

Long Live the King! Beginnings Loom Larger than Endings of Past and Recurrent Events

Karl Halvor Teigen^{1,2}, Gisela Böhm³, Susanne Bruckmüller⁴, Peter Hegarty⁵,
and Olivier Luminet^{6,7}

¹University of Oslo, Norway <k.h.teigen@psykologi.uio.no>

²Simula Research Laboratory, Norway

³University of Bergen, Norway <gisela.boehm@uib.no>

⁴University of Koblenz-Landau, Germany <bruckmueller@uni-landau.de>

⁵University of Surrey, UK <p.hegarty@surrey.ac.uk>

⁶Université catholique de Louvain, Belgium <olivier.luminet@uclouvain.be>

⁷Belgian Fund for Scientific Research (FRS-FNRS), Belgium

Correspondence to: Karl Halvor Teigen, University of Oslo, Department of Psychology, P.B.
1094 Blindern, NO-0317 Oslo, Norway. e-mail: k.h.teigen@psykologi.uio.no

Abstract (197 words)

Events are temporal “figures”, which can be defined as identifiable segments in time, bounded by beginnings and endings. But the functions and importance of these two boundaries differ. We argue that beginnings loom larger than endings by attracting more attention, being judged as more important and interesting, warranting more explanation, and having more causal power. This difference follows from a lay notion that additions (the introduction of something new) imply more change and demand more effort than do subtractions (returning to a previous state of affairs). This “beginning advantage” is demonstrated in eight studies of people’s representations of epochs and events on a historical timeline as well as in cyclical change in the annual seasons. People think it is more important to know when wars and reigns started than when they ended, and are more interested in reading about beginnings than endings of historical movements. Transitional events (such as elections and passages from one season to the next) claim more interest and grow in importance when framed as beginnings of what follows than as conclusions of what came before. As beginnings are often identified in retrospect, the beginning advantage may distort and exaggerate their actual historical importance.

Keywords:

Event cognition; beginnings; history; framing; seasons

1. Introduction

1.1 *The Segmentation of Time*

Time, in the eyes of a human perceiver, is not continuous and seamless. Prehistoric time is divided into geological periods, historical time into ages, eras, or dynasties, calendars chop it up in months, weeks, and days, and tragedies unfold on the stage in acts and scenes. Most people, looking back upon their pasts, find it natural to describe their life stories as a sequence of distinct lifetime periods (Conway & Pleydell-Pearce, 2000), or chapters (Thomsen, Pillemer, & Ivcevic, 2011). Within each chapter, they remember distinguishable episodes, often referred to as events. The changes between lifetime periods can themselves be described as transitional events (Brown, 2016). Recently, Rubin and Umanath (2015) have suggested a theory of event memory as an alternative to episodic memory for the recall of mentally constructed single scenes. In cognitive psychology, a field of event perception has emerged, particularly concerned with segmentation and identification of action episodes of relatively brief durations (from seconds to minutes) that are perceived or witnessed directly rather than being read or talked about (see Radvansky & Zacks, 2014, for an overview).

In the present article, we use *events* more broadly as a general label for all identifiable segments of time, from historical epochs to more specific happenings nested within the larger ones. Some of these segments are, or appear to be, objectively defined, like a journey that starts when the travelers leave home, and ends when they arrive at their point of destination. Others are more clearly the result of human observers' attempts to make sense and impose a structure upon a temporal sequence, as for instance with historical categories such as the *Age of enlightenment* (Withers, 2007) and the *Cognitive revolution* (Baars, 1986; Leahey, 2001), whose nature, boundaries, and even claims to existence strongly depend on the perspective of the narrator.

In contrast to studies of event perception, we are in this research primarily concerned with people's representations of temporally extended events that have taken place in the past

rather than being observed in the present. Such events play an important role in structuring not only our personal histories but also the landscape of our collective history that is continually updated, changed, or reinforced by public narratives (Zerubavel, 2003).

Philosophers have suggested that events serve a similar function in the temporal domain as objects do in the spatial domain, namely as units with their own identity and their own boundaries, by which they can be distinguished from the surrounding field (Vendler, 1967). Objects in space have physical boundaries that separate them from their surroundings. Tables have sides, pictures have frames, and figures have contours that seem to “belong” to the figure, rather than to the ground (Rubin, 1915). Similarly, the protoypical historical event can be viewed as a figure, standing out against the general backdrop of a “normal”, less remarkable state of affairs (Bruckmüller, Hegarty, Teigen, Böhm, & Luminet, in press). While ordinary physical objects are supposed to have relatively crisp spatial boundaries and vague temporal boundaries, events, by contrast, are supposed to have relatively vague spatial boundaries and crisp temporal boundaries (Casati & Varzi, 2015).

Following this analysis, events may be regarded as figures in time that can be separated from what came before and what happened later. Indeed, Zacks and Tversky (2001) suggest that otherwise divergent philosophical and psychological analyses of an event converge on one basic idea, namely that all events have a beginning and an end, and that anything that has a beginning and an end in time can be regarded as an event. By this definition, we can describe a party as an event starting with the arrival of the guests and ending when they leave, or a war as an event starting with an assault or a declaration of war and ending with a victory or a proclamation of peace. Even more arbitrary partitions of time, such as the successive seasons of a year, can be described by cues marking their emergence and their disappearance. In short, these happenings would not be described as event entities

unless they came into being at a specific point in time and were concluded at another, later, occasion.

