

Hume's *Treatise*, 3: Abstract Ideas, Space & Time

Hume's *Treatise*, Book 1

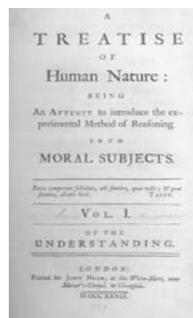
3. *Abstract ideas, Space and Time*



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3(a)

Hume's theory of general (or abstract) ideas



Empiricism and Nominalism

- An empiricist account of the origin of ideas will naturally reject any non-sensory, purely intellectual grasp of abstract essences.
- Sensory experience is of particular things, hence empiricists tend towards *nominalism*, that "all things that exist are only particulars" (Locke, *Essay* III iii 6, cf. *Treatise* 1.1.7.6).
- How, then, do "*general Words come to be made*"? Locke says they "become general, by being made the signs of general *Ideas*".

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Locke on General Ideas

"*Ideas* become general, by separating from them the circumstances of Time, and Place, and any other *Ideas*, that may determine them to this or that particular Existence. By this way of abstraction they are made capable of representing more Individuals than one; each of which, having in it a conformity to that abstract *Idea*, is (as we call it) of that sort." (Essay III iii 6)

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Locke's General Idea of a Person

"the *Ideas* of the Persons Children converse with ... are like the Persons themselves, only particular. ... The Names they first give to them, are confined to these Individuals ... *Nurse* and *Mamma* (etc.)... Afterwards, ... [they] observe, that there are a great many other Things in the World, that ... resemble their Father and Mother ... they frame an *Idea*, which they find those many Particulars do partake in; and to that they give ... the name *Man* ... Wherein they make nothing new, but only leave out of the complex *Idea* they had of *Peter* and *James*, *Mary* and *Jane*, that which is peculiar to each, and retain only what is common to them all." (Essay III iii 7)

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The Notorious Triangle

"For abstract *Ideas* are not so obvious or easie to Children, or the yet unexercised Mind, as particular ones. ... For example, Does it not require some pains and skill to form the *general Idea* of a *Triangle*, (which is yet none of the most abstract, comprehensive, and difficult,) for it must be neither Oblique, nor Rectangle, neither Equilateral, Equicrural, nor Scalennon; but all and none of these at once. In effect, it is something imperfect, that cannot exist ..." (Essay IV vii 9)

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Berkeley's Attack

"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 no. ... What more easy than for any one 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 here given of the general idea of a triangle, which is, *neither oblique, nor rectangle, equilateral, equicrural, nor scalennon, but all and none of these at once?*" (Principles, Introduction 13)

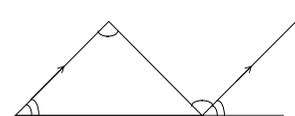
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Berkeley's Rival Account

"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* ...; these propositions are to be understood of motion ... 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, ... It is only implied that whatever motion I consider, whether it be swift or slow, perpendicular, horizontal, or oblique, or in whatever object, the axiom concerning it holds equally true." (Principles, Introduction 11)

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"though the idea I have in view whilst I make the demonstration, be, for instance, that of an isosceles rectangular triangle, whose sides are of a determinate length, I may nevertheless be certain it extends to all other rectilinear triangles, of what sort or bigness soever. And that, because neither the right angle, nor the equality, nor determinate length of the sides, are at all concerned in the demonstration." (Principles, Introduction 16)



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Is Berkeley Fair to Locke?

- Berkeley interprets Locke as believing in special, intrinsically general, abstract ideas (like indeterminate images). But Locke says:

"*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 ... *Ideas*, which in their signification, are general. ... For the signification they have, is nothing but a relation, that by the mind of Man is added to them." (Essay III iii 11)

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Treatise 1.1.7: "Of abstract ideas"

- Hume credits Berkeley with "one of the ... most valuable discoveries that has been made ... in the Republic of Letters:"

"that all general ideas are nothing but particular ones, annex'd to a certain term, which gives them a more extensive signification, and makes them recal upon occasion other individuals, which are similar to them." (T 1.1.7.1)

- Hume puts more emphasis on the associated "certain term" than Berkeley did.

