

may be separated'.¹³³ According to Hume's Separability Principle, awareness of a complex *as* a complex is possible if and only if its components are distinguishable. The immediate corollary of the Separability Principle is an integration principle: the idea that the impression of a complex is the same as a complex of impressions, or that representation of a series is a series of representations, the awareness of a sequence of... is a sequence of awarenesses of... and so on. But as Kant shows, not only does this schema lead to conundrums and confusions; it also undermines any serious attempt to distinguish the impression as an act from its object and content, 'awarenesses-of-something' from 'awareness-of-something-as', and ultimately empirical awareness from discursive conceptual consciousness.

Accordingly, at this stage, the automaton neither has a temporal awareness, nor can it acquire an impression of a succession by being trained to learn a succession of impressions. All we are allowed to attribute to the automaton is a collection of awarenesses furnished with an orderly structure—a linear gradation or continuum—which can, in analogy with our conceptual resources, legitimately be expressed as *times*. Within this orderly structure, the impressions of the automaton merely correspond to (but are not instantiated *as*) the order of before and after—like ranges of saturation in correspondence with keystrokes, the order of impressions and the order of reproductions. The automaton is, so to speak, only in possession of causally ordered analogues of before and after. Again, it is tempting to interpret this before and after (expressed by times t' and t) as tensed verbs, by saying that:

If:

$$\begin{array}{l} I_{o-a} \text{ be}_1 t \\ I_{o-b} \text{ be}_2 t' \\ \text{where } t' < t \end{array}$$

133 D. Hume, *A Treatise of Human Nature* (2 vols. Oxford: Clarendon Press, 2007), vol. 1, 29.

or

$I_{0-b} be_2$ *before* $I_{0-a} be_1$

Then:

The before-after relationship between t' and t means that ' t' *precedes* t ', and therefore the automaton is aware of ' $I_{0-2} be_2 t'$ ' as what *preceded* ' $I_{0-1} be_1 t$ '—as if tensed verbs were *inherent* to the function of memory.

—and therefore to conclude that, by virtue of having analogues of tensed verbs, the automaton must have a temporal apperception of its impressions and reproductions. But the whole point is that, as argued above, this causally originated before-after ordering of awarenesses is not sufficient for the realization of a temporal awareness, i.e., a tensed awareness *of* such an ordering. Only tense can count as the genuine temporal aspect of awareness—this causally originated ordering is not sufficient.

What the automaton needs in order to move from this causally-originated order of before and after (be_1 and be_2) to tenses *is* and *was*, is a way of locating itself in time by having a mobile frame of reference with regard to time. In short, the automaton needs to have a perspective on time corresponding to its ordered and ordering point of view in space. Only through this perspective in time is it possible for the automaton to represent the world-history by situating itself within the ever-changing temporal relations of the events composing that world-history. And only an intelligence that possesses such a temporal perspective harbours the possibility of developing into a self-conscious intelligence capable of modifying itself by looking into its history. Thus, we can conclude that having a structured and structuring perspective on time is a minimum necessary condition required for the realization of the kind of general intelligence examined in the previous chapter. Of course, this rudimentary temporal awareness upon which the time-conscious experience of the subject is built is transcendently ideal and logically phenomenological. It does not supply us with any factual answer with regard to the question 'What is time?', whether we are seeking

a metaphysically reified time as a thing or a nonreified formlessness that is the condition of any form. And as we shall see in the next section, the form of this time-awareness, if approached without due caution, can wreak cognitive havoc. Indeed, becoming overly attached to this specific form can restrict both the scope of an agent's theoretical and practical cognitions and the enlargement of its possible field of experience, in the broadest possible sense of that term.

