



Hume's methodological solipsism

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Abstract

This paper offers a new interpretation of Hume's *Treatise* as a work written by a methodological solipsist. It argues that Hume anticipates later developments by launching a Fodorian project that is to be realised by Carnapian means. Hume develops an explanatory theory of mental operations based on an analysis conducted by way of similarity recollections in the stream of experience. The paper first presents the case for Hume's commitment to methodological solipsism and then offers a reconstruction of the methodology with which his project is to be executed. Hume proceeds by analysing perceptions and the connections between them to account for their "nature" and the "principles" underlying their interaction. His analyses reveal the solipsistic methodological credo that Hume did not make explicit.

Keywords Experimental method · Distinctions of reason · History of psychology · Jerry Fodor · Rudolf Carnap

1 The idea of an experimental method

Hume has not done us the favour of writing a proper methodological tract. His announcement in the subtitle of the *Treatise* that the work will be an attempt "to introduce the experimental method of reasoning into moral subjects" serves as general orientation: the reader should expect an empirically grounded explanatory enterprise, rather than a work with speculative and normative pretensions. Yet this orientation is less than sufficient to understand Hume's methodology and philosophical practice.

The core idea behind Hume's philosophical project is that analysis and synthesis of perceptions, modelled on "the experimental method of reasoning", can reveal both the properties of mental states and the operations that the mind performs to produce the rich mental life we experience from the input of the senses. Hume's

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experimental method of reasoning begins with the phenomenal properties of perceptions and, through *comparative analysis* of them, arrives at conclusions about their intra-mental genesis, constitution, transformations, and connectivity. Hume's project is concerned with the relations between mental states, largely disregarding both their world-involving properties, such as their extra-mental causal origins or reference, and the physiological implementation of mental processes. He seeks to answer questions about how the mind works exclusively in terms of these relations, regardless of their connections to and embeddedness in the world. The central claim of this paper is that the science of the mind Hume expounds in the *Treatise* becomes remarkably coherent when read as an exercise in methodological solipsism based on the phenomenally given.

The label 'methodological solipsism' is introduced here to suggest how productive it is to read Hume's project as one that anticipates much more recent developments. In Fodor's vision, "cognitive psychology proceeds by diagnosing functions and postulating mechanisms to perform them", and treats these mechanisms "as functions from one sort of representation onto another".¹ A methodological solipsist pursues this programme with the distinctive claim that "how the world is makes no difference to one's mental states".² Those embracing this commitment can agree that mental states are distinguished by their representational contents *and* the subject's relation to that content, but they cannot have recourse in their explanations to the world-involving properties of the representations. Therefore, truth-conditional "semantics isn't part of psychology",³ and such an inquiry must assume that "mental processes have access only to formal (nonsemantic) properties of the mental representations over which they are defined".⁴ For this form of solipsism, semantics is muddy water: we do not even know what semantic properties are, so we can hope for explanatory progress by allowing representational content to be meaningfully different "only if they can be identified with relations to formally distinct representations"⁵—i.e. only if they are different in their *nonsemantic* properties.

Carnap conceives the *Aufbau* as an exercise in methodological solipsism: "an application of the form and method of solipsism, but not [...] an acknowledgment of its central thesis",⁶ i.e. a methodology with no commitment to solipsistic ontology. Solipsism is taken as the starting point for the construction of a conceptual system that purports to make scientific statements translatable into "autopsychological" statements about one's subjective experience. The aim of this construction is to reflect the "logical-constructional order": it begins with those "epistemically

¹ Fodor (1984, 37). One could complain that in this sense Hume's project is consonant with any philosophical psychologist who believes in mental representations. This is not surprising because, as it has been pointed out, despite its many distinguished predecessors, "in contemporary work, Fodor's name is metonymic with a kind of cognitive science—possibly *the cognitive science*—that many of us care about doing. One could refer to it as *Fodorian cognitive science*." (de Almeida 2017, 2).

² Fodor (1980, 64).

³ Fodor (1994, 38, 87).

⁴ Fodor (1980, 65).

⁵ Fodor (1980, 68).

⁶ Carnap (1967, §64).

primary” objects that are presupposed for the recognition of “epistemically secondary” objects.⁷ The construction of this “epistemic order” is not a description of the actual cognitive process, but a rational reconstruction.⁸ Consequently, epistemic primacy does not entail primacy in actual cognitive genealogy.

Our actual cognitive genealogy begins with the “stream of experience”, or “the given”, that in itself constitutes a unity and totality. But in the epistemic order, “elementary experiences”, i.e. the sum total of all experiences of a subject at a time, are primary.⁹ They do *not* reflect the unique analysis of the stream of experience as being “composed of determinate, discrete elements”; they only entail that “statements can be made about certain places in the stream of experience, to the effect that one such place stands in a certain relation to another place”.¹⁰ These elementary experiences are unanalysable in themselves, but they can be “quasi-analyzed” into quasi-constituents that are not directly experienced but are the products of abstractions derived from comparisons.¹¹ They are thus relational. The basic relation of Carnap’s constructional system is the “recollection of similarity”.¹² This is the basis of the quasi-analysis of the given into quasi-constituents, and it is the means of constructing “similarity circles” or “quality classes”.

Of course, Hume did not have the conceptual, theoretical, and experimental resources for a properly Fodorian project, but his project could and did feature *some* aspects of a Carnap-style autopsychological reconstruction of mature phenomenology. Hume had no access to Carnap’s formal methods, but the foundation of analysis for both Hume and Carnap is the relation of *similarity*. The *Treatise*, as I propose to read it, is an explanatory enterprise that relies on an account of mental states *and* psychological laws essentially driven by similarities between perceptions. As it turns out, the cognitive work the Humean mind can do springs from its ability to recollect similarities and organise experience on this basis.

The aim of the *Treatise*, as Hume puts it in the Introduction, is “to explain the principles and operations” of our faculties *and* “the nature of ideas” (I.5).¹³ These aims are dialectically intertwined. One cannot be fulfilled without the other because the Humean mind is dynamic, perceptions and their phenomenal properties are in constant flux. In their natural existence, they are not standing states but occurrent parts of complex processes. Understanding psychological processes is inextricably bound up with understanding the “nature”, i.e. the properties and constitution, of perceptions, and this is inaccessible without understanding the processes they figure in. Carnap-style (quasi-)analysis of the “stream of experience” can contribute to an understanding of those representations that are more distant from the phenomenally given. This kind of analysis reveals *structural properties* of the given by specifying

⁷ Carnap (1967, §67).

⁸ Carnap (1967, §50).

⁹ Carnap (1967, §64, 67).

¹⁰ Carnap (1967, §67).

¹¹ Carnap (1967, §71). On the idea of quasi-analysis see Toader (2004) and Leitgeb (2011).

¹² Carnap (1967, §82).

¹³ All references in the main text are to Hume (2007a), except when otherwise indicated.

“places” in relation to each other in the stream, and by specifying these relations it also sheds light on the processes leading from one mental state to another.

At the risk of sounding anachronistic, this paper proposes that Hume’s Fodorian explanatory project is realised by Carnapian means through a similarity-based analysis of experience. Less anachronistically, it proposes that Hume’s approach anticipates and combines some crucial commitments of later methodological solipsism. *This proposal is strictly to be understood as stating the heuristic of the present interpretation*, and *not* as an attempt at comparative exegesis. Reading Hume as a methodological solipsist against this background enriches our understanding of his science of mind and reveals his unstated methodological commitments.

2 Hume’s solipsistic constraints on psychological analysis

Hume’s inquiry begins with what Thomas Nagel calls a “Cartesian thought”, albeit an implicit one: “there are perceptions”.¹⁴ We “cannot get outside of” nor call into question such thoughts without immediately realising that the very doubt is unintelligible: such thoughts are immune to scepticism.¹⁵ Hume’s starting point is indubitable because perceptions are phenomenologically unavoidable; they feel and seem in particular ways. The *impressions of the senses* are fundamental perceptions that put Hume’s psychological machinery in motion. They induce *ideas*, and ideas and sense impressions induce *impressions of reflection* (sentiments, passions, emotions). As Hume’s thoughts are derived from ideas, and ideas are a kind of perception, it is inconceivable to entertain the thought that “there are no perceptions” without having perceptions at the same time. The attempt to get outside of and question this thought quickly runs into a *reductio*.

Hume’s methodological solipsism is *first* exposed in his refusal to include extramental causes in his account of sense impressions he offers in the *Treatise*. The manner in which sensations arise in the mind belongs “more to anatomists and natural philosophers than to moral, and therefore shall not at present be enter’d upon” (1.1.2, see also 2.1.1.1–2). Hume admits that impressions of sensation arise “from the constitution of the body, from the animal spirits, or from the application of objects to the external organs” (2.1.1.1), but these physical and physiological processes do not carry psychologically relevant information about the impressions they produce (1.4.4.13).¹⁶ They are therefore outside the scope of Hume’s inquiry, which begins where psychologically relevant properties arise, i.e. with the impressions of sensation that emerge “without any antecedent perception” (2.1.1.1).

