Class #20 - Impressions, Ideas, Facts, Relations
David Hume, *An Enquiry Concerning Human Understanding*, §I - §IV (AW 533-548)

I. Introduction

Consider the following seven ordinary beliefs.

OB1 It is sunny outside right now.
OB2 It snowed in February.
OB3 Shakespeare wrote *The Tragedy of Macbeth*.
OB4 2 + 2 = 4.
OB5 I exist.
OB6 Objects near the surface of the Earth accelerate toward the center of the Earth at 9.8 m/s^2.
OB7 The sun will rise tomorrow.

Accounts of our knowledge of these beliefs may differ.
Our account of our beliefs like OB1 clearly appeals to occurrent sense experience.
Beliefs like OB2 involve memory.
Beliefs like OB3 involve testimony from others.
OB4 and other pure mathematical sentences are controversial and a little puzzling.
Descartes and Leibniz invoke innate ideas.
Locke rests his account on reflection on sense experience, especially abstraction.
OB5 seems unassailable when asserted, but *sui generis*; there are few if any other beliefs like it.
Our accounts of our beliefs OB6 and OB7 and their like appeal to scientific theories, distillations of our best, most secure systematizations of claims about the world.
OB4 - OB7 all present difficulties for empiricists, who may even deny them.

Let's take a closer look at mathematical claims like OB4.
Many empiricists are nominalists or fictionalists about mathematical terms.
In contemporary philosophy, fictionalism is the claim that mathematical objects are merely convenient fictions.
For the fictionalist, existential mathematical claims (propositions which claim that there are mathematical objects, like 'there is a prime number between four and six') are false.
Fictionalists allow that conditional mathematical claims like CM are true, but only vacuously so.

CM If two is rational, then there is a pair of whole numbers whose ratio is two and which have no common factor.

Any conditional with a false antecedent is true, according to classical logic.
'Two is rational' is false if there are no mathematical objects.
But CM can be true even if there are no mathematical objects.

Berkeley is a nominalist about both mathematical terms and scientific laws, claiming that are illegitimate abstractions from particular ideas.
Laws, for Berkeley, are provided by God for convenience, but with exceptions or miracles.
Regularities among experiences, as physical laws expressed using abstract ideas, are not real, for Berkeley.

Hume agrees with Berkeley about the illegitimacy of abstraction from sense perception.

> The idea of extension...is wholly dependent on the sensible ideas or the ideas of secondary qualities. Nothing can save us from this conclusion but the asserting that the ideas of those primary qualities are attained by *abstraction*; an opinion which, if we examine it accurately, we shall find to be unintelligible, and even absurd (*Enquiry*, §XII.1, AW 595b).

Hume agrees with both Locke and Berkeley on their empiricist methodology.
All three philosophers, generally labeled the British Empiricists, agree that we are immediately aware of only our ideas, not an external world of objects.
That external world, as well as any laws governing or applying in the world and any mathematical principles, is perceived only mediately or inferred.

Locke claims knowledge of the external world, science, and mathematics on the basis of a modified resemblance hypothesis and principles of reflection including abstraction.
Berkeley denies Locke's resemblance hypothesis and doctrine of abstract ideas and asserts idealism: there is no material world, we have only a practical knowledge of general scientific regularities which are at all times subject to God's will, and mathematical principles are fundamentally flawed by their reliance on abstraction.
For Berkeley, the problems of abstract ideas infect science and mathematics.
Descartes similarly aligns mathematics and science, though lauding the conclusions of both.
Hume separates mathematics and science.
Like Locke, Hume bases our knowledge of mathematics on the principle of contradiction and our bare psychological capacities.
But Hume agrees with Berkeley that our claims about the material world are unjustified.
Hume's conclusions about science are skeptical, though, rather than idealistic.

> The mind never has anything present to it but the perceptions and cannot possibly reach any experience of their connection with objects. The supposition of such a connection is, therefore, *without any foundation in reasoning* (*Enquiry*, §XII.1, AW 595a, emphasis added).