Events have parts that in themselves can be described as subordinate or micro-events, and are included in more comprehensive macro-events extended over larger time spans, forming hierarchically structured “partonomies” (Hard, Tversky, & Lang, 2006). Thus, a war can be described as a fairly comprehensive event including part events like troop movements, individual battles, and peace negotiations, each with a structure of its own.¹ Beginnings and endings belong to the structure of any event, but may in turn be viewed as subordinate events in their own right, which implies, in Churchill’s (1943) words, that we can have “a beginning of the end” as well as “an end of the beginning”. In the present studies, we do not set upper or lower limits to the scope and extension of an event, but use this term to encompass all temporally defined happenings, from episodes of short duration, like the shots in Sarajevo on 28 June 1914, to long term epochs like wars and monarchs’ reigns spanning several years. Similarly, we regard the four seasons of the year as annual macro-events, which encompass more circumscribed, culturally or climatically defined events such as summer vacation, harvest, and school start. With adjacent events, such as successive reigns or the passage from one season to another, the transition itself is sometimes conceived as an event, or alternatively framed as the end of one epoch or the beginning of a new one, as expressed by the epigrammatic announcement: *The king is dead. Long live the king!* This traditional proclamation, used in several countries to mark the end of one (male) monarch’s reign and the

¹ Such events can also be described at different levels of abstraction, forming hierarchical “taxonomies”, as when we say that physical battles and political debates are both expressions of conflicts, or that a business trip and a polar expedition can both be defined as journeys. Partonomies and taxonomies should not be confused. Journeys and wars are not *parts* of the event concept but more concrete instantiations of the event concept, or in other words, *kinds* of events.

beginning of a new reign, suggests that these two phases nevertheless belong together in one single constitutional act.

For a graphical illustration of events as separated or adjacent “figures”, see Figure 1. The events might in both cases be historical or natural, and their “contours” (the beginnings and endings) can be well defined or more poorly defined, naturally given or arbitrarily imposed.

<Insert Figure 1 about here>

1.2 A Beginning Advantage

The temporal boundaries of events differ from the spatial contours of objects in that they appear in a fixed sequential order. Specifically, both boundaries of an event describe transitions, or changes. The beginning marks a transition from absence to presence of the target event, as in the announcement of the new king (who is elevated to monarch from his passive status as heir to the throne), whereas endings tell us that something has passed out of existence (literally, in the case of the deceased king). Even if both transitions may be of comparable scope and magnitude, we claim that beginnings suggest more of a contrast with the default state of affairs, than endings do, which sometimes simply imply a return “back to normal”. In other words, the “step up” from non-existence to existence implied by a beginning of an event may loom larger than the “step down” for something that simply has ceased to exist. Analogous asymmetries have been observed in other areas, as with the action/inaction asymmetry (Kahneman & Tversky, 1982) and the omission bias in decision making (Baron & Ritov, 2004), which both assume that people are more affected by what they do than by what they abstain from doing. Rozin, Fischler, and Shields-Argelès (2009) showed that *additions* change the nature of a product more than *subtractions*, suggesting a principle of “additivity dominance”. In analogy, journal editors seem to think that adding a

study to a submitted manuscript would constitute a *major* revision, whereas removing one would only be a *minor* revision.

From the principles of contrast and additivity dominance, several predictions can be derived:

Beginnings will attract more *attention*, and often be regarded as more *important* than endings. Within history, we predict that beginnings of wars will focus attention more than their terminations, and that the introduction of a new cultural product (a style of dress, a school of art) will appear as more striking than the same product going out of fashion. As a result, beginnings will be given more coverage in historical accounts. Similarly, we suggest that the same event, framed as a beginning, will capture the reader's attention more than the same event, framed as an ending (e.g., a new law introduced vs. an old law repealed).

Beginnings will also be considered more *interesting* than endings. This follows from theories of curiosity (Berlyne, 1960; Silvia, 2008), which see interest as related to novelty and amount of surprise. Levels of surprise are associated with the extent to which an event contrasts with the default, expected alternative (Teigen & Keren, 2003). Unexpectedness, novelty, and importance can make beginnings more vivid and memorable, and also make them *beg for explanations* more than endings do (Bruckmüller et al., in press). Endings may be perceived as flowing more naturally from the event itself, whereas beginnings appear to spring from causes situated outside of the events they begin.

Relatedly, people may think of beginnings as active causal forces that are more *powerful* than endings in bringing about further developments. Some beginnings are claimed to have “changed the course of history”, whereas endings by their very nature conclude rather than open a chapter in history. Even when conclusions allow new developments to occur, they need not be perceived as actual causal forces in their own right. When we say: “winter gives way to the spring”, spring still appears more causal than winter does.

The advantage of beginnings over endings bears some similarity to the well-known primacy effects in studies of learning (Bolhuis & Bateson, 1990), memory (Murdock, 1962), persuasion (Hovland, 1957), and impression formation (Jones & Goethals, 1971), where first items in a list are recalled better than later ones, and first arguments and first encounters are shown to have a stronger impact on subsequent thoughts and behaviour than later experiences of similar kinds. These effects typically refer to situations where individual facts or arguments are presented and experienced sequentially by the same individual. Weakened encoding of later items have been explained as an outcome of processes such as interference and neural fatigue (Tulving, 2008). Similarly, autobiographical memories cluster at the beginnings of life ‘chapters’ (Thomsen et al., 2011, Figures 6 and 7), and college students recall many more events from the beginning of the term than from later in the academic year (Pillemer, 1998). Going beyond such findings we examine events whose beginnings and endings are not personally relevant but historically important, and examine if people also prioritize historical transitions to a greater extent when they are framed as beginnings than as endings.

