# Part I

# Introduction

# 1

# The Act of Remembering the Past

*An Overview*

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One could argue that the quest to understand remembering (autobiographical memory retrieval) is central to the quest to understand autobiographical memory. One could also argue that understanding the processes of autobiographical recall might also be important to an understanding of more general cognition. For example, it is fairly easy to see how constructing a thought or solving a problem may involve many of the same mental (and perhaps neural) operations as reconstructing a past experience. While the importance of retrieval to memory and cognition has been noted by numerous other writers (too numerous to list), autobiographical memory retrieval may have a greater place in this larger aspect of the quest, given the complexity of information that has to be assembled in order to experience a memory of the past, including the knowledge, awareness, or feeling that one is "re-experiencing" a past event (Tulving, 1985).

The chapters contained in this book advance the quest to understand remembering, as they tackle many of the problems that face the science of remembering. In this first chapter, I briefly review the concept of autobiographical memory and, as this is the first chapter of a collective of works, I devote most of it to highlighting many of the major questions raised by the various authors.

## Autobiographical Memory in Brief

Although the recognition of autobiographical memory (in one form or another) has a long scholarly history in psychology and philosophy (see an excellent history in Brewer, 1986), the formal study of it is relatively recent, growing out of Tulving's (1972) introduction of the episodic/semantic memory distinction, and Neisser's (1978) plea to memory researchers to take up the study of ecologically valid forms of memory (or real-world memory phenomena). Although the terms episodic memory and autobiographical memory are often used synonymously, autobiographical memory takes in a wider range of personal knowledge forms than was originally conceived in the early views of episodic memory.

For example, autobiographical memories encompass discrete forms of abstract knowledge about the self (e.g., "knowing that I lived in Philadelphia growing up"), general or summary (i.e., repeated events) forms of personal knowledge (e.g., "my trip to London in 2005," "Sunday walks in Central Park"), and, of course, memories for discrete, specific experiences (e.g., "seeing the mummies at the British Museum during my London trip," a quintessential episodic memory; see early treatments in Barsalou, 1988; Brewer, 1986). Conway (1996, 2006) has proposed that these different forms of personal knowledge are organized in a networked fashion in a memory system that he calls the *self memory system*. In the self memory system, different forms of autobiographical knowledge are layered hierarchically, such that the most abstract forms of knowledge are at the top layer (i.e., *themes* and *lifetime periods*, such as the knowledge that one grew up in Philadelphia), with the layers of knowledge becoming relatively less abstract (or increasingly more sensory/perceptual in detail) as one moves down the hierarchy, from general forms of memories (i.e., *general events*, such as the trip to London) to specific memories (i.e., *episodic memories*, see Figure 4.1 in Conway & Loveday, chapter 4, this volume, and also discussions on theories of an additional transient episodic memory system in Conway, 2005; chapter 4, this volume; and Bluck, Alea, & Demiray, chapter 12, this volume). Whether one agrees with Conway's view or not, it seems clear that autobiographical memory takes in a number of different personal knowledge forms.

## Overview of Book

In chapter 2, Ball rounds off the introductory section of this book by providing us with a comprehensive review of the various methods used to study autobiographical memory and retrieval. His review starts off with the era of Ebbinghaus, traces developments of the twentieth century, and finally culminates with the most recent developments, including methods as diverse

as qualitative diary protocols and the latest imaging techniques (e.g., fMRI). The remaining chapters are separated into three main sections. I review each of these in turn.

## Involuntary and voluntary remembering

The second section of this book is devoted entirely to a major subtheme which runs throughout the entire volume: involuntary remembering (spontaneous recollection of the past) and voluntary remembering (deliberate recollection of the past). Clearly an important question for any theory of retrieval to tackle, the chapters in this section exemplify the more elaborate set of questions that the involuntary/voluntary distinction in autobiographical memory has created. The treatments range from the problems of categorization (in both forms of recall), the generative retrieval model of voluntary recall, dissociations between involuntary and voluntary remembering, the larger role of consciousness in the control of retrieval, to models of involuntary and voluntary recall which derive their inspiration from more traditional laboratory approaches examining the implicit/explicit memory distinction.

In chapter 3, Mace grapples with phenomenological categorization, claiming that three categories of involuntary remembering exist (Mace, 2007b). As he argues, the three divisions of involuntary remembering might be caused by different sets of encoding or retrieval circumstances (e.g., occurring only after a traumatic experience, in one, or owing to different types of spreading activation processes in the others). However, the main thrust of the chapter is a comparison of involuntary remembering to voluntary remembering. Here, the phenomenological characteristics of involuntary and voluntary memories are compared, but mostly the focus is on similarities and differences in involuntary and voluntary retrieval. The chapter concludes with an examination of the main contrast, the involuntary/voluntary distinction, with Mace offering another categorization schema, one which places remembering phenomena along different points of a voluntary-involuntary continuum that deemphasizes or limits the role of volition. This aspect of the chapter challenges the idea that voluntary remembering can be treated as a monolithic form of recall and it also deals with the dicey concept of volition.

