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**Remembering with and without Memory: A Theory of Memory and Aspects of Mind that Enable its Experience**

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16 Stanley B. Klein

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49 **Author Notes:** Please address all correspondence concerning this paper to Stan Klein,  
50 Department of Psychological and Brain Sciences, University of California, Santa Barbara, CA.  
51 93106. Email: [klein@psych.ucsb.edu](mailto:klein@psych.ucsb.edu)  
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**Remembering with and without Memory****Abstract**

This article builds on ideas presented in Klein (2105a) concerning the importance of a more nuanced, conceptually rigorous approach to the scientific understanding and use of the construct “memory”. I first summarize my model, taking care to situate discussion within the terminological practices of contemporary philosophy of mind. I then elucidate the implications of the model for a particular operation of mind – the manner in which content presented to consciousness realizes its particular phenomenological character (i.e., mode of presentation). Finally, I discuss how the model offers a reconceptualization of the technical language used by psychologists and neuroscientists to formulate and test ideas about memory.

## Remembering with and without Memory

“Among the great primordial concepts of psychology, few are so badly abused and poorly understood today as is “memory.” It is the word “memory” which is in this deplorable condition, not so much our knowledge of the realities to which the term has been applied, though to be sure there are many subtleties in these phenomena which still elude us and will continue to do so until the language in which we think about them is rehabilitated. In our technical and quasi-technical usage of “memory” and such related expressions as “remembering,” “memories,” “memory trace,” “recall,” “retention,” “learning,” and “information storage,” a number of fundamental distinctions and not-so-fundamental metaphors have become jumbled together in a monstrous snarl of ambiguity and confusion.” (Rozeboom, 1965, p.329; emphasis in original).

The “ambiguity and confusion” that compromise our understanding of the construct “memory” is a specific instance of a more general concern about the underdevelopment of theory in psychological science (e.g., Klein, 2014a). A frequently invoked explanation is that psychology is a young science and thus prone to suffer the unavoidable consequences youthful folly (this exculpatory mea culpa is featured in the introductory chapter of many psychology textbooks).

However, as the following quotes suggest, a “growing pains” account is not particularly compelling.

“The confusion and barrenness of psychology is not to be explained by its being a “young science”; its state is not comparable with that of physics, for instance, in its beginnings...For in

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psychology, there are experimental methods and conceptual confusion. The existence of the experimental method makes us think that we have the means of getting rid of the problems which trouble us; but problem and method pass one another by.” (Wittgenstein, 1953/2009, A Fragment XIV, 371).

“Psychological metatheory has remained seriously underdeveloped...a psychologist is likely to appeal his decisions about research strategies directly to general methodological principles to an extent to which a physicist or chemist does not...a consequence of the unsettled state of psychological metatheory is thus that schools of psychology are distinguished as much by the kinds of experiments that their adherents typically perform as by the theories they espouse.” (Fodor, 1968, pp. xiv-xv).

Additional examples of a similar nature can be cited. But I think enough has been said to show that we need to search for causes far more nuanced than the benevolent condescension of youthful indiscretion to explain the “confusion and ambiguity” afflicting theory in psychological science. In the next section I discuss a few well-known offenders. For more comprehensive accounts, see Danziger (1997) and Klein (2014a, 2015a, 2016a).

## Identifying the Problems

Psychologists studying mental constructs often fail to separate its sense (the manner in which one conceives its denotation) from its reference (the object the term means or indicates; e.g., Frege, 1948). This conflation is exemplified by operationalism – an approach to theory building whose foundations trace to the logical positivist movement of the early-to-mid 20<sup>th</sup> Century. The essential idea is that the meaning of a construct (i.e., an explanatory variable that is

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not directly observable) is fully realized by the observable outcomes of the methods used in its measurement. Since the outcomes of measurement are considered both necessary and sufficient for understanding the construct under scrutiny, construct and measurement are treated as conterminous.

Consider the construct “memory”. Because memory is “hidden inside the person”, investigators rely on the outcomes of memory tests – which are assumed to be observable expressions of an unobservable entity -- to detect and assess memory’s properties and functions. The construct acquires its meaning (sense) from the operations (reference) used to elicit its behavior. Memory is what memory tests measure.

Although operationalism – in virtue of linking abstract construct with observable outcomes – initially appeared to confer scientific respectability on theory construction, it now almost universally is seen as irreconcilable with scientific theory and practice (e.g. Brickhard, 2001; Green, 1992; Klee, 1997). Among the reasons (there are several) is its inherent circularity. The mantra that “memory is what memory tests measure” begs the question by assuming what it is trying to prove (i.e., the claim that behavior elicited by test X is a manifestation of memory rests on the presumption that performance on test X is underwritten by memory).

In addition, while an act of measurement can establish a specific reference for a construct, it cannot establish its sense (e.g., Klee, 1997). By failing to respect the conceptual distinction between sense and reference, the construct fallaciously is viewed as coextensive with the operations used in its measurement.

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Despite such concerns, operationalism continues to have considerable influence on method and theory in psychological science (e.g., Green, 1992; Klee, 1997). Indeed, psychology is considered unique among the sciences in the extent to which methodological sophistication has preceded and outpaced substantive treatment of issues investigated by those methods (e.g., Koch & Leary, 1992).