Of course, we do not claim that beginnings are inherently the most important part of any event, as a time period could have its peak moments early, in the middle, or late, depending on circumstances. For instance, a specific war could be remembered for the moment the tide of the battle turned, and the summer season could be remembered for its hottest day. Task requirements (e.g., a writing assignment) might activate a search for representative aspects of an event, which perhaps are more often found in the middle than in the beginning. In other cases, specific motives, such as self-relevance or an interest in outcomes, might direct attention toward features more strongly related to the end. For instance, people seem to be more accurate in timing endings than beginnings when watching brief action episodes (Lu, Harter, & Graesser, 2009), suggestive of an “end-state bias

hypothesis”. We will return to the question of boundary conditions for the beginning advantage in the General Discussion.

Our proposal is more general, namely, that people, in the absence of specific case information, expect beginnings to be more memorable and intriguing *by virtue of* their temporal position than they would have been otherwise. This postulated *beginning advantage*² could manifest itself in two ways: (1) As a preference for information about the beginning rather than about the ending of the same event. For instance, people might prefer reading about why a war started to reading about why it came to an end, and they might have more to say about the beginning of a season than about its termination. (2) As a preference for the same transition framed as a beginning of a new event rather than as the ending of a previous one. For instance, 1914 should more likely be described as the year World War I began than “the year peace ended” (MacMillan, 2013), and December 31 is better described as New Years’ Eve than as Old Years’ Night.

1.3 *The Present Studies*

The current studies investigate segmentation of time in two different domains, namely in lay people’s representations of *historical epochs* and *annual seasons*. The concept of an event holds a central role in both domains, both with respect to its identity (Was there really a revolution? Did we have summer this year?) and to its boundaries (When did it start?).³ There are also important differences. Historical events are typically presented chronologically and exemplify a *linear* conception of time, with individual particular happenings strung in a non-repeating sequence from more remote to more recent events. In contrast, people’s

² We hesitate to speak of a “beginning bias”, since there is no normative requirement for beginnings and endings to be given an equal amount of attention. So the preference for beginnings need not be “irrational” in the sense of violating a prior norm.

³ Most dictionaries define history as concerned with “events of the past” or, somewhat more elaborately, as “a chronological record of significant events (as affecting a nation or institution) often including an explanation of their causes” (Merriam-Webster Online Dictionary, n.d.). The concept of an “event” itself, however, has rarely been examined more closely by historians (for an exception, see Sewell, 1967).

calendars illustrate a *cyclical* conception of time, where weekly and yearly events recur in a periodical fashion. Moreover, historical events are to a large extent believed to be a product of human activities, whereas seasonal events are considered natural.

We report eight studies where the proposed preference for beginnings over endings was put to the test. In doing so, our primary endeavor has been to establish the beginning advantage as an empirical phenomenon that can be demonstrated in several domains, rather than to exhaustively account for all factors that might be responsible for it. The first five studies are devoted to cognitions about relatively unique events in human history and the last three concern naturally reoccurring events (annual seasons).

We begin the studies on historical events by examining milestones displayed in popular historical timelines (Study 1), expecting beginnings to be more frequently highlighted than endings in such lists. People's thoughts about the impact of historical beginnings versus endings can be studied in two ways: By comparing beginnings and endings of a particular event or a specific historical period, as indicated by B_1 and E_1 (or B_2 and E_2) in the upper panel of Figure 1. Alternatively, the same transition between two periods can be construed as an ending of one period or as the beginning of another, allowing us to compare E_1 with B_2 as in the lower panel of the figure. The first of these approaches is pursued in Studies 2 and 3, where participants (non-historians) were asked which dates of wars and reigns of monarchs are important to remember, and which part of a historical period they would rather read about. The second approach is explored in Studies 4 and 5, where people were given lists of transitional events (US presidential elections and milestones in European history) that can be framed as endings or as beginnings.

Beginnings are sometimes preferred for what they promise or inaugurate. To control for a positivity bias all studies included both positively and negatively valenced events. Historical beginnings may further be preferred to endings because of their continued

relevance for the present. Self-relevance is a central determinant in autobiographical memory (Conway, 2005), availability (e.g., Gregory, Cialdini, & Carpenter, 1982), and attribution (e.g., Ross & Sicoly, 1979). In historical accounts self-relevance manifests itself as *presentism*, where those aspects of the past that fit one's current picture of the world are retained and emphasized, and those that do not are downplayed or ignored (Fischer, 1970). In line with this, collective memories of historical events are biased towards events in the participants' own country and recent events (Liu et al., 2005). Despite the fact that endings of events are, by definition, more recent than beginnings of those same events, endings describe states of affairs that may be less self-relevant than beginnings because they refer to events that have been replaced by other, still more recent events. Beginnings, on the other hand, might have inaugurated societal changes and practices that are still in force in the present. To control for this alternative explanation, the studies included events that are remote in time and of minor relevance for the present.

The last set of studies informs questions about order effects by investigating the beginning advantage in the way people talk and think about the recurring seasons of the year. Seasons are recurrent events where endings are not final, but happen every year, and the ending of one season may be coextensive with the beginning of the next, balancing potential order effects. We predicted that people have more to say about the beginning of a new season than about the ending of the previous one (Study 6), that they find beginnings more causal than endings (Study 7), and finally, that they think of the beginning as defining the season more strongly than the ending, by preferring to speak of beginnings rather than endings as taking place surprisingly "early" or "late" (Study 8). An overview of the studies reported in the paper is given in Table 1.

<Insert Table 1 about here>

2. Study 1: Timelines

Since historical events can be dated, they play a particularly prominent place in chronological accounts, where events are associated with specific years and listed in the temporal order in which they occur. In such lists one can often observe that beginnings and endings are singled out as events in their own right. For instance, the year 1869 is historical for the opening of the Suez Canal, or alternatively, for concluding a long process of canal construction or the end of an even longer period of navigating around Africa, suggesting that the same milestones can be perceived as beginnings or endings dependent upon perspective. Popular historical presentations in the form of “50 events that changed the world”, or by timelines showing most important world history events per year or per century, might reveal whether *beginnings* are considered to be particularly memorable.