Now, recall that having a point of view on space became possible once the automaton began to see, the items in the environment through an endocentric frame of reference that allowed it to access the changing spatial relationships between objects by opening up exocentric frames of reference (i.e., frames of reference outside of and not limited to the vantage point of the pure ego). Similarly, in order for the automaton to have a perspective on time, it also needs a temporal frame of reference that permits a distinction between the events of a world-history and those of its own history, experience-occasioning encounters with items existing independently of experience and the temporal succession of representings of these items in impressions and reproductions. In other words, the automaton must be able to differentiate the behaviours of items across time from its *encounters* with these items within one and the same time, thereby occupying that position in time wherein it can become aware of awarenesses which are only de facto its own. At this point, it would be a mistake to think that we can make the automaton become actually aware of its awarenesses of items *as* its own awarenesses or experiences. All the automaton can have at this point is a pure or de facto perspectival temporal point of view. But to have even a capacity for perspectival temporal experience, the automaton must be capable of representing the difference between an item that is being encountered now, and one that is not being encountered now but was encountered and is now being reproduced. This effectively means that the automaton, in addition to the capacity for representing items in the world (awarenesses of this-suches), must be equipped with the capacity to represent its awareness of awarenesses of this-suches *as* 'awarenesses of this-suches'. This is exactly the mobile perspectival temporal frame of reference that parallels the automaton's perspectival spatial frame of reference and which the automaton de facto occupies without being conceptually aware of.

We must not confuse this capacity, however, with a fully fledged apperceptive awareness (taking experiences as *someone's* experience), since the automaton is not yet able to conceptually cohere and represent its awarenesses of awarenesses as being *its own*. What it needs in order to be able to construct and cohere its *own* awareness from its 'awarenesses of awarenesses' is the faculty of concept, the faculty of judgment, or the faculty of rules. This is the next stage in our construction of a toy model general intelligence, which we will embark upon in chapter 5. In the meantime we have to avoid thinking that the automaton can represent 'awarenesses of awarenesses' as its *own* awarenesses. All we are allowed to ascribe to the automaton is the awareness of the existence of those awarenesses that are *as a matter of fact* 'its' awarenesses. But the automaton is not yet capable of recognizing this fact as and within a subjective order. In short, although from our (analogical) point of view the automaton is beginning to display some rudiments of quasi-selfhood (precisely through the elaboration of a point of view), it is not yet able to recognize or mobilize its subjectivity.

The key to having a perspectival temporal awareness is precisely the possession, as a differentiating temporal frame of reference, of a collection of awarenesses capable of metarepresenting 'awarenesses of awarenesses of this-suches' *as* 'awarenesses of this-suches'. In other words, the automaton needs to be equipped with a capacity for representations that are *de facto* meta-awarenesses—awarenesses of awarenesses of items. In a nutshell, the automaton needs a quoting-device '...', or metarepresenting apparatus, for citing or pointing to its awarenesses. This means that, in addition to *awarenesses of items* ($I_0 \text{ be}_1, I_0 \text{ be}_2$), the automaton must be equipped with a metarepresenting tool for referring to or mentioning these 'awarenesses of items' in terms of 'awarenesses of awarenesses (of items)'.

A helpful way of thinking about this is to take 'awarenesses of items' and 'awarenesses of awarenesses of items' as 'categories' of awarenesses and then to use a category-theoretical abstraction to think about how we can mention or quote 'awarenesses of items' by way of 'awarenesses of awarenesses of items' (using the language of equivalence classes, i.e., the equivalence [of structure] between objects and their respective modes of presentation). If we take 'the awarenesses of items' as a category comprising

objects and pointers (in the category-theoretical sense, morphisms; in the philosophical sense, modes of presentation), then we would be able to present or point to this category by way of a whole new collection of pointers (pointers pointing to pointers). This new collection of pointers consists of what could be called a meta-awareness or 'an awareness of awareness'. Moreover, we would be able to go even further by decomposing the new collection of pointers to yet another collection of pointers, making a concatenation of pointers that function as metarepresentings (equivalence relations as opposed to equality relations) corresponding to a potentially infinitely nested structure of 'awarenesses of awarenesses of...', what Hume called the self as a bundle of impressions, or what we might call Humean perceptions. It is perhaps necessary to mention that, at the level of these selves qua bundles of Humean perceptions, there is no time-consciousness since time-consciousness requires the apperceptive self or the principle of experiential unification.¹³⁴ There is only a *de facto* time-order which can be said to be to an analogical counterpart to our time-consciousness, but at a much more basic level.