The scientific credibility of the construct “memory” also is compromised by an unintentional by-product of historical circumstance. Unlike many of the constructs used in the physical sciences (e.g., electron, covalent bond, inertial mass, time dilation, dark matter), mental construct terms (e.g., memory, self, mind, intelligence, imagination, belief, attitudes) often were part of the vernacular long before anyone thought to use them to identify objects of empirical interest. In consequence, theories of memory interweave folk-psychological presuppositions about “familiar” objects with theoretically sanctioned propositions (e.g., Klein, 2016a). And since scientific presuppositions seldom are subject to critical analysis (e.g., Rescher, 1984), they largely are immune to refutation. In this way, a host of unexamined presumptions have been woven tightly into the fabric of contemporary memory theory (for discussion see Klein, 2013a, 2015a).

While, such issues may be of little concern to the lay person, it is essential that academics provide carefully reasoned arguments in support of their premises and the conclusions they sanction. The only justifiable way to employ a construct as an object of scientific inquiry is to do so critically. A conceptually nuanced examination of the linguistic conventions and probative criteria we use to think about memory and its cognates (e.g., remembering, retention), is the

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surest path to a genuine understanding of what memory is and what is involved in its acquisition, retention and presentation.

### Methodological Sophistication, Conceptual Under-development

Psychology is awash in data. What often are missing are well-specified theories linking physical observables to abstract constructs (e.g., Danziger, 1997; Klein, 2014a; Margenau, 1950; Torgerson, 1958). To redress this imbalance, practitioners need pay greater attention to the conceptual clarity of their constructs prior to pushing them into investigative service. To do otherwise is to put the horse before the cart -- placing uncertain limits on the extent to which we can trust the conclusions we draw from our empirical efforts to reflect nature as it exists independent of those efforts.<sup>1</sup>

These concerns clearly apply to the scientific treatment of “memory”. As Tulving (2007) laments, the construct too often is inseparable from the specific tasks used in its investigation. Unless armed in advance with a conceptually coherent -- though temporally provisional (see Footnote 1) -- sense of what memory consist in, we have no logically sanctioned way to assess whether the data we collect are commensurate with, antithetical to, or independent of the construct being investigated (e.g., Klein, 2014a).

### A Diagnosis of Contemporary Memory Research and a Proposal for its Rehabilitation

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<sup>1</sup> This is not to imply a construct’s sense and reference must be set in stone prior to using it. Constructs are not static. They grow and flourish, or are cast aside, as new data confirm or disconfirm their hypothesized properties and features (e.g., Kuhn, 1962; Ladyman, 2002; Popper, 1963/2004; Trusted, 1987).



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In Klein (2015a) I offered a detailed analysis of the current sense of the construct “memory”. In this section and the next I present a summary of my conclusions. While a summary, to be fully appreciated, should not be considered in isolation from the arguments that served as its formative background, presenting a summation unfettered by the evidence marshaled in its support accents key points without risk of their being swallowed by that background. In what follows, I adopt this latter approach. Those interested in evidence and argument are referred to Klein (2015a; see also Klein, 2013a, 2014b, 2016b).

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Insert Box 1 about here  
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### The Encoding/Storage/Retrieval Definition in Memory Research: Explaining too little and Explaining too much.

“But not until we have learned how to think effectively about the formal structure of psychological processes will we be able to pursue the more provocative leads which have been appearing in contemporary research or to attain any genuine understanding of the phenomena to which the concepts of common-sense mentalistic psychology are dedicated.” (Rozeboom, 1965, p. 367)

Most theorists define the construct “memory” in an overly general way: Memory is a system designed by natural selection to enable the encoding, storage and retrieval of information

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encountered in one's past (for reviews see Klein, 2013b, 2015a).<sup>2</sup> While this is unquestionably true, it is far too coarse to be a helpful guide to research or theory. If one subscribes to the principle that things do not pop into existence *ex nihilo*, then, of logical necessity, our mental construct terms – e.g., planning, judging, categorizing, remembering, deciding, faith, believing, imagining, desiring, intending, thinking – refer to “something” that must have come from “somewhere” (i.e., they have a causal history<sup>3</sup>). And since -- with the exception of sensation, perception and genetically programmed acts -- that “somewhere” is one's personally experienced past, the encoding/storage/retrieval definition has the consequence of rendering virtually every mental state a form of memory.

### Explaining too little

A well-specified theory of memory certainly needs to include discussion of the preconditions that serve as its causal history. But unless one can demonstrate that (a) characteristics of the preconditions are present in the end product (e.g., the experience of memory) and (b) characteristics not present in the preconditions are not in the end product, the argument that the end product is nothing above and beyond its preconditions rests on shaky

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<sup>2</sup> Numerous theories of memory have been fashioned specifically to accommodate data collected from the definition's bookends -- encoding and retrieval (e.g., Atkinson & Shiffrin, 1968; Craik & Lockhart, 1972; Schacter, Chiu, & Ochsner 1993). The “storage” criterion – for which few observable correlates were available prior to the advent of neuroimaging – initially was included in the definition in deference to Aristotle's postulate that “nature abhors a vacuum”.

<sup>3</sup> That the content presented to consciousness has a causal history (e.g., Martin & Deutscher, 1966) is not to imply it is identical to its state at acquisition. It is well known that numerous changes (addition, subtraction, recombination, etc.) can, and typically do, take place both between and during encoding and retrieval (e.g., Bartlett, 1932; Nadel & Moscovitch, 1997). The causal connectivity postulate was designed to ensure that the intentional object of consciousness – be it memory, imagination, belief, and so on -- maintained some connection to its past.