2.1 Method

As a pilot study, we examined two such timelines: one elaborate list covering more than 300 events for the years 1900-1949 (Information Please Database, 2007), and another less detailed record of 83 landmark events for the years 1700-1899 (World Magazine, 1999). Two independent coders blind to the purpose of this research read both lists and categorized all events as more related to beginnings or to endings. The coders reported 83.6% agreement on the first list (Cohen’s kappa = .633) and 85.5% agreements on the second (Cohen’s kappa = .639); disagreements were resolved by discussion.

2.2 Results

The coders found twice as many entries related to beginnings than to endings in both lists. In the first list there were 199 entries related to beginnings vs. 106 related to endings; the second list contained 58 beginning-related vs. 25 ending-related items (both $p < .001$ with binomial tests).

A preference for beginnings was also evident on a linguistic level. On the first list, the word stems *begin* and *start* occurred 20 times, against only 3 cases of *end* ($p < .001$ with a

binomial test). There were 21 mentions of *first*, but none of *last*, and only two mentions of *final*. For example, readers were informed that Agatha Christie published the *first* of her mysteries in 1920, and that Robert Frost received the *first* of four Pulitzer prizes in 1924, but nothing about their more mature works, even though these early publications only became historic in light of these authors' later achievements.

The second list followed the same pattern, with 15 *begins* and *firsts* but only 3 *ends* (binomial $p = .008$). Famous individuals were listed according to the years they were born, with no mention being made of the time of their deaths. Darwin's journey on the Beagle was placed on the timeline at 1831, when he departed, rather than 1836, when he returned.

3. Study 2: Importance of Dates

The predominance of beginnings in timelines could itself be a historical and cultural convention (Rosenberg & Grafton, 2010), based on the chronological arrangement of events, which gives "firsts" a priority over events that follow. Studies 2 and 3 examined whether lay people spontaneously manifest a similar preference when given a choice to prioritize information about historical beginning or end dates. It should then be more important to them to know and to remember the date (year) that the event started than the date it was concluded.

3.1 Method

3.1.1 Participants

Participants were 126 Amazon Mechanical Turk workers located in the US, who answered an online questionnaire after an unrelated set of judgmental tasks. Two participants failed an attention test, one did not complete the questionnaire, and another seemed to have responded twice, leaving 122 valid cases (83 men and 39 women), mean age 33.7 years ($SD = 9.5$).

3.1.2 Materials and procedure

All participants read about a student preparing for an exam in European history, who was trying to memorize important dates and years. They were presented with one list of 12 dates, indicating the beginnings and endings of six important wars, and another list with 14 dates, indicating the beginnings and endings of the reigns of seven British monarchs. In both cases the question was which five years the student should prioritize to remember. The order of the two tasks was counterbalanced across participants.

The wars were taken from a list of European wars (Major European Wars 1400-1950, n.d.). They were selected to include conflicts of long duration as well as shorter wars, and older as well as newer ones. The reigns of British monarchs were selected to include some famous and some less significant rulers, both from early and more recent history, spanning from Richard the Lionheart to George VI. Adjacent reigns were avoided, where the conclusion of one reign would serve a double purpose by also marking the beginning of the reign of a successor. For a complete list of wars and reigns, see Appendix A.

3.2 Results

In line with our hypothesis, beginning dates were preferred to ending dates; participants chose about twice as many beginning than ending dates, both for wars and monarchs (see Figure 2). Of five years to be selected for wars, participants chose on average $M = 3.42$ ($SD = 1.42$) beginning dates and $M = 1.58$ ($SD = 1.42$) closing dates, $t(121) = 7.14$, $p < .001$, Cohen's $d = 1.30$; and for monarchs: $M = 3.22$ ($SD = 1.53$) beginnings vs. $M = 1.78$ ($SD = 1.53$) endings of reigns, $t(121) = 5.21$, $p < .001$, Cohen's $d = 0.94$. For each task, about 30% of the participants selected only beginnings, against 6-7% who only preferred end dates ($p < .001$ with binomial tests).

<Insert Figure 2 about here>

Figure 2 shows that some wars, and some reigns, are considered more memorable than others. Yet in all cases beginnings dates were deemed more important to remember than

endings dates. The preference for beginnings cannot be attributed to valence. Whereas wars are usually viewed as deplorable events, whose beginnings are more negative than their endings⁴, kings vary in popularity. Indeed, if anything, the end of a reign (occasioned by a monarch's death) should be regarded as more negative than the successor's accession to the throne. Finally, as these historical events were distant in time (and on a different continent) the preference to focus on beginnings cannot be explained by their greater personal relevance.

A possible limitation on the generalizability of this study concerns our use of the background story, where a schoolboy is advised which dates he should memorize for an exam. This scenario was constructed to make the task more meaningful to participants, as advice giving typically requires less effort (Kray, 2000), and is more strongly based on general norms (Stone & Allgaier, 2008) than similar decisions made for oneself. At the same time, the results might be influenced not only by participants' personal ideas of important dates in history, but by their notions of what is regarded important by history examiners (who may have a similar bias as constructors of time lines). To control for this possibility, participants in the next experiment were asked to indicate their personal preferences for information about the beginnings or endings of various historical movements and events, unrelated to a potential cultural bias of what is expected from them.

4. Study 3: Preferences for explanations

Participants in this study were asked whether they would prefer to read descriptions of early rather than late phases of historical events, and whether they preferred explanations of why these events started rather than why they came to an end. We predicted that beginnings would claim more interest than endings in both respects.

