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types of memory. Hippocampal location and regions Areas of the hippocampus are shown to be functionally and anatomically distinct. The dorsal hippocampus DH , ventral hippocampus VH and intermediate hippocampus serve different functions, project with differing pathways, and have varying degrees of place cells. Using the radial arm maze , lesions in the DH were shown to cause spatial memory impairment while VH lesions did not. Its projecting pathways include the medial septal nucleus and supramammillary nucleus. This region has the smallest number of place cells. The ventral hippocampus functions in fear conditioning and affective processes. There continues to be some interest in hippocampal olfactory responses, in particular, the role of the hippocampus in memory for odors, but few specialists today believe that olfaction is its primary function. The first of these, the linkage between the hippocampus and memory, derived its main impetus from a famous report by William Beecher Scoville and Brenda Milner [33] describing the results of surgical destruction of the hippocampi in an attempt to relieve epileptic seizures , in Henry Molaison , [34] known until his death in as "Patient H. This case attracted such widespread professional interest that Molaison became the most intensively studied subject in medical history. There is now universal agreement that the hippocampi play some sort of important role in memory; however, the precise nature of this role remains widely debated. It derived much of its justification from two observations: In some studies, these areas have been expanded to the point of near convergence. So that the function of the hippocampus can be viewed as a broader system that incorporates both the memory and the spatial perspectives in its role that involves the use of a wide scope of cognitive maps. The anterior hippocampus is seen to be involved in decision-making under approach-avoidance conflict processing. It is suggested that the memory, spatial cognition, and conflict processing functions may be seen as working together and not mutually exclusive. Amnesia Psychologists and neuroscientists generally agree that the hippocampus plays an important role in the formation of new memories about experienced events episodic or autobiographical memory. This is partly why returning to a location where an emotional event occurred may evoke that emotion. There is a deep emotional connection between episodic memories and places. If damage to the hippocampus occurs in only one hemisphere, leaving the structure intact in the other hemisphere, the brain can retain near-normal memory functioning. Although the retrograde effect normally extends many years back before the brain damage, in some cases older memories remain. This retention of older memories leads to the idea that consolidation over time involves the transfer of memories out of the hippocampus to other parts of the brain. This fact suggests that such abilities depend on different types of memory procedural memory and different brain regions. Furthermore, amnesic patients frequently show "implicit" memory for experiences even in the absence of conscious knowledge. For example, patients asked to guess which of two faces they have seen most recently may give the correct answer most of the time in spite of stating that they have never seen either of the faces before. Some researchers distinguish between conscious recollection, which depends on the hippocampus, and familiarity, which depends on portions of the medial temporal lobe.

Place cell Image 6: Spatial firing patterns of 8 place cells recorded from the CA1 layer of a rat. The rat ran back and forth along an elevated track, stopping at each end to eat a small food reward. Dots indicate positions where action potentials were recorded, with color indicating which neuron emitted that action potential. Studies on freely moving rats and mice have shown many hippocampal neurons to act as place cells that cluster in place fields, and these fire bursts of action potentials when the animal passes through a particular location. This place-related neural activity in the hippocampus has also been reported in monkeys that were moved around a room whilst in a restraint chair. Other cells in smaller proportion are inhibitory interneurons and these often show place-related variations in their firing rate which are much weaker. There is little if any spatial topography in the representation; in general, cells lying next to each other in the hippocampus have uncorrelated spatial firing patterns. Place cells are typically almost silent when a rat is moving around outside the place field but reach sustained rates as high as 40 Hz , when the rat is near the center. The size of place fields varies in a gradient along the length of the hippocampus, with cells at the dorsal end showing the smallest fields, cells near the center showing larger fields, and cells at the ventral tip showing fields that cover the entire environment. They were undergoing an invasive procedure to