Hume thus returns to and extends Locke's skepticism.
For Locke, skepticism is mainly an expression of humility.
For Hume, skepticism is a philosophy.

Hume's main focus is on the laws of nature and the ways in which we formulate predictive scientific theories on the basis of our experience.
The philosophers of the scientific revolution sought to provide a philosophical foundation for science.
The methods of science focused on induction, the derivation of a general law from particular cases.
We see lots of objects moving and stopping and we generate hypotheses about why this happens.
We see that in events E_1, E_2, E_3.... some law like gravitation applies.
We conclude that in similar cases, this law applies.
Induction is contrasted with deduction, in which we infer a particular case from a general rule or law.
Deductions, like GF, start with general claims.

GF All goobles are froom.
Trazzie is a gooble.
So, Trazzie is froom.

Once we have general laws, we can deduce particular instances given initial conditions.
But to arrive at general laws from observation, we use induction.

The achievements of the new science centered on the discovery of universal scientific laws, especially Newton's three laws of motion.

> NL1 Inertia: an object in motion will remain in motion, an object at rest will remain at rest, unless acted on by an unbalanced force.
> NL2 The force produced by an object is equal to the product of its mass and its acceleration.
> NL3 For every action there is an equal and opposite reaction.

Laws of motion are generalizations from experimental evidence and observation.
The phenomena, the E_n, are sensory experiences.

Hume argues that while we base our knowledge of laws on principles of induction over sense experiences, our beliefs in such principles are unjustified.
This skeptical claim is called the problem of induction.
Unlike Berkeley, Hume does not turn toward God to insure our knowledge.
He turns away from certainty.
Hume claims that universal scientific claims are unknown and unknowable.

> In vain do you pretend to have learned the nature of bodies from your past experience. Their secret nature and, consequently, all their effects and influence may change without any change in their sensible qualities (*Enquiry*, §IV.2, AW 547b).

Even our knowledge of our selves, OB5, is impugned by Hume's philosophy.
Descartes took his existence to be among our most secure beliefs.
Hume argues, as we will see, that we do not have that knowledge despite its apparent obviousness.

Given Hume's inference of skepticism from basic empiricist principles, we might ask why we should believe in empiricism.
Berkeley assumes empiricism.
Locke argues against innate ideas, defending empiricism on Ockhamist grounds.
Hume has a more direct argument, HE, from reflection on our psychology.

> HE HE1. All our beliefs about the world are either directly derived from sense impressions or are the results of reasoning about cause and effect relations.
> HE2. All our beliefs about cause and effect relations are based on experience, not reason.
> HEC. So, all beliefs about the world are based on experience.

Hume's goal, then, is a lot like Locke's.
We start with a modest appraisal of our experience and our psychological capacities.
We examine the nature of our psychology and see what conclusions are warranted.
And we humbly avoid making unsupported claims.
The major differences between Hume and Locke are the severity with which Hume invokes his empiricist limitations and his consequent skepticism and atheism.

While Hume was something of a prodigy, publishing the *Treatise* in 1739 when he was 27, he was never able to work in a university.

He published the *Treatise*, with its skeptical conclusions about religion, anonymously.
He suppressed his most thorough attacks on causal arguments for the existence of God, the *Dialogues Concerning Natural Religion*, through his lifetime; they were published posthumously.
Still, Hume's atheism was widely known and ridiculed and his proposed university appointments were blocked by the Scottish clergy twice.
The portly Hume is rumored (Virginia Woolf cites the story in *To The Lighthouse*) to have gotten stuck in a bog from which he was rescued only after capitulating his views and reciting the Lord's prayer.

Hume was unsatisfied with the reaction to his *Treatise*, remarking that it fell stillborn from the press.
We are mainly going to focus on his later, more-streamlined presentation in the *Enquiry Concerning Human Understanding*, published in 1748.

