is the type of substance that it is - in virtue of being matter with the substantial form *gold*
- Locke: the only idea anyone has of a particular substance like *gold* is the complex idea composed of all the simple ideas we regularly observe in gold: yellowness, malleability, etc
 - Those properties are best known by those most familiar with the substance types: the jeweler with gold, the smith with iron (i.e. Scholastics know less than the common folk!)

Conventionalism?

Question:

- we carve up the universe into types of things: gold vs. lead, water vs. nail polish remover, giraffes vs blue whales.
- Do these categories reflect something deep about the world, or are they merely perceiver-relative?

- Put differently: if an intelligent species of aliens with very different perceptual faculties were to carve up the world very differently, would they be wrong to do so?
 - Independent of what anyone thinks about it, is there really a sort of thing as carbon, or as a blue whale? Or is the periodic table and all of biological classification (and all the rest) just made up by humans?

Scholastic's Answer:

- *Our* categories track real distinction out in the worlds:
 - Out in the world, objects are combinations of matter and substantial form
 - Object-type (category) is determined by substantial form
 - When we perceive or think about an object of type X, our minds in some sense take on the form X
 - So, the categories in the world *just are* the categories in our minds
- If intelligent aliens carved up the world differently, they're just mistaken

Locke's answer:

Reminder: the qualities of objects come in three varieties:

- Primary qualities: really in the objects (size, shape, motion)
- Secondary qualities: nothing to produce ideas in us by our senses (color, taste)
- Causal powers of things (power of gold to melt in fire but not burn, etc):

Our categories are just complexes of ideas corresponding to these three types of categories

Primary qualities of objects *are really in* objects, independent of how we perceive them. So this aspect of our categories really are out in the world

But, we mostly perceive secondary qualities

- We can't perceive most of the primary qualities of objects:
 - our senses aren't sophisticated enough the qualities at the micro-physical level
 - [Even with out very sophisticated scientific instruments, do we now perceive all the primary qualities?]

- The ideas of secondary qualities that the object produces in us are partially determined by our senses
 - If we had different senses faculties, then the gold would cause
 - So, secondary qualities perceived partially depend on us

So, any complex ideas partially composed of secondary quality ideas are partially determined by us and our perceptual faculties

So, our basic physical and biological categories are human-relative

Locke:

I do not deny, but Nature, in the constant production of particular beings, makes them not always new and various, but very much alike and kin one to another: but I think it is nevertheless true that *the boundaries of the Species, whereby Men sort them, are made by Men*; since the essences of the *Species*, distinguished by different names, are, as has been proved, of Man's making, and seldom adequate to the internal nature of the things they are taken from. So that we may truly say, such a manner of sorting of things, is the workmanship of men. (III.vi.37)

If aliens were to do things differently, we have no grounds to say that they're wrong

Question: when we divide up the world into types of things, are we picking up on divisions that are really out there in the world, or are we imposing those divisions on a world that contains none?

Real and Nominal Essences

What separates different types of things: species, elements, etc?

Aristotelian picture:

- objects have essential and accidental properties
- A type (or species) is characterized by its essence or substantial form:
 - So, essential properties of being human are being a rational animal
 - All and only humans have that combination of properties
 - Particular humans have lots of different properties that are inessential to being human: tallness, niceness, being from Houston-ness.
 - These are the accidental properties
 - NB: plausible to think also that particular objects have essences
- Role of scientists is to identify the essential properties of interesting sorts of things
- Kinds are organized hierarchically: think Binomial Nomenclature in Biology
 - Animal -> Chordate -> Mammal -> Primate -> Hominid -> Human
- Importantly, there's a unique taxonomy of kinds that corresponds to the external world

Locke rejects substantial forms, so he rejects this account of essence.

So what plays the role of essence? What makes a fish a fish?

Locke's account of essence begins with a puzzle about words and ideas:

- Our experiences are always of particular things
 - Example: we experience lots of particular dogs: Fido, Fluffy, Spike
- So how can we have general ideas: ideas for *types* of things?
 - Example: how do we get the general idea *dog*, which applies to all three?
- Moreover, how can we introduce words for those general ideas?

