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Living in History and Living by the Cultural Life Script: How Older Germans Date Their Autobiographical Memories

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Abstract

This study examines predictions from two theories on the organization of autobiographical memory: Cultural Life Script Theory which conceptualizes the organization of autobiographical memory by cultural schemata, and Transition Theory which proposes that people organize their memories in relation to personal events that changed the fabric of their daily lives, or in relation to negative collective public transitions, called the *Living-in-History* effect. Predictions from both theories were tested in 48 old Germans from Berlin and Northern Germany. We tested whether the Living-in-History effect exists for both negative (WW II) and positive (Fall of Berlin Wall) collectively experienced events, and whether cultural life script events serve as a prominent strategy to date personal memories. Results showed a powerful, long-lasting Living-in History effect for the negative, but not the positive event. Berlin participants dated 26% of their memories in relation to WW II. Supporting cultural life script theory, life script events were frequently used to date personal memories. This provides evidence that people use a combination of culturally transmitted knowledge and knowledge based on personal experience to navigate through their autobiographical memories, and that experiencing war has a lasting impact on the organization of autobiographical memories across the life span.

"I must have been about 10 – 1948 - it was still during the hard times after the war"

This was the answer that a female participant (born in 1938 in Berlin) gave when asked to date a memory to the cue word *coat*. She had remembered how her mother had sewn her a coat of re-used fabric some years after the end of World War II. The participant is reconstructing the date of the memory by combining personal biographical knowledge with a salient landmark event. Of the over 1000 memories collected for this study, only few were dated directly and without such reconstruction processes. For the vast majority of memories, participants had to think a while to come up with a possible date for their memories, confirming the mostly reconstructive nature of temporal autobiographical knowledge (Larsen & Conway, 1997). In the current study, we utilized this process of reconstructing the date of a memory with help of the "think aloud" procedure (Brown, 1990) to investigate how older people from Berlin and from a small town in the Western part of Northern Germany organize their autobiographical memories. This study is not concerned with how accurately people date their memories (e.g., Betz & Skowronski, 1997; Burt, 1992; Thompson, Skowronski, & Betz, 1993), but how they subjectively organize their autobiographical memories across the life span. This sample's lives encompass World War II, the Cold War, the fall of the Berlin Wall and the reunification of East- and West Germany. Our participants are a unique sample to test basic theoretical tenets of Transition Theory as well as Cultural Life Script Theory.

Cultural Life Script Theory (Berntsen & Rubin, 2002, 2004; Rubin & Berntsen, 2003) conceptualizes the organization of autobiographical memory by cultural schemata, whereas Transition Theory (Brown, Lee, Krsiak, Conrad, Hansen, Havleka & Reddon, 2009; Svob & Brown, 2012) provides a model of how the organization of autobiographical memory is influenced by changes in the fabric of our daily lives. These two theories will be briefly described in the following, and we will argue that they can be used in a complementary way to shed some light on the cognitive processes that are used to organize autobiographical memory across the life span.

Transition Theory

Important personal events help organize autobiographical memories across the life span (e.g., Fromholt & Larsen, 1991; Shum, 1998; Pillemer, 1998). These important landmark events often mark the beginning and end of life time periods (e.g. Conway & Pleydell-Pearce, 2000; Pillemer, 1998; Shum, 1998; Skowronski et al., 2007). Recently, Brown and colleagues (Brown, Hansen, Lee, Vanderveen, & Conrad, 2012; Svob & Brown, 2012; Zebian & Brown, 2013) proposed Transition Theory to account for mechanisms that turn some experiences, but not others, into such landmark events. According to transition theory, it is the amount of change in daily life an event instigates which turns it into a transitional event (Holmes & Rahe, 1967). Transitional events, in turn, serve as anchors for the temporal organization of autobiographical memory across the life span. According to this view, transitional events usually end or begin a period of stability in a person's life by changing the fabric of daily life in terms of the people, places, things, and activities that a person routinely encounters or engages in.

Brown and colleagues (2012; Zebian & Brown, 2013) studied the impact of transitions on the temporal organisation of autobiographical memory by asking people to date memories elicited by cue words. They hypothesized that depending on the amount of change a transition instigates in daily life, it will have more or less impact on the organization of autobiographical memories. Therefore, they argue, when trying to date a memory, major transitions are referred to more frequently than minor transitions or non-transitional events. For example, moving from one city to another is to be considered a major transition, because it engenders many changes in daily life (see Brown et al., 2012 for details), whereas moving from one apartment to another within the same city is considered a minor transition, because it involves fewer changes in a person's daily life.