We will focus centrally on Hume's problem of induction, but also on two related topics: the bundle theory of the self and Hume's compatibilist account of free will.

II. The Contents of the Mind: Ideas and Impressions

There's a saying that when a philosopher meets a dilemma, s/he makes a distinction.
Nowhere is this method more prominent than in Hume's work.
Hume divides the contents of the mind into ideas and impressions.

> We may divide all the perceptions of the mind into two classes or species, which are distinguished by their different degrees of force and vivacity. The less forcible and lively are commonly denominated thoughts or ideas. The other species want a name in our language, and in most others; I suppose, because it was not requisite for any but philosophical purposes to rank them under a general term or appellation. Let us, therefore, use a little freedom and call them impressions, employing that word in a sense somewhat different from the usual. By the term *impression*, then, I mean all our more lively perceptions, when we hear, or see, or feel, or love, or hate, or desire, or will. And impressions are distinguished from ideas, which are the less lively perceptions, of which we are conscious, when we reflect on any of those sensations or movements above mentioned (*Enquiry*, §II, AW 539a).

An impression is a sensation, a vibrant idea, like a hand on a burning stove, or the sound of a voice, or what you are looking at right now.
In contemporary philosophy, we use the terms 'qualia', 'sensation', or 'phenomenal experience' to try to capture Hume's intent for the meaning of 'impression'.
Ideas are the recollections of impressions.
The mind has simple ideas and complex ones.
Simple ideas come directly from impressions.
We can also have original ideas, ones that we construct ourselves, like those of unicorns.
These are complex ideas, made up of combinations of simple ideas.

So far, Hume's epistemology is like that of Locke and Berkeley.
Hume does admit of a limited exception to the general rule that all the contents of the mind are impressions or simple or complex ideas.
We might be able to fill in a missing shade of blue.

> Suppose...a person to have enjoyed his sight for thirty years, and to have become perfectly

> acquainted with colors of all kinds except one particular shade of blue, for instance, which it never has been his fortune to meet with. Let all the different shades of that color, except that single one, be placed before him, descending gradually from the deepest to the lightest; it is plain that he will perceive a blank, where that shade is wanting, and will be sensible that there is a greater distance in that place between the contiguous color than in any other. Now I ask whether it be possible for him, from his own imagination, to supply this deficiency, and raise up to himself the idea of that particular shade, though it had never been conveyed to him by his senses? I believe there are few but will be of opinion that he can; and this may serve as a proof that the simple ideas are not always, in every instance, derived from the correspondent impressions; though this instance is so singular, that it is scarcely worth our observing, and does not merit that for it alone we should alter our general maxim (*Enquiry*, §II, AW 540b).

The point of Hume's claim about the missing shade of blue has been much debated.
I believe that Hume raises the question to show that he holds his empiricism not as an absolute dogma, but as the conclusion of reasonable observations about our psychological capacities.
He infers from observation and experience a general principle that all knowledge must trace back to original impressions.
He elevates that principle into a rule which he uses to limit speculative claims.

> When we entertain, therefore, any suspicion that a philosophical term is employed without any meaning or idea (as is but too frequent), we need but enquire, *From what impression is that supposed idea derived?* And if it be impossible to assign any, this will serve to confirm our suspicion. By bringing ideas into so clear a light we may reasonably hope to remove all dispute, which may arise, concerning their nature and reality (*Enquiry*, §II, AW 540b-541a).

While Hume wields his rule like an axe, he is willing to entertain exceptions to it, since he does not take the rule to be infallible, placed in our minds by a benevolent God.
The missing shade of blue is just one such exception.
It is not the kind of exception that will serve to ground the rationalists' projects.
It is just a small thing, not the introduction of innate ideas.
I therefore take Hume at his word; we need not alter his general maxim.
All knowledge, or nearly so, traces back to initial impressions.
This tracing-back proceeds along the lines of ordinary psychological connections among ideas.