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localize the source of their seizures , with a view to surgical resection. The patients had diagnostic electrodes implanted in their hippocampus and then used a computer to move around in a virtual reality town. A study showed that the posterior part of the hippocampus is larger in these drivers than in the general public, and that a positive correlation exists between the length of time served as a driver and the increase in the volume of this part. It was also found the total volume of the hippocampus was unchanged, as the increase seen in the posterior part was made at the expense of the anterior part, which showed a relative decrease in size. There have been no reported adverse effects from this disparity in hippocampal proportions. The anterior part of the right hippocampus was larger and the posterior part was smaller, comparing with sighted individuals. Together these cells form a network that serves as spatial memory. The first of such cells discovered in the s were the place cells, which led to the idea of the hippocampus acting to give a neural representation of the environment in a cognitive map. Getting lost is a common symptom of amnesia. These have been assigned as head direction cells , grid cells and boundary cells. Role in approach-avoidance conflict processing[edit] Further information: Reward system Approach-avoidance conflict happens when a situation is presented that can either be rewarding or punishing, and the ensuing decision-making has been associated with anxiety. Overall findings showed that the anterior hippocampus is sensitive to conflict, and that it may be part of a larger cortical and subcortical network seen to be important in decision making in uncertain conditions. The authors suggest that a challenge is to understand how conflict processing relates to the functions of spatial navigation and memory and how all of these functions need not be mutually exclusive. Each plot shows 20 seconds of data, with a hippocampal EEG trace at the top, spike rasters from 40 simultaneously recorded CA1 pyramidal cells in the middle each raster line represents a different cell , and a plot of running speed at the bottom. The top plot represents a time period during which the rat was actively searching for scattered food pellets. For the bottom plot the rat was asleep. The hippocampus shows two major "modes" of activity, each associated with a distinct pattern of neural population activity and waves of electrical activity as measured by an electroencephalogram EEG. These modes are named after the EEG patterns associated with them: The main characteristics described below are for the rat, which is the animal most extensively studied. An active cell typically stays active for half a second to a few seconds. As the rat behaves, the active cells fall silent and new cells become active, but the overall percentage of active cells remains more or less constant. In many situations, cell activity is determined largely by the spatial location of the animal, but other behavioral variables also clearly influence it. The LIA mode appears during slow-wave non-dreaming sleep, and also during states of waking immobility such as resting or eating. Sharp waves are frequently generated in sets, with sets containing up to 5 or more individual sharp waves and lasting up to ms. The spiking activity of neurons within the hippocampus is highly correlated with sharp wave activity. There are, however, qualitatively similar sharp waves and similar state-dependent changes in neural population activity. Theta wave Image 8:

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Chapter 2 : Episodic memory - Wikipedia

Zones of Convergence Between Different Sciences. Why Other Animals Lack Autobiographical Memory. Part 2. Development of Autobiographical Memory and the Brain.