Transitional events that concern only an individual or a small social group, termed *personal transitions*, (such as moving from one place to another) are considered default transitions (Brown et al., 2012; Zebian, & Brown, 2013). People are expected to date the majority of their memories in relation to these landmark events. Besides personal transitions, occasionally major life-changing public events like the beginning or ending of a war, can act as transitions that spawn new lifetime periods (Brown & Lee, 2010; Brown et al., 2009). These *collective transitions* (Svob & Brown, 2012) mark the beginning of *Historically Defined Autobiographical Periods*. The dating of cued memories in reference to collective transitions is

called the *Living-in-History effect* (Brown et al., 2009). Just like personal transitions, collective transitions are thought to have a graded impact on the organization of autobiographical memory. The gradation is expected to show not only at the individual level, but also across different groups, depending on the degree of change instigated in the daily lives of the group members.

Brown and colleagues (2009) tested the existence of a Living-in-History effect by asking young participants (mean ages 21- 25 years) in different countries to generate memories to cue words such as *car* or *house*. Those groups who had lived in regions that had been affected by an armed conflict (e. g., civil war), dated about 20-25% of their memories with reference to the conflict (e. g., in Beirut and Sarajevo), whereas references to armed conflicts or other public events were virtually absent in the dating protocols of groups living in peaceful regions of the world. A study comparing the dating strategies of older adults from Denmark, the Netherlands, Canada, and the USA, found that 12.6% and 10.7% of the memories in the Dutch and Danish samples were dated with reference to World War II, whereas this was the case for only 4.8% of memories in the Canadian and 4.9% in the US American samples (Brown et al., 2012). According to the authors, the difference in impact of World War II on the daily lives of the participants graded the number of events which were dated with reference to the war in a linear fashion.

To relate the strength of the Living-in-History effect more directly to the degree of change in daily life, Zebian and Brown (2013) compared the dating strategies for personal memories to cue words in two Lebanese samples, one from Beirut, the center of the 15-year Lebanese civil war, and one from Bi'qa, a region that had been affected much less. Beiruties dated almost twice as many memories with reference to the civil war than participants from the Bi'qa region (26.6% vs. 13.7%). This supports the hypothesis that the strength of the Living-in-History effect is influenced by the amount of change the collective transition imposes on the daily lives of individuals.

Once established, the Living-in-History effect is expected to last for a lifetime (Brown & Lee, 2010; Brown et al., 2012; Zebian & Brown, 2013). The strongest Living-in-History effect found to date was in the sample from Beirut, who dated 26.6% of all their memories in relation to the civil war, 18 years after it ended. If Living-in-History effects indeed last a lifetime, then we should find an equally strong Living-in-History effect in older samples of participants who

have experienced a period of comparable impact on their daily lives as the sample in Beirut. Our sample of older Germans is one possible population to test this claim, in that many of them had experienced World War II in Berlin. Being the capital of Nazi Germany, Berlin was the target of over 360 air raids between May 1940 and April 1945 and suffered from heavy civilian and material losses in the later years of the war (*Bombing of Berlin in World War II.*, n.d.). After the victory of the Allies, Berlin soon became the center of the unfolding cold war between the former allies, resulting in the division into East- and West Berlin and the blockade of West Berlin by the Soviet Union (1948-1949), cutting off railroad-, road- and waterway access to West Berlin from West Germany. Thus, World War II had a severe and prolonged impact on the daily lives of people living in Berlin in the later years of the war and the years after the war (which the memory at the beginning of this manuscript illustrates). This severe and prolonged impact should lead to a strong Living-in-History effect, possibly comparable to the effect found in the Beirut sample. For the same reason, the percentage of memories dated with reference to World War II might be higher in a sample of old people from Berlin, compared to a sample from Northern Germany and compared to the Danish, Dutch, and North American samples (Brown et al., 2012).

According to Brown et al. (2009, 99-100) , candidates for possible collective transitions are armed conflicts, terrorism, and natural disasters, because these types of events are likely to produce “economic hardship, social disruption, and psychological distress”. Thus, the Living-in-History effect seems to be only expected to occur in response to negative public events. However, Transition Theory is neutral in regard to the valence of transitional events. Therefore, we believe that just like in personal transitions, also collective transitions that are perceived as positive can entail a Living-in-History effect.

In the current study, we tested this hypothesis by investigating whether participants referred to the fall of the Berlin Wall in 1989 when dating their personal memories. The Wall had divided East- and West Berlin since 1961 (politically, Germany had been divided into two states since the founding of West Germany in 1949). The fall of the Berlin Wall in November 1989 was experienced as very surprising, consequential, and as a turning point in many people's lives (Bohn & Berntsen, 2007). It led to almost instantaneous changes in Germany (Westerhof & Keyes, 2006), and eventually to the reunification of East- and West Germany one year later. These circumstances make the fall of the Wall a good candidate to test for the Living-in-History

effect following a potentially positive collective transition. Therefore, we expect the fall of the Wall to be used for dating events in our sample of older German participants. We further hypothesize that the effect of the fall of the Wall as a collective transition will be graded in our sample, that is, the percentages of cue word memories dated in reference to the fall of the Berlin Wall will be higher for the Berlin participants than for the participants living in Northern Germany, because the impact on the daily lives of the participants can be assumed to have been stronger. For example, the Berlin Wall encircled West Berlin entirely, so that any travel from West Berlin to the rest of West Germany entailed travelling through East Germany which was connected with hassles such as extended border controls when entering East Germany from West Berlin, as well as when leaving East Germany to enter West Germany. The uniqueness of our sample provides the possibility to directly compare the impact of a negative collective transition to the impact of a positive collective transition within the same group of participants.