> There appear to be only three principles of connection among ideas, namely, *resemblance*, *contiguity* in time or place, and *cause* or *effect*. That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original. The mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others; and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it. But that this enumeration is complete, and that there are no other principles of association except these, may be difficult to prove to the satisfaction of the reader, or even to a man's own satisfaction. All we can do, in such cases, is to run over several instances, and examine carefully the principle which binds the different thoughts to each other, never stopping till we render the principle as general as possible. The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire (*Enquiry*, §III, AW 541b).

These three principles of connection among ideas, resemblance, contiguity, and cause and effect, appear throughout the *Enquiry* as the foundation for all reasoning.

Experience, in the guise of sense impressions, and reasoning, in the guise of the psychological connections among ideas, work together to produce our beliefs.
There is no clear line between the two.

> Notwithstanding that this distinction [between experience and reason] is thus universally received, both in the active and speculative scenes of life, I shall not scruple to pronounce that it is, at bottom, erroneous, at least, superficial (*Enquiry*, §V.1, fn 9; AW 550a).

Hume's three principles do some of the work that Locke's class of reflections, including the doctrine of abstract ideas, do for the earlier philosopher.

III. Psychological Capacities and Abstract Ideas

Locke introduces the doctrine of abstract ideas as a way to replace the rationalists' posit of innate ideas with an appeal to psychological capacities.
Berkeley denies the doctrine of abstract ideas and argues that the belief in the existence of the material world is based on mistaken reliance on that doctrine.
Concomitantly, Berkeley suggests that we ban general terms from our most austere, respectable language.
Instead, he claims that we can use particular terms generally without pretending to form 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).

Hume agrees that there can be no abstract objects or abstract ideas.

> It is a principle generally received in philosophy that everything in nature is individual and that it is utterly absurd to suppose a triangle really existent which has no precise proportion of sides and angles. If this, therefore, be absurd in *fact and reality*, it must also be absurd in *idea*, since nothing of which we can form a clear and distinct idea is absurd and impossible (*Treatise* I.1.7, p 5).

Given the representational theory of ideas, which Hume shares with Locke and Berkeley, we do have some psychological capacities to alter the ideas of sensation and to create new ones.
We can combine parts of our ideas, as when we think of a centaur.
We can consider some portions of an idea apart from others, as when we think about the door of a building and not the walls or roof or windows.
But Hume agrees with Berkeley that we can not form an abstract general idea, like the idea of a triangle, without thinking of a particular triangle, or like the idea of 250,737 without thinking of a particular symbol to stand for that number.

Given their rejection of Locke's doctrine of abstract ideas, Berkeley and Hume are faced with a new

problem to account for our use of general ideas without admitting a psychological capacity for abstraction.
Locke designed the doctrine of abstract ideas in order to account for our ability to speak generally, to use one term to stand for many.
We obviously use terms like 'chicken' to stand for ideas in our minds which represent many chickens, even if we only ever experience individual chickens.

An ability to speak generally is fundamental to mathematics and empirical science, where universal claims are ubiquitous.
While taking particulars to stand for other particulars avoids a commitment to abstract ideas, it may not support knowledge of those universal claims.
Berkeley thus argues that we have no knowledge of general laws like those of empirical science and mathematics.

> The theories, therefore, in arithmetic...can be supposed to have nothing at all for their object. Hence we may see how entirely the science of numbers is subordinate to practice and how jejune and trifling it becomes when considered as a matter of mere speculation (Berkeley, *Principles* §120).

Hume, in contrast to Berkeley, explains how our particular ideas can support universal claims by functioning as general ideas while remaining particular.

> The image in the mind is only that of a particular object, though the application of it in our reasoning be the same as if it were universal (*Treatise* I.1.7, p 5).

In order to make our particular idea function as a general one, Hume claims, we re-purpose the ideas.
Repurposing is a psychological capacity different from abstraction.