Recognizing a person is a complex matter. There are several different types of memory code for identity information. Improving your memory for people requires you to improve the connections between these memory codes. And the reason for this is not that their memory is poor, but because it is so embarrassing when their memory lets them down. Nothing makes a person “a client, a customer, a student” feel more valued than being remembered. Think about the ease with which you distinguish between hundreds, even thousands, of human faces, and then think about how hard it is to distinguish between the faces of birds, or dogs, or monkeys. This is not because human faces are any more distinctive than the faces of other animals. Think about how much harder it is for you to distinguish between the faces of people of an unfamiliar racial type. Contrary to what many European-descended people believe, Asian faces are no less distinctive than European faces, but the differences between any human face are sufficiently subtle that they take a great deal of experience to learn. The importance of learning these subtle differences is shown in the way new babies focus on faces, and prefer them to other objects. Our memory for other people is of course more than a memory for faces, although that part probably has the most impressive capacity. We can recognize people by hearing their voice, at a distance by seeing their shape or the way that they move, or even by their clothing. Many years ago, when I was in my second year at university, I left the student cafeteria and nearly bumped into a young woman in a white lab coat. I murmured some sort of apology and started to move on, and she said my name. I stared at her blankly. I still remember staring at her unfamiliar face, and then the features seemed to shift under my eyes. It was very weird. Suddenly I knew her. I was mortified, and stunned. How could I not immediately recognize her? Identity information is complex Identity information is encoded in memory in quite complex ways. To more effectively use those codes, to improve your memory for names, faces, and important personal details, it helps to understand how identity information is recorded in memory. While this sounds terribly obvious, there is actually a clinical condition the Capgras delusion whereby a person, while recognizing the people around them, believes they have been replaced by doubles imposters, robots, aliens. This is simply because the normal accompanying feeling of familiarity is missing. This is because names are held in a separate place to biographical details, and can only be accessed through those details. Identity codes and how they are structured in memory Why is there this hierarchy? Why can we only access names through biographical information? Because identity information is ordered. Your memory for a person is not like this: In other words, there are several different kinds of identity information, and they are clustered according to type, and can in fact only be accessed in a particular order. Of the various identity codes bits of encoded identity information , there are three kinds that are important for recognizing a person: Visually-derived semantic codes are useful for remembering new faces because the link with the physical features of the face is strong and meaningful. However you cannot identify a person without reference to the biographical codes. The interesting aspect of these different codes is that you can only access them in a particular order: Whether the name is recalled therefore depends on the strength of the connection between the biographical details and the name. A fascinating account of what it is like to be face-blind, from a person with the condition, can be found at:

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Chapter 3 : Identity memory | About memory

Contents: A new approach to viewing memory -- Zones of convergence between different sciences -- Why other animals lack autobiographical memory -- Interdependent development of memory and other cognitive and emotional functions -- Development of learning and memory: the prenatal period and the first months of life -- The first quantum leap in.

Subjects Description Autobiographical memory constitutes an essential part of our personality, giving us the ability to distinguish ourselves as an individual with a past, present and future. This book reveals how the development of a conscious self, an integrated personality and an autobiographical memory are all intertwined, highlighting the parallel development of the brain, memory and personality. Focusing strongly on developmental aspects of memory and integrating evolutionary and anthropological perspectives, areas of discussion include: This book offers a unique approach through combining both neuroscientific and social scientific viewpoints, and as such will be of great interest to all those wanting to broaden their knowledge of the development and acquisition of memory and the conscious self. Reviews "The Development of Autobiographical Memory is at an appropriate level for reading in graduate seminars. The book is also appropriate for researchers in areas of brain, memory, language, cognition, and social development. Balaban in PsycCRITIQUES "This brilliant new integrative account of human memory comprehensively traces the emergence of autobiographical memory in ontogeny via brain development and its essential social-cultural milieu of human communication and language. Their formative ontogeny approach provides new findings and unique insights on human memory over the lifespan that will be of interest to experts and newcomers to the area alike. It should attract a wide audience of professionals in various disciplines concerned with the distinctively human aspects of memory, from neurobiology to the social sciences and humanities. An Interdisciplinary View of Memory. A New Approach to Viewing Memory. Zones of Convergence Between Different Sciences. Development of Autobiographical Memory and the Brain. A Lifelong Developmental Task. Development of Learning and Memory: Exploring Autobiographical Memory in Young Children. A Continuity in Transformation. The Age at Which Memory Occurs: A Formative Theory of Memory Development. Memory at Advanced Ages. About the Authors Hans J.

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Chapter 4 : The Development of Autobiographical Memory : Janis S. Bohan :

Part 1. An Interdisciplinary View of Memory. A New Approach to Viewing Memory. Zones of Convergence Between Different Sciences. Why Other Animals Lack Autobiographical Memory. Part 2. Development of Autobiographical Memory and the Brain. Interdependent Development of Memory and Other Cognitive and.