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ground. We have allowed the target of inquiry to be subsumed by its enablers, thereby confusing the “history of the becoming of a thing with an analysis of the thing as it has become” (e.g., Broad, 1923/1937, p. 12).

By conflating the precursors of an outcome (e.g., encoding/storage/retrieval) with the outcome itself (e.g., memory as experienced), we encourage the practice of seeing the end product as little more than its preconditions “in disguise”. The danger in so doing is that the construct – intended to provide meaning to the target of inquiry – is articulated absent essential features that are present in the end product but not in its precursors (for discussion and examples, see Klein, 2015b).

### Explaining too much

“Enthusiasts have so strained its interpretation as to make it explain nothing, by reason of the fact that it explains everything.” (Whitehead, 1929, p.6)

A related concern is that the encoding/storage/retrieval definition fails to allow distinctions to be drawn between memory and the other mental states it enables. Encoding, storage and retrieval plays a part in the genesis of a multitude of mental outcomes. To say of any one that it is “due to” this processual trio is as informative as saying “the event of my birth is a necessary precondition for my ability to walk”. While the causal connection between walking and birth clearly is true, the relation is informationally anemic: Having been born is a necessary precondition for everything I have achieved in life. To avoid explanatory impotency, a criterion must, at a minimum, specify what it excludes as well as what it includes.

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If the term “memory”, in virtue of its identification with its preconditions, encompasses virtually everything in the class of mental states, then it’s not a useful distinction among them. This is not to say that encoding/storage/retrieval play no part in the production of memorial experience. Rather, it is to say that memory is not their inevitable outcome. These same preconditions can (and do) give rise to a variety of non-memorial mental states -- e.g., images, thoughts, beliefs, fantasies, plans, stereotypes, attitudes. If we include under the heading “memory” all mental states and processes whose origins trace to information acquired in one’s past, we stretch the concept to the point at which just about everything we think and do can be taken as some form of memory. Rather than asking “what is memory?” we might better be served asking “what isn’t memory?”

In summary, while simple theories often are preferred to complex ones -- due to their greater explanatory power (i.e., the principle of parsimony) -- a theory that can explain every outcome does not explain anything. It is more an act of faith than of scientific precision. Such is the case with the encoding/storage/retrieval theory of memory: While the experiential terminus of this 3-pronged causal chain can be a memory, it also can be belief, imagination, knowledge, decision, judgment, hope, fear, and so on. If this diversity of phenomena all counts as “memory”, the construct becomes a useless distinction – trivially true and thus uninformative.

## Criteria for a Mental State to Qualify as Memory

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In Klein, (2015a) I argued that the conceptual neutering of the construct “memory” can be averted by appreciating that “memory” entails a special mode of presentation. While many mental states derive from past experience, memory is not just from the past. It is also about the past (for discussion see Klein, 2013b). More, this aboutness consists in the feeling that content retrieved into to consciousness refers to events and experiences from my past. This feeling is epistemologically and phenomenologically direct. It is not mediated by inference, description, concepts, rational analysis, or interpretation.

An example: Hearing a tune on the radio and knowing it is a Beatles’ song, does not license the inference that I am having a memory of the tune. In most cases I simply hear a song (and know certain facts about it; e.g., its name, composers, date of composition, and so on). But I do not hear it as a song I heard previously. I may know or infer this to be the case, but typically I don’t consider whether my knowledge derives from personal past experience.

By similar reasoning, knowing that my dog’s name is Cooper is not an act of memory. It is information presented to consciousness without any hint of connection with my past. I know his name and that is that. Of course this content (which, on presentation to consciousness has attained the phenomenological character of “knowledge”) was acquired in my past. But re-experiencing the act of acquisition plays no role in my phenomenology. And while I may infer that I learned my dog’s name in the past, this inference is not concurrent with the content on presentation.<sup>4</sup>

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<sup>4</sup> I am well aware that the above examples fulfill the criteria for the knowledge subtype of the semantic memory system. However, as argued in Klein (2015a), there are no conceptual arguments or empirical grounds that sanction ascription of the term “memory” to acts of

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Accordingly, memory is not simply from and about the past. It is from and about my past. Its mode of presentation entails a direct feeling that content present in consciousness is about the past, and that this aboutness is “personally owned” (e.g., Klein, 2013a, 2015c; Klein & Nichols, 2012). By “personal ownership” I mean that the content retrieved into consciousness (i.e., its intentional object) is presented as “an experience I previously had”. The appropriation of the content of experience to one’s self is non-inferential and pre-reflective (e.g., Klein & Nichols, 2012; Klein, 2015c). It is directly given to me as “mine”. This possessory custody can be seen as the “mental glue” that binds features of retrieved content (its causal connection to the past and the conscious apprehension of its pastness) into a feeling that the intentional object is a re-living of happenings that transpired previously in my life. (Tulving refers to this as *autonoesis*; e.g., Tulving, 1985, 2005).

In short, memory is not simply the result of presenting previously acquired content to consciousness (this is true of many non-memorial states). What is critical is the manner in which retrieved content is presented. To qualify as a “memory”, the content must be accompanied by (or, in Locke’s terms, “annexed to”; Locke, 1689–1700/1975) the feeling that “I originally experienced this content in the past” (the word “accompanied” highlights recent findings that feelings of personal ownership are not intrinsic to the intentional object. They can, and have been, dissociated; e.g., Klein, 2013a, 2014b, 2015c; Klein & Nichols, 2012). The mental states that result from this interaction partly are determined by sub-experiential activity; but, these are preconditions of the eventual mental state, not the state itself.