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General Ideas and Custom

"When we have found a resemblance among several objects ... we apply the same name to all of them ... After we have acquir'd a custom of this kind, the hearing of that name revives the idea of one of these objects, and makes the imagination conceive it with all its particular circumstances and proportions. But as the same word is suppos'd to have been frequently apply'd to other individuals ... the word not being able to revive the idea of all these individuals, only ... revives that custom, which we have acquir'd by surveying them. They are not really ... present to the mind, but only in power ... we ... keep ourselves in a readiness to survey any of them" (T 1.1.7.7)

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The Revival Set

"... after the mind has produc'd an individual idea, upon which we reason, the attendant custom, reviv'd by the general or abstract term, readily suggests any other individual, if by chance we form any reasoning, that agrees not with it." (T 1.1.7.8)

"some ideas are particular in their nature, but general in their representation. A particular idea becomes general by being annex'd to a general term ... which from a customary conjunction has a relation to many other particular ideas, and readily recalls them in the imagination." (T 1.1.7.10)

– Garrett calls this *the revival set* of associated ideas.

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Refuting Abstract General Ideas

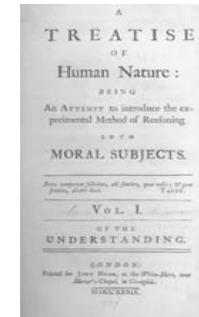
- Hume sets out to argue (against Locke) "that the mind cannot form any notion of quantity or quality without forming a precise notion of the degrees of each" (T 1.1.7.3)
- He does so using three considerations:
 - The Separability Principle (T 1.1.7.3)
 - The Copy Principle: any sensory impression must have determinate qualities (T 1.1.7.4-5)
 - The Conceivability Principle: no indeterminate object is possible in fact or thought (T 1.1.7.6).

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3(b)

Space and Time



Treatise Book 1 Part 2

- Treatise 1.2 is often ignored in the Hume literature, and considered very dubious.
- In it he applies his theory of ideas to draw ambitious conclusions about the nature of our ideas of space and time, and hence the nature of space and time themselves.
- He starts by arguing that neither our ideas, nor – consequently – space and time themselves, can be infinitely divisible.

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The Separability Principle (SP)

- Hume's statement of the Separability Principle seems to allude back to his "second principle, of the liberty of the imagination to transpose and change its ideas (from T 1.1.3.4):
- "We have observ'd, that whatever objects are different are distinguishable, and that whatever objects are distinguishable are separable by the thought and imagination. And ... these propositions are equally true in the *inverse*, and that whatever objects are separable are also distinguishable, and that whatever objects are distinguishable are also different." (T 1.1.7.3)

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The Argument for the Separability Principle

- Hume's argument for the Separability Principle is extremely cursory:

"For how is it possible we can separate what is not distinguishable, or distinguish what is not different?" (T 1.1.7.3)
- This makes the SP look trivially true, but in fact it seems to conceal potentially debatable assumptions about ideas, as sensory atoms that can be moved around like pixels in a computer image.

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Treatise 1.2.1: "Of the infinite divisibility of our ideas of space and time"

- It is "evident from the plainest observation" "that the capacity of the mind is limited, and can never attain a full and adequate conception of infinity".
- Hence "the *idea*, which we form of any finite quantity, is not infinitely divisible" (T 1.2.1.2).
- If we divide our ideas in imagination, we must eventually reach "a *minimum*" (T 1.2.1.3).
- The same goes for sensory impressions, as illustrated by the experiment in which we view an ink spot then gradually retreat from it until the point *just before* it becomes invisible. (T 1.2.1.4)

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An Interesting Speculation

- Rolf George (in *Hume Studies*, 2006) suggests that Hume's confidence in the Separability Principle might well have been shaken by Jurin's *Essay Upon Distinct and Indistinct Vision* (1738).
- If we retreat until the red dot just disappears, the (thinner) red line will still be visible. So our visual field does not in fact appear to be made up of a grid of "pixels".
- SP does not feature in the *Enquiry* of 1748, where Hume also seems far less committed to the simple/complex distinction.

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Separability and Abstraction

- SP implies that thinking of an abstract line without a specific length is impossible:

"'tis evident at first sight, that the precise length of a line is not different nor distinguishable from the line itself, nor the precise degree of any quality from the quality" (T 1.1.7.3).
- But if this is right, how is it that we can apparently distinguish "between figure and the body figur'd; motion and the body mov'd" (T 1.1.7.17)?