Nine properties[edit] There are essentially nine properties of episodic memory that collectively distinguish it from other types of memory. Other types of memory may exhibit a few of these properties, but only episodic memory has all nine: Often represented in the form of visual images. They always have a perspective field or observer. Represent short time slices of experience. They are represented on a temporal dimension roughly in order of occurrence. They are subject to rapid forgetting. They make autobiographical remembering specific. They are recollectively experienced when accessed. Cognitive neuroscience[edit] The formation of new episodic memories requires the medial temporal lobe , a structure that includes the hippocampus. Without the medial temporal lobe, one is able to form new procedural memories such as playing the piano but cannot remember the events during which they happened See the hippocampus and memory. The prefrontal cortex and in particular the right hemisphere is also involved in the formation of new episodic memories also known as episodic encoding. Patients with damage to the prefrontal cortex can learn new information, but tend to do so in a disordered fashion. For example, they might show normal recognition of an object they had seen in the past, but fail to recollect when or where it had been viewed. Others believe that the prefrontal cortex underlies semantic strategies which enhance encoding, such as thinking about the meaning of the study material or rehearsing it in working memory. Some researchers believe that episodic memories always rely on the hippocampus. Others believe the hippocampus only stores episodic memories for a short time, after which the memories are consolidated to the neocortex. The latter view is strengthened by recent evidence that neurogenesis in the adult hippocampus may ease the removal of old memories and increase the efficiency of forming new memories. The agent is provided with a means of associating previous feelings with current situations. Semantic memory , on the other hand, is a structured record of facts, concepts, and skills that we have acquired. Semantic information is derived from accumulated episodic memory. Episodic memory can be thought of as a "map" that ties together items in semantic memory. For example, all encounters with how a "dog" looks and sounds will make up the semantic representation of that word. All episodic memories concerning a dog will then reference this single semantic representation of "dog" and, likewise, all new experiences with the dog will modify the single semantic representation of that dog. Together, semantic and episodic memory make up our declarative memory. As such, something that affects episodic memory can also affect semantic memory. For example, anterograde amnesia , from damage of the medial temporal lobe, is an impairment of declarative memory that affects both episodic and semantic memory operations. However, this theory was rejected when Howard and Kahana completed experiments on latent semantic analysis LSA that supported the opposite. Instead of an increase in semantic similarity when there was a decrease in the strength of temporal associations, the two worked together so semantic cues on retrieval were strongest when episodic cues were strong as well. Memory and aging Episodic memory emerges at approximately 3 to 4 years of age. Relationship to emotion[edit] The relationship between emotion and memory is complex, but generally, emotion tends to increase the likelihood that an event will be remembered later and that it will be remembered vividly. Flashbulb memory is one example of this. An example of this would be an experience such as a close family member dying or the Christmas that you got the exact toy you wanted as a kid. The experience holds so much emotional significance that it is encoded as an extremely vivid, almost picture-perfect memory. However, whether the vividness of the flashbulb memory is due to a virtual "flash" that occurs because of the emotional experience has been hotly contested. Flashbulb memories may occur because of our propensity to rehearse and retell those highly emotional events, which strengthens the memory. A recent placebo controlled study found that DHEA , which is a functional cortisol antagonist, improves episodic memory in healthy