In more radical moments, Hume proclaims that the “ultimate cause” of sense impressions is “perfectly inexplicable by human reason, and ’twill always be impossible to decide with certainty, whether they arise immediately from the object, or

¹⁴ Recall that Descartes’s *Meditations* is one of the few works Hume suggested in a letter to Chevalier Ramsey as background reading before turning to his *Treatise*, see Popkin (1964, 775). Fpopk

¹⁵ Nagel (1997, 33, 44–45).

¹⁶ Although this passage reflects upon impressions of touch, it illustrates the general thrust of Hume’s account of impressions as presented in this section.

are produc'd by the creative power of the mind, or are deriv'd from the author of our being". But he adds: "Nor is such a question any way material to our present purpose." (1.3.5.2) Causes external to the stream of perceptions do not matter in this inquiry. Sense impressions matter but not the existence, properties, operations of their causes, or the causal process itself that leads to the appearance of the sense impressions. Even if the existence of this process is acknowledged, it is not integral to the science of mind, because the only objects of Hume's inquiry are "the *appearances* of objects to our senses, without entering into disquisitions concerning their real nature and operations" (1.2.5.26n12).

Hume is, of course, aware that there is a physical-cum-physiological story to tell about the origin and implementation of sense impressions, but he deliberately ignores it. These stories are beyond the scope of inquiry because they would also imply conceiving of something "specifically different from ideas and impressions" (1.2.6.8), something that does not resemble them (1.4.4.13–15). This is impossible because we can only conceive ideas. The range of possible conceptions is restricted by the inferences available from Hume's indubitable starting point—"there are perceptions". The phenomenology of the given perceptions can be processed theoretically: it is open to classification, comparison, reflection. But from this stance it is indeed impossible to step outside the stream of perceptions and to answer questions about their implementation and causes, because their phenomenology does not carry any information about them.

Nor is there any need to step outside the stream, because these questions are irrelevant for an inquiry that begins with brute factual givenness of "original impressions" (2.1.1.1),¹⁷ and studies perceptions *qua* perceptions, *within* the domain of perceptions, *independently* of their implementation. A general understanding of impressions can be achieved by studying the relations and interactions of perceptions and the role sense perceptions play in this network. The apparent lack of information about the extra-mental origins of sense perceptions can be remedied by inverting the order of exposition and proceeding from the discussion of ideas to the discussion of impressions (1.1.2), i.e. giving a general account of impressions through an account of the impressions of reflection whose causes and effects are within the stream of perceptions. For this reason, the lessons about the impressions of reflection in the *Treatise* contain generalised lessons about impressions: much of what we can know about sense impressions *qua* impressions we can know by finding out about the impressions of reflection.¹⁸

Arguably, Hume is inclined to think that mental processes are implemented by bodily processes, but his materialist sympathies are inessential to his psychology. He freely exploits the physiological imagery suggested by opposing theoretical

¹⁷ As a reviewer pointed out, this reading is in contrast with that of Baier (1991, 24–27) and Maddy (2011). For them the sceptical breakdowns in 1.4.2.56–57 and 1.4.7 indicate the failure of Hume's project and the need to review it on new foundations.

¹⁸ For example, a crucial general lesson about the compositional properties of "impressions and passions" is revealed in 2.2.6.1. For some implications see Demeter (2021 and 2025).

traditions depending on his illustrative needs.¹⁹ These images provide a sensible metaphor or a model for a mental phenomenon, but they only illustrate the point rather than make it.²⁰ Taken together, Hume's invocations of physiological imagery indicate that he adopts a perspective on psychological processes inspired by physiological theorising (in one context he explicitly says so, 2.1.12.2), but they do not indicate commitment to a particular theory about the implementation of mental processes, nor the need for a physiological foundation for psychology. Given the limits of Hume's inquiry just outlined, physiology cannot even offer more to his project.

Hume's physiological detours highlight the strictly methodological character of his solipsism. He refrains from the ontological commitments of solipsism—just as he refrains from ontological commitments about the extra-mental world in general. Consequently, Hume's solipsism does not entail a denial of the existence of a mind-independent world or of other minds. In fact, Hume's methodological solipsism pre-emptly ontological solipsism: if inquiry cannot extend beyond the perceptions themselves then, as long as Hume is faithful to the limits he sets for his inquiry, there are no available conclusions about the perceptions having causes in, or being the representations of, a mind-independent world. Moreover, ontological solipsism is untenable for Hume for a further reason: it is irreconcilable with our practice of everyday life. We cannot live like a *begeisterte* solipsist any more easily than we can live like a *begeisterte* sceptic. "Nature herself" is strong enough to have us "live, and talk, and act like other people in the common affairs of life" (1.4.7.9–10).

The *second* indication of Hume's methodological solipsism is the expulsion of truth-conditional semantics from the study of perceptions. Questions of reference or of how perceptions are related to aspects of the extra-mental world play no part in understanding perceptions, because "to form the idea of an object, and to form an idea simply is the same thing; the reference of the idea to an object being an extraneous denomination, of which in itself it bears no mark or character." (1.1.7.6) That reference is "extraneous" means that it does not belong to ideas intrinsically and, more importantly, that it is not constitutive of their nature. Unsurprisingly then,

¹⁹ It has been suggested that: 1) Hume is committed to *Cartesian-Malebranchian animal spirit physiology*. Yolton (1983, 175–177) provides a crisp summary of the relevant passages on which Frasca-Spada (2003), Wright (1983, 69–70, 219–220, 2009, 52–56), Sutton (1998, 171–173) etc. build their interpretations; 2) Buckle (2007), Cunningham (2007) and Wilson (2016) emphasise Hume's *vital materialism*; 3) Lenz (2022, 183–190) argues that Hume's account of sympathy is literally based on an unspecified physiological theory of contagion; 4) Goldhaber (2021) draws attention to Hume's emphatic but metaphorical invocation of *humoral physiology* in explaining psychological recovery from a sceptical crisis; and 5) Demeter (2023) points out that Hume's explanation of the fictional unity of the self looks as if it is modelled on then-contemporary *sympathetic nervous physiology*. These suggestions successfully direct attention to real vestiges of physiological theory in Hume's *Treatise*, but they entail incompatible philosophical commitments. This suggests that the role of physiology is substantive but metaphorical in the *Treatise*.

²⁰ The animal spirit passages cited by Yolton (1983, 175–177) etc. are of this type. The physiologically non-committal character of Hume's theory is one reason why Fodor (2003, 149) can rightly proclaim the *Treatise* the foundational document of cognitive science. Much of his account is at least consistent with contemporary theorising about the mind as Buckner (2024, chapter 4), Collier (2018), Prinz (2016) etc. can attest. Had his argument been tied to a specific physiological account of implementation available at the time, it would have shared the fate of eighteenth-century physiological theories, and now it would be another thing of mere historical interest.

along with reference, the questions of truth and the just representation of “nature” also find themselves outside the range of psychologically relevant properties of perceptions (1.3.5.2).

The properties due to which perceptions play their role in mental processes, cannot be specified in terms of truth-conditional semantics because the properties it ascribes to perceptions are just as “extraneous” as their implementation and extramental genealogy. Generally speaking, world-involving or world-related properties of perceptions are irrelevant because they are not intrinsic to the stream of perceptions, and nothing external to this stream can play an explanatory role in the psychological account of perceptions. For Hume, as Fodor rightly points out, the structure of the world cannot explain the structure of experience, unless it can be given in experience—which it cannot, unless the world is made of perceptions.²¹ But Hume refrains from such metaphysics. Consequently, some other explanation of how perceptions play their role in the transitions within the stream of experience is required that avoids properties invoked by truth-conditional semantics. Hume will find this in similarities and statistical properties of co-occurrence within the stream. These properties specify a perception in terms of its role—and suggests the possibility of a Humean functional role or procedural semantics.²²

What, then, is intrinsic to the stream of perceptions? The quick answer: its qualitative phenomenology, i.e. the force, liveliness, and vivacity of perceptions.²³ Hume claims that perceptions and mental actions really are as they seem to be and, to the extent they are felt, they are perfectly known to us (e.g. 1.4.2.5, 7, 2.2.6.2). That is, if and when we feel them, we know how mental states and operations seem and feel from our first-person perspective, and in this regard our knowledge is incorrigible. However, Hume warns us early in the *Treatise* that introspective phenomenology is not suitable for the science of the mind, because reflecting on our own psychology intervenes in the very phenomena we introspect.²⁴ Introspection runs the constant risk of imperceptible distortion, making it an unreliable source of conclusions about the mind (1.10, repeated in EHU 1.13).²⁵

Moreover, several mental processes lack a distinctive phenomenology: not all of them are felt. This is the case with reasoning (e.g. 2.3.3.8), and with the influence of custom and habit (e.g. 1.1.7.18), so they are ill suited as objects of introspection.