⁴ While people of different nationalities may disagree on how WW1 should be commemorated, their spontaneous associations revolve on beginnings rather than endings. Bouchat et al. (2016) asked participants in 12 countries to write the first five words that came to their mind when they thought of the First World War. Of these words, 20% referred specifically to the incident that supposedly started the war. *Sarajevo, assassination, Franz Ferdinand, and Gavrilo Princip* were all among the 20 most frequent words, against only one word (*treaty*) suggesting the end.

4.1 Method

4.1.1 Participants

Participants were 78 American Mechanical Turk workers (36 women and 42 men), mean age 36.5 years ($SD = 12.5$), of which 84.6% had “some college education” or more.

4.1.2 Material and procedure

The questionnaire was introduced as part of a study about non-historians’ preferences for items they would like to read about in world history. They were briefly introduced to four events: *The long depression* (1873-1879), the great wave of *Norwegian immigration* to North America (1875-1915), the *Thirty years’ war* in Europe (1618-1648), and the *Cubist movement* in French art (1907-1919). These events include both negative happenings (depression and war) and more positive events (immigration, and a style of art, both of which were, at the time, considered positive by those involved). Half of the participants received the events in the above order, for the other half, the order was reversed.

A thumbnail description (Appendix B) of each event was followed by three sets of questions. The first assessed which year each event was assumed to peak. The second set of questions assessed relative interest in the beginnings and endings of each event.

“Imagine you had access to four short texts on the themes listed below. Which ones would you prefer to read? Please rank them with numbers 1-4 according to your interest, where 1 means the most interesting and 4 means the least interesting theme.

The long depression: How it started

The long depression: Why it started

The long depression: How it ended

The long depression: Why it ended”

This item was followed by equivalent questions about the other three events.⁵

⁵ For the Immigration item the last alternative was erroneously written “How it ended” instead of “Why it ended”, thus listing the “how” alternative on this item twice. Many participants commented on the typo and gave the two alternatives different ranks, as required. The pattern of answers on this item turned out to be parallel to other items, but this clerical error calls for caution in the interpretation of this particular result.

The why-questions were intended to test whether explanations of beginnings were preferred to explanations of endings. The how-questions were inserted to broaden the issue to include descriptions in addition to explanations, and to make the primary purpose of the study somewhat less obvious.

Finally, participants were asked to rate their prior knowledge of each theme on five-point scales from 0 (*Next to nothing*) to 4 (*Quite a bit*).

4.2 Results

A large majority of participants (80-90%) preferred to read about beginnings rather than endings. In Figure 3 the proportion of participants who ranked explanations (*why* questions) of beginnings higher than explanations of endings is compared to that of participants with reverse preferences. The figure also shows that preferences for the more descriptive *how* questions followed a similar pattern.

<Insert Figure 3 about here>

Mean ranks for interest in beginnings and endings are presented in Table 2. Mean ranks indicate that explanations of beginnings (*why* questions) were consistently preferred to explanations of endings, and descriptions of beginnings (*how* questions) were preferred to descriptions of endings for all four vignettes. In addition, the why-how differences for beginnings were significant for *The long depression*, $t(77) = 2.15$, $p = .035$, *Immigration*, $t(77) = 3.88$, $p < .001$, and *The thirty years' war*, $t(77) = 2.32$, $p = .023$. Thus, priorities were typically ranked from *Why it started* first, and *How it started* second, with *Why it ended* and *How it ended* sharing the last two ranks.

<Insert Table 2 about here>

The preference for beginnings occurred regardless of whether events were assumed to peak early or late. Most participants guessed that the long depression peaked early, rather than late ($M_{peak\ year} = 1875$), but thought that the wave of Norwegian immigration peaked quite late

in the designated period ($M_{peak\ year} = 1900$).⁶ Both these deviations are significantly different from the period midpoints, $t(77) = 5.81, p < .001$, and $t(77) = 3.37, p = .001$, for Depression and Immigration, respectively. For the Thirty years' war and the Cubist movement the mean estimated peaks were placed in the exact middle of the designated time intervals. We conclude that an interest in beginnings is not dependent upon particular beliefs about how the events unfold over time, and is not restricted to events that are believed to develop quickly and reach an early peak.

Most participants stated that they knew “next to nothing” about all four themes. Mean knowledge scores were 0.49 (Depression), 0.24 (Immigration), 0.56 (War), and 0.71 (Cubism). The preference for beginnings was not related to degree of knowledge (all $r < .19$, all $p > .10$).

5. Study 4: Presidential Elections – Reasons for Importance

The beginning advantage entails that beginnings are perceived to be more important than endings. It follows that the importance of a transition between events will be related to the extent that the transition is perceived as a beginning rather than an ending. Accordingly, beginnings should be mentioned more frequently than endings as reasons for importance of such transitions. Study 4 tested this hypothesis.

The transitional events used were American presidential elections in the 20th century. Of 25 such elections, 16 allowed one party (Democratic or Republican) to remain in power, by re-election of the same president (8 instances) or of a different candidate (8 instances); 9 implied a change in power between parties. We hypothesized (a) that elections implying a change in power between parties would, in general, be regarded as more important than those

⁶ Actual immigration statistics show a bimodal distribution of immigrants, with 1883 as the first peak year.

that do not, and (b) that beginnings would be offered more often than endings as reasons for an election's importance.

Which events, in this case which elections, people consider historically important, will of course be informed by their previous knowledge of the events in question. To explore the role of background knowledge, questionnaires were distributed to two student samples, one European (Norwegian) and one American. We assumed that participants in both samples knew at least some of the presidential candidates on our list, but that knowledge would be higher in the American than in the European sample. A recent study indicates that most US college students can recall the names of the five last presidents. Among earlier presidents in the 20th century, only Theodore Roosevelt, Franklin D. Roosevelt, John F. Kennedy, and Richard Nixon were recalled by more than 50% of students (Roediger & DeSoto, 2014). Several of the first US presidents (plus Lincoln) were also well remembered, supporting our view of a beginning advantage. In the present study, all names were listed, so participants' task was made easier by relying on recognition rather than recall (Roediger & DeSoto, in press).