In this fashion, what the automaton requires in order to have a perspectival temporal awareness is not only ' $I_0 be_1$ ' and ' $I_0 be_2$ ' (as two modes of awareness of items qua impressions and reproductions), but also two types of awareness of awarenesses—that is, impressions and reproductions of awarenesses: $A be_1$ and $A be_2$.

Here, A stands for the object of these new modes of awareness. It functions as a quoting-device ('...'), a metapointer or, more accurately, a metarepresenting awareness. Within the metarepresentational structure of these new modes of awareness (impressions/ be_1 and reproductions/ be_2 of awarenesses), we can see an emerging nested structure:

The metarepresenting ' A ' can be represented either as

impression, $A be_1$: ' $I_0 be_1$ ' b_1 and ' $I_0 be_1$ ' b_2

134 See the excursus on Boltzmann and time in chapter 4 for an elaboration on this subject.

or as

reproduction, $A\ be_2$: ' $I_0\ be_2'$ b_1 and ' $I_0\ be_2'$ b_2

The construction of meta-awarenesses (awarenesses of awarenesses) via a metarepresenting awareness can be continued even further: " $I_0\ be_1'$ b_1 " b_1 , " $I_0\ be_1'$ b_1 " b_2 , " $I_0\ be_2'$ b_1 " b_2 , etc. Equipping the automaton with a global faculty of metarepresenting has now provided the automaton with a representational armamentarium adequate for bringing about a potentially infinite complex of nested awarenesses.

If we were to formulate meta-awarenesses in a category-theoretical fashion, the definition of a meta-awareness (awareness of awarenesses) would be 'an object of a category \mathcal{J} (awarenesses of items) which is determined by the network of its relationships (up to unique isomorphism)¹³⁵ with all the other objects in \mathcal{J} '. This definition can be extended even further: a meta-awareness is a collection of transformations or mappings between one awareness x (e.g., an impression) and another awareness y of the same item (e.g., a reproduction) which are in one-to-one correspondence with the transformations that map the object y and its network of relationships to x and its network of relationships.

135 Canonical isomorphism refers to a uniquely specified isomorphism between an object x and an object y that is characterized by a list of explicitly formulated properties belonging to a brand or class of objects to which both x and y belong. The criterion of canonicity or uniqueness is based on this list of explicitly formulated properties. As for the definition of isomorphism, two objects can be said to be isomorphic if there is a structure-preserving mapping or transformation between x and y that can be undone ($f: x \rightarrow y$ and $g: y \rightarrow x$) such that we have the compositions of identity maps $gf: x \rightarrow x$ and $fg: y \rightarrow y$. Here, rather than isomorphism being defined as two objects having the same structure (i.e., defining isomorphism in terms of structure), the structure is being thought in terms of isomorphism or structure-preserving maps that preserve composition, identity and class-specific relations. This permits to move from equality between two objects (framed in terms of their identical structures) to equivalence correspondences between one object and other objects of the same species or class (i.e., equivalence relations specific to their class or alternatively, type of structure).

Essentially, a meta-awareness is an awareness that plays the equivalent *role* of an awareness of an item ($x_{\mathcal{J}}$). This equivalence relation is defined in terms of the class-specific relations in which $x_{\mathcal{J}}$ stands in respect to other awarenesses of the same item. What needs to be noted is that meta-awarenesses are not *dei ex machina* of some sort, awarenesses that have been introduced out of nowhere to solve the problem of the possibility of temporal awareness further down the line. They are reconstructions of awarenesses of items *qua* this-suches in terms of their web of relations with the same species of awarenesses. The quoting device marks precisely the equivalence relations afforded by the network of awarenesses as specified by the properties of their class. The role₁ of any awareness of items can be reformulated or reconstructed by replacing it with the role₂ of its network of relationships, so that 'awarenesses of this-suches' (role₁) is meta-represented *as* (i.e., equivalent to) 'awarenesses of awarenesses of this suches' (role₂). In this fashion, we can see 'A' be₁ and 'A' be₂, impressions and reproductions, under the general form of:

* $x_{\mathcal{J}}$'s network of equivalence relationships * _{\mathcal{J}}

where the *...* denotes *the role of*, and $x_{\mathcal{J}}$ and \mathcal{J} respectively signify an awareness of an item and a category of awarenesses whose properties are specified under the class or network of causally ordered representings. It is this swapping of roles from $x_{\mathcal{J}}$ to its network of relationships that makes it possible to causally represent an awareness from the perspective of other awarenesses and their network of relationships in such a way that impressions can be addressed from the experiential viewpoint of reproductions, and reproductions through the purview of impressions. The usefulness of this category theoretical model lies not simply in its diagrammatic efficacy in allowing us to visualize the metarepresenting faculty, but in its power to provide us with some schematic insights into the *geometric form* of constructive memory. This geometry of memory is a prerequisite for the realization of an agent that has an experiential history and that, by virtue of this, is capable of assessing and appropriately responding to its experiences, and ultimately of judging and questioning the very facts of its experience.

The significance of meta-awareness as a global faculty for generating a complex of nested awarenesses is that it introduces a special functional role for be_1 and be_2 . It allows one of these modes of being presented (impressions and reproductions) to fall within the scope of the other; and in doing so, it provides the automaton with *distinct* representations for the $being_1$ of some item's $being_2$ and the $being_2$ of the same item's $being_1$ —the memory of an impression and the impression of a memory. In other words, the automaton has now the adequate representational resources to distinguish between an item that *is* being encountered now and one that is not being encountered now but was encountered and is reproduced—that is, the distinction required for having a perspectival temporal awareness of *is* and *was*. Even though the automaton does not have the conceptual resources to see this distinction as *is* and *was*, it nevertheless exhibits and instantiates a temporally perspectival awareness that can be legitimately described, via analogy with our concepts, as the temporal distinction between *is* and *was*.

Having orderly elements of the past and the present, the only thing that the temporal experience of the automaton is missing is the future. Recall that the constructive model of the automaton's memory not only retains and reproduces impressions, but also, and more importantly, plays a role in the behavioural activities of the automaton. In particular it plays a role in constructing a model of expected action based on the experience of the automaton. In simple terms, besides retaining and reproducing, the memory generates anticipations—a third model of items ($being_3$) in addition to $being_1$ and $being_2$. Adding this third model of items to the previous types of awarenesses does not disrupt or alter the potentially infinite nested structure necessary for the realization of a temporally perspectival awareness. Instead of two types of awarenesses, the automaton has now three types:

$A b_1$	$'I_o be_1' be_1$	$'I_o be_1' be_2$	$'I_o be_1' be_3$
$A b_2$	$'I_o be_2' be_1$	$'I_o be_2' be_2$	$'I_o be_2' be_3$
$A b_3$	$'I_o be_3' be_1$	$'I_o be_3' be_2$	$'I_o be_3' be_3$

In possessing these three types of awareness and, correspondingly, the nested structure that comes with them, the automaton has acquired three

capacities: memory (awareness of the being₂ of items), anticipation (awareness of the being₃ of items) and reflexive meta-awareness (awareness of the being₁, being₂ and being₃ of items). But also, and more importantly, the automaton has thus fulfilled the condition of possibility for the fundamental faculty of 'inner sense'—the necessary capacity of the mind to be affected by its own states and to actively respond to being so affected with representations qua intuitions of items in the mind (cogitations) standing in temporal relations. Analogous to outer sense, where objects are reported to the mind, inner sense is a faculty through which representations (rememberings, anticipatings, perceivings, etc.) are reported to the mind. At the core of this faculty is an operational and synthesizing time-order. And without this fundamental faculty, it is impossible to cross over into the qualitative domain of apperceptive general intelligence:

Whenever our representations may arise, whether through the influence of external things or as the effect of inner causes, whether they have originated *a priori* or empirically as appearances, as modifications of the mind they nevertheless belong to inner sense, and as such all of our cognitions are in the end subjected to the formal condition of inner sense, namely time, as that in which they must all be ordered, connected, and brought into relations. *This is a general remark on which one must ground everything that follows.*¹³⁶

Although the automaton is not yet aware of itself as a creature endowed with a history, it is aware of itself, from our analogically posited point of view, as a history: an orderly expanding sequence of awarenesses standing in changing temporal relations to items behaving—independently of their experience—over time—namely, a world-history. It is this kind of intelligence which, even though not yet self-conscious, can *potentially* treat itself as a project in which the intelligibility of world-history and the self-emancipation of intelligence—the self-constitution of its own history—go hand in hand.