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The Distinction of Reason

- Hume appeals to his theory of general ideas: in a single object, we can see "many different resemblances and relations ..."
- "Thus when a globe of white marble is presented, we receive only the impression of a white colour dispos'd in a certain form. ... But observing afterwards a globe of black marble and a cube of white, ... we find two separate resemblances, in what formerly seem'd, and really is, perfectly inseparable. ... we ... distinguish the figure from the colour by a *distinction of reason* ... view[ing] them in different aspects, according to the resemblances ..." (T 1.1.7.18)

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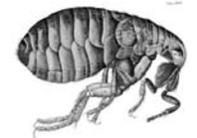
Conceiving of Tiny Things

- Because our minimal perceptions are atomic (without any parts),

"Nothing can be more minute, than some ideas, which we form in the fancy; and images, which appear to the senses; since these are ideas and images perfectly simple and indivisible. The only defect of our senses is, that they give us disproportion'd images of things, and represent as minute and uncompounded what is really great and compos'd of a vast number of parts." (T 1.2.1.5)

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"This however is certain, that we can form ideas, which shall be no greater than the smallest atom of the animal spirits of an insect a thousand times less than a mite: And we ought rather to conclude, that the difficulty lies in enlarging our conceptions so much as to form a just notion of a mite, or even of an insect a thousand times less than a mite. For in order to form a just notion of these animals, we must have a distinct idea representing every part of them ..."



Hooke, *Micrographia*, 1665

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Treatise 1.2.2: "Of the infinite divisibility of space and time"

- *Treatise* 1.2.2 starts with a bold statement:
"Wherever ideas are adequate representations of objects, the relations, contradictions and agreements of the ideas are all applicable to the objects; ... But our ideas are adequate representations of the most minute parts of extension; and thro' whatever divisions and sub-divisions we may suppose these parts to be arriv'd at, they can never become inferior to some ideas, which we form. The plain consequence is, that whatever *appears* impossible and contradictory upon the comparison of these ideas, must be *really* impossible and contradictory, without any farther excuse or evasion." (T 1.2.2.1)

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From Inconceivability to Impossibility

- Hume appears to be arguing here from the *inconceivability* of certain relations of ideas to the *impossibility* of things in the world (this is the *converse* of the Conceivability Principle).
- In general this seems dubious: why should our powers of conception (with our limited stock of ideas derived from experience etc.) reach to everything that's possible in nature?
- But Hume restricts use of this Inconceivability Principle to where "our ideas are adequate".

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The Adequacy of Our Ideas

- Since Hume thinks "our ideas are adequate representations of the most minute parts of extension", he argues that the impossibility of infinite division of our ideas implies the impossibility of infinite division of space:
"I first take the least idea I can form of a part of extension, and being certain that there is nothing more minute than this idea, I conclude, that whatever I discover by its means must be a real quality of extension. I then repeat this idea once, twice, thrice, &c. ..." (T 1.2.2.2)

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The Impossibility of Infinite Divisibility

- Although each of our minimal ideas is indivisible and therefore not *extended*, when we place them adjacent to each other we get an extended pattern.
- Repeating this *in infinitum* would produce an infinite extension, so it follows that no finite extension can accommodate an infinite number of such minima:
"the idea of an infinite number of parts is ... the same idea with that of an infinite extension".

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A Mathematical Objection

- Mathematically, Hume's argument seems dubious. Imagine dividing an extension in two and taking the first half, then dividing that in two and again taking the first half, and so on ...
- It seems that one could potentially go on forever, yielding an infinite number of *proportional* (rather than *aliquot* i.e. equal-sized) parts. In a footnote to T 1.2.2.2, Hume calls this objection "frivolous", insisting that even proportional parts "cannot be inferior to those minute parts we conceive".

29

Rebutting the Mathematicians

- Later in the section, Hume appeals to the Conceivability Principle to rebut the arguments of mathematicians in favour of infinite divisibility:
"Here then is an idea of extension, which consists of parts or inferior ideas, that are perfectly indivisible: Consequently this idea implies no contradiction: Consequently 'tis possible for extension really to exist conformable to it ..." (T 1.2.2.9)

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The Actual Parts Metaphysic

- Hume's argument seems to beg the question, because if space is infinitely divisible, then our minimal ideas of it (which are indivisible) are *not* adequate.
- Tom Holden (2004) suggests that Hume is presupposing an "actual parts" metaphysic, whereby anything that is divisible must *in advance* consist of the actual parts into which it is divided.

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Fundamental Parts

- Holden's suggestion is supported by Hume's appeal to an argument by Nicholas de Malezieu:
"Tis evident, that existence in itself belongs only to unity, and is never applicable to number, but on account of the unites, of which the number is compos'd. ... 'Tis therefore utterly absurd to suppose any number to exist, and yet deny the existence of unites; and as extension is always a number ..." (T 1.2.2.3)

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The Experienced Manifold

- Don Baxter (2009) provides an alternative suggestion, that Hume's (somewhat Kantian) aim "was to find out about objects as they *appear to us* by examination of the ideas we use to represent them" (p. 117).
- On this account, Hume's ambition goes no further than "knowing perfectly the manner in which objects affect my senses, and their connexions with each other, as far as *experience informs me of them*" (T 1.2.5.26)