> A particular idea becomes general by being annexed to a general term, that is, to a term which, from a customary conjunction, has a relation to many other particular ideas and readily recalls them in the imagination (ibid, p 6).

Hume believes that unlike Locke's doctrine of abstract ideas, the capacity to annex a particular idea to a general term is psychologically defensible.
We can take objects to be of the same sort if they have any properties in common.
All (Euclidean) triangles have their angle sums in common, so they are the same sort of triangles.
But they do not have their side lengths in common, so they are not all scalene, etc.
Hume defends our ability to re-purpose individual ideas by providing examples.

> The most proper method, in my opinion, of giving a satisfactory explication of this act of the mind is by producing other instances which are analogous to it and other principles which facilitate its operation (*ibid*).

We use symbols, like numerical inscriptions.
One particular idea or word can lead us to think of many different ones, as when the first notes of a song give us the whole tune.
We can recall different component aspects of a general term, depending on the appropriate context.
These psychological capacities may be unexplained or inexplicable but they are also undeniable.

> Nothing is more admirable than the readiness with which the imagination suggests its ideas and presents them at the very instant in which they become necessary or useful (ibid, pp 6-7).

Hume surmises that general terms arise from habits of use.

> If ideas be particular in their nature and at the same time finite in their number, it is only by custom they can become general in their representation and contain an infinite number of other ideas under them (ibid, p 7).

Thus, Berkeley and Hume differ on the lesson to be learned from the failure of Locke's doctrine.
Berkeley denies the existence of mathematical objects and the truth of physical laws.
Hume bases our knowledge of mathematics on the principle of contradiction and our bare psychological capacities.
But he has deep concerns about our knowledge of science.

IV. Matters of Fact and Relations of Ideas

The empiricist, as we have seen, is faced with difficulties justifying mathematical knowledge because mathematical beliefs do not seem to arise directly from sense experience.
Locke claims that our knowledge of mathematics (and moral claims) can be certain even if there are no mathematical objects because it concerns only relations among our ideas.
Hume maintains Locke's approach.
He divides human reasoning into matters of fact, which are what we would now call empirical claims and which include the claims of science, and relations of ideas, which are of mathematics and logic.

> All the objects of human reason or enquiry may naturally be divided into two kinds, namely, *relations of ideas*, and *matters of fact*. Of the first kind are the sciences of geometry, algebra, and arithmetic; and in short, every affirmation which is either intuitively or demonstratively certain. *That the square of the hypothenuse is equal to the square of the two sides* is a proposition which expresses a relation between these figures. *That three times five is equal to the half of thirty* expresses a relation between these numbers. Propositions of this kind are discoverable by the mere operation of thought, without dependence on what is anywhere existent in the universe. Though there never were a circle or triangle in nature, the truths demonstrated by Euclid would for ever retain their certainty and evidence (*Enquiry*, §IV.1, AW 542a).

Matters of fact are acquired *a posteriori* and are contingent.
Relations of ideas are acquired *a priori*, deductively, and are necessary.
The basic tool for discovering whether a given statement is a relation of ideas is the principle of contradiction.

> What never was seen, or heard of, may yet be conceived, nor is any thing beyond the power of thought except what implies an absolute contradiction (*Enquiry*, §II, AW 539b).

The principle of contradiction says that if a statement entails a contradiction, then it is false, perhaps necessarily so.
We use the principle of contradiction in proofs by *reductio ad absurdum*, or indirect proof.
We know the mathematical claims that Hume cites because their negations are self-contradictory.
Further, Hume believes that a statement can be known to be necessarily true only if its negation entails a

contradiction.
Hume argues that many claims that have been accepted as certainly true, like statements of the laws of nature or of the existence and goodness of God, can not be so since their negations are not contradictory.

> The only objects of the abstract sciences or of demonstration are quantity and number...All other inquiries of men regard only matter of fact and existence and these are evidently incapable of demonstration. Whatever *is* may *not be*. No negation of a fact can involve a contradiction (*Enquiry* XII.3, AW 599b).