²¹ Fodor (2003, 31–32).

²² Even if, as Garrett (2015, 71–72) points out, there are passages in which sense impressions appear in a representational guise, I take the present account of Hume’s method to be congenial to those construals of mental representation in Hume that emphasise the *role* (relational, conceptual, causal, functional, inferential, etc.) that perceptions play in the Humean mind at the expense of copying. See e.g. Garrett (2006, 2015, 72–79). For alternatives and discussion see e.g. Ainslie (2015, 64–69), Cottrell (2021), Landy (2012), Schaffer (2015).

²³ I largely agree with Qu (2017): the qualitative character of perceptions is transparent. However, in determining their nature, their non-transparent relational properties take precedence.

²⁴ Hume can be read as developing an alternative to the Lockean investigation of the mind based on the “ideas of reflection”. The most striking difference between the two programmes is that Locke recognises a separate sense of reflection. Locke thus grants direct experiential access where Hume allows only inferential access. On Locke’s programme see Hamou (2019).

²⁵ EHU refers to Hume (1999).

As for mental states, even if they typically have introspectable phenomenology, this does not reveal their nature, because many of them are “so obscure, that ’tis almost impossible even for the mind, which forms them, to tell exactly their nature and composition” (1.2.3.1). All in all, qualitative phenomenology does not provide an exhaustive, or even reliable, insight into the identity of perceptions and processes. At times it is simply uninformative, at other times it is distortive and downright misleading as to the nature, but not the phenomenology, of a perception—as in the famous case of calm passions that disguise their influence as if it was that of reason (2.3.4.1, 8). If this were not so, “the essence of the mind” would not be “equally unknown to us with that of external bodies.” (1.8)

Yet phenomenology remains central to Hume’s project in two ways. First, it provides phenomena to be explained. Experimental reasoning about the mind has to start somewhere. Since we have no *a priori* or intuitive knowledge of the mind’s faculties, or their principles, or the causal and compositional properties of perceptions, there is no other place to start than with perceptions as they are presented in our phenomenology. But in these questions phenomenology tends to deceive, so the phenomenal properties of perceptions can only serve as the starting point for an inquiry into the mind. Second, while it is true that phenomenology alone cannot lead to reliable conclusions, it does not always deceive. Phenomenology can coincide with, and thus strengthen, the conclusions of experimental reasoning. Indeed, Hume cites plenty of introspective evidence to support the conclusions of his experimental reasoning. This suggests a “title principle of phenomenology”: where introspection is supported by the conclusions of experimental reasoning, “it ought to be assented to”, and, where it is not, it “never can have any title to” persuade us.²⁶

With truth-conditional semantics out and phenomenology unreliable, Hume proposes an alternative way to approach mental states and functioning: to explore the relational properties of perceptions within the stream of experience. This is the *third* indication of Hume’s methodological solipsism. According to the taxonomy of perceptions that Hume initially offers, complex ideas are complexes of simple ideas. Simple ideas “exactly represent” simple impressions as their copies, and complexes consist of simples. Even if complex ideas are typically not exact representations of complex impressions (1.1.1.7), they still derive their content from their simple parts copying simple impressions.²⁷ This copied and copyable content is presented in our phenomenology and is accessible through introspection.²⁸

But, for Hume, this is not the content that does the explanatory work. Humean perceptions have causally relevant content in another way, i.e. via their *relational* properties that are not directly available in our phenomenology. Consider the case of the white marble globe to be discussed in the next section (1.1.7.18).

²⁶ Here I am abusing paragraph 1.4.7.11, made famous by Garrett (1997, 234–237), as the proclamation of the “title principle”.

²⁷ Much ink has been spilled on spelling out the details and limitations of Hume’s ‘copy principle’, and the explanatory burden it can carry. For recent discussions and summaries see Cottrell (2021), Landy (2012).

²⁸ Ideas have copied content; both impressions and ideas have copyable content. Nothing precludes the metarepresentation of ideas by way of other ideas copying them (see e.g. 1.3.8.16). This copyable content of ideas arises from their cognitive phenomenology; from the way they seem and feel in use.

Phenomenologically speaking its shape seems to be its intrinsic property—but in Hume's analysis it turns out to be an “aspect” of the perception that we can distinguish only due to the relations of this perception to other perceptions. These relations are not phenomenally given while thinking about the shape of the white globe, but the relational genealogy of SHAPE can be revealed through observations, comparisons, and analogies within the stream of experience—i.e. by deploying the experimental method of reasoning.²⁹

Similarly, gold coins might seem intrinsically valuable, but they represent value because we can acquire objects by them, and through the value of those objects gold coins represent them too. It is thus in a relational and completely naturalistic sense that “money implies a kind of representation of [beautiful and agreeable] objects, by the power it affords of obtaining them; and for that reason may still be esteem'd proper to convey those agreeable images, which may give rise to the passion” of respecting the rich (via the additional mechanisms of sympathy, 2.2.5.6). MONEY is an aspect of the idea of a gold coin just like SHAPE is an aspect of the idea of a white marble globe. SHAPE and MONEY are differently constituted, by resemblances and causal relations respectively, but they are both constituted relationally. Nothing in the phenomenal properties of a gold coin grounds the representational and inferential properties of MONEY; only its relational properties give it this meaning and significance and outline the functional role it can have in our associations and reasoning.

The relational properties of perceptions are *constitutive* of their identity in a similar vein (as in the case of “aspects” above), including those perceptions without distinctive phenomenology (such as e.g. calm passions in 2.3.3.8, 2.1.1.3). Thus, similarities between two perceptions are based not exclusively on their similar phenomenology but also on the similarity of their relations to other perceptions (2.2.9.2, 11). These relational properties may be so similar as to make us even conflate them (1.4.2.32). Because of the constitutive role of relations, Humean experimental inquiry can disregard semantics and transcend phenomenology: we can “draw inferences from the coherence of our perceptions, whether they be true or false; whether they represent nature justly, or be mere illusions of the senses.” (1.3.5.2). Hume's central question is this: what can we learn about the mind and its perceptions from our dynamic phenomenology by looking at nothing but the relations *internal* to it? The focus of the inquiry is thus set on “the *manner* in which objects affect my senses, *and* their *connexions* with each other, as far as experience informs me of them” (1.2.5.26, emphasis added) – i.e. on appearances and relations.

The “anatomy of the mind” that Hume seeks to explore emerges from the study of the dynamic relations of perceptions.³⁰ This anatomy can be revealed *a posteriori* from third-person observations of people's behaviour “in company, in affairs, and in their pleasures” (I.10) and by analysis of this behaviour into its psychological

²⁹ See Demeter (2012, 2020).

³⁰ The phrase “anatomy of mind” is a recurrent metaphor central to Hume's project. See 1.4.6.23, 2.1.12.2, 3.3.6.6, Abs.2. In a similar spirit Hume refers to the ‘fabric of the mind’ in 2.1.11.5. ‘Fabric’ carries a distinctively anatomical connotation here: see 2.1.12.2 and 2.3.1.9. See also Hume's 1739 letter to Francis Hutcheson in Greig (1932, 1:32).

“springs and principles”.³¹ Tracing back the causes of observable behaviour to this mental anatomy is only possible on the assumption that human minds are *structurally* just as uniform as human bodies (2.2.11.5). Book I, Part 1 of the *Treatise* is concerned with establishing the initial framework for this analysis, a framework which Hume tellingly refers to as “the elements of this philosophy” (1.1.5.7). These elements include distinctions between classes of perceptions (ideas/impressions, simple/complex, memory/imagination), principles (of copying, separation, association, comparison or philosophical relations, and less explicitly of custom and habit), and classifications of ideas (into modes, substances, particular and abstract).

Throughout Hume’s inquiry, these elements figure in a dual role as *objects* and as *tools* of analysis, so they have a dialectical role in the exposition. They are both deployed and refined in a mutually responsive process. As tools, they are consciously deployed to analyse a given phenomenological complexity. This analysis reveals that the initial phenomenological characterisation of perceptions is incomplete and sometimes misleading—it takes the experimental method of reasoning to amend it. The elements thus become the objects of analysis whose outcome is the discovery of their phenomenologically inaccessible properties and constitution, facilitating further analysis.

From some of these experimental lessons we learn, as we have seen, that perceptions have phenomenologically inaccessible content; ideas and impressions differ in their phenomenologically inaccessible compositional and causal properties (e.g. 2.2.6.1, 2.3.3.8); we learn how the ideas of substance and the external world emerge from the relation of certain ideas as a natural fiction (e.g. 1.4.2, 1.4.3.5); resemblance is not only a phenomenological relation that obtains between qualitatively similar perceptions but can also obtain between perceptions with similar causal tendencies (e.g. 2.2.9.11); and that there are top-down influences in the mind that are not reflected in the phenomenology of perceptions (e.g. 1.3.9.11, 2.2.8.5).