Personal transitions can be unique, idiosyncratic, or they can be normative transitions in the sense that a culture expects individuals to pass through these transitions at a certain age, thereby moving from one status or life period to another (Neugarten, Moore, & Lowe, 1965). The most important normative transitions constitute the cultural life script (Berntsen & Rubin, 2002, 2004; Rubin & Berntsen, 2003). Consequently, cultural life script events should be expected to be used as landmarks when people date autobiographical memories (Burt, 2011; Svob & Brown, 2012). This is the first study to test this expectation. In the following, we will briefly describe cultural life script theory, and the predictions drawn from it in relation to the dating of memories.

Cultural Life Script Theory

Cultural life scripts are thought to be an overarching organizing principle of autobiographical memories across the life span (Bohn, 2010; Conway & Jobson, 2012). A cultural life script is made up of culturally important, predominantly positive normative transitional events expected to take place in a specific order at specific times (e.g. “getting an education” before “having children”) in a prototypical life course within a given culture (Berntsen & Rubin, 2002, 2004; Rubin & Berntsen, 2003). Technically, life script events are defined as those events that at least 4% of a sample of adults of a given culture nominates as

typical for a normal life. Most cultural life script events are expected to happen during the period of young adulthood. Cultural life script events are assumed to be talked and thought about, and thereby rehearsed more often than other life events (Berntsen & Rubin, 2004). Consequently, when people are asked to recall important memories from their lives, they use the cultural life script as the normative skeleton of their life stories (Bohn, 2011; Habermas & Bluck, 2000). Evidence across different generations and cultures supports this hypothesis (e. g., Bohn, 2010; Bohn & Berntsen, 2008; Dickson, Pillemer & Bruehl, 2011; Habermas, 2007; Hatiboğlu & Habermas, 2015; Ottsen & Berntsen, 2013; Rubin, Berntsen & Hutson, 2009, Tekcan, Kaya-Kızılöz, & Odaman, 2012; Thomsen & Berntsen, 2008). In these studies, participants of different age groups were asked to tell their life stories or to recall the most important memories from their own or their parents' lives (Svob & Brown, 2012). The average overlap between life story memories and cultural life script events in adults was about 60 to 70%.

Most of the life script events recalled were emotionally positive events from the *reminiscence bump period*, the period of adolescence and young adulthood that is defined by an overrepresentation of memories when people above the age of forty are asked to recall memories from their lives (Rubin, Wetzler, & Nebes, 1986). Cultural life script events are usually transitions from one social role to another, which have been found to mark the beginning of a new life period or life chapter (Thomsen & Berntsen, 2008).

When trying to date memories, people are inclined to refer to those events that are deemed important events in their life stories – prominently among them personal events which are part of the cultural life script. In this study, we parsed the original dating protocol category “personal events” (Brown et al., 2009) into two categories called “cultural life script events” and “personal events” (see example in Table 1). We expected participants to date a substantial number of their memories with cultural life script events (e.g. “that happened before I finished school”). We based our expectation on findings that up to 70% of important life story memories are memories of life script events (e.g. Bohn, 2010, Rubin et al., 2009). However, we did not expect participants to *date* 70% of their memories in relation to life script events, because people of course experience many events that are not life script events which are used as landmarks to organize their memories. Also, the only study so far on life scripts and life story memories in a German sample found a relatively low overlap (Habermas, 2007). Berntsen, Rubin and Siegler

(2011) asked over 2000 participants to nominate their most positive and most negative life events. They found that 68% of the positive events were life script events primarily located in the reminiscence bump period, whereas traumatic events were more equally distributed across the life span, with traumatic events perceived as especially central to the life story and identity often located in childhood. Based on these findings, we expect events dated by cultural life script events to fall within and close to the reminiscence bump period, whereas memories dated with other personal events are expected to be more equally distributed across the life span.

Generally, the references used when dating personal memories in our sample should mirror the types of memories that older samples recall when asked for their most important life story memories. Several studies found that older samples recall memories from World War II, life script events and other personal events (Bohn, 2010; Glück & Bluck, 2007; Thomsen & Berntsen, 2008).