136 Kant, *Critique of Pure Reason*, 228 (A98–99) (emphasis mine).

Now we are in a position to advance our toy model of purely perspectival-heuristic intelligence endowed with positional *capacities* (impressions, sensitivity, anticipation and rudimentary forms of memory and inner perception) toward an active model of intelligence with functional *abilities* that allow it not only to reason about the contents of its awarenesses but also to treat these awarenesses as its own so as to 'systematically' respond to the imprints of items in the world on 'itself'. We can think of this transition as the move from one type of abilities (abilities₁) to another type (abilities₂). Abilities₁ are those generated only by virtue of the sufficient structure of the automaton, and which therefore should be properly referred to as general capacities that do not depend on the contents of the automaton's encounters with the world, but instead are mere aspects of the overall structural organization of the automaton. On the other hand, abilities₂ are abilities which, although built on abilities₁, are nevertheless qualitatively different from them. These are abilities that rely on and are entangled with the contents of these encounters. Precisely, it is this entanglement with the content, being able to reason about it, assess it, examine its implications, and work out its particular formal and material inferential relations with other contents, that differentiates abilities₂ as *doings*. The ability to form judgments and to reason about experiential contents is not something that merely transpires in our automaton or befalls it in virtue of its wiring. It is something that the automaton actively does by entering a new domain, the logico-semantic domain of contents wherein abilities are no longer mere capacities but are conducts for navigating, and in the process making sense of, the contents of encounters with the world and our awarenesses of them. We shall call abilities₁ structural capacities, and abilities₂ logico-semantic functional abilities or, more laconically, normative abilities.

What we should remind ourselves of here is that abilities₂ are structurally afforded by the causal regime of abilities₁. However, this does not mean that abilities₁ are sufficient for the generation of abilities₂, nor does it mean that abilities₂ are of the same type or quality as abilities₁. The latter category is necessary but not sufficient for the realization of the former. One does not

simply jump from the mere capacity to discriminate stuff to the ability to make judgments as to the nature of the stuff in question.

The systematicity and adequacy of the automaton's response to the impingement of items in the world on itself depends upon two abilities₂:

- (1) The ability to form veridical judgments about the contents of awarenesses (telling apart what seems to be the case from what is the case and how one ought to respond to it).
- (2) The ability to form a subjective point of view in order to endorse—in line with the ability of veridical judgment—one story about the items in the world, or one course of action in response to such a world-story, over another.

It is the latter that is the kernel of freedom qua elaboration of practical and theoretical cognitions. This discursive subjective point of view, however, does not need to be understood within the framework of the phenomenal self-model replete with illusions of selfhood (such as the ownership of an empirical self as a constant phenomenal property, a transparent experience of the world, and direct encounters with items in the world). Rational selfhood or subjectivity ought to be understood as a normative functional—rather than purely structural—solution in constructing a qualitative form of intelligence.

Bridging the gap between abilities₁ and abilities₂ while retaining their qualitative difference will be the focus of the next chapter; but before that we shall look more closely at the question of time-consciousness or experienced temporality that came to the foreground with the inception of inner sense. Given the fact that veridical thoughts are essentially temporal in so far as they depend on sensory—rather than intellectual—intuition, the question of time is of the utmost importance. Moreover, since time is the veritable object of transcendental logic—i.e., the logic of thought as related to sensory intuition—and an ordering factor in transcendental psychology, one cannot go on and tackle the question of mind without examining the question of time. Lastly, this will be also an opportunity to

underline the significance of the critique of transcendental structures where we will have the opportunity to investigate the role of memory—a topic missing in Kant's discussion on transcendental aesthetics—and language in our specific form of time-consciousness. We will put forward a picture of intelligence able not only to challenge its so-called facts of experience but also to modify its conditions of transcendental aesthetics, thus renewing its engagement with reality and, in doing so, enriching the reality of itself beyond what is given to it.