As tools of analysis, Hume’s elements exhibit a further duality. On the one hand, they are *products of reflection* on experience that add up to a natural history, or a “mental geography” of the mind, as Hume calls it in the *Enquiry* (EHU 1.13). This consists of ordering and systematising appearances, which establishes empirical categories that find support in common human experience. These are the first steps toward the discovery of “the secret springs and principles, by which the human mind is actuated in its operations” (EHU 1.15). On the other hand, Hume’s elements *constitute a framework* that one has to keep in place in order to make sense of phenomenal experience if one starts from the apparently very thin intuitive certainty of the Cartesian thought that “there are perceptions”. In response to the question “why do the same simple ideas fall regularly into the idea of a peach?”, the answer “because that’s how peaches are in the world” will not suffice, because how peaches are in the world is not available for the purposes of psychological explanation (compare 1.1.4.1). This explaining has to draw on a reconstruction of the stream of perceptions as consisting of intelligible elements, and as being constituted through

³¹ Finding “springs and principles” is the main aim of our inquiries in general: in natural and moral philosophy, as well as in history and everyday life (see 1.3.12.5, 2.2.12.1, 2.3.2.2, see also 1.3.10.2, 3.3.1.2, EHU 3.9, 4.12, 8.13, DP 3.1).

intelligible processes. By Hume's standards, this reconstruction is successful not if it is true, because that is "too much to be hop'd for", but when it leads to insights that are "satisfactory" and useful (1.4.7.14, I.10).³² The fruits of the analytical apparatus set up at the beginning of the *Treatise* are more important than its roots.

3 The analysis of perceptions: minima sensibilia

In phenomenal experience, perceptions are always presented in complexes, never in simples. Yet these simples turn out to be indispensable for explaining the properties of complexes and mental processes. Our phenomenology is always complex. This means that, despite the order of exposition, mature phenomenal experience does not seem to us as a complexity of Humean simples, but as a complexity of Humean complexes. Phenomenal experience is conceived as, on the one hand, consisting of dynamically changing objects standing in various relations (sense impressions) and, on the other hand, as a heap of dynamically changing thoughts (ideas) and affections (impressions of reflection). These impressions and ideas are complex, and it takes an analytical effort to arrive at the insight that they consist of simples. Hume is aware of this, and his awareness is reflected in various ways.³³ For example, he admits that "simple" and "idea" are "very abstract terms" and, as such, they certainly do not express particular perceptions in their given concreteness (1.1.7.7n5 App).³⁴

Given the "elements of this philosophy", the analysis of phenomenal complexity can be conducted in at least two ways, and the two procedures presents different components. The first way of analysis is the division of complex perceptions into their proper simple parts, as illustrated by Hume's ink spot experiment (1.2.2.4). This is to put a spot of ink on a sheet of paper, gradually increase your distance from the paper, and stop at the exact distance just before the spot would disappear from your visual field. There you have succeeded at demarcating a simple part of an enduringly complex impression, a visual *minimum sensibillum*. Our visual field is filled with these pixels and they make up complex visual impressions. The case is the same with the impressions of other sense modalities. The complex impression of "this apple" consists of simple impressions of a "particular colour, taste, and smell" (1.1.1.2), i.e. impressions of different sense modalities.

³² "Satisfactory" is used repeatedly in the *Treatise*. As a description of Hume's aspirations it seems to refer to what is capable of satisfying curiosity and being explanatorily adequate (I.8-10, 1.1.7.11, 1.4.7.14, Abs.1.). The practical "utility" of the science of the mind for moral education (as the anatomist "is fitted to give advice to the painter", 3.3.6.6), social policy, law and jurisprudence, military strategy, and for combating superstition (or harmful ideologies). Most of these practical benefits are summarised in Section 1 of EHU. For more detailed discussion see Demeter (2020).

³³ Landy (2017, 33-44) presents a strong case for constant phenomenal complexity and for simple perceptions as theoretical entities. I am in broad agreement with his account.

³⁴ The simplicity of Hume's simple perceptions is not only very abstract but it is also an obscure and tormenting question. There are several excellent discussions from various angles of the related problems in different contexts, see e.g. Frasca-Spada (2007), Nelson and Landy (2011). Here I will only attempt to take one possible path through the jungle.

Similarly, complex ideas can be divided into smaller and smaller parts until we reach the simples which they consist of. We can divide the idea of a heap of sand into the ideas of grains of sand, but then we reach a point where the exercise can only repeat the minimal idea (1.2.2.3). Even impressions of reflection can be divided into such simples, as Hume illustrates in the case of the passions:

when an object produces any passion in us, which varies according to the different quantity of the object; I say, 'tis evident, that the passion, properly speaking, is not a simple emotion, but a compounded one, of a great number of weaker passions, deriv'd from a view of each part of the object. For otherwise 'twere impossible the passion shou'd encrease by the encrease of these parts. Thus a man, who desires a thousand pound, has in reality a thousand or more desires, which uniting together, seem to make only one passion; tho' the composition evidently betrays itself upon every alteration of the object, by the preference he gives to the larger number, if superior only by an unite. Yet nothing can be more certain, than that so small a difference wou'd not be discernible in the passions, nor cou'd render them distinguishable from each other (1.3.12.24).³⁵

Sense perceptions which are extensive or intensive complexes can be analysed this way include auditory, gustatory, tactile, and olfactory impressions, which are all complexes of perceptual *minima*.³⁶

Only this division results in proper simples by the criterion set in Hume's separability principle (1.1.7.3): these simple perceptions have no distinguishable and separable parts. Any extension (and consequently shape) or intensity are all complexes consisting of these minimal simple impressions (1.2.3.14, 1.4.4.8). The complex impression of this apple (1.1.1.2) consists of the simple impressions of coloured points. The complex impressions of its smell and taste consist of particular simple gustatory and olfactory impressions that add up to a specific intensity. Colour, taste, and smell consist of perceptual minima. They compose complexes that compose further complexes.

It is common to all simple perceptions that they are not perceived as such *in our normal phenomenology*; they dissolve in the given phenomenal complexity. It takes

³⁵ Obviously, this passage flies in the face of the conventional wisdom (based on e.g. 2.1.2.1, 2.2.1.1) that Hume's passions are simple impressions *sans phrase*. Here they are explicitly declared to be compounded, so in *this* sense they are not. One could paraphrase 1.4.4.14: passions are simple impressions except when considered with regard to their intensity. But with regard to their qualitative phenomenology, they are indeed simple and uniform even when they are mixtures, as in the case of fear and hope that are "mixtures of grief and joy" (2.3.9.19).

A curious question: why "a thousand *or more* desires"? One possible answer: if you think of the same sum in terms of shillings or pennies (or even farthings), then it turns out that (in 1739) you have 20 or 240 (or 960) times more desires.

³⁶ One reviewer argued that only 1.3.12.24 can be read as suggesting the implausible doctrine that intensive magnitudes are complexes. I beg to disagree. Hume recurrently talks about the 'encrease' and 'decrease' of the 'force', 'violence', 'influence', 'strength', 'vivacity' of impressions that comes in 'degrees'. This suggests that they can be approached with an analytical mindset searching for the minimum degree by which increase and decrease are possible. The present contention is that analysis into *minima sensibilia* is a general feature of perceptions with magnitudes.

a thought experiment to infer and an experiment to present such simple impressions by the division of experience into its smallest parts. As a result, experience can now be conceived as consisting of *minima sensibilia*, and Hume can conclude that “my senses convey to me only the impressions of colour'd points, dispos'd in a certain manner. If the eye is sensible of any thing farther, I desire it may be pointed out to me.” (1.2.3.4) *So conceived*, experience is thoroughly *atomistic*. Our visual field consists of just one simple impression next to another.

This insight creates a tension. If the experience that our senses deliver is atomistic, how can phenomenal experience be structured? What generates the rich structure of mature phenomenal experience from the meagre sensory input of *minima sensibilia*? In particular, how do we get from the array of perceptions to the mature phenomenology of our visual field with its shapes, colours, and, much further, into objects, persons, events, and actions?

Recall that, given the constraints of Hume's project, this structure cannot be explained by reference to the way the world is. The question demands a *psychological* answer. The theoretical function of simple impressions is to make psychological explanation here both necessary and possible. The task is to offer a “satisfactory” (recall 1.4.7.14) explanation of the process that gets us from the array of simple, unprocessed perceptions that analysis into *minima sensibilia* delivers to our complex, structured phenomenology. Simple perceptions are analysed out of this complexity, and the product of this analysis is a *theoretical entity* that can be invoked for explanatory purposes.³⁷

The introduction of simple impressions as theoretical entities is thus the first step in the construction of Hume's gradually unfolding explanation. They are conceived as perceptions conveyed by the senses to the mind. They are not shaped, only received by the mind,³⁸ and trigger perceptual processing whose end product is our mature phenomenology. Whatever surplus emerges in our phenomenal experience during this process must come from the mind's contribution. The analysis of complexes into simples creates both the need and the possibility to explain the mechanisms that perform the cognitive function of creating structured experience from an array of simple impressions delivered by the senses.