Locke's theory:

Consider example of the general idea *dog*

(It's general in the sense that it applies to lots of particular dogs)

- Begin with observations of particular things: Fido, Fluffy, Spike
- Each observed particular has lots of sensible qualities: color, shape, etc
- *Abstract* from the particular by dropping properties not shared by the other two
 - Spike: large, **four legs, tail, fur**, gray, mean
 - Fido: medium size, **four legs, tail, fur**, brown, lazy
 - Fluffy: small, **four legs, tail, fur**, tan, neurotic
- What you're left with is the general idea
- Meaning of the word 'dog' is just that general idea
- The essential qualities of being a dog are just those ideas left over after you abstract away the details: 'being furry' is essential, 'being large' isn't

Long Quote:

“General and universal are creatures of the understanding, and belong not to the real existence of things. To return to general words: it is plain, by what has been said, that **general and universal belong not to the real existence of things; but are the inventions and creatures of the understanding, made by it for its own use, and concern only signs, whether words or ideas.** Words are general, as has been said, when used for signs of general ideas, and so are applicable indifferently to many particular things; and ideas are general when they are set up as the representatives of many particular things: but universality belongs not 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.” (III.3.xi)

How is this relevant to the Aristotelian project of identifying the essences of sorts of things?

“...it is evident that the **essences** of the sorts or... species of things, are nothing else but these abstract ideas. For the having the essence of any species, being that which makes anything to be of that species; and the conformity to the

idea to which the name is annexed being that which gives a right to that name; the having the essence, and the having that conformity, must needs be the same thing: since to be of any species, and to have a right to the name of that species, is all one... From whence it is easy to observe, that **the essences of the sorts of things, and, consequently, the sorting of things, is the workmanship of the understanding that abstracts and makes those general ideas.**" (III.3.xii)

In other words, essences are man-made

Locke's discussion above is an account of the essences that we know about, that we use in science and conversation

These types of essences come from our general names of things, so he calls them **Nominal Essences**

So, his conclusion should so far is limited to *those* things

Note how thin this all is:

- Types of things are defined by their essences, and those essences are human creations
- But most of the ideas in nominal essences are ideas *secondary qualities*
 - Secondary qualities aren't even really in the objects
- This isn't an accident: if nominal essences are created in the way he suggests, then they must be created out of the qualities we observe, which are mostly secondary qualities
- So paradigmatic scientific activities - identifying biological species, distinguishing gold from tin from lead - have very little basis in objective reality
- Moreover, different people might abstract from the particular in different ways, leading to different classification schemes
 - People who don't care about the difference between gold and lead might lump them together as the same sort of thing.
 - On Locke's picture, there's nothing wrong with that

But, there may also be essences that are not created by people:

"First, Essence may be taken for the very being of anything, whereby it is what it is. And thus the real internal, **but generally (in substances) unknown** constitution of things, whereon their discoverable qualities depend, may be

called their essence. This is the proper original signification of the word, as is evident from the formation of it; *essentia*, in its primary notation, signifying properly, being. And in this sense it is still used, when we speak of the essence of particular things, without giving them any name.” (III.3.xv)

This type of essence he calls **Real Essence**

Two theories of real essences: Aristotelian forms, and

“The other and more rational opinion is of those who look on all natural things to have a real, but unknown, constitution of their insensible parts; from which flow those sensible qualities which serve us to distinguish them one from another, according as we have occasion to rank them into sorts, under common denominations.” (III.3.xiiix)

I.e., Real Essences are the primary qualities of objects: their microphysical structure (size, shape, motion)

NB: the nominal essences described are all of *sorts* of things: gold, dogs, etc.

Essential qualities of gold, of being a dog, are the qualities left after particular details are abstracted away

observation: essential qualities follow from nominal essences, not real essences

- There *can't* be analogous essential qualities following from real essences
 - Essential qualities are the product of general ideas
 - We don't observe the microphysical structure that make up real essences
 - [interpretational problem here: Locke sometimes talks as if we can perceive primary qualities, sometimes as if we can't. Here he seems to take them to be microphysical structured, elsewhere he seems to take them as simply motion/ extension/ shape, which might be macro]
 - So, we can't have the particular ideas from which to abstract general ideas from which to derive essential qualities

Second Observation: particular objects qua particular objects don't have essential qualities, they have them only in virtue of being an instance of a type

- Ex: my gold ring is essentially malleable in virtue of being an instance of the

type *gold*, but the ring itself, considered as an individual thing, is not essentially malleable

Question: why say that?

But how to understand the essential qualities of individuals?

Locke: individuals don't have essential qualities: that requires general concepts

Objection: what are our ideas of particular objects supposed to be like? What is my idea of Stephen Colbert supposed to be?

- Locke seems to suggest it's a maximally specific idea, i.e. the conjunction of all the ideas of the secondary qualities I observe in Stephen Colbert

But in that case, why not say that there's a Stephen Colbert type, and that all of his qualities are essential to being him? What's so important about the generality of the ideas underlying nominal essences?