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knowing (or skills), but not to the (many) non-memorial states (e.g., beliefs, attitudes, goals) similarly rooted in my past.

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Thus -- in contrast to contemporary psychological and neuroscience doctrine (see Klein, 2015a, Sections 3 and 3.1) -- mental states involving knowledge, access to one's lexicon, utilization of skills, etc., are not acts of memory. "Memory" is a term that is (or should be) reserved for content whose mode of presentation consists in a direct feeling that one is re-living the circumstances from which that content was acquired. While the pastness of a mental state may be identified by conceptual or inferential analysis (e.g., it may be about temporal events), such analyses do not justify the ascription of the term "memory".

Memory is an experience. To experience a memory is to have an immediate, non-analytic feeling that my current mental state is coterminous with a state of affairs I experienced in the past. This is accomplished by several individually necessary and (possibly) jointly sufficient criteria: (a) there is a causal connection between content presented to consciousness and the past, (b) content retrieved into consciousness is taken as its intentional object, (c) there is a feeling of pastness accompanying the intentional object, (d) this feeling is non-inferential and pre-reflective, and (e) the past to which the intentional object is annexed is directly felt as "mine" (i.e., personally owned, or, in James', 1890, more colorful terms, accompanied by feelings of warmth and intimacy).

So what, if anything, among the offerings of contemporary Memory Research, qualifies as Memory?

Based on the writings of contemporary scholars, the construct "memory" encompasses a diverse collection of exemplars and types. Tulving (2007), only partly tongue-in-cheek (personal communication; 9/20.2017), counts 256 variants, most of which are framed in terms of the

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specific tasks used in their investigation (see also Roediger, Marsh, & Lee, 2002). Among this fractious cohort, one variant -- episodic memory -- comes closest to satisfying the criteria enumerated in the previous section.

Unfortunately – like its parent category – episodic memory admits to an assortment of definitions, verbal manifestations, and neuro-anatomical correlates of (for review Klein, 2013a, 2015a; Michaelian, & Sutton, 2017). The account corresponding most closely to the ideas expressed herein is presented in Klein (2013a). This version adheres closely to Tulving’s post-1984 conception of episodic memory (e.g., Tulving, 1985, 1993, 2005), with a few emendations. The most important, for our purposes, is that the properties accompanying episodic memory (e.g., subjective temporality, personal ownership) are attributed to operations acting on system-neutral content retrieved into consciousness (see next section), rather than to qualities intrinsic to content stored in a system dedicated to episodic memory.<sup>5</sup>

## Situating Memory in the Mind and in Nature

Thus far I have focused on one particular mental phenomenon – that of memory. But the principles educed in Klein (2015a) apply more broadly. In what follows, I outline a general theory of a specific operation of the mind – the translation of learned content into conscious experience. While much of what I have to say is a straightforward expansion of arguments from the preceding sections, I think it helpful to make these points explicit.

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<sup>5</sup> Kriegel, 2015, recently has voiced a similar view: “There is a feeling of pastness associated with episodic memory, but it is built into its attitudinal nature; it does not appear to be at the level of content.” (p. 410)



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Few memory researchers take issue with the proposition that expressions of learning -- behaviorally or as an object of consciousness – qualify as memory (for discussion see Klein, 2015a). However, this relation is defensible only if one accepts the additional proposition that memory consists in any mental or behavioral occurrence whose genesis traces to an act of learning. Contra this, as I argued in the previous sections, while learning is a necessary precondition for memory, memory is not the inescapable consequence of learning.

### Memory and the Mind: Learned Content is State-Agnostic Prior to its Presentation to Consciousness

Contemporary treatments of the difference between learning and memory seldom stray far from the rather pedestrian insight that learning addresses change while memory is concerned with something that happens after a change. The goal of the present section is to show that a more nuanced distinction between learning and memory has important consequences for how we view the workings of the mind. In the section “Remembering with and without Memory”, I discuss the implications of this distinction for terminology used to describe those workings.

While expressions of learning need not involve consciousness (habits, well-practiced skills, etc.; e.g., Hasher & Zacks, 1979), in what follows I restrict discussion to those that do. Learned content, prior to its experiential realization, is state-agnostic. It may be recruited in the service of belief, memory, judgement, knowledge, goals, thought, imagery, etc., but it does not exist as such until it becomes an intentional object under a particular mode of presentation (for argument and evidence see Klein, 2015a, 2016b).

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This is not to say there are no neural modules with modality-specific content at the sub-experiential level (e.g., Fodor, 1983). It is to say that there are no sub-experiential modules dedicated to the storage, maintenance and utilization of mental traits. Mental states acquire their psychological character from the manner in which state-agnostic content is conjoined at retrieval with various motives and procedures to secure a particular mode of presentation. Depending on context and circumstance, the same content can be experienced as imagination, memory, thought, etc.