The present study

In the present study, we tested two sets of predictions derived from Transition Theory (Brown et al., 2012) and Cultural Life Script Theory (Berntsen & Rubin, 2002; 2004; Rubin & Berntsen, 2003) in a sample of old German adults living either in Berlin or the Western part of Northern Germany. From Transition theory, we derive the following predictions: (1a) There will be a life-long strong Living-in-History effect for World War II in our sample. (1b) This Living-in-History effect for World War II will be graded by the amount of exposure to immediate war actions, so that participants in Berlin will on average date more memories in relation to World War II than participants in Northern Germany. (1c) There will be a Living-in-History effect for the positive collective transition, the fall of the Berlin Wall, and (1d) this Living-in-History effect will also be graded, in that participants from Berlin will date more memories in relation to the fall of the Wall. From Cultural Life Script Theory, we derive the following predictions: (2a) Participants will date a substantial number of their memories in relation to cultural life script events, and (2b) memories dated with cultural life script events will be situated in the reminiscence bump period, whereas memories dated with other personal events will be more evenly distributed across the life span.

Method

Participants

Two groups of older participants were recruited in different areas of Germany; one in Northern Germany, one in Berlin. The groups will be called the *Northern Group* and the *Berlin Group* throughout this manuscript. Participants were told that the study was concerned with people's autobiographical memories, that the study was not a memory test, and that there were no right or wrong answers to the interviewer's questions. The Northern Group was recruited using the *snowball principle*. Older members of a sports club were contacted, and the first participants informed friends and acquaintances about the study and thus recruited more participants. The Berlin Group was recruited through a local Berlin adult education center, and through the subject pool of the Max Planck Institute of Human Development in Berlin, both situated in the former West Berlin. All Berlin participants had lived in Berlin or surrounding areas during World War II and at the time of the fall of the Berlin Wall, with 87% of them living in the Western part of Berlin.

Participants from Northern Germany lived in a small town called Eutin close to the Baltic Sea and to the larger cities of Kiel, Lübeck and Hamburg. Unlike those cities, Eutin had not been the target of air raids, and had generally not experienced any war-related destructions or casualties. Because of its geographical position, it experienced a dramatic growth by nearly doubling its population (from 10 000 to 20 000) during the last year of the war for two reasons: 1) people who had lost their homes to air raids were evacuated from the larger cities, and 2) refugees primarily from the easternmost areas of what then had been Germany, which had been conquered by the Red Army, fled across the Baltic to the Western parts of Northern Germany and were housed here (Rathlau, 2006). This demographic variance is mirrored in the participants making up the Northern Group with 52% of them being North German natives, 24% coming to the area as refugees from areas in Germany controlled by the Red Army, and 28% coming directly after the war from other areas of Germany. The cut-off for participation was set at being born in 1941 or earlier to include only individuals with at least some experience of the war and to exclude the possibility that the war years fell into the period of childhood amnesia (Rubin, Wetzler, & Nebes, 1986). The Northern Group consisted of 25 participants (15 males; $M_{\text{age}} = 76.32$ $SD = 7.65$; range: 68-90 years), the Berlin group of 23 participants (10 males; $M_{\text{age}} = 78.48$

$SD = 5.60$; range: 69-87 years). There were no significant differences in age, gender distribution and level of education between the two groups. Participants' mean age in 1945 was $M = 12.12$ ($SD = 6.60$). Both groups were, on average, highly educated with 47.8% of the Berlin group and 68.2% of the Northern Group holding a university degree. All participants lived independently in their own homes. Data were collected in Northern Germany in the fall of 2009 and in Berlin in January 2011.

Materials

Individual cards with the same 22 cue words used by Brown et al. (2009) (*bag, ball, book, box, bread, car, chair, coat, dog, house, pencil, piano, pill, radio, river, snow, spoon, stone, street, sweater, tree, and window*) were presented in random order to each participant. As in the study by Brown et al., the words *car* and *chair* were used as practice and always presented first. None of the participants had difficulties following instructions to the practice cue words, and therefore, these memories were kept in the data. Answers in the second phase of the study were recorded on a tape recorder.

Procedure

Participants were tested individually, either in their homes or in a quiet office at the Max Planck Institute for Human Development. All participants were tested by the first author (AB). The basic 2-phase – procedure introduced by Brown et al. (2009) was followed, but adjusted to the needs of our older participants. A pilot study with older participants had shown that they were not comfortable writing in front of an experimenter, and preferred to talk about their memories. Therefore, the procedure in phase 1 was changed from Brown et al.'s. (2009) procedure. During phase 1 of the study, participants were shown the cards with the cue words in random order, and then were asked to tell a specific memory that was at least one week old in association to each cue word. Instead of writing down their memories (as in Brown et al.), participants told their memories to AB, who wrote them down. Phase 2 of the study was identical to the original procedure established by Brown et al.. Each memory was read back to the participant, and the participant was asked to estimate the date of the remembered event (year). Participants were asked to think aloud (Brown, 1990) while trying to date their

memories. If participants fell silent during the date estimation task, they were reminded by the experimenter to verbalize their thoughts, even if they perceived them as unimportant. The participants' answers were tape recorded, and notes were taken. When the participants had decided on a date estimate, this date was written down on the appropriate cue card. After phase 2, participants were debriefed, and the interview ended. Participants who came to the Max Planck Institute for testing received a box of chocolates as an appreciation for taking the trouble to come to the Institute.