5.1 Method

5.1.1 Participants

Participants in the European sample were 78 students from the University of Bergen, Norway, recruited mainly from classes in informatics, social anthropology, and psychology, 48% female and 52% male, median age 22 years, with a median of 4 semesters of university studies. They received a paper-and-pencil version of the questionnaire. Several respondents skipped the reasons part of the questionnaire, leaving only 33 complete protocols with self-coded reasons, as explained below.

The American sample consisted of 79 respondents, mainly students, recruited from participants in various social science courses, who filled in an online questionnaire. Even in

this group, the reasons part was skipped by several participants, resulting in 57 complete protocols. There were 80% female and 20% male responders, median age 21 years, and with a median of 4 semesters' university attendance.

5.1.2 Material and Procedure

Participants were asked to imagine that they were helping a historian to write an introductory textbook chapter on 20th century presidential elections. The historian wanted to select only five elections to describe in depth, and to be politically neutral.

All participants received a complete list of all presidential elections from 1900 to 1996, with information about the competing candidates, their party affiliations, and the outcome of the elections (Appendix C). From this list, they were asked to select five elections for inclusion – the elections they believed to be the most historically important.

Next, they were asked to produce reasons for why they thought each of the five elections were historically important so that they would be included in the chapter (three reasons in the Norwegian sample, up to three in the American sample).

Self-coding. The participants were (on a separate page/screen) asked to look at their reasons again and indicate for each of them whether they referred (more) to a beginning of something, an ending of something, or something else.

Finally, they were asked to rate their own knowledge of US American history on a five-point scale from “No knowledge” to “Excellent knowledge”, whether they sympathized more with the Democratic or the Republican party, and to rate their own political position on an 11-point (0-10) left wing-right wing scale (called Liberal-Conservative in the American version of the questionnaire).

5.2 Results

Participants in the Norwegian sample indicated a limited knowledge of US American history ($M = 2.43$). They placed themselves close to the centre of the left wing-right wing

scale, $M = 4.50$, but felt clearly more in line with the Democratic than the Republican Party. Of 70 who indicated their sympathies, 65 (92.9%) were in favour of the Democrats.

The American sample considered themselves to be more knowledgeable of US American history than the Norwegians, as expected ($M = 3.11$, indicating at least “some knowledge”). Of those who answered this question, 70% indicated more agreement with the Democratic than the Republican party, and placed themselves closer to the liberal than to the conservative end of the left-right scale, $M = 2.98$ ($SD = 2.24$).

Nine of the 25 elections implied a shift in power between parties. Thus, if importance was unrelated to change, then about 36% of the elections selected by participants should involve such shifts in power. However, a total of 68.6% of all elections selected by the Norwegian sample involved shifts in power ($M_{\text{change}} = 3.35$ vs. $M_{\text{no change}} = 1.60$; $t(77) = 7.13$, $p < .001$, Cohen’s $d = 1.61$), and 56.2% of those selected by the American sample ($M_{\text{change}} = 2.90$ vs. $M_{\text{no change}} = 2.10$; $t(76) = 3.14$, $p = .002$, Cohen’s $d = 0.71$).⁷ The Norwegian sample selected these elections more reliably than the US students, possibly due of a lack of factual historical knowledge ($M = 3.35$ vs. $M = 2.90$, $t(155) = 2.50$, $p = .013$, Cohen’s $d = 0.41$). The most frequently selected elections were in both samples the 1960 election (won by J. F. Kennedy) and 1932 (F. D. Roosevelt’s first term), consistent with Roediger and DeSoto’s (2014) recall study. Participants in both samples picked more elections from change years than from no-change years, supporting our first hypothesis.

Participants’ accounts of their choices allowed us to test our main hypothesis. Due to the Norwegian participants’ modest knowledge of American history, few were able to marshal three reasons for each of their choices. The most commonly stated reason was simply a reference to one’s own prior knowledge; participants guessed that the election was important

⁷ When selections are weighted proportionally to occurrence frequencies (by dividing the number of change elections with 9 and the number of no-change elections with 16, all differences give $t > 7.00$, $p < .001$, and Cohen’s $d > 1.80$).

because it involved candidates they had heard about before, indicating reliance on a kind of “recognition heuristic” (Goldstein & Gigerenzer, 2002). Less than half of the sample complied with the instructions and self-coded one or more of their reasons.

<Insert Table 3 about here>

In the American sample, more participants completed the reasons part as requested. However, the self-coding of reasons did not always refer to the election itself. For instance, several participants considered the 1960 election of J. F. Kennedy as important because of his later assassination (an ending). Nevertheless, more reasons were coded as beginnings than endings, as shown in Table 3. Thus, the second hypothesis was also supported: Historical changes that are perceived as important are more often seen as beginnings than endings.

6. Study 5: Framing Transitions

In Study 4 we examined whether important transitional events are typically seen as beginnings. In the present study, we present the same transitional milestones framed either as endings or as beginnings. A shift in frames has been shown to affect people’s focus of attention and, in consequence, their preferences (Teigen, 2015; Tversky & Kahneman, 1981). If beginnings claim more interest than endings, the beginning frame might be spontaneously preferred by a communicator to attract more attention from readers or listeners.

6.1 Method

6.1.1 Participants

Questionnaires were distributed to 185 students from various faculties at a Norwegian university, 102 women and 80 men (2 did not report gender), with a mean age of 20.9 years ($SD = 3.37$). They had completed $M = 2.27$ semesters of university studies.