For example, suppose the content I retrieve is a mental image of Jimi Hendrix holding his Fender Stratocaster.<sup>6</sup> This content may be experienced as an image (tout court), a desire (e.g., I wish I owned a Fender Stratocaster), knowledge (e.g., his full name is James Maurice Hendrix), fantasy (I am playing second lead guitar in “The Jimi Hendrix Experience”), memory (I am re-living the time I saw Hendrix play at Woolsey Hall in New Haven), and so forth. In short, prior to being associated with a particular mode of presentation, remembered content remains agnostic with regard to the phenomenological character it will assume after being taken as the intentional object of consciousness.<sup>7</sup>

In summary, although learning and memory often are treated as the unavoidable endpoints of an unbroken causal chain, learning is a necessary condition for an act of memory,

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<sup>6</sup> While I have chosen a fixed image for my example, nothing turns on this stasis. Whether retrieved content is static or dynamic, the same general principles obtain.

<sup>7</sup> To avoid potential confusion, let me be clear that the individuation of a mental state as, say, a memory, knowledge, fantasy or belief is a function of a variety of factors – including, but not limited to, scientific consensus on language used in their characterization, and the nature of the intentional object and the type of (largely sub-experiential) routines enacted on the intentional object. Personal ownership enables one to experience possessory custody of a mental state: It is not a determining factor in the type of state experienced.

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but not sufficient. There is no memory until content is made available to, and apprehended by, consciousness under a particular mode of presentation. In this sense, the commonly held assumption that there are sub-experiential systems capable of being designated as memory (or desire, or attitude, etc.) is called into question.<sup>8</sup>

### Memory: Natural and Human Kinds

Natural kinds are objects or groupings that reflect real distinctions in nature. They are characterized by an ontological stability that renders them independent of their categorization or the descriptions they are given. Human kinds, in contrast, are not independent of their categorization. Their reality maps to the words used to describe them rather than to things in themselves. Unlike natural kinds, human kinds are subject to changes in character as a result of changes in the language used in their classification (for discussions see Hacking, 1992; Taylor, 1985).

In Klein (2105a) I attempted to make the case that memory is a natural rather than a human kind. One of my arguments – the stability of usage – received only oblique mention. In what follows, I draw out more fully the implications of that aspect of my argument for the natural kind status of memory.

### Experiential Constancy as a Criterion for Natural Kind Status

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<sup>8</sup> A similar view of mind and memory is found in Russell (1921). For example, “Memory-images and imagination images do not differ in their intrinsic qualities, so far as we can discover. They differ by the fact that the images that constitute memories, unlike those that constitute imagination, are accompanied by a feeling of belief which may be expressed in the words ‘this happened’. The mere occurrence of images, without this feeling of belief, constitutes imagination.” (p. 176).

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The view of memory as “content conjoined with a non-inferential feeling of the past as my past” has (at least until recently) a long history in Western thought, tracing to Greek antiquity (reviewed in Klein, 2015a). Over the millennia, the experience of re-living events from one’s past has been firmly entrenched as part of human subjective reality (which, in contrast to many in the field, I take to be a part of nature: e.g., Klein, 2016a). Memory, so conceived, does not exist only in some particular cultural context at some particular time.

However, while long-held beliefs about memory do not usually ensure they capture the natural order (the earth, after all, was believed by many to be the center of the universe for thousands of years), in the domain of personal phenomenology, stability can confer ontological warrant. Apprehension of an intentional object of consciousness -- rather than that to which the object refers -- is an introspectively-given state whose mode of presentation is made fully visible in and by the experience itself: Interpretation of that to which the object refers may be inaccurate (e.g., despite our personal phenomenology, the sun does not travel around the earth), but the interpreter cannot be mistaken about how the intentional object appears (e.g., Gertler, 2011; Shoemaker, 1968). The special epistemic character of first person, present tense psychological statements is typically referred to as immunity to error through misidentification (IEM).

The psychological topography of our mental constructs ultimately must be fitted to first-person acquaintance with the experiential acts in which they are realized (e.g., Gallagher, & Zahavi, 2008; Strawson, 2009). A conceptualization of personal experience drawn entirely in analytic way is a discourse about experience, not a rendering of the experience (e.g., Georgalis, 2006; Varela et al., 1993).

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In contrast to the stability of reports concerning the experience of memory, many of our mental traits and faculties – e.g., motivation, consciousness, self, personality, depression, attitudes -- have been subject to considerable revision and reconsideration over the millennia (e.g., Danziger, 1997; Uttal, 2001). These variations derive primarily from scholarly negotiations embedded within particular cultural contexts. As Danziger observes, “the categories one meets in psychological texts are discursive categories, forms of words, not the things themselves” (1997, p. 186). And when categorizations change as a function of historical context, the suspicion arises that a construct’s meaning is being negotiated and renegotiated by groups to whom it matters (e.g., Wittgenstein, 1997) – i.e., description is more an act of construction than of discovery.

In short, the act of categorizing mental phenomena can (and typically does) vary as a function of specific discursive practices. Indeed, it is a live question whether persons untutored in the psychological and philosophical dogma of their time would find experiential grounds for distinguishing between mental states such as knowledge, belief, and faith.

An exception to this view of mental traits and states as a discursive categories is memory. Historical and phenomenological evidence suggest the temporal and cultural stability of the construct (as used herein) captures a clearly delimited aspect of human nature – one whose experiential description maps to something that exists independently of the language used to describe it. While stability is no guarantee of natural kind status, in the context of mental phenomena, consistency of usage provides good reason to believe we are closer to cutting nature at an ontological seam than we are for the more labile constructs that populate contemporary mental topographies.