Scoring

The scoring of dating responses follows Brown and colleagues' procedures (2009; Zebian & Brown, 2013), which is grounded on the finding that people usually reconstruct memory dates, most typically by referring to landmark events (e.g. Brown, 1990; Shum, 1998; for a review, see Friedman, 2004). Of course, people sometimes also use other dating strategies such as direct remembering of dates or distance based dating (e.g. Janssen, Chessa & Murre, 2006). Here we are specifically interested in what kind of landmark events play a role in the dating of autobiographical memories, not in the full range of dating strategies used.

Estimated dating responses. Scoring procedures were based on the categories introduced by Brown et al. (2009). In a first step, each estimated dating response was assigned to one of six categories (Table 1). A response was scored as (1) *unjustified* if the participant provided a memory date but did not give any information on why the date was chosen. There were two response categories pertaining to historical periods or events: (2) *WWII* responses were assigned if the dating of an event was done in relation to World War II. (3) *Berlin Wall* responses referred to memory datings that contained references to the fall of the Berlin Wall. (4) *Pop/ sports/ weather* was assigned to responses that contained references to specific cultural or sports events (e.g. the Olympic Games in 1936) or to a specific extreme or unusual weather situation (e.g. the blizzard in the winter of 1978/79). (5) a *personal/ generic* response was assigned if the participant included specific information relevant to his/her personal life, and/or general temporally relevant information. (6) Unlike earlier studies, we included a *cultural life script* category, which was assigned when participants dated their memories in relation to cultural life script events, such as *beginning school* or the *birth of a child*.

In order to have a German cultural life script from a group of Germans closer in age to the participants than the participants in the published German life script (Habermas, 2007), we based our cultural life script on the unpublished life script data of 41 older participants (12 male) in the Habermas study ($M_{age} = 61.85$ years; $SD = 5.19$ age range: 51-75 years). This life script consists of the following 23 events, which each had been mentioned by at least 4% of the participants (in order of frequency of mention): *begin school, getting married, having children, college/university, begin daycare, fall in love, first job, retirement, go to school, other's death, finish school, puberty, own death, parent's death, serious disease, leave home, having siblings, first friend, divorce, decide one's career, first sex, religious ritual (confirmation/ communion) and own birth*. This cultural life script shows the same characteristics as life scripts found in other cultures, as it is mainly made up of predominantly positive transitional events expected to take place in adolescence and young adulthood.

Following Brown et al. (2009), if date estimates contained references to the historical categories *WWII* or the *Berlin Wall* as well as to other categories, these dating estimates were always scored as historical. The same procedure was used if memories were dated in reference to the sports/pop/weather category. If date estimates contained cultural life script references as well as personal/generic references, the category that seemed most dominant was chosen. For example, the memory dating to the cue word "window" in Table 1 was scored as a cultural life script reference, because the birth of the child is used as the anchor to find the date of the memory via the age of the child. Two independent raters naïve to the hypotheses of the study scored 45.50 percent of all memory datings from both samples. They agreed on 90.33 percent of all datings (Cohen's Kappa = .869). Disagreements were decided by an independent judge. The remaining memory datings were scored by one rater.

In a second step, as memory datings could consist of several dating categories, such as some of the examples in Table 1 show, justified memory datings were rescored by the same rater to record multiple dating references, differentiating between using one category only, mentioning a category first in a dating protocol or second (see Table 2). Additional justifications were not coded to avoid too complicated descriptive statistics.

Results

Overall, there were 1056 cued memories. Of these, 914 memories fulfilled the criteria of being specific and at least one week old. Unjustified memories, i.e. memories that had been dated without any further information (see example in Table 1) were excluded from the analyses, leaving 793 memories that had justified dating protocols. There was no gender difference in the type of dating responses used. Table 2 shows that in both groups, the large majority of justified memories were dated in reference to one category only (87.8% in the Berlin group; 90.4% in the Northern group).

First, we will describe results in relation to the Living-in-History Effect and compare them to earlier findings. Then we will describe our findings concerning the use of cultural life script events compared to personal/generic events in the dating protocols.

Living-in-History Effect

Table 2 shows the mean percentages of dating strategies by group and by dating category (category only, category mentioned first; category mentioned second). Supporting hypothesis 1a), there is a very strong Living-in-History effect in the Berlin group with 26.0% of memories dated in relation to World War II. This demonstrates that Living-in-History effects can be extremely long-lasting. The strength of the Living-in-History effect in the Berlin Group is comparable to that found in Beirut, Lebanon, where 26.6% of memories were dated in relation to the civil war which lasted from the early 1970's to the late 1980's (Zebian & Brown, 2013). Considering that the present data were collected more than 65 years after the end of World War II, they demonstrate an extremely long lasting, intense Living-in-History effect.