4 The analysis of perceptions: aspects

The second way of analysis is aimed at the *constituent qualities* of phenomenal experience. Since they appear with extension or intensity, the impressions of different sensory modalities, i.e. the “objects of one sense” (1.2.3.5), are all complexes of *minima sensibilia*. But these complexes can exhibit qualities that are “uniform” in the sense of being qualitatively homogeneous aspects (e.g. 2.1.2.1, 2.2.6.1). A

³⁷ On this point I side with Landy (2017, 35–36).

³⁸ Since simple ideas are exact copies of simple impressions (1.1.1.5, 1.1.1.11), this should also be the case with them too. However, this is not entirely true: 2.2.6.1 indicates that copying involves changes in the compositional properties of perceptions. For some implications of this change see Demeter (2021 and 2025).

naturally occurring perception (an impression or idea) of colour is a perception of a coloured surface, not a pixel, and not colour in itself.³⁹ As such, it is extended and consequently it is complex yet, as a perception of colour *qua* colour, it is a uniform quality. Since figure presupposes extension, which is a complex perception (1.2.5.21), figure is also a complex of *minima sensibilia*, but the idea of a triangle is a uniform quality. The idea of solidity is a “compound” which presupposes the idea of two bodies—their contiguity, plus impulse (1.4.5.14), but it is qualitatively uniform, even if it comes in degrees. In the same vein, “impressions of touch are simple impressions, except when consider’d with regard to their extension” (1.4.5.14); and passions are simple impressions, except when considered with regard to their intensity (see 1.3.12.24 quoted above).

The analysis of complex perceptions into constituent qualities is not inconsistent with their analysis into minimal parts but depends on it. Hume’s example of the white globe illustrates this. However well-known it is, the present discussion requires it to be quoted in full:

when a globe of white marble is presented, we receive only the impression of a white colour dispos’d in a certain form, nor are we able to separate and distinguish the colour from the form. But observing afterwards a globe of black marble and a cube of white, and comparing them with our former object, we find two separate resemblances, in what formerly seem’d, and really is, perfectly inseparable. After a little more practice of this kind, we begin to distinguish the figure from the colour by a distinction of reason; that is, we consider the figure and colour together, since they are in effect the same and undistinguishable; but still view them in different aspects, according to the resemblances, of which they are susceptible. When we wou’d consider only the figure of the globe of white marble, we form in reality an idea both of the figure and colour, but tacitly carry our eye to its resemblance with the globe of black marble: And in the same manner, when we wou’d consider its colour only, we turn our view to its resemblance with the cube of white marble. By this means we accompany our ideas with a kind of reflection, of which custom renders us, in a great measure, insensible. A person, who desires us to consider the figure of a globe of white marble without thinking on its colour, desires an impossibility; but his meaning is, that we shou’d consider the colour and figure together, but still keep in our eye the resemblance to the globe of black marble, or that to any other globe of whatever colour or substance. (1.1.7.18, see also 1.2.3.5)

Here Hume invites us into another experimental setting. Let’s take the perceptually unprocessed complex impression, a totality of visual impressions at a time, containing what in our mature phenomenology would seem the white globe. Put this unprocessed impression behind the veil of a complete lack of acquaintance with any

³⁹ Hume did not have access to the knowledge that we have today, namely that representation at the personal level depends on sub-personal representations. For example, the primary visual cortex represents contours and V4 represents colours, so colours are represented separately from shapes. But this is an insight one cannot get from an exercise in methodological solipsism, let alone infer from an analysis of phenomenal experience.

other perception, thus blocking the habitual reflection based on such acquaintances with which we normally accompany such a perception. Without previous experience and reflection, i.e. without the contribution of memory and imagination, its qualities cannot be distinguished.⁴⁰

So construed, the case is even more radical than Paul Hoffman (2011: 1135) suggests. The lesson is not exactly that in this visual experience colour and figure are identical intrinsic properties of the globe, and so it has no internal structure. Rather, it is that our entire visual field lacks structure. At this stage, there are no boundaries, there is no foreground and background, we always see the same number of points, and we learn to infer distances from “some peculiar qualities of the image” (1.3.9.11), just as we learn to view perceptions “in different aspects” and accompany them “with a kind of reflection”. Before learning to do so, there is no object, and no properties either. There is no globe for us, and so there is nothing intrinsic to it.

After an analysis by division, this perception will turn out to be an array of *minima sensibilia*, but the distinction between shape and colour will still not be available from the atomistic experience that is revealed in that analysis. This structure, as it turns out, comes from the contribution of the mind: namely, its selection, recognition, and recollection of *similarities*. Perceptions do not spontaneously and by themselves fall into classes of similarity, but their arrangement at least provides ways of recognising resemblances.⁴¹

Perceptions, even simple ones, “admit of infinite resemblances” (1.1.7.7n5 App., see also 1.1.5.3, 1.1.7.18, 1.2.6.6), only some of which are salient enough to constitute an “aspect”. Salience is due partly to the original qualities (2.1.3.3) of human constitution, the kinds of perceptions that are available to the mind, and partly to the way they are disposed. In this arrangement the mind recognises relations between quality patches, e.g. similarly coloured contiguous points surrounded by markedly different coloured points. Then it instinctively associates by resemblances over contiguity, recognising boundaries and separating aspects, such as shapes and colours, while excluding the noise surrounding the patches. Against this background, the frequency of occurrence can explain the salience of a similarity in the stream of perceptions, memory plays a central role in selecting and stabilising similarity relations, and in turning them into recognisable *aspects* by recalling similarities (see 1.4.6.18).

When our visual experience is placed in the context of other visual experiences, the mind recognises recurrent similarities between places in the stream. Relying on

⁴⁰ The same reasoning about substances is reflected in 1.4.3.5, 1.4.7.22

⁴¹ Resemblance and similarity are synonymous. I use “similarity class”, “set of resemblances”, and “revival set” (after Garrett 1997, 24 *passim*) synonymously. A “similarity class” in the *Aufbau* consists of, for example, the following similarity of a class of unanalysable elements, say $\{\{a,b,c\},\{a,b\},\{a,c\},\{a,d\}\}$. Carnap’s quasi-analysis allows him to consider this class as a new object, which he denotes by the term “a”. (In this sense, quasi-analysis is also a form of synthesis: synthesising a new object “a”. I cannot explore the implications here.) This term can be, e.g. “white”, and this is the quasi-analytic way in which Carnap constructs colours in his system. As I see it, Hume does the same to the white globe. Let $\{a,b,c\}$ be $\{\text{WHITE}, \text{MARBLE}, \text{GLOBE}\}$ analysed from the white globe perception via resemblances. Once the elements are thus separated, they are imposed on perception to recognise its similar structural elements independently and identify $\{\text{WHITE}, \text{MARBLE}\}$ entities that are not globes. They can also be freely recombined by the imagination for e.g. creative, predictive, and explanatory purposes.

them, the mind highlights aspects of the perception that, without its ability to recognise similarity, would appear and “really” are inseparable. Aspects are thus not distinguishable *tout court*, but they are made so by “a kind of reflection” and, in this sense, they arise from a “distinction of reason”.⁴² Over time, we become so accustomed to these recurring similarities and to the reflection that accompanies them that we can perceive the aspects without any effort or sensible trace of the process. To use terminology that Hume later invokes, distinguishing colour and shape becomes a “passive habit”—a perceptual habit that we acquire with so great a facility that its influence does not entail anything sensible (2.3.5.5).⁴³

The recognition of aspects are thus products of perceptual processing and they become the familiar structural elements of phenomenal experience. Although often imprecise, many of our complex ideas are copies of complex impressions (1.1.1.4), and this structure is also copied into their corresponding ideas. This copying allows the imagination to work further with these distinctions: it can detach aspects of ideas and recombine them freely (1.1.3.4). When we call detached aspects by the name “idea” (in the case of e.g. the ideas of motion, cause and effect, matter, utility, convenience, beauty etc.), we are speaking somewhat loosely: they really are not *bona fide* ideas but aspects of ideas, or ideas conceived in some aspect. What distinguishes these aspects is not the idea that they are aspects of but the background of resemblances against which we attend to the idea. So, we can talk about the ideas of qualities in this sense: *as aspects of ideas* highlighted by a set of resemblances. This recognises that we cannot have the idea of a quality *qua* quality; we can only have the idea of an object having the quality.