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young men Alhaj et al. A rare type of shellfish poisoning called amnesic shellfish poisoning or "ASP" quite effectively and irreversibly damages the hippocampus, rendering one amnesic. An acute cortisol level by injection has been found to significantly inhibit the recall of autobiographical memories [26] which may contribute to memory deficits found in depression. Episodic-like memory Tulving proposed that to meet the criteria of episodic memory, evidence of conscious recollection must be provided. Demonstrating episodic memory in the absence of language, and thus in non-human animals, is impossible, because there are no agreed upon non-linguistic behavioral indicators of conscious experience Griffiths et al. This idea was first challenged by Clayton and Dickinson in their work with the western scrub jay *Aphelocoma californica*. They were able to demonstrate that these birds may possess an episodic-like memory system as they found that they remember where they cached different food types, and discriminately recovered them depending on the perishability of the item and time that elapsed since caching. Thus, scrub-jays appear to remember the "what-where-and-when" of specific past caching events. The authors argued that such performance meets the behavioral criteria for episodic memory, but referred to the ability as "episodic-like" memory because the study did not address the phenomenological aspects of episodic memory. After a study done by the University of Edinburgh, hummingbirds were the first animal to demonstrate two of the aspects of episodic memory—the ability to recall where certain flowers were located and how recently they were visited. Other studies have demonstrated this type of memory in different animal species, such as dogs, [29] [30] rats, honey bees, and primates. The ability of animals to encode and retrieve past experiences relies on the circuitry of the medial temporal lobe, a structure including the hippocampus. Animal lesion studies have provided significant findings related to the importance of particular brain structures in episodic-like memory. For example, hippocampal lesions have severely impacted all three components what, where, and when in animals, suggesting that the hippocampus is responsible for detecting novel events, stimuli, and places when forming new memories and on retrieving that information later on. Despite similar neural areas and evidence from experiments, some scholars remain cautious about comparisons to human episodic memory. Similarities and differences between humans and other animals are currently much debated. Memory is constructive, where previous experience affects how we remember events and what we end up recalling from memory. Autobiographical memory is constructive and reconstructed as an evolving process of history. People recall few personal events from the first years of their lives. The loss of these first events is called childhood or infantile amnesia. People tend to recall many personal events from adolescence and early adulthood. This effect is called the reminiscence bump. Additionally, people recall many personal events from their previous few years. For adolescents and young adults the reminiscence bump and the recent events can coincide.

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Chapter 5 : domains | About memory

Focusing strongly on developmental aspects of memory and integrating evolutionary and anthropological perspectives, areas of discussion include: why non-human animals lack autobiographical memory development of the speech areas in the brain.

The Metaphysics of Memory: An Overview More than any other area, the metaphysics of memory reflects the trend towards interdisciplinarity noted above, and work in this area sometimes shades into philosophy of psychology Rowlands and philosophy of neuroscience Bickle Relevant work in the philosophy of psychology is discussed here as appropriate; for more specialized work in the philosophy of neuroscience, see the entry on that topic. The central aim of mainstream research on the metaphysics of memory is to develop a theory of remembering: As we will see, however, there are multiple kinds of memory. It is unclear whether it is feasible to develop a theory of remembering that applies to all of these, and ultimately it may prove necessary to develop multiple theories of remembering, corresponding to the multiple kinds of memory. Something similar may go for the epistemology of memory [Teroni]. The terminology may be new, but the focus is not Brewer Episodic memory is, roughly, memory for the events of the personal past, and, starting at least with Aristotle Sorabji and continuing with early modern philosophers including Locke , Hume [] , and Reid [] , philosophers have singled episodic memory out for special attention on the ground that it provides the rememberer with a unique form of access to past events. Reflecting this focus, this entry will be concerned primarily with theories of episodic remembering: Due, perhaps, to their focus on episodic memory, philosophers have generally approached memory as a capacity exercised by single individuals. But recent work in a variety of disciplines has begun to challenge the individualistic approach, and the metaphysics of memory has come to include issues arising from the tradition of research on collective memory in the human and social sciences which traces back to Halbwachs [] ; cf. While the entry is concerned primarily with individual memory, these more recent issues will be discussed as well. Kinds of Memory Before turning to theories of episodic remembering, it will be helpful to situate episodic memory with respect to other kinds of memory. Despite the breadth of the category, however, there is an approximate consensus on a taxonomy of kinds of human memory. In early treatments, Bergson [] and Russell , for example, distinguished between habit memory and recollective memory, while Broad and Furlong further distinguished between recollective memory and propositional memory cf. These distinctions align reasonably well with those drawn by a taxonomy which, originating in psychology, has increasingly become standard in more recent philosophy. Declarative memory, in turn, is divided into episodic memory, corresponding roughly to recollective memory, and semantic memory, corresponding roughly to propositional memory. It is crucial to note, however, that semantic memory is also sometimes concerned with past events. One can have memories that concern events that one did not oneself experience I remember that my colleague spoke at a workshop in Rome, though I did not hear him speak ; when one does, one remembers semantically, not episodically. Similarly, one can have memories that concern events that one did experience but that are of the same kind as memories for events that one did not experience I remember that I visited the CN Tower when I was a child, but only because my parents later related the story to me ; when one does, one likewise remembers semantically, not episodically. Thus the first-pass distinction between episodic and semantic memory does not get us very far. Drawing a more adequate distinctionâ€”providing a criterion of episodicityâ€”is a core problem for the theories of episodic remembering discussed below. Beyond this negative feature, the various kinds of nondeclarative memory may not have much in common with each other. It also includes procedural memory, corresponding roughly to habit memory, the kind of memory at work when a subject manifests his ability to perform a skilled action I remember how to ride a bicycle. There is relatively little philosophical research on procedural memory, and this kind of memory will not be discussed in any detail here. This should not, however, be taken to imply that it is not of major philosophical interest. In epistemological terms, while declarative memory maps onto the