We also found evidence that the Living-in-History effect is graded (hypothesis 1b) with the effect being stronger in the Berlin group with 26.0% of memories being dated in relation to World War II versus 16.2% in the Northern group ($\chi^2(1)=12.14, p<.01$). Figure 1 shows the dating references in percent of all dated memories (black bars), and in percent of memories from the war years (white bars) in the Berlin and Northern Groups compared to samples of old participants from other countries (from Brown et al., 2012). The graph clearly shows that the Living-in-History effect is graded, in that the Berlin sample has the highest overall percentage of

memory datings related to World War II, whereas the North German, the Dutch-Canadian¹ and the Danish samples show an overall Living-in-History effect of comparable size. Both the Berlin and the North German sample dated almost 80% of all memories from the years 1939 -1945 in relation to World War II, whereas these percentages were considerably lower in the Dutch-Canadian and Danish samples with 61% and 41%, respectively. The difference between the results for the war years only vs. results for all memories is due to overall twice as many memories from the war years in the Berlin group than in the Northern Group (18.9% vs. 9.4% , $\chi^2(1)=17.95, p<.0001$). At the same time, Figure 2 shows that the Berlin group, compared to the Northern Group dated significantly more memories outside of the War years with reference to World War II (12.5% vs. 7.7%, $\chi^2(1)=4.72, p<.05$). To test for possible age effects, we correlated year of birth with the number of memories dated in relation to World War II. There was no relation between age at the time of World War II and the percentage of memories dated in relation to World War II ($r(47)=-.047, p>.5$).

Living-in-History effect of a positive event

Counter to hypothesis 1c) that a positive event can serve as an effective collective transition, surprisingly few memories were dated in relation to the fall of the Berlin Wall (see Table 2), and the difference between the Berlin and Northern Group concerning the use of the Fall of the Wall as a reference point for dating memories was not significant (hypothesis 1d). Overall, only 2 percent of all memories were dated in relation to the fall of the Berlin Wall. Considering only the years surrounding the fall of the Berlin Wall (1986-1992), 26.1% of all memories from these years in the Berlin Group were dated with reference to the fall of the Wall vs. 13.0% in the Northern Group ($\chi^2(1)=1.25, p>.3$).

Cultural life script events and personal/generic event datings

We found clear evidence supporting hypothesis 2a) that participants would use the cultural life script to date a substantial number of personal memories. In both groups, about a third of all memories were dated with reference to personally experienced cultural life script events only (Table 2, first two columns). Consequently, personal/generic datings were

¹ Dutch-Canadians emigrated from the Netherlands to Canada after WWII

diminished in favor of cultural life script dating protocols compared to earlier studies only employing the personal/generic event category (Brown et al., 2009; Zebian & Brown, 2013). In both groups, cultural life script datings sometimes co-occurred with personal/generic datings (Berlin group: 1.5% of all memories with cultural life script first; .7% with personal/generic events first; in the Northern group, 2.2% of memories with life script first, and .4% of memories with personal/generic events first). Only in the Berlin group were memories dated with reference to cultural life script events more frequently located in the reminiscence bump period of adolescence and young adulthood (from age 15-30 years) than memories dated with reference to personal/generic events, (27.4% vs. 19.1%, $\chi^2(1) = 19.21, p < .05$), as predicted by hypothesis 2b). While there were no significant differences between the Berlin Group and the Northern Group in the frequency of using cultural life script events for dating memories, the Northern Group dated significantly more memories in relation to personal/generic events than the Berlin Group ($\chi^2(1) = 4.51, p < .05$). This seems to mirror the significant difference between the two groups concerning the frequency of references to World War II.

Table 3 lists the type of cultural life script events used to date memories. The most frequently used life script event was the birth of a child. There were no gender differences for the cultural life script events used for dating memories. Overall, the life script events used as dating references reflect the life script events mentioned as most important life story memories in earlier studies (Bohn, 2010; Thomsen & Berntsen, 2008).

Discussion

This study is the first to find a very powerful Living-in History effect persisting for more than six decades. Old people from Berlin dated 26% of their memories in relation to World War II, even 65 years after the end of this war. Also, the study provides evidence for the gradedness of the Living-in-History effect, because the participants living in Northern Germany dated significantly fewer of their memories in relation to World War II. Counter to our expectations, we did not find a notable Living-in-History effect for the positive collective transition (the fall of the Berlin Wall) in the participants. Finally, this study is the first to show that people often use cultural life script events for dating personal memories elicited by cue words.