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In 1965 Rozeboom argued for a “wholesale re-examination and tightening up of how we think about psychological phenomena” (p. 330; emphasis in original). To this end, he presented an analysis of the concept “memory” as well as a grammatical examination of its cognates.

Based on his analyses, he concluded that “our propensity for thinking in loose metaphors when we should be trying for carefully wrought sentences that say precisely what we want them to say too often fogs our recognition of the very technical details that are most seminal for further research and theory” (Rozeboom, 1956; p. 363).<sup>9</sup>

It is not my intent to review Rozeboom’s work or to compare his ideas with mine (where points of contact exist, we are in general agreement). Rather, I draw on the ideas outlined in the present article to show that the technical language used to investigate and describe memory phenomena often has considerably less to do with memory than is appreciated by modern memory research.

In what follows, I focus on the use of the cognate “remember”. Among memory scholars, “remember”, first and foremost, is a specific expression of the more general process of “retrieval” featured in the 3-pronged definition of memory. “Remember” is treated as an

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<sup>9</sup> At the time of its publication, Rozeboom anticipated his attempt to diagnose and unravel some of the conceptual confusion attending the word memory would be met with “indifference, incomprehension, and at times open hostility.” (Rozeboom, 1965; p. 329). Unfortunately, his expectation proved prescient: In the 53 years following publication, his article has been cited only 22 times (4 in the past 25 years).

I was not aware of Rozeboom’s work when I wrote my paper “What memory is” (Klein, 2015a). In light of my discovery, I now view my paper, in part, as a long-overdue attempt to call attention to the important message that Rozeboom predicted, with sad accuracy, would be met with indifference.

## Remembering with and without Memory

achievement verb (it also can take noun form; Binnick, 1991) used to designate something subject X does to content Y. Specifically, “X remembers Y” (e.g., that Hartford is the capital of Connecticut; that I ate steak for dinner). And, of definitional necessity, the experiential terminus of this doing is having a memory.

The idea that “to remember is to retrieve memories” is so deeply engrained in the technical language of memory (cf., Mace, 2010) that it essentially is taken as axiomatic. But, scientific presuppositions, however firmly rooted in thought, language and practice, are not inviolable laws: They are postulates that color how we think about nature, not how nature itself is constituted. As Rescher (1984) observes, they are “a matter of the particular systematization of knowledge we find it convenient to adopt.” (p. 11). The sense and reference of the word “remember” – like all memory-words – requires an explicit, rigorous account. Only in this way can we determine the extent to which research on memory “substantiates, refines, repudiates or is otherwise relevant to” (Rozeboom, 1965, p. 332) our presuppositions.

Considered in the context of arguments I have presented, contemporary treatments of “remember” confuse the act of remembering with the object remembered. This confusion is the predictable consequence of the (often tacit) presupposition that “remember” and “memory” are inseparably yoked as process and product. But, as I have argued, remembering does not imply that retrieved content necessarily will result in memorial experience. While remembering makes available content originating from past experience, that content remains state-neutral until it assumes a particular mode of presentation. And that mode does not have to be the feeling that I am re-experiencing “something that happened to me in my past”. It can be experienced as a host of mental states which, though having a causal connection to” something that happened to me in

## Remembering with and without Memory

my past”, are not accompanied by the feeling that I am re-living a past happening. For the outcome of “remembering” to be memory, the “something that happened to me in my past” must be descriptive of both the source of the intentional object and its mode of presentation.

For example, I can remember knowledge (e.g., the song on the radio is a Beatle’s song; I was born in New York), belief (e.g., Jenny is the school’s smartest student; the earth is flat), facts (e.g.,  $2 + 2 = 4$ ; the sun is 93 million miles from the earth that), rules (e.g., a red traffic light means stop; in chess the bishop moves diagonally), skills (e.g., how to ride a bike; how to play a song on piano). Although each of these intentional objects results from an act of remembering, none, with respect to the ideas presented in this article, are examples of the construct “memory”.

I briefly summarize my position. According to the “received view”, remembering is a process in which content retrieved from storage culminates in a memorial experience. In contrast, the position I take – which is a logical consequence of my theory of memory and mind – is that while all memory requires remembering, not all remembering eventuates in memory. To remember means nothing more than state-agnostic content has been made available as an intentional object consciousness under a particular mode of presentation (be it memory, belief, attitude, imagination, skill, etc.).

### Do Amnesic Patients know their own experience?

Unless a proposal can be shown to have consequences for how we think about and conduct research, it runs the risk of being little more than a squabble over semantics. In this regard, a case can be made that my analysis of the construct “remember” seems more a philosophical exercise than a scientific proposal.



## Remembering with and without Memory

While a comprehensive review of the ways in which my construal of “remember” can provide a new and fruitful perspective on issues of longstanding debate in memory research would take me well beyond my page limits, I do want to discuss the consequences of my reconceptualization for one of the more curious phenomena in memory studies – the finding that amnesic patients often demonstrate intact learning despite a professed absence of memorial experience.

Consider, as our example, the case of patient H.M. As a result of a surgical resection of his medial temporal lobes, H.M. was rendered profoundly amnesic for events experienced following his procedure (Scoville & Milner, 1957). Certain aspects of H.M.’s amnesia, however, presented a problem for memory theorists: Despite stating that he lacked memory for any events encountered post-surgically, H.M. nonetheless was able to learn new things (for reviews see Corkin, 2002; Rosenbaum, Murphy, & Rich, 2011). The contrast between H.M.’s anterograde amnesia and his spared learning (as evidenced by performance of newly acquired behaviors) presented a dilemma – how could H.M. remember how to execute newly acquired behaviors if he had no memories related to them? These findings were particularly vexing given the deeply held conviction that “to remember is to have a memory”. Clearly, something was seriously amiss.