4. Some Unsettling Kantian News, as Delivered by Boltzmann (An Excursion into Time)

Space only offers us relations without *relata*, and a confused phenomenal *mélange* in which we can only problematically disentangle the substantial agencies operative in the latter. And time only offers us sequences infected with vanishingness, which cannot best suggest the presence of permanent underlying agencies.¹³⁷

FREEZING THE FLUX

In this digressive chapter, we will examine a case study that underlines the significance of the question of transcendental structure in exploring the meaning of agency and general intelligence as outlined in chapter 2. Our excursion into the problem of transcendental structures or types will take us down the road of that most enigmatic aspect of the world and our experience of it, time.

Let us begin our investigation into the question of time not only from the perspective of the automaton's ur-temporal awareness, but from the standpoint of the more advanced sense of time specific to a language-user in possession of tensed sentences and modal vocabularies, the *ordinary time-conscious subject*. From what we saw above, the automaton's ur-awareness of the past, present, and future appears to be a contingent construct of its structural-behavioural organization: its mode of responsiveness to the impingement of items in the world on its senses, its constructive-anticipatory model of memory, and the structuring of its meta-awarenesses on such a model. And finally, on higher levels belonging to the apperceptive subject of experience, ordinary time-consciousness is the fruit of a certain troubling

137 J.N. Findlay, *Kant and the Transcendental Object: A Hermeneutic Study* (Oxford: Oxford University Press, 1981), 131.

marriage: the messy entanglement between the objective sense of time and the categories of causality (alteration) and community (simultaneity) that is already present in Kant, and in which the temporal and the causal serve reciprocally in each other's definition, without either being satisfactorily defined as such.

From the analogically posited perspective of the automaton and the non-analogical viewpoint of the discursive apperceptive intelligence, time appears to be flowing, or they themselves seem to be moving through it. The future recedes into the past and we experience ourselves as moving from the past toward the future. In this section, we shall have occasion to inspect why such images of time as a flow or advancement through time are rife with inconsistencies. Only by shedding light on these inconsistencies and their ramifications will we be able to think about what it means to expand the theoretical and practical abilities of agency into a larger field of possible experience that is no longer *foundationally* attached to a *particular* structure.

It would be a biased argument to infer the objective reality of temporal direction, a dynamic 'flow-like' picture of time, or even the objective reality of time as such from either the ur-perception of temporal instances or the tensed consciousness of time. In order to demonstrate this, we will make use of a modified version of John McTaggart's infamously controversial argument regarding the unreality of time, which is implicit in Kant's discussion of the transcendental ideality of experienced temporality (i.e., the argument that time qua experienced temporality is unreal).¹³⁸

McTaggart gives his argument for the unreality of time in three different forms, the first two originally proposed in his essay *The Unreality of Time*, the third in volume 2 of his later work *The Nature of Existence*. The first and most well known argument is presented via the so-called A-series and B-series, which are different series of positions in time. The A-series denotes a tensed temporality in which positions in time start from the far past, going through the near past to the present and then from the present to the near future toward the distant future. Events therefore continually

138 J. McTaggart, 'The Unreality of Time', *Mind* 17 (1908), 456–73.

change their temporal position in the A-series. On the other hand, the B-series characterizes a tenseless temporality in which positions in time run sequentially from the earlier-than to the later-than, with the temporal position of an event remaining stable, but being defined in terms of precedence and antecendence to other events. In this argument, change, as the characteristic of the A-series, is taken to be essential for the nature of time, and the B-series is considered to be reliant on this change. McTaggart then argues that the A-series cannot exist because past, present, and future are incompatible determinations. Each temporal event in the A-series (in terms of being of the past, of the present or of the future) presupposes the entirety of the A-series, but insofar as every event must be one or the other and cannot be more than one, the A-series is proved to be incoherent—an incoherency that also undercuts the reality of the B-series.