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Space and Time

- "All this reasoning takes place with regard to time", and besides, it is of the essence of temporal moments to be successive (rather than co-existent). (T 1.2.2.4)
- "The infinite divisibility of space implies that of time, as is evident from the nature of motion. If the latter, therefore, be impossible, the former must be equally so." (T 1.2.2.5)

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Extension as a "Manner of Appearance"

- The Copy Principle should reveal the nature of our idea of extension (T 1.2.3.1), but we don't seem to have any distinct *impression* from which it could be derived.
- The idea of extension is *abstract* (in Hume's sense of a revival set linked to a general term) and derived from the resemblance in the "manner of appearance" of our spatially disposed impressions, whether of coloured points or impressions of touch (T 1.2.3.5).

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Time and Perceivable Succession

- "The idea of time [is] deriv'd from the succession of our perceptions ... ideas as well as impressions ... of reflection as well as of sensation, ... [it is] an abstract idea, which comprehends a still greater variety than that of space, and yet is represented in the fancy by some particular individual idea of a determinate quantity and quality." (T 1.2.3.6)
- So the idea of duration "must be deriv'd from a succession of [perceivably] changeable objects" (T 1.2.3.8), and – since it is not separable from such a succession (T 1.2.3.10) – cannot properly be applied to anything unchangeable (T 1.2.3.11).

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Spatial Atoms

- "The idea of space is convey'd to the mind by ... the sight and touch ... That compound impression, which represents extension, consists of several lesser impressions, that are indivisible to the eye or feeling, and may be call'd impressions of atoms or corpuscles endow'd with colour and solidity. ... There is nothing but the idea of their colour or tangibility, which can render them conceivable by the mind." (T 1.2.3.15)
- "We have therefore no idea of space or extension, but when we regard it as an object either of our sight or feeling." (T 1.2.3.16)

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Geometry, and the Vacuum

- T 1.2.4.17-32 argues that geometrical ideas, deriving from visual and tangible appearances, cannot achieve a precision beyond the limits of possible perception. So we cannot conclude, for example, that the diagonal of an isosceles right triangle will be *exactly* $\sqrt{2}$ times the other sides.
- "If ... *the idea of space or extension is nothing by the idea of visible or tangible points distributed in a certain order*; it follows, that we can form no idea of a vacuum, or space, where there is nothing visible or tangible." (T 1.2.5.1)

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Humean "Fictions"

- We imagine we have an exact standard of equality, applicable even to a supposed infinitely divisible space, but that imaginary standard is a "fiction" which arises from the tendency of our imagination to over-extrapolate (T 1.2.4.24).
- The "idea" of a vacuum is a fiction, whose origin Hume traces to natural tendencies to confuse of ideas and use words without ideas (T 1.2.5.19-23). Likewise duration as applied to unchanging objects, which cannot be a genuine impression-copied idea (T 1.2.5.28-9, cf. 1.2.3.11).

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Is Hume Denying a Vacuum?

- At T 1.2.5.25-6, Hume addresses the objection that he discusses "only the manner in which objects affect the senses, without endeavouring to account for their real nature and operations".
"I answer this objection, by pleading guilty, and by confessing that my intention never was to penetrate into the nature of bodies, or explain the secret causes of their operations. ... I am afraid, that such an enterprize is beyond the reach of human understanding, and that we can never pretend to know body otherwise than by those external properties, which discover themselves to the senses."

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Our Idea of Existence

- The final section of Part 2 applies similar considerations to our idea of existence:
"The idea of existence ... is the very same with the idea of what we conceive to be existent. To reflect on any thing simply, and to reflect on it as existent, are nothing different" (T 1.2.6.4)
- The Copy Principle also implies that we cannot think of external objects as anything "*specifically* different from our perceptions" (T 1.2.6.7-9) – this is important in T 1.4.2.

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Afterword on Space and Time

- In January 1772, Hume wrote to his printer, William Strahan:
"... about seventeen Years ago ... I intended to print four Dissertations, the natural History of Religion, on the Passions, on Tragedy, and on the metaphysical Principles of Geometry. ... but before the last was printed, I happend to meet with Lord Stanhope who was in this Country, and he convinced me, that either there was some Defect in the Argument or in its perspicuity, I forget which; and I wrote to Mr Millar, that I woud not print that Essay; ... I wrote a new Essay on the Standard of Taste ..."
- Lord Philip Stanhope was a notable mathematician, and Hume was friendly (perhaps related) with his wife. Space and time feature very little in Hume's later works, playing only a minor role in the first *Enquiry*, Section 12 Part 2.

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