Ideas of quality are thus abstract ideas. A particular idea of an object viewed against the background of a “class of similarity” or a “revival set” of ideas that stand in a specific resemblance relation to the given idea can represent the quality that the resemblance specifies. Fixing attention to this specific aspect of the idea is facilitated not only by memory but, crucially, by language: a general term that convention has attached to this aspect “readily recalls” in the imagination other particular ideas exhibiting the same aspect (1.1.7.10). The meaning of this term can be construed as a “general rule” that revives an idea, along with its customary connection to the revival set (1.1.7.7–8), from the aspect that the term specifies.⁴⁴ The idea of the white marble globe can thus serve as a representation of any of its aspects such as WHITE, MARBLE, and GLOBE (OR EVEN EXTENSION, MATTER, BODY, OBJECT, etc.) depending on the aspect that the corresponding term specifies. What a perception represents is

⁴² In the light of Hume’s exposition, these distinctions are, despite their name, more properly regarded as a function of the imagination than of reason. Most of the operations of the imagination are insensible and unattended (except, for example, those involved in acts of conscious imagining); we exercise our reason when we knowingly draw inferences.

⁴³ Another example of a passive habit of perception is perceptual judgments of distance and size, e.g. 2.2.8.6. On the idea of passive habit in and around Hume, see Wright (2017).

⁴⁴ Hume’s general rules may be inferential habits acquired individually because of our psychological constitution, but many of them, including rules for epistemic and moral evaluation, are acquired through socialisation. The meaning of general terms understood as general rules is consistent with the social and conventional nature of language.

thus indeed a function of its “coherence” and “connexion” with other perceptions (see 1.3.5.2, 1.2.5.26, cited above).

This process from perception to abstract ideas is, for Hume, part of our normal mental functioning, but he turns it into an analytical tool for exploring the nature and composition of perceptions. Psychological mechanisms operate on compound perceptions, the causally relevant aspects of which can be revealed through distinctions of reason, which are thus the “kingpin” of Hume’s system.⁴⁵ All reasoning consists in comparison (1.3.2.2), and without some resemblance no comparison is possible, so resemblance is “necessary to all philosophical relation” (1.1.5.3). It is, therefore, indispensable in a moral philosophy that begins with the analysis of perceptions and mental operations.

In some cases, the analysis of perceptions into separable parts (consisting of *minima sensibilia*) and constituent qualities work in tandem in Hume’s analysis of experience. Consider the complex impression of “this apple” again. Its “particular colour, taste, and smell are qualities all united together” but are “at least distinguishable from each other” (1.1.1.2). Being impressions of different sense modalities, they consist of separable simple impressions. Melons, peaches, and figs are all composed of “colour, taste, figure, solidity, and other qualities”. This applies not only to fruits, but to perceptions that are “conceiv’d to form *one thing*” (1.4.3.5), i.e. perceptions of *substance* in general. The complex perception of a substance is not analysed into the simple impressions of different sensory modalities but into qualities as aspects of an idea. From there Hume explores what mental operations hold these qualities together so as to form one thing for us, and what the further consequences of these operations are (1.4.5.12, 3.2.3.4n71). In general, Hume’s analysis of perceptions that “affect the thought in the same manner as if perfectly uncompounded” (1.4.3.5) focuses on their *constituent qualities* rather than separable parts.

In this vein, distinctions of reason make it possible to analyse even simple perceptions, because simples also “admit of infinite resemblances upon the general appearance and comparison”, even if the “circumstance, in which they resemble, is not distinguishable nor separable from the rest” (1.1.1.7n5 App). This becomes crucial in the analysis of passions that are qualitatively uniform simple *impressions* (2.1.2.1, 2.2.1.1) with no separable parts.⁴⁶ Yet they have distinguishable aspects, such as their causal “bent or tendency”, in which they can resemble and be associated (2.2.9.2, 11). When they combine, they can “blend” and form “an entire union” by “mixture” (2.2.6.1), even if they have “ingredients”. The main ingredient of contempt is pride. In the passion of respect, love dominates over humility (2.2.10.4). From these phenomenally homogeneous mixtures, the constituents remain analysable. As if by a “prism”, comparisons reveal the “composition” that can change “proportionably” to the changes in its components: “fear and hope are mixtures of grief and joy” —by diminishing the probability of grief, and increasing that of joy, the qualitatively uniform and simple “tincture” of fear turns into hope (2.3.9.19).

Hume’s famous account of causation is also an exercise in a similar analysis, in this case applied to a complex idea of a relation (1.3.14). Notice that the idea of a

⁴⁵ I borrow this happy phrase from Butler (1975/1976, 165).

⁴⁶ In a similar spirit, Qu (2012) argues for the analysis of passions by distinctions of reason.

causal connection is itself an aspect of resemblance common to very many complex ideas representing a relation similar to, say, that of two billiard balls colliding. When we entertain the idea of causation in this case, we have a complex idea of the collision and we turn our attention to one of the aspects in which it can resemble other complex ideas: the relation between the two balls. This relation is further analysed into its constituent aspects: contiguity, priority/succession, constancy, and necessity.

The result of this analysis in the *Treatise* is that the idea of a causal connection is a relation between types of contiguous objects, one of which is constantly prior to and necessarily succeeded by the other. In the *Enquiry* (EHU 7), Hume drops the requirement of contiguity.⁴⁷ Thus, in this analysis the idea loses an aspect: it is no longer conceived against the similarity class of contiguous relations. The two analyses are different, but not with respect to the simple ideas involved in the complex idea representing a causal connection. In both cases, the same simple ideas add up to the same complex idea: two billiard balls colliding. The two analyses differ in the classes of similarity deemed relevant for the analysis of this complex idea and in the different aspects of the idea consequently identified.⁴⁸

5 The analysis of principles

The analysis of perceptions concerns their constituency and provides a *static* view of the composition of perceptions. It focuses on the separation of simples and aspects from the “great blooming buzzing confusion” of the mind.⁴⁹ The idea of the mind as an unstructured totality already lurks behind the example of the white globe, but it is perhaps most clearly expressed when Hume claims that human nature consists of “two component parts”, the understanding and the passions, whose separation is the product of analysis. In the process of this analysis, something “in itself uncompounded and inseparable” is revealed as being “compounded and consisting of two parts” whose “effects” can be traced back to “separate operations” (3.2.2.14).

Hume’s language here is remarkably similar to that of his discussion of the white globe. Since the understanding is the realm of ideas and the passions are the realm of impressions, this suggests that Hume’s most fundamental distinction between impressions and ideas is a distinction of reason arising from similarity relations. Impressions and ideas are aspects of an uncompounded unity and are distinguished by their belonging to different similarity classes. These similarity classes are initially defined in terms of introspectively accessible *contingent* phenomenal properties of liveliness and vivacity, but experimental reasoning reveals their *essential*

⁴⁷ As a reviewer rightly pointed out, the requirement is already relativised in 1.3.2.6n referring to 1.4.5.

⁴⁸ Other contemporary analyses build logical necessitation or God’s concurrence into the idea of a causal connection (see e.g. Ott 2009, 219–220). In Humean terms, they identify different aspects in this idea against the background of different revival sets.

⁴⁹ As William James (1981, 462) poetically put it. One could perhaps entertain a distinction in modern philosophy between “the tidyists”, who think that our inner world is intrinsically structured and that the task is to explore this structure, and “the messyists”, who think that our inner world is a mess and can at most be tidied up to a certain extent. Hume is a messyist, so is Nietzsche (on his affinities to Hume see Kail 2014) and James himself. Descartes, Locke, and perhaps most prominently Kant, are tidyists.

causal and compositional properties, which can re-draw the boundaries of kind membership. Perhaps the most famous case in point is that of the calm passions: their identity as impressions is due to their causal properties, and this identity is in conflict with their seemingly idea-like character, as suggested by their phenomenal properties (2.3.8.13).⁵⁰

Hume compares this separation of the mind's two component parts to the analysis of phenomenologically uncompounded motions in natural philosophy into component motions that are not themselves perceived (3.2.2.14). This distinction between ideas and impressions in an "in itself uncompounded and inseparable" phenomenal totality allows Hume to distinguish between different processes within it. This is analogous to the distinction between WHITE and GLOBE in the "inseparable" and "undistinguishable" perception of a white globe, with the crucial difference that these processes have *temporal* dimension. Consequently, the analysis of principles exhibited by these processes is based on the comparison between places in the stream of perceptions that fall into relevant classes of similarity. This analysis concerns not the composition but the connectivity of perceptions, and focuses on the *dynamics* of change: on how perceptions give way to others in psychological processes and how they contribute to these processes.