The fact that the Living-in-History effect was strongest in the Berlin group supports the hypothesis that changes in the fabric of daily life are responsible for the intensity of the Living-in-History effect. As shown in Figure 2, memory datings with reference to the war in the Northern group are concentrated in the years directly surrounding the end of World War II, whereas in the Berlin group, many more memories from before and after the war are dated with reference to World War II. After the war, West Berlin (where the majority of the participants lived at the time) was completely cut off from its surroundings, and during the Berlin blockade by the Soviet Union (1948-1949) survival was only possible through the Berlin airlift organized by the Western Allies. During the one-year blockade, West Berlin was supplied with coal, fuel and food by aircraft (with over 200. 000 flights over the one-year period). Thus, the consequences of World War II for the fabric of daily life were pervasive and long-lasting for the Berlin group. This supports the claim of Transition Theory that extreme public events, especially encompassing and prolonged events like war, will lead to *Historically Defined Autobiographical Periods*. In these periods, people are less likely to anchor their experiences with reference to personal transitions, but rather to the historically defined autobiographical period which has changed their daily lives radically, as can be seen by the result that in the large majority of World War II dating protocols, the war is mentioned exclusively or first (see Table 2).

Counter to our hypothesis, we did not find evidence for a notable Living-in-History effect for the fall of the Berlin Wall, which we had expected for the Berlin group. We believe that there are several reasons for this. Firstly, the majority of our Berlin participants (87%) were from West Berlin. The changes in their daily lives were minor compared to the changes experienced by people living in East Berlin and East Germany. However, we chose mostly West Berlin participants, because earlier research had shown that not all participants from East Berlin in the age group tested here experienced the fall of the Wall as a positive event (Bohn & Berntsen, 2007; Westerhof & Keyes, 2005), because the participants were in their fifties at the time of the event in 1989, and unemployment rates in this age group increased substantially in the East in the years after 1989 (Kohli, 1994). Secondly, the lack of a Living-in-History effect for the fall of the Berlin Wall even in the Berlin group fits well with Habermas' (2007) finding in a West-Berlin sample that the fall of the Wall was not judged to be an autobiographically salient event that should be included in a life narrative. This is consistent with recent findings by Nourkova

and Brown (in press) that the collapse of the Soviet Union and the end of the Cold War were not experienced as life changing transitions for many people living in the area of the former Soviet Union.

In addition, the interplay of different cognitive mechanisms and processes might help explain the absence of a Living-in-History effect for a positive event. Consequences of a positive event are in the long run perceived as a return to a normal, or default state, whereas negative consequences are experienced as deviating from the norm (e.g., Baumeister, Bratslavsky, Finkenauer & Vohs, 2001; Brickman, Coates & Janoff-Bulman, 1978), and generally, negative information is more thoroughly processed than positive information (e.g., Habermas, Meier & Mukhtar, 2010; Schwarz & Clore, 1983; Storbeck & Clore, 2005). Another possible explanation for the absence of a Living-in-History effect for the fall of the Wall could be that this event was experienced when the participants were in their fifties, past their reminiscence bump age. The Living-in-History effect could be due to the fact that, for many participants, the time of World War II fell into the period of young adulthood, leading to the recall of more memories from this period and therefore, more datings with reference to World War II. However, we found no relation between age during the war and the number of World War II dating protocols. Further, Brown and colleagues (Brown, Svob & Lee, 2012) found a Living-in-History effect for the civil war in Bosnian samples, regardless of participants' age during the war. This speaks against the possibility of the Living-in-History effect being a product of the reminiscence bump. Future studies with adults who have not lived through World War II but who experienced the fall of the Berlin Wall or other positively perceived public events like president Obama's inauguration (Koppel, Brown, Stone, Coman, & Hirst, 2013) could clarify whether a positive public event can lead to at least a moderate Living-in-History effect.

An important contribution of this study is that it is the first to show that cultural life script events are used as landmark events for the dating of autobiographical memories. This provides indirect additional evidence for the important role of cultural life scripts in the organization of autobiographical memories across the life span (Berntsen, Rubin & Siegler, 2011; Bohn, 2010). Here we found that participants used their personal knowledge of when they experienced a cultural life script event to help them navigate through their long lives. Parallel to the finding that people use the cultural life script as a recall outline when asked for important memories from

their lives (e.g., Bohn, 2010; Rubin et al., 2009), and that personal events that correspond to the life script often serve to demarcate life phases (Thomsen, Pillemer & Ivcevic, 2011) which structure autobiographical memory, it seems that they also serve as anchors when trying to order memories chronologically.