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category of knowledge that, procedural memory maps onto the category of knowledge how: Future research on procedural memory might therefore build on classic Ryle [] and contemporary Stanley work on the relationship between knowledge that and knowledge how. While enactivist approaches will not be discussed any further here, it should be noted there is potential for convergence between these approaches and older Wittgensteinian approaches to memory. This resonates with the enactivist insistence on the centrality of action to cognition, but connectionist readings of Wittgenstein on memory Stern have also been proposed, and it remains to be seen whether supplementing enactivist approaches with Wittgenstein will shed any additional light on the nature of remembering Sutton In psychology, Atkinson and Shiffrin proposed a multi-store model in which kinds of memory are distinguished in terms of their temporal duration. Ultra short term memory refers to the persistence of modality-specific sensory information for periods of less than one second. Short term memory refers to the persistence of information for up to thirty seconds; short term memory, which receives information from ultra short term memory, is to some extent under conscious control but is characterized by a limited capacity. Long term memory refers to the storage of information over indefinitely long periods of time; long term memory receives information from short term memory and is characterized by an effectively unlimited capacity. Though this taxonomy does not distinguish among importantly different kinds of long term memoryâ€”in particular, it does not distinguish between episodic and semantic memoryâ€”it has been applied productively in psychological research. He thus distinguishes among memory for objects, memory for properties, memory for events, and memory for propositions or facts. While a grammatical approach will strike many in philosophy as natural, this particular taxonomy has so far not been taken up very widely. This may be due in part to the fact that, because the basis for the taxonomy is purely linguistic, it has difficulty distinguishing between episodic memory as such, which is arguably characterized by a particular phenomenology, and mere event memory, which lacks this phenomenology Schechtman There is some philosophical research on working memory Block ; Carruthers ; Feest , but the topic has so far been largely unexplored in mainstream philosophy of memory, and it will therefore not be discussed any further in this entry. Failures in prospective memory are of considerable everyday significance and often cause some personal concern. Prospective memory has not yet been addressed much in philosophy, but this is likely to change given its relevance to understanding links between intention and action and to other forms of future-oriented thought. There is a good deal of philosophical research on autobiographical memory, often drawing on accounts of narrativity. The relationship between autobiographical memory and other kinds of memory is described in different ways by different authors, but in most cases autobiographical memory is treated as a complex capacity that emerges through the interaction of more basic kinds of memory. It is thus unlikely to be a kind of memory on a par with those acknowledged by the standard taxonomy, which correspond to specific brain systems. Existing accounts of autobiographical memory are discussed in section 7 below. Many of these are defined in terms of specific laboratory tasks and are unlikely to qualify as natural kinds Tulving , kinds that carve natureâ€”in this case, the mindâ€”at its joints. But even if only the kinds acknowledged by the standard taxonomy are considered, it is not obvious whether any particular kind of memory, never mind memory as a whole, is a natural kind. The obvious starting point here is the view that memory is indeed a natural kind. Michaelian b has, however, suggested that memory is not a natural kind, arguing that, because only declarative memory involves the encoding, storage, and retrieval of content, declarative and nondeclarative memory are sharply distinct from each other. This is consistent with the view that declarative memory is a natural kind, but Klein has rejected even the latter view, claiming that, because episodic memory necessarily involves a particular phenomenology, episodic memory and semantic memory are sharply distinct. If this suggestion is right, then declarative memory may after all be natural kind. But even if declarative memory turns out not to be a natural kind, episodic memory might still be a natural kind. While there is some work on the question of the natural kindhood of episodic memory, the question of the natural kindhood of kinds of memory other than episodic memory remains almost entirely unexplored. According to systems views, memory consists of multiple independent systems which interact in various ways. According