An answer began to take form by the early 1970s (e.g., Warrington, & Wieskrantz, 1970). Influenced by the conceptual resources made available by then current philosophical treatment of memory as consisting in multiple, functionally independent systems (for review see Klein, 2015a), the dissociation between H.M.’s absence of memorial experience and his intact learning ability could be accounted for by the idea that (a) memory exists in a variety of types, (b) the

### Remembering with and without Memory

availability of different types of memory can explain performance on different types of tasks (e.g., semantic memory explains how he learns new facts; procedural memory explains he learns new skills; implicit memory explains how he learns to solve priming tasks; e.g., Corkin, 2002; O’Kane, Kensinger, & Corkin, 2004; Schmolck, Kensinger, Corkin, & Squire, 2002), and (c) the type of memory accompanied by a feeling of re-living (i.e., episodic) is the one that has been impacted by his surgical procedure.

But how does this explain the apparent unreliability of H.M.’s introspective reports (i.e., his claim that he has no memory of X despite the ability to perform tasks whose execution requires remembering information about X)? Isn’t uncorrupted access to one’s subjectivity guaranteed by IEM? An explanation is quite simple. H.M.’s faulty reports are not due to a corruption of introspection, but rather to terminological ignorance of the “fact” that many forms of memory do not entail a feeling of re-experiencing. H.M., and patients like him, needs to update his criteria for deciding which experimental states count as a memory.

This explanation of amnesic dissociative behavior is embraced almost universally by contemporary memory theorists (for reviews see Campbell & Conway, 1995; Cermak, 1982; Mayes, 1988; but see Toth & Hunt, 1999). However, I believe a more parsimonious account of is possible. My explanation trades in the construal “remembering” as a process in which state-neutral content is made available to consciousness under a particular mode of presentation -- only one of which culminates in memorial experience (see previous section). From this vantage point, the patient’s behavior and subjective experience march in lockstep: As a consequence of neural insult, content still can be remembered and made available for task performance, but the content is experienced as something other than memory (its phenomenological character is

## Remembering with and without Memory

determined by context and the results of discursive practices of specialized groups for whom these constructs play a role); e.g., as knowledge, fact, belief, intuition, skill. Seen thusly, it is the memory scholar's criteria -- not the patient's -- in need of revision.

## Final Thoughts

“All the world over and at all times there have been practical men, absorbed in ‘irreducible and stubborn facts’; all the world over and at all times there have been men of philosophic temperament, who have been absorbed in the weaving of general principles. It is this union of passionate interest in the detailed facts with equal devotion to abstract generalisation which forms the novelty of our present society.” (Whitehead, 1925, p. 3)

The proper way to use technical language is to do so knowingly – i.e., to conduct a rigorous and carefully delineated examination of the sense and reference of our constructs prior to pushing them into investigative service. Only in this way can we hope to make progress toward determining whether the data we collect refer to things that exist in nature or to things whose existence is contingent on linguistic practices negotiated by the scientific community.

In this paper, I argue that a sustained conceptual analysis of memory and its cognates is seldom found in the psychological and neuroscientific literatures. Rather, professional “understanding” of these constructs is underwritten by a jumble of folk-psychological presupposition and scientific thought -- whose proportions one can only guess. While I have no way to tell whether my efforts to fill this conceptual void have positioned us on a path to genuine understanding, one thing is certain – until we fully embrace the need for a more critical attitude

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3 **Remembering with and without Memory**  
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6 toward our constructs, psychology's claim to being a science will remain an assertion in need of  
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8 defense rather than one of unquestioned acceptance.<sup>10</sup>  
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56 <sup>10</sup> In the service of full transparency, this final line is a paraphrase of a quote I am particularly  
57 fond of but whose source I no longer remember.  
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**Remembering with and without Memory****BOX 1**

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**Notes on some Key Terms used in this Paper**

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In Box 1 I spell out my intended meaning of terms that play a central role in this paper. My reasons for doing so are two-fold. First, these are terms from highly specialized areas of philosophy (e.g., mind, phenomenology, science). Since they are unlikely to be familiar to readers not involved in those research domains, explicit specification of my (perhaps idiosyncratic) usage seems warranted.

Second, many of these terms have several (colloquially accepted) uses (e.g., experience, mind, content); accordingly, a precise treatment of their in-text sense establishes a common reference base. While not everyone will agree with my definitions, there should be little question of the meanings I intend.

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1. Consciousness. Consciousness comes in many kinds (e.g., sentience, access consciousness, noetic consciousness, temporal consciousness, phenomenal consciousness; e.g., Klein, 2012). My use of the term consists in the proposition that X is conscious if and only if there is “something it is like” for the organism to be in that state (e.g., Nagel, 1974). That is,

## Remembering with and without Memory

consciousness consists in first-person *experience* (see below). This usage is what most philosophers have in mind when discussing phenomenal consciousness.