Strictly speaking, transition theory and life script theory do not make exclusive claims for explaining dating strategies. Major normative transitions not only transform everyday life, but also the identity of the individual, and are therefore biographically salient (Conway & Pleydell-Pearce, 2000). Life script events also imply change in daily life, but not every event that leads to a change in daily life is a normative event or even biographically so salient that it is part of the life script. Still, differentiating the kinds of personal events that are used for dating autobiographical memories is of interest, because it demonstrates that events used for dating are heterogeneous in character. Many are part of the cultural life script, underscoring its significance for autobiographical memory. Others are non-normative and not as biographically salient as life script events are, but still imply major changes in life circumstances, as moving residence does. Others still, like birthdays, are closely linked to age which is a major aspect both of identity as well as of the temporal structure of life. Among the public events used for dating events war is the most prominent one, changing the fabric of everyday life as well as changing basic rules of human conduct. Finally, other public events sometimes used for dating are probably used because of their distinctness (Schmidt, 2012), such as very severe weather, or because of their relevance for collective or generational identity, such as winning a world championship or outstanding popular events such as the Woodstock Festival.

Caveats

It has been noted that if younger interviewers ask older participants for their autobiographical memories, this may motivate participants to include more socio-historical context which they assume the listener is lacking (Habermas, 2001). However, we believe that this possible increase in historical references in autobiographical narrations resulting from communicative requirements does not affect the amount of historical references in dating, because dating does not require providing historical context as narrating does – even younger interviewers know about World War II.

Furthermore, it is important to note that neither the present nor earlier studies on the Living-in-History effect measured the actual impact of the event on the daily lives of the participants. Future studies may measure this impact with the recently developed *Transitional Impact Scale* (Svob, Brown, Reddon, Uzer, & Lee, 2014).

Conclusion

This study provides evidence that people use a combination of culturally transmitted knowledge and knowledge based on personal experience (Berntsen & Rubin, 2012; Conway & Jobson, 2012; Fivush, Habermas, Waters & Zaman, 2011) to help organize their autobiographical memories chronologically. We found in this study that more than 60 years after the end of World War II in Europe, it still had a strong impact on the way that older participants navigated through their autobiographical memories. This finding underscores the long-term consequences of war experiences on people's lives at a time when considering military actions as a means of political intervention is again on the rise in Europe.

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Table 1: *Examples of the different response categories*

Cue	Reported Memory	Verbalized date estimate	Response Category
tree	I put a swing into the oak tree for our grandchildren	I did it last summer-I just know I did	unjustified
Radio	My uncle, on his farm, he fiddled with his radio to be able to hear the news	During the last days of the war. Must have been 1945. The Russians were approaching. Americans were already in Germany. Listening to the radio – the adults seemed worried – the fighting drew closer. The beginning of 1945	World War II
Dog	Our dachshund was chasing some sheep across the dike on Föhr Island	That is at least 15 years ago. That was before the Fall of the Wall – before 1989 – at least 20 years ago. It was on an election Sunday- and the reunification did not play any role in the election.	Personal/generic Berlin Wall
Chair	Chair broke when I sat down on it	In the 60's, we were on vacation in Austria, must have been 1961/62 - 62...when was the soccer world championship in England – 1964-yes, 1962	Personal/generic Sports/pop/weather
Stone	Picnic at the beach with my brother and sister-in-law	It was my birthday- about 10 years ago- must be more than 10 years ago, because it was not a "special" birthday – 1997	Personal/generic
Window	I came into my son's bedroom and he was standing on the window sill in the open window	Well...my son was born in 1973, he was about 4 or 5 years old, so-around 1977/78 – I would say 1977.	Cultural life script personal/generic

Table 2: *Percentages of justified responses by dating category in the Berlin and the Northern Group*

Dating category	Only*		First**		Second***		Total	
	Berlin	North	Berlin	North	Berlin	North	Berlin	North
WWII	17.8	10.2	6.8	4.3	1.4	1.7	26.0	16.2
Berlin Wall	2.0	1.0	0.5	0.0	0.2	0.3	2.7	1.3
Sports/pop/weather	1.0	2.6	0.2	0.3	0.5	0.3	1.7	3.2
Cultural life script	32.4	34.3	2.8	2.6	4.6	3.6	39.8	40.5
Personal	34.6	42.3	1.9	2.4	5.5	4.9	42.0	49.6

Only*: single dating category; *First*: category was mentioned first; ****Second*: category was mentioned second

Table 3: *Number of dating of memories by type of cultural life script event (frequency and percent of total justified datings)*

Life Script Event	Frequency	% of total
Having children	59	7.4
Go to school	46	5.8
Begin school	33	4.2
Getting married	29	3.7
Other's death	22	2.8
Own birth	21	2.6
Retirement	19	2.4
Finish school	18	2.3
College/ secondary education	17	2.1
Serious disease	11	1.4
Parent's death	10	1.3
First job	10	1.1
Siblings	8	1.0
Divorce	5	0.6
Religious ritual	5	0.6
Fall in love	2	0.3
Leave home	2	0.3
Puberty	1	0.1
Decide one's career	1	0.1

Figure 1. Percentages of justified datings in relation to WWII compared across different national groups.

Figure 2. Distribution of datings (in numbers) in relation to WWII in the Berlin and the Northern group.

Figure 1

*from Brown et al., 2012

Figure 2