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to process views, in contrast, memory is a unitary capacity which is employed in different ways in response to different demands. The once-lively debate between partisans of systems views and partisans of process views has now largely died down. It has not, however, been clearly resolved in favour of either camp, and progress towards resolving it might be made by bringing the available evidence into contact with detailed theories of natural kinds.

Episodicity As noted above, the kind of memory on which most recent work has focussed is episodic memory. Episodic memory is, roughly, memory for the events of the personal past, but not just any way of thinking about an event from the personal past amounts to episodically remembering it. On the one hand, it is possible, as noted above, for a subject to remember an event not only episodically but also semantically. Thus one core problem for a theory of episodic remembering is to distinguish between episodic memory and semantic memory, that is, to provide a criterion for the episodicity of episodic memory. The present section discusses attempts to solve this problem, which has received a great deal of attention in recent years. On the other hand, it is possible not only to remember an event but also to imagine it. Thus another core problem for a theory of episodic remembering is to distinguish between episodic memory and episodic imagination, that is, to provide a criterion for the mnemicity of episodic memory. Section 4 discusses attempts to solve this problem, which has historically received more attention. Episodic memory was thus distinguished from semantic memory in terms of the kind of first-order content with which it is concerned. This first-order content-based approach to episodicity is appealingly straightforward, but it fails to acknowledge that semantic memory can also provide information about particular past events. It fails, moreover, to capture what has seemed to many to be the most distinctive feature of episodic memory, namely, its characteristic phenomenology. In light of these problems, many researchers have abandoned first-order content-based approaches in favour of the second-order content-based and phenomenological approaches discussed below. Some researchers, however, particularly those interested in animal memory, continue to employ first-order content-based approaches. The second-order content-based approach, as we will see, imposes significant conceptual demands on rememberers, demands which animals are unlikely to meet. And the phenomenological approach is straightforwardly inapplicable to animal memory, since we lack access to animal phenomenology. The what-where-when criterion of episodicity, in contrast, is experimentally tractable, and research employing it has furnished important insights into the abilities of various nonhuman species to remember past events. These approaches thus distinguish episodic memory from semantic memory in terms of the self-reflexive character of its content. The self-reflexivity criterion of episodicity is intuitively appealing, but it is not without potentially problematic implications. It implies, as noted above, that nonhuman animals as well as young children are incapable of remembering episodically, since only creatures with relatively sophisticated conceptual capacities—“including the ability to represent past times as past and to represent the self as an enduring entity”—are capable of entertaining the relevant second-order contents. It also implies that there is a major difference between the contents of retrieved memories and the contents of the corresponding original experiences, since it sees memories as including content—“namely, their second-order, self-reflexive component”—that is not included in experiences. Dalla Barba , Phenomenological approaches have likewise long been popular in philosophy. Hume [], for example, argued that memory is accompanied by a feeling of strength and liveliness. Russell associated memory with a feeling of familiarity and a feeling of pastness. And Broad argued, more specifically, that the feeling of pastness is inferred from the feeling of familiarity. In the contemporary literature, Dokic has argued that episodic memory involves an episodic feeling of knowing. The feeling of knowing, as usually understood, refers to the sense that one will be able to retrieve needed information from memory. The concept of an episodic feeling of knowing is thus close to the concept of auto-noetic consciousness first proposed by Tulving b. Auto-noesis refers to the consciousness of the self in subjective time—“which can be roughly described as a feeling of mentally travelling through time to reexperience an event”—that is characteristic of episodic remembering. Klein has made a forceful case for treating auto-noesis as a criterion of episodicity, and the idea that a sense of mentally travelling through time is the distinguishing mark of episodic memory fits well with our first-hand experience of the reexperiential