2. Mental State: X is a mental state only if and only if there is “something it is like” for the organism to have the mental state. A mental state contains both content (e.g., objects of consciousness) as well as qualitative (i.e., the subjective feel of the content) aspects. It is thus the experiential (see below) outcome of a process (or set of processes) that can have non-experiential aspects. While these non-experiential preconditions are necessary for realizing the mental state, they are non-mental in the sense that they are mechanisms that help make experience possible, but are not the experience per se – that is, as it is felt. They conceivably could go on without there being any experience. An analogy may help: A play consists in a great deal of behind the scenes activity (e.g., funding, auditions, permits), but, strictly speaking, none of this activity is the play per se. All mental states are experiential in the sense described in item 4.

Important note: In this paper I restrict usage of the term “mental state” to situations in which the intentional object refers to content retrieved into consciousness. The term is not meant to refer to circumstances in which the intentional object originates from an occurrent act of perception or sensation. In actuality, the term “mental state” describes equally well both situations. My motivation for selective application is not based on theory or convention. Rather, it is done for expository convenience (the arguments I present in the text pertain only to the former usage)

## Remembering with and without Memory

3. Mind. Mind is the collection of sub-experiential processes required for having a mental state and the mental states they enable.

4. Experience: Experience is the qualitative aspect of the mental states you are having right now. Experience is what most philosophers have in mind when they talk about consciousness. In my usage, all experience is conscious experience. While some who use the term “experience” have in mind sensation (e.g., pain) and perception (e.g., that tree over there), experience, as I use the term, can take as its intentional object (see item 6) such things as thought, belief, memory and other mental content. In this way, experience can be cognitive as well as sensory.

5. Experience and Feeling: Although some philosophers hold that a feeling is an additional mental item accompanying the experienced content of a mental state, for my purposes nothing substantive rides on this distinction. Accordingly, when I use the term “feeling” I refer to the qualitative mode in which a mental state is apprehended. In my sense, all experience is felt – i.e., it is the particular “what it is like-ness” of the mental state you are having right now.

6. Mental Content, Intentional Objects and Mode of Presentation. A distinction can (and should) be drawn between the intentional objects of consciousness and the content to which those objects refer or are directed. Content refers to any neurally-realized material of interoceptive or exteroceptive origin (after initial registration, this material often undergoes extensive reworking; e.g., Bartlett, 1932). When presented to consciousness, content becomes its intentional object. The intentional object refers to the proposition that all conscious experiences have objects (i.e., content) to which they refer -- that is, they are about something (e.g., Brentano, 1995; Smith, 1989). Thus, while every conscious experience takes some content as its



## Remembering with and without Memory

intentional object, not all content is realized as an intentional object (e.g., it becomes an intentional object if and only if it is presented to consciousness. Otherwise it exists solely in a non-experiential property of mind).

The way in which content is presented to consciousness is referred to as the content's mode of presentation. This is determined by the content presented to consciousness and the manner in which that content is characterized (i.e., its phenomenological sense). For instance, depending on the mode of presentation, the same content can be taken by consciousness as a memory, belief, knowledge, precept, etc. In the case of memory, mode of presentation (i.e., subjective colouring) derives from two related, but independent, sources: (a) The content taken as the intentional object of consciousness is felt to be a direct, non-inferential re-experiencing of the past (subjective past temporality), and (b) the feeling of personal ownership – i.e., the occurrences and experiences reflected by the intentional object happened to me in my past. The claim of independence is secured by findings that individuals can (a) experience past-oriented subjective temporality absent a feeling of personal ownership (e.g., Klein, 2013a, 2016b; Klein & Nichols, 2012), and (b) experience personal ownership absent a feeling of temporal reference (e.g., Klein, 2014c, 2016b; Klein & Steindam, 2016).

7. Precondition: I occasionally will talk about non-mental preconditions (e.g., the operations of encoding, storage and retrieval). These preconditions, though necessary for a mental state are not sufficient for its realization as experience (see item 2). They are “building blocks” that can, when combined in the proper manner with a particular subjective context (e.g., temporally propertied and personally owned) eventuate in a particular mental state (e.g., a memory).

## Remembering with and without Memory

The building block metaphor may help unpack my intended meaning. Encoding, storage and retrieval (to use “memory” as my example) can be viewed as the building blocks that, when conjoined with the proper “instructions” (internal or external context; pre-existing neural pathways, etc.) and subjective feelings of pastness, result in a memorial experience. But these building blocks, are no more “memory” than a collection of building material and a set of blueprints is a house. Under different circumstances (different contexts, different plans, and so on) they can be used to “construct” any number of mental and non-mental outcomes. They are necessary, not sufficient.

8. Presuppositions in Science. Presuppositions are widely held, but largely unexamined, beliefs about a construct. While these beliefs often play a substantial role in determining the questions we ask nature, they are not facts or truths discovered in virtue of critical analyses of the answers we receive. Some presuppositions may facilitate the performance of scientific inquiry, but, importantly, they are not formally part of science.

**Abstract**

This article builds on ideas presented in Klein (2105a) concerning the importance of a more nuanced, conceptually rigorous approach to the scientific understanding and use of the construct “memory”. I first summarize my model, taking care to situate discussion within the terminological practices of contemporary philosophy of mind. I then elucidate the implications of the model for a particular operation of mind – the manner in which content presented to consciousness realizes its particular phenomenological character (i.e., mode of presentation). Finally, I discuss how the model offers a reconceptualization of the technical language used by psychologists and neuroscientists to formulate and test ideas about memory.