In chapter 4, Conway and Loveday review the generative model of voluntary recall (e.g., Conway, 2005). In their review of the model, they, too, appear to argue for a diminution of the role of volition in voluntary recall, arguing that many parts of the process are likely to be involuntary. And, while their chapter reviews the generative retrieval model, it also adds some important case data to the discussion (i.e., the case of patient CR). CR is a middle-aged woman with significant and widespread damage to the right side

of her brain. While she shows many of the obvious memory disorders of an anterograde amnesic (i.e., an inability to recall the past after short periods of time), unlike most amnesics this appears to be limited to voluntary recall. So, upon questioning or self-prompting, she is unable to generate a memory of the past; however, when given very explicit cues (e.g., pictures of a past event), she is able to remember, much in the same way that one spontaneously recalls the past. Conway and Loveday use this case to make a convincing argument that CR has intact involuntary recall processes while having impaired voluntary recall processes. This is an important observation because CR's syndrome (1) supports the notion of generative retrieval; (2) supports the notion that voluntary remembering contains separate voluntary and involuntary components; and (3) strengthens the involuntary/voluntary distinction, while at the same time helping to delineate certain processes within this schema.

Talarico and Mace (chapter 5) review an interesting set of problems arising from the data produced by involuntary and voluntary memory sequencing phenomena, event cuing (a laboratory-based procedure where subjects deliberately recall memories in a sequence) and involuntary memory chaining (a naturally occurring phenomenon where involuntary memories are produced in a sequence, one of the three proposed categories of involuntary remembering). In brief, these two recall processes produce two somewhat different sets of data, each having different implications for the organization of memories in the autobiographical memory system. Talarico and Mace explore the possibility that the difference occurs as a result of biases in the laboratory procedure, thereby making the involuntary memory phenomenon the more reliable indicator. They also explore the possibility that the different patterns of results may instead be an indicator of some real differences underlying involuntary and voluntary retrieval, ones which may further our understanding of these processes.

Franklin and Baars (chapter 6) argue that spontaneous (involuntary) remembering in everyday life is a normal (functional) part of everyday cognition. Like the stream of consciousness and other forms of spontaneous cognition, they argue that rather than being merely accidental, that everyday involuntary memories play an important functional role in orientating one towards the future, solving problems, and so forth (a view which is consistent with directions being taken in involuntary memory research, e.g., Berntsen & Jacobson, 2008; Mace & Atkinson, 2009). However, their main message concerns the relationship between spontaneous memories and consciousness. Using a central tenet of Baars' (1988) global workspace theory (GWT) of conscious, the C-U-C triad, they explain how spontaneous memories (and other spontaneous processes, e.g., spontaneous problem solving) can emerge from a memory system and how this may be further explained with a computational model that has been built on GWT (LIDA-GWT).

Richardson-Klavehn's contribution (chapter 7) does not address autobiographical memory retrieval per se, it, instead, addresses retrieval on word-list memory tasks (namely the word-stem completion task). Among the topics addressed are explicit (conscious or episodic) memory retrieval and implicit (unconscious or non-episodic) memory retrieval. Within this broader context, he delineates involuntary and voluntary retrieval processes, pointing out some of the problems surrounding the use of these terms in the word-list memory arena. One problem that has arisen in that arena is the tendency for some approaches to conflate retrieval processes (involuntary and voluntary) with memory types (explicit and implicit). Richardson-Klavehn points out how such approaches have been unable to accommodate the involuntary/voluntary distinction in conscious memory, defining the concept of involuntary conscious memory (or spontaneous recollection) out of existence. Addressing the heart of this problem, Richardson-Klavehn introduces a novel retrieval architecture which can account for all variety and complexities of retrieval on word-stem tasks. This model could be important to autobiographical memory researchers, as in many ways they are facing similar problems in attempting to explain varied and complex forms of autobiographical memory retrieval. Thus in whole or in part, Richardson-Klavehn's approach to the problem of retrieval may prove useful to the science of autobiographical remembering.

## Broader theoretical considerations of autobiographical remembering

Apart from the more central focus on involuntary and voluntary recall in the first main section, the second main section includes chapters which focus on broader aspects of remembering, though involuntary and voluntary remembering are also considered in some of these chapters, in some cases centrally. The topics include using the perennial notion of spreading activation to understand autobiographical remembering, understanding the important role that retrieval inhibition plays in autobiographical remembering, the importance of visual imagery, and the difficult to track but highly important questions of development and functions, respectively, of remembering.