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character of remembering. This idea does, however, raise a number of difficult issues. One such issue concerns the relationship of autooetic consciousness to other forms of consciousness. Tulving contrasts autooetic self-knowing consciousness with noetic knowing and anoetic nonknowing consciousness, where noetic consciousness refers to the consciousness of remembering that accompanies semantic memory and anoetic consciousness refers to a basic awareness of ongoing experience. Another issue concerns the role of autooesis in forms of mental time travel other than episodic memory. This would undermine its status as a criterion of episodocity, but, regardless of whether autooesis is taken to be a necessary or only a contingent feature of episodic memory, it is not immediately obvious why we should be capable of autooetic episodic memory—“as opposed to mere what-where-when memory”—at all. Indeed, accounting for any form of episodic memory in functional terms has proven to be a difficult challenge, and researchers have proposed a range of past-oriented, future-oriented or counterfactual, and metacognitive accounts. The thought behind such accounts is that it is adaptively beneficial to have access to information about particular past events, as opposed to the recurrent features of events that are reflected in semantic or procedural memory; such information might, for example, enable us to reevaluate general impressions of others formed on the basis of their past behaviour Klein et al. Past-oriented accounts are plausible as far as the function of what-where-when memory is concerned, but they do not identify a function that could be performed only when what-where-when information is accompanied by autooetic consciousness. The thought behind such accounts is that it is adaptively beneficial to prepare for future events by directly anticipating them in episodic future thought or by considering alternative outcomes to past events in episodic counterfactual thought; the ability to remember past events can then be explained as a byproduct of the ability to imagine future or counterfactual events. In line with these accounts, it has been suggested that future-oriented mental time travel may contribute to reducing delay discounting Boyer Future-oriented and counterfactual accounts, like past-oriented accounts, are plausible as far as the function of what-where-when memory is concerned but do not identify a function that could be performed only when what-where-when information is accompanied by autooetic consciousness.

Chapter 6 : The development of autobiographical memory | Search Results | IUCAT

following MTL damage in humans and other animals. Stanclard consolidation theory (SCT) states that the role of the MTL in memory, particularly that of the hippo-.

Chapter 7 : The Development of Autobiographical Memory: 1st Edition (Paperback) - Routledge

‘Memory’ is a label for a diverse set of cognitive capacities by which humans and perhaps other animals retain information and reconstruct past experiences, usually for present purposes. Autobiographical memory is a complex and multiply determined skill, consisting of neurological, social, cognitive.

Chapter 8 : Autobiographical memory Essays

Coupling this with our autobiographical memory, it is easy to see how we have the best memories in the animal kingdom. I may have not mentioned this, but we are practically born to learn from our parents, and transmit that to our children.

Chapter 9 : Memory (Stanford Encyclopedia of Philosophy)

other animals are more complex organisms, depending on richer informa- tion about our environments, and the relative stability of these environ- ments means that the past carries potential information about the present.