6.1.2 Material

Eighteen more or less memorable historical years, mostly from European history, were selected, describing events that could be framed both as the ending of one epoch or the

beginning of another. Care was taken to include a mix of positive and negative events from different domains (political, cultural), countries, and ages.

Illustrative items (for the full list, see Appendix D):

1925:

Short skirts are now in fashion. The era where women must hide their legs is definitely over.
Short skirts are now in fashion. The era where women can show their legs has definitely begun.

1951:

The election in 1951 concluded a period of left-wing dominance in British politics.
The election in 1951 inaugurated a period of right-wing dominance in British politics.

6.1.3 Procedure

Participants first indicated their own knowledge of European history on a five-point scale ranging from 1 (*No knowledge*) to 5 (*Excellent knowledge*). On this scale, they rated themselves as having, on average, “some knowledge” ($M = 3.04$) of European history.

They were then asked to imagine themselves as a journalist covering different events and milestones in European history, looking out for formulations that would capture the readers’ interest and entice them to continue reading an article. Which statement in each pair would they choose? They were also asked to give brief explanations of their choices.

All participants received 18 pairs of statements, nine with endings as the first member of the pair (like in the above examples) and nine starting with beginnings. There were two versions of the questionnaire, with beginnings and endings in counterbalanced order.

6.2 Results

The percentages of respondents preferring beginnings over endings for each of the 18 individual items are presented in Figure 4, ordered from the oldest (top) to the most recent event. The figure reveals considerable variability from item to item, with an overall dominance of the beginning options, which were chosen on the average in 61.1% of the cases;

$t(184) = 11.15, p < .001$, Cohen's $d = 0.81$. A large majority of participants (76.8%) preferred more beginnings than endings, whereas only 13.5% chose more endings. A significant majority of events were narrated more frequently as beginnings than endings (14 of 18, binomial $p = .031$).

<Insert Figure 4 about here>

Some beginnings might have been preferred because they introduced changes that are still in force (for instance, women's right to vote in Switzerland in 1971, and the anti-apartheid laws introduced in 1994). As a check of this possible confound we had introduced two items about the changes in alcohol legislature in Norway. One concerned the end of legal sale of hard liquor and introducing prohibition laws in 1919, another was about repealing the prohibition laws and making liquor sale legal again in 1927, a change that is still valid. In both cases participants preferred the beginning frame, suggesting that the introduction of changes is perceived as more appealing regardless of their future fate.

Participants' reasons for their choices indicated that beginnings were often considered more stimulating, more positive, and more informative. In many cases they simply felt the beginning statement appeared "more natural" and in better agreement with their "gut feelings". Many participants felt that the endings and beginnings we had offered were not always equivalent, for instance, the end of a war does not necessarily imply that peace is restored, and when a canal is completed it is not necessarily opened for traffic. This touches on one general problem associated with framing research, namely whether two complementary messages are informationally identical. It has, for instance, been argued that incomplete specifications tend to make reframed messages non-equivalent (Mandel, 2014).

It is evident from Figure 4 that the preference for beginnings varied considerably across items. This could be due to how well the statements were phrased, but also to the historical context and the nature of individual historical events, as perceived by the

participants. Thus, three dates stand out as being narrated better as endings than as beginnings, namely 1918 (war has ended, peace is restored), 1989 (fall of the Berlin Wall: end of a divided and beginning of a reunified Germany), and 1991 (dissolution of Soviet Union and establishment of new independent states). These “exceptions” suggest that the beginning frame of a transitional event will not be preferred over an ending frame unless the period it inaugurates has a figure-like quality. We may speculate that the above-mentioned incidents are more easily conceived as closing a chapter in European history than as opening a new era, whose identity is not (yet) clearly defined. For instance, if we think of wars as figures standing out from the ordinary course of history (cf. the prominent position allotted to wars in Liu et al.’s, 2005, survey of important world events) attention will be drawn most strongly to the beginning of the war, secondly to its ending, and only thirdly to the restoration of peace.

7. Study 6: How do we know that seasons have changed?

Hitherto our studies refer to historical time, which unfolds in a linear, irreversible fashion. Historical events, by definition, never repeat. As a result, the description of actual historical transitions as endings or as beginnings may evoke different historical scenarios that are not always readily comparable. However, in cyclical time, periods of time that belong to the same class do repeat, such as the days of the week or the seasons of the year. Such recurrent events can be investigated for a beginning advantage without the threats of hindsight, presentism, and order effects that are typically associated with memories of historical events (Fischer, 1970; Klein, 2013).

The four seasons’ calendar, dominant in temperate climates, divides the year into four equal periods, with three spring months, followed by three summer months, three months of autumn, and three months of winter. Season changes are accompanied by changes in light, temperature, and weather conditions, as well as by certain types of floral and animal events. Yet, most people agree that these changes are gradual rather than abrupt, and that the

subdivisions in months and seasons are conceptual artefacts superimposed on a more continuous underlying astronomical and climatic process. Yet several observable natural events are commonly used to mark the transition between seasons, as when we regard pussy willows as a sign of spring, and when yellow leaves tell us that the summer is coming to an end. But pussy willows could equally well signify the end of winter, and fading leaves could mean that autumn has arrived. We explore in the three consecutive studies whether people perceive the transitions from one season to another primarily as beginnings of a new season or as the endings of the previous one. In Study 6 participants were asked how they can tell that seasonal changes are taking place. If beginnings stand forth as more important and can claim more attention in cyclical time, people may have more to say about seasonal transitions framed as beginnings than as endings.

7.1 Method

7.1.1 Participants

Participants were 168 students (75% female and 25% male, median age 19 years) attending a lecture in introductory psychology at a Norwegian university. They were randomly assigned to four conditions by receiving different versions of the same basic questionnaire. Four participants with incomplete questionnaires were discarded from analysis.