McTaggart's second argument is presented in the context of the 'specious present' (the instant not as a point but as a short duration, 'a collection of pairwise overlapping events')¹³⁹ in which our perceptions are regarded to be in the present, a tract of experience with a special durational unity of the before and the after. The main thrust of the second argument is what Rosenberg identifies as 'an ontological tension between successiveness of the elements of a duration apprehended in a specious present and the simultaneity of the elements constituting the apprehending act'.¹⁴⁰ McTaggart argues as follows:

The specious present of our observations—varying as it does from you to me—cannot correspond to the present of the events observed. And consequently the past and future of our observations could not correspond to the past and future of the events observed. On either hypothesis—whether we take time as real or as unreal—everything is

139 R. Pinosio and M. van Lambalgen, *The Logic of Time and the Continuum in Kant's Critical Philosophy* (2016), <<https://philpapers.org/archive/PINTLO-10.pdf>>.

140 Rosenberg, *The Thinking Self*, 225.

observed in a specious present, but nothing, not even the observations themselves, can ever be in a specious present.¹⁴¹

Finally, in the third version, McTaggart gives his argument on the unreality of time a far more expansive scope. At the beginning of what is an exceptionally sophisticated exercise in critical philosophy, the second volume of *The Nature of Existence*, McTaggart reframes his inquiry into the (un)reality of time as simply a starting point for a broader examination of the question of whether or not the characteristics of reality are those characteristics that it appears to have in experience:

[W]e shall have to consider various characteristics as to which our experience gives us, at the least, a *prima facie* suggestion that they are possessed either by all that exists, or by some existent things. And two questions will arise about these characteristics. [...] We shall have to ask, firstly, which of these characteristics can really be possessed by what is existent, and which of them, in spite of the *prima facie* appearance to the contrary, cannot be possessed by any thing existent. And we must ask, secondly, of those which are found to be possible characteristics of the existent, whether any of them can be known to be actual characteristics of it.¹⁴²

The modified version of the argument for the unreality of time qua experienced temporality that I have in mind, however, is more in line with McTaggart's third argument, which can be reconstructed and presented in two forms.

The modest version of this modified argument is that we can neither draw conclusions about the objective reality of time (whether as a reified thing or a nonreified formlessness), its direction, its flow, and its temporal structure, nor in fact affirm the existence of such objective properties, on the basis of the structure and characteristics of experienced temporality. The bridge between the phenomenological, psychological, or subjective and

141 McTaggart, 'The Unreality of Time'.

142 J. McTaggart, *The Nature of Existence* (2 vols. Cambridge: Cambridge University Press, 1927), vol. 2, 3.

the metaphysical, physical, or objective accounts of time is no readymade matter, for the reason that the two are incommensurably distinct. Rather than arguing that there is no objectively real time, the modest claim here concerns the illegitimate nature of the inference from the perception of time qua experienced temporality to the objective reality of time on the basis of some assumed isomorphism, private access, global sense of direction and passage of time, structure of tensed language, or observed arrow of causality.

Said in a different way, we cannot infer an objective account of time from temporal-dynamic characteristics that appear in experience or conditions of observation. But this does not tell us whether or not there is an objective time, nor, if there is, what its characteristics might be. In other words, this is different from a naively hyper-Kantian position—born of a conflation between commitments to epistemological idealism and commitments to ontological idealism—for which it is impossible to think an objective reality for time or to see any structure as anything but a structure inherent to our subjective point of view. While the conceptual resources of our language enable us to make veridical judgments pertaining to time, we are not permitted to treat these temporal components of language—i.e., the tensed verbs and temporal connectives of our statements about objective time, such as ‘before’, ‘after’, ‘when’ and ‘until’—as evidence for the objective structure of time. This of course opens up a more fundamental question: Is the tensed structure of natural languages even appropriate for investigating the question of time, or should we completely shift to formal-theoretical languages, which would allow us to take advantage of temporal connectives with more neutral and flexible logical connections? What Quine rightly snubs as the ‘tiresome bias’¹⁴³ toward ordinary language in the treatment of time should alone be sufficient reason for philosophers to become suspicious of the kinds of loose wordplay they employ not only when thinking about the problems of time and temporality, but also when thinking about change, whether the latter is understood as something events undergo in the universe or as a transformation effected by rational agents in the world.