Mace (chapter 8) examines autobiographical remembering from a spreading activation perspective. Building on a handful of different studies, he argues that the autobiographical memory system appears to be subject to different types of within and between memory systems forms of spreading activation. And, while some spreading activation processes may occur unconsciously, he also argues that some can be observed to occur in the space of consciousness (e.g., the involuntary memory chaining mentioned above). He also argues that spreading activation may account for much

of everyday involuntary remembering, including involuntary remembering during voluntary remembering. And, like in semantic memory, spreading activation in the autobiographical memory system appears to subject autobiographical remembering to priming effects. He further argues that all of these processes are likely to be functional to the process of autobiographical remembering.

Pastötter and Bäuml (chapter 9) examine retrieval inhibition in autobiographical remembering. They review a fairly extensive literature on retrieval inhibition, and while most of the findings there have been generated from word-list memory paradigms, they perform the important task of drawing inferences from them with the purpose of connecting them to inhibition in autobiographical memory recall. They, too, cover voluntary and involuntary recall processes, noting, for example, that similar distinctions appear to exist in the inhibition of retrieval as it appears that memory production can be inhibited either involuntarily or voluntarily. Apart from some of the main issues surrounding the study of retrieval inhibition (e.g., the manner in which it may be carried out), their chapter also reminds us of the importance of inhibition to the understanding of autobiographical remembering and other forms of retrieval. For example, involuntary inhibition may be at work when one is trying to recall a past experience, if for no other reason than to keep irrelevent information from coming to mind. And, in some sense, inhibitory processes may be "on" and "filtering" all the time, otherwise one may be constantly bombarded by memories in everyday life (Conway & Pleydell-Pearce, 2000).

Rice (chapter 10) reviews the role of memory perspective (i.e., field, one's original viewpoint, or observer, a third-party viewpoint) and imagery in autobiographical memory retrieval. One of the important questions that she addresses is how visual imagery, most particularly perspective-based imagery, may be a determinative factor in the autobiographical memory retrieval process. Whether visual imagery or perspective per se have a causal role or not, her review reminds us of the complexity of information contained in an autobiographical memory, and the potential complexity of the retrieval processes that need to construct and bring this information to mind. Apart from this main issue, Rice also reviews how abnormal remembering in clinical syndromes (e.g., PTSD or social phobia) appears to distort visual perspective, as individuals with certain disorders tend to recall memories surrounding their condition from a third-party viewpoint.

Fivush and Bauer (chapter 11) take on the yeoman's task of tracking and explaining the development of autobiographical remembering early in the life cycle. Among other considerations, they examine neural development, as well as the role of the social and cultural factors in the development of autobiographical remembering skills. Pointing out that the development of autobiographical remembering does not terminate in childhood, they also

remind us that there are other important changes taking place along the path of the lifespan (e.g., adolescence and middle age).

While three other chapters in this volume in part examine the functional considerations of remembering (chapters 3, 6, & 8, but mainly with respect to involuntary remembering), Bluck, Alea, and Demiray (chapter 12) devote their entire chapter to this cause. Looking at the problem more globally, they examine autobiographical remembering within the context of its three hypothesized functions (i.e., directive, self, and social functions; Baddeley, 1988). A central focus of their chapter is an examination of how the self memory system's (SMS, e.g., Conway, 2005) views on retrieval handle the question of function. Their take home message is that the SMS needs to do more – in particular, focus on person-environment interactions, which they view as key. While they offer this advice primarily to the SMS view, it should be noted that other approaches (present and future) may want to consider their advice.

## Abnormal remembering

The last main section contains three chapters which address remembering (mostly involuntary forms) in clinical syndromes. The question of involuntary remembering in clinical syndromes (e.g., post-traumatic stress disorder) has a relatively longer history there than it has in the study of everyday normal remembering. Research in this area has developed in many ways: it has helped us to better understand the syndromes and the nature of abnormal remembering, and it has helped to inform understanding of normal remembering. The authors in this section show us how this area of inquiry continues to branch in several ways (e.g., bringing working memory into the discussion, and extending the question of abnormal involuntary remembering to depression).

Krans, Woud, Näring, Becker, and Holmes (chapter 13) review involuntary traumatic remembering in PTSD, including a comprehensive review of the different theoretical accounts of this type of remembering. Their review features a promising new information processing account recently put forward by Holmes and Bourne (2008), which argues that differential encoding (a focus more on perceptual rather than conceptual features) during the time of a traumatic event may be responsible for the development of traumatic involuntary memories. Verwoerd and Wessel (chapter 14) add another dimension to the discussion by focusing on the role of executive control (or working memory) in the production of traumatic memories in PTSD. They argue that a subset of trauma survivors develop traumatic intrusive memories because they had pre-morbid deficiencies in executive control. Williams and Moulds (chapter 15) look at involuntary remembering in depression. Their chapter reviews more recent observations that negative

intrusive memories form a common part of the depressive syndrome, and that these memories share features in common with the traumatic memories of PTSD.

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