Hume's principles are of two kinds: methodological and psychological. *Psychological* principles are inferred from observed regularities in our cognitive, affective, and social functioning through a methodological awareness—as we have seen with distinctions of reason. The *methodological* or philosophical principles guiding these inferences are distilled from natural cognitive regularities by reflecting on them, recognising their influence and limitations, and correcting their biases and over-extensions where necessary.⁵¹

A human being is a cause-seeking animal, a "creature, who traces causes and effects to a great length and intricacy; extracts general principles from particular appearances".⁵² This is what we do in our everyday affairs: we interpret others by tracing behaviour back to its mental causes (3.3.1.7, EHU 8.9), and we infer from the observable similarities in two pieces of bread to a similarity in their unobservable nourishing powers (EHU 4.16, see also 1.3.6.10). In theoretical inquiry we proceed in a similar way, though reflectively. Reflection triggers a naturalistic dialectic of epistemic normativity. This dialectic is similar to what we have seen in the case of Hume's "elements". Here we observe and reflect on available inferential practices,

⁵⁰ The phenomenal distinction is already relativised in 1.1.1.1 when Hume points out that impressions and ideas are sometimes indistinguishable. There are perceptions whose kind membership is dubious like the "ideas of the memory, which are equivalent to impressions" (1.3.4.1, see also 1.3.5) and of the always intimately present "idea or rather impression of ourselves" (2.1.11.4). Some products of the mind's operations "are not immediately distinguishable to the feeling and perception", so we mistakenly think that our approbation and disapprobation is a reasoned idea, when in fact it is an impression of reflection (2.3.3.8). More generally, we often find that the boundary between impressions and ideas is blurred, that ideas can very nearly "approach" the liveliness of impressions (see 1.1.1.1, 2.1.11.7, 2.3.7.3), that ideas of passions can tend to become lively like an impression (2.2.5.4), and that beliefs approach the liveliness of impressions (1.3.7.5n20, 1.3.10.3, 9, App.3, 9).

⁵¹ For example, when we realise that the imagination is prone to adopt general rules and apply them beyond their original or true scope. See e.g. 1.3.13.7, 1.4.2.22, 3.2.9.3.

⁵² Hume (1985, 82).

distilling their regularities into methodological principles or rules. These rules, in turn, influence our practices that can be further reflected upon, whose lessons can be incorporated, and so on.⁵³ Hume's principles are thus Janus-faced: they are manifest in our natural cognitive processes and, in a reflectively refined form, they are also the backbone of theoretical reasoning about these and other processes.⁵⁴

Consider *resemblance*. Its methodological application as a philosophical principle in theoretical reasoning relies on our natural ability to associate perceptions due to their resemblance. As a *natural* relation, resemblance relations are among the organising principles of experience: they contribute to form a natural structure—a “system of reality” —⁵⁵ for us from the stream of perception, as we have seen e.g. in the case of the white globe. If applied as a *philosophical* principle of comparison in reasoning, resemblances make it possible to analyse the stream and to construct a philosophical anatomy of its structure and composition for explanatory purposes. As Hume pursues it, this exercise requires the introduction of “very abstract” (1.1.7.7n5 App.) terms such as “idea” and “impression” to draw an initial distinction between aspects of the stream—a distinction that can be revised and amended as a consequence of experimental reasoning.⁵⁶

So conceived, “idea” and “impression” are terms for classes of similarity, stabilised by abstract terms, that are deployed for their analytical and explanatory benefits. The coining of such theoretical terms is indispensable, because folk-psychological discourse is an ill-suited tool for precise analysis: “’tis very difficult to talk of the operations of the mind with perfect propriety and exactness; because common language has seldom made any very nice distinctions among them” (1.3.8.15). Analysis requires new terms, but also old terms with new meanings. Locke needed “idea” as a technical term, and Hume needs “impression” for certain perceptions that hitherto had “no particular name either in the English or any other language.” (1.1.1.1n2)

The methodological principles of *causal* reasoning are also distilled from everyday reasoning concerning matters of fact. Our capacity for causal reasoning is grounded in our everyday natural association of causes and effects (1.3.7.16). We can immerse ourselves in the business of causal reasoning once we have acquired the idea of a causal connection from the experience of constant conjunctions, plus the habitual expectations that they arouse in the mind. Once we have acquired this idea, we can begin to compare perceptions in this regard, systematically asking whether they are causally related. Before we can do this, however, we need to tame our natural inferential propensity, which tends to focus on frequently occurring but inessential circumstances at the expense of efficient causes (1.3.13.9). We can

⁵³ This process is aptly reconstructed in Qu (2016).

⁵⁴ The idea that our everyday and scientific reasoning are continuous, or that our “philosophical decisions are nothing but the reflections of common life, methodized and corrected” (EHU 12.25), has a distinguished afterlife. T.H. Huxley (1900, 45) echoed this idea in 1854: “Science is, I believe, nothing but trained and organised common sense”. See also Einstein (1954, 319), Planck (1949, 88).

⁵⁵ Hume explains the idea of the two “systems of reality”, i.e. one of the senses and memory (by contiguity and resemblance) and the other of the imagination (by causation) in 1.3.9.3–10.

⁵⁶ This happens in those passages where Hume reveals phenomenally inaccessible but essential properties of perceptions as e.g. in the case of calm passions (2.3.3.8, 2.3.8.13); their compositional properties (2.2.6.1); or their association by resemblance causal tendencies (2.2.9.2 and 11).

achieve this by testing our inferential habits, revising them in the light of experience, and establishing higher-level general rules to correct them (1.3.13.11–12).

Hume devotes a separate section (1.3.15) to the philosophical refinement of the natural associative relation of causation. This contains “all the LOGIC proper to employ” in experimental reasoning, i.e. the instructions on how to compare perceptions in order to infer causes or effects. They advise the following. Start looking for spatio-temporally contiguous constant conjunctions, but one instance of a “clear experiment” might do just as well (1.3.15.6, and especially 1.3.12.3). Causes are the conjuncts that precede effects. Where you find the same effects, you must find the same causes. If different objects produce the same effect, they must have a common efficient quality; if similar causes produce different effects, the difference arises from the quality in which the causes differ. If some part of a compounded effect constantly changes with some component of a compound cause, then the changing component of the compound cause is the triggering cause.⁵⁷ Finally, a passive object or a standing state is not the sole or complete cause of an effect, it must have a triggering cause—only change can cause change.

This is the essence of Hume's heuristic for analysing principles. It translates into the following procedure in the science of mind. We encounter psychological phenomena as “compounded” and “modify'd by so many different circumstances” (1.3.15.11). Since we have no access to the “essence” of the mind we cannot deduce its “powers and qualities”; the only way to proceed is to look for changes arising from differences in those “circumstances and situations” (I.8). But to explain a phenomenon, a large number of possible causes “present themselves”, so we have to separate the efficient ones. We can only do this by discovering what is common to the circumstances (3.3.1.2). This is not easy because the “essential” are frequently conjoined with several “superfluous” circumstances, and this “gives bias to the imagination”: we are inclined to infer wrongly to the effect from frequently occurring but superfluous circumstances, and this tendency must be corrected (1.3.13.9).

The only way to remedy this is “from analogy, and a comparison of similar instances” (3.2.3.4n71) to see if they are indeed constantly conjoined. Crucial experiments are possible, but only against the background of relevant similarities with established experience (1.3.8.14). Without analogy between different instances, comparison is impossible, and there is no hope of explanation: unique phenomena cannot be analysed (App.3).⁵⁸ If from these comparisons we find that the effect can be produced without a particular circumstance, then that circumstance is not part of the efficacious cause (1.3.13.11). If we find no exceptions to the entailment, then we have succeeded in separating the “superfluous” from the “essential” circumstances; but to see its scope we must go on to compare this finding with further experiments (1.3.15.11, Abs.23). If we find that the explanation applies only to “one species” of a phenomenon and “will not apply to the rest”, then it is unfounded (2.1.12.6). If it

⁵⁷ This judgement should be made only after several experiments sensitive to various degrees of change: some heat is pleasurable, and the pleasure disappears when it is removed; but beyond a certain degree, pleasure gives way to pain (1.3.15.9).

⁵⁸ Hume exploits this principle in his criticism of the design argument in EHU 11 and his *Dialogues* (Hume 2007b, 2:24).

applies to different cases, then we have succeeded in establishing an explanatory principle that can be invoked in the explanation of increasingly complex phenomena. One such phenomenon is to be analysed in a similar way “by producing other instances which are analogous to it, and other principles, which facilitate its operation” (1.1.7.11).

Parsimony is advisable. Principles should be limited in number: the reckless invention and consequent proliferation of explanatory principles are indicative of falsity (2.1.3.6–7). Therefore, we should aim at explanatory reduction in order to resolve the principles we manage to establish into ever more general and simple ones (I.8, Abs.1, 1.4.7.5).⁵⁹ This reduction reaches its epistemic limits when the explanation can refer only to the “original” or “primary constitution” of the mind, i.e. to those qualities that “are most inseparable from the soul, and can be resolv’d into no other” (2.1.3.3, see also 1.1.5.6). The list of these qualities includes the mind’s ability to recognise similarity, recollect, acquire habits, and to feel pain and pleasure, etc. Without these “original qualities” the mind “cou’d never have any secondary ones; because in that case it wou’d have no foundation for action, nor cou’d ever begin to exert itself” (2.1.3.3).⁶⁰

The analysis of principles is not a separate step that takes place independently of the analysis of perceptions—they must proceed together. The connectivity of perceptions depends on their constituency, on the component aspect or “associating quality” that links one perception to another (1.1.4.1); and, as we have seen, their constituency also depends on their connectivity (e.g. on their membership in classes of similarity or revival sets). This is already reflected in the example of the white globe, in Hume’s most basic analysis of how the mind forms phenomenal experience from the unprocessed perceptions that the senses deliver. This joint method is the backbone of Hume’s analyses in the *Treatise*, although in specific cases he often does not run the full cycle of analysis, presenting only those parts that require explication in a particular case.