143 W.V.O. Quine, *Word and Object* (Cambridge, MA: MIT Press, 1960), 154.

The less modest and more disquieting version of the unreality of experienced temporality—what should be called the *sinister version*—is that there is a good chance that any asymmetric picture of time that allows for sequences running from one extremity toward another (from past to future or future to past) in a punctual or durational form, or where the present can be regarded as something *objectively distinguishable*, is riddled with experiential biases. These biases are not exclusive to ordinary subjective time-consciousness and the tensed structure of natural language that relays it, but also, and more fundamentally, can even be extended to the ideal notion of the observer in physics. The sinister implication is that, if directional, flow-like pictures of time are negatively biased by the structure of experienced temporality and the local characteristics of the subjective perspective/observer, and if the classical notions of causality, system state, and antecedent conditions are embroiled in directional-flow-like pictures of time, then those portions of complexity and physical sciences that have incorporated these concepts as their fundamental explanatory-descriptive elements are also biased and prone to significant revision, if not abandonment.

What is meant by causality here is not what Wolfgang Stegmüller astutely identifies as the prescientific concept of causality, namely, singular causal judgments (or individual cause-effect connections) reflected in sentences of ordinary language containing terms such as ‘because’ and ‘since’ (Seneca cut his veins *since* Nero ordered him to kill himself, the car crashed into a tree *because* the brakes stopped working, etc.).¹⁴⁴ The prescientific

144 ‘This concept [of cause] stems from the vague language of everyday life where it is undoubtedly quite useful, for it serves adequately all the practical purposes of our everyday language; but it cannot serve as the point of departure for a philosophical concept explication. Suppose a house caves in as a result of removing a prop in the course of construction work being done in the basement. It will then be said that the house collapsed because that prop had been removed. And since such a because-statement is equivalent to a singular causal assertion, it might also be stated as follows: the removal of that prop was the cause of the collapse of the house. It becomes immediately clear now that despite the removal of that prop the house would still not have collapsed had it had a different structure. If, for example, the structure of the house had been such that the prop was not necessary

cause-effect connection is built upon the arbitrary selection—in Stegmüller's words more 'psychological' than 'epistemological'—of one diagnosed or indicant condition from among a large number of conditions that may not seem to play any explicit causal role. Instead, the concept of causality that is at stake here refers to a set of lawlike regularities along with a set of antecedent conditions that together constitute the explanans of a causal explanation. In this schema of causal explanation, statements belonging to the explanans must have empirical content as well as at least one nomological law-statement in order to count as causally explanatory.

And so begins our inquiry into the limits of the transcendental structure of experience: To what extent is what we take as a necessary and universal fact of experience, an a priori act, in fact a local and contingent aspect of our experience? Or, in other words, how much is what we take to be necessary distorted by what is actually contingent through and through? As promised, this is where we can benefit by focusing on a particular case study.

The challenge to the directional, flow-like picture of time can potentially problematize the classical conditions (i.e., conditions dependent on various dynamic time-oriented phenomena, from inductive numerical asymmetries to temporal asymmetries, etc.) through which lawlike regularities are derived and antecedent conditions are characterized. As for the notion of the *state* of a physical system that is in question here, it describes dispositions of the system for responding to a range of possible circumstances that might be encountered in the future. This notion of the *state* is, properly speaking, a descriptive tool for predicting the future responses or trajectories of the system (in terms of counterfactuals) from its present behaviour. *Hidden variables*, on the other hand, refer to those states taken to be independent of any future interactions to which the system might be subjected.

to maintain its stability, then nothing would have happened. Thus, if we designate the removal of that prop as the cause of the collapse, this is basically a very one-sided description of the situation. Such an act must actually have coincided with quite a large number of other factors to bring about the said effect; and yet all these other factors were not taken into account at all.' W. Stegmüller, *Collected Papers on Epistemology, Philosophy of Science and History of Philosophy* (2 vols. Dordrecht: D. Reidel, 1977), vol. 2, 29.