Some non-mathematical claims (e.g. 'all bachelors are unmarried') can be relations of ideas too.
But such claims will depend on definitions.

> To convince us of this proposition, *that where there is no property, there can be no injustice*, it is only necessary to define the terms and explain injustice to be a violation of property. This proposition is, indeed, nothing but a more imperfect definition. It is the same case with all those pretended syllogistical reasonings which may be found in every other branch of learning, except the sciences of quantity and number; and these may safely, I think, be pronounced the only proper objects of knowledge and demonstration (*Enquiry*, §XII.3, AW 599b).

In other words, the principle of contradiction is both sufficient and necessary for justifying our knowledge of all necessary truths, including those of mathematics.

> We are possessed of a precise standard by which we can judge of the equality and proportion of numbers and, according as they correspond or not to that standard, we determine their relations without any possibility of error (*Treatise* I.3.1, p 8).

We saw similar claims about the power of the law of contradiction in Leibniz's work.
Unlike Leibniz, Hume does not believe that all negations of true propositions lead to contradictions.
Hume makes no claim about infinite analysis and embraces contingency for matters of fact.
But he adopts Leibniz's view for mathematics, logic, and other relations of ideas.

Unfortunately for Hume's claim, the principle of contradiction by itself can not do all the work.
We need auxiliary tools to frame hypotheses and to determine whether statements are contradictory.
In the nineteenth and twentieth centuries, logicians following Frege developed a syntactic test for contradiction by developing a formal language in which contradictions could be represented.
A contradiction is any statement of the form $\alpha \bullet {\sim}\alpha$.
While Hume and the other moderns did not have this criterion, they of course understood that to assert any sentence and its negation is a contradiction.
But, the account of how to know whether one sentence was a negation of another had yet to be developed.
Both Locke and Hume thus appeal to our psychological ability to recognize contradictions.
Following Leibniz, they also appeal to our ability to recognize identities, statements whose negations are contradictions.

Thus, there are actually two tools for determining whether a statement is a relation of ideas.

RI1 The principle of contradiction.
RI2 The imagination's ability to recognize similarity and difference.

Leibniz also appeals to these abilities in order to explain our knowledge of mathematics.

He calls an ability to recognize identities intuitive knowledge.
Leibniz's account of our knowledge of mathematics appeals to either intuitive or symbolic knowledge of the axioms, along with a weaker class, adequate knowledge, of how theorems are derived from axioms.
Locke appeals to what he calls intuitive and demonstrative knowledge.
Intuitive knowledge is RI2.

> 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).

Hume makes similar claims.

> Only four [philosophical relations], depending solely upon ideas, can be the objects of knowledge and certainty. These four are *resemblance*, *contrariety*, *degrees in quality*, and *proportions in quantity or number*. Three of these relations are discoverable at first sight and fall more properly under the province of intuition than demonstration (*Treatise* I.III.1, p 7).

Demonstrative knowledge uses RI1, and, more broadly, proofs.

> When the mind cannot so bring its *ideas* together, as by their immediate comparison and as it were juxtaposition or application one to another, to perceive their agreement or disagreement, it is inclined, by the intervention of other *ideas* (one or more, as it happens) to discover the agreement or disagreement which it searches; and this is that which we call *reasoning* (Locke, *Essay* IV.II.2, AW 389b).

In other words, for Leibniz and Locke and Hume, we have both intuitive knowledge or immediate apprehension of some basic principles, and derivative knowledge of more complex statements.
Leibniz claimed that intuitive knowledge could not be explained by sense experience.
Locke and Hume, believing it to be just the result of a natural psychological ability to recognize similarities, differences, and contradictions, argue that this ability is acceptable to empiricists and includes no appeal to innate ideas.

Hume's division between relations of ideas and matters of fact allows him to maintain a commonsense view about the certainty and security of mathematics while raising devastating objections to the empiricists' account of science, the problem of induction to which we return in our next class.