The joint method is deployed in his analysis of ideas (like that of substance 1.4.6.22), specific beliefs (as in the existence of an external world 1.4.2), judgements (e.g. perceptual 1.3.9.11, probabilistic 1.3.12, moral 1.3.13.16–18), the operations of the passions (e.g. of malice and envy 2.2.8), or the emergence of social conventions (3.2.2). Take the example of what John Wright (2009, 146–150) calls the “identity substitution principle”: our tendency to ascribe identity to very nearly resembling perceptions. This principle is established through the explanation of how we come to form belief in the existence of an external world.

⁵⁹ On explanatory reduction and simplicity see e.g. Hazony (2014), Qu (2023).

⁶⁰ Hume uses these phrases prolifically (e.g. in 1.2.3.7, 1.3.9.17, 1.4.2.11, 1.4.2.48, 2.1.1.2, 2.1.3.5, 2.1.5.3, 2.1.7.5, 2.1.8.2, 3.1.2.6, 3.2.1.19, 3.2.2.8, 3.2.6.1 and 4, 3.2.10.15, 3.3.1.27 and 31, 3.3.6.3 and 5, Abs.3 and 6). In 2.2.7.6 he explains the idea by an analogy with living body: “As nature has given to the body certain appetites and inclinations, which she encreases, diminishes, or changes according to the situation of the fluids or solids; she has proceeded in the same manner with the mind”. The “primary constitution” includes the “just so” features of the mind that cannot be further explicated. They contrast with those features that the mind acquires by some activity—these can be explicated by experimental reasoning.

Our perceptions tend to be constant: their elements are relatively stable and coherent. When they change, the changes fall into relatively recurrent patterns. The transitions in the stream of experience are therefore smooth, and this gives rise to identity substitution: our tendency to ascribe them “perfect identity” (1.4.2.24). But a little reflection reveals that they are not perfectly identical; they are interrupted and constantly changing. We blink, our focus changes, the lights and sounds change, etc., so that even the perceptions that seem perfectly identical over time are in fact “annihilated” and “newly created” (1.4.2.24). This tension between the tendency to ascribe perfect identity, and to deny it, is resolved by a fiction supplied by the imagination. The smoothly changing perceptions appear to be “connected by a real existence, of which we are insensible” (1.4.2.24). Since this fiction arises from the impressions of memory and the senses, and since their liveliness “bestows a vivacity on that fiction”, it “makes us believe in the continued existence of body” (1.4.2.42). The explanatory scope of this psychological principle then extends to the ideas of substance (1.4.3.1–5) and of the self (1.4.6.1–7).

This account fits Don Garrett’s (2015, 119–122) scheme of Hume’s genealogy of sense-based concepts. The first step in this scheme is repeated activation: because we are exposed to smooth transitions between perceptions, we tend to ascribe identity to them. Second, initial generalisation: we form an idea of continuous existence with perfect identity. Third, natural correction: differences in our circumstances or states lead to the revision of our tendency to ascribe perfect identity to perceptions. Fourth, relational attribution: we form and believe a (relative) idea of a real existence to support the identity that we do not perceive but tend to ascribe.⁶¹ As Garrett shows, these principles of the transition from sense impressions to abstract ideas are central to Hume’s account of concept acquisition.

The transitions between perceptions can take different forms. Garrett’s genealogy of sense-based concepts is one example of how principles work in the case of the mind’s *new creations*—i.e. perceptions created by the mind’s activity. These obviously include reflective perceptions such as emotions, passions, and sentiments,⁶² but also those ideas that arise without a corresponding impression, such as those of substance, the self, or causation—which can “never without a fiction represent” (1.2.3.11). Another set of principles concerns the regularities of *transformations*, especially the copy principle and sympathy. Copying is responsible for converting impressions into ideas; sympathy is responsible for converting ideas about the mental states of others into their corresponding impressions. These conversions are transformative because they change the compositional properties of perceptions, and thus the ways in which they can interact with other perceptions.⁶³ The best-known principles are those of *connection* and *separation*, especially those of association, and the distinction of reason. They produce new

⁶¹ On relative ideas see e.g. Garrett (2015, 48–49, 52). The idea being relative, we only use the place this “insensible” but “real existence” (1.4.2.24) is supposed to occupy.

⁶² Hume explicitly refers to taste as a “productive faculty” responsible for the “new creation” of a “whole new sentiment” in the moral *Enquiry* (Hume 1998, App.1.21)—hence the label.

⁶³ This is most clearly expressed in 2.2.6.1. The language of “conversion” is frequently used in connection with sympathy in e.g. 2.2.7.2, 2.2.9.13, 3.3.1.7.

perceptions by assembling, or distinguishing within, already existing perceptions—not by new creations. There are also the principles of *combination* characteristic of the interaction of the passions and sentiments—including belief. These principles explain how different passions blend into a simple perception (2.3.9.16–19), how vivacity diffuses through inferential links from one belief to the ideas related to it (1.3.10.7, 1.3.13.19, 2.2.9.14), and how the passions diffuse on to ideas (2.1.11.9).

Many of these principles explicitly concern how the mind shapes and transforms its perceptions to produce the richness of mental life from the meagre input of the senses. The activities of the Humean mind are much richer than those of an associative machine.⁶⁴ Its functions cannot be reduced to the statistically sensitive recombination of the perceptual input it passively receives. Rather, the Humean mind looks like an organic entity with an “anatomy” whose “organs” play an active and transformative role in producing the stream of perceptions as we experience them in our complex phenomenology. What moves the stream is not purely inputs and associative dynamics, but the active principles that create, transform, and combine perceptions in a regular manner. These principles reveal themselves only in their mental and behavioural effects—they are hidden from introspective plain sight. Hume’s project is not to reduce mental operations to associative processes, however crucial they may be. Rather, he has the more ambitious aim of exploring the *contribution* of the principles to various aspects of the stream of experience and the consequences this has for human cognitive, affective, and social functioning.⁶⁵

6 Conclusion

Just like for Carnap in the *Aufbau*, the fundamental relation on which Hume’s analysis of experience in the *Treatise* rests is the recollection of similarity. This analysis can serve at least three different purposes: it aids an epistemological project in search of justification; provides a hermeneutic or rational reconstruction of experience; and offers a framework for an experimental psychology to analyse mental functioning. The interpretations of the *Aufbau* may be coloured by either of the first two of these purposes.⁶⁶ In Hume’s case, at least, we are fortunate to know what direction he intends to go in. As Jay Garfield (2019, 4) rightly recommends, we may refer to “the cover principle”: “If you are unsure about what Hume is doing, close the book and read the cover”. Indeed, Hume leaves no doubt in the subtitle that the *Treatise* is an attempt to extend experimental reasoning to his subjects.

⁶⁴ This is the usual role attributed to Hume in the history of psychology, see e.g. Boden (2006, 1402), Van Gelder (1998). But many Hume scholars tend to see the association of passive perceptions as more central to Hume’s project than it seems to be, at least on the basis of the present exposition, see e.g. Stroud (1977, 5–9, 16), Penelhum (2000, 130–132).

⁶⁵ Hume declares “faculty” to be an occult term, yet he uses it confidently throughout the *Treatise*. This is because “faculty”, once properly understood, can be used just like “substance”. When “faculty” is turned into a functional term characterised exclusively in terms of its principles, i.e. its causal role, then it becomes an admissible term in the science of mind.

⁶⁶ For its intricacies, see the papers in Damböck (2016).

The core of Hume's project is in this respect close to that of cognitive science as Fodor conceives it, but it is realised via an analysis of phenomenal experience. Hume begins by comparing places in the stream of experience. He diagnoses the functions that the mind must perform in order to move from one perception in the stream to another. He establishes the principles of the mechanisms by which these functions are performed as functions from one kind of perception to another. The result is an autonomous psychology so dear to Fodor's heart:⁶⁷ an explanatory account that speaks exclusively in terms of mental states and their network of connections—without reference to their world-involving properties and connections. This research programme may not be to the philosophical taste of all—nor even many. But, for Hume, the cognitive utility of such a Fodorian programme is to be judged by its explanatory power and its adequacy—perhaps the two most important criteria we may pursue with any hope of success.⁶⁸

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⁶⁷ See Fodor (1997).

⁶⁸ Hume's afterlife is promising in this respect: a variety of disciplines outside philosophy still derive explanatory insights and inspiration from him. Not only inquiries in cognitive science, as I have already mentioned, but also in the social sciences, e.g. behavioural economics (see Sugden 2006) and the sociology of scientific knowledge (Bloor, 2010, 3–4, 433, 444–445).

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