7.1.2 Questionnaires

The questionnaires asked participants (1) to define two seasons according to month or date (e.g., “In my calendar, spring begins and ends ...”), and then (2) to describe typical signs that marked the beginning or ending of these seasons, by completing open ended statements such as “Spring begins (has started) when”, or “Winter ends (is over) when ...”. Each incomplete statement was repeated 12 times on the same page, and participants were asked to fill in as many or as few continuations as they liked, before turning the page and repeating the procedure for the second season.

Seasons were selected to be non-adjacent, so that half the participants received questions about spring and autumn, and the other half about summer and winter. Participants in four conditions received statements either about beginnings or about endings (1: beginnings of spring and autumn; 2: beginnings of summer and winter; 3: endings of winter and summer; 4: endings of spring and autumn). Within each condition, the order of seasons was counterbalanced.

7.2 Results

Participants completed on average 5.4 statements per page. A majority of “signs of change” that were mentioned included natural events like light, temperature, snow and rain, vegetation, and also more personal and social events like wearing lighter (or heavier) clothes, school events, and recreational activities (skiing, swimming, outdoor and indoor games). There was considerable overlap between signs marking the end of one season and the beginning of the next; for instance, the first snowfall signalled both the end of autumn (in one condition) and the beginning of winter (in another condition), budding leaves meant that winter was over and that spring had begun, school start indicated end of summer as well as the beginning of autumn, and so on. In line with our hypothesis that beginnings are more prominent than endings, there was a consistent trend to complete a greater number of statements for beginnings than for endings. Figure 5 shows the mean number of signs (completed statements) offered for seasonal transitions framed as the ending of one season or as the beginning of the next one. For all four transitions, the number of completed statements for season beginnings ($M = 5.67$) exceeded the number of completed statements for season endings ($M = 5.01$); overall $F(1, 328) = 6.95, p = .009$. There was also a main effect of transition, $F(3, 328) = 6.20, p < .001$ (no significant interaction), with more signs indicating the first transition of the year, from winter to spring, than the second one, from spring to summer. Such differences are no doubt culturally and climatically dependent (the present data

were collected on Norwegian students in February, who were presumably looking forward to a lighter season).

<Insert Figure 5 about here>

8. Study 7: Explanations of season change

When asked to describe the signs of a seasonal ending, some participants in Study 6 called attention to the appearance of the next season. For instance, “winter is over when spring has begun”. The very few responses describing beginnings by pointing to the ending of a previous season occurred only in the case of autumn: “Autumn begins when summer is over.” Consistent with our hypothesis that beginnings are more significant than endings, this asymmetry suggests that the beginning of one season is given greater priority in defining the transition between seasons than the ending of the preceding season. On the other hand, it is generally acknowledged that causes should precede effects. According to this logic, the beginning of one season should be prompted by the ending of the previous one. In Study 7, we contrast these two assumptions by asking participants to compare statements where beginnings and endings are presented as reasons for the passages from one season to the next.

The dynamic force attributed to beginnings suggests that statements of the type: “Winter is over because spring has begun” will be endorsed more often than the complementary statement: “Spring has begun because winter is over”, whereas the principle of temporal priority predicts that the second of these statements would be considered more valid.

8.1 Method

Participants were 124 students from two Norwegian universities. They received statements allegedly from a dialogue between two speakers about seasonal transitions. One speaker said: “Spring has begun because winter has ended”, whereas the other said: “Winter has ended because spring has begun”. Which statement feels more right?

Half of the participants read statements on the winter-spring and summer-autumn transitions, and half read statements about the autumn-winter and spring-summer transitions. Within each pair, the order of statements was counterbalanced. After selecting the preferred statements participants were asked briefly to explain their choices.

8.2 Results

For all four pairs of statements, a majority of participants preferred an explanation involving beginnings rather than endings, as shown in Figure 6. Overall there were 62.5% preferences for using beginnings against 37.5% preferences for endings.

<Insert Figure 6 about here>

The preference for beginnings of one season to explain the ending of the previous one stands in apparent contrast to the temporal principle of causes preceding effects. But the logical order can be preserved if we think of the new season as playing an active role in “taking over” the scene (as mentioned by some participants), and even “chasing away” the old one. Moreover, explanations introduced by the term ‘because’ do not have to be of a causal kind. ‘Because’ also occurs in explanations that give reasons for belief (Draper, 1988). In the present context, this could mean how we *know* that seasons have changed, rather than what caused them to change. We can tell that summer is over by observing the signs of autumn. Even so, the results show that beginnings are better indicators of seasonal changes than are endings, in keeping with our hypothesis of a beginning advantage.

9. Study 8: Early and Late Season Changes

If beginnings are regarded as less predictable and more in contrast with a preceding state of affairs, they should also be regarded as more surprising than endings (Teigen & Keren, 2003). Seasons are sometimes said to arrive surprisingly early or surprisingly late, which also implies that the previous season ends earlier or later than usual. In the present study, participants were asked to compare statements about surprising beginnings or endings

of seasons. We predicted that they would find statements about beginnings more natural in a conversational setting.

9.1 Method

Participants were 115 students (83 female and 24 male, 8 unreported; median age 21 years) attending a lecture at a Norwegian university.

All participants received pairs of statements that were presented as alternative expressions of the same facts, as for instance the following one:

Winter ends surprisingly early this year.

Spring begins surprisingly early this year.

Each participant received four such pairs covering all transitions between adjacent seasons, and was asked to mark the statement in each pair that appeared more natural in a conversation about seasons. Half the statements were about surprisingly early and half about surprisingly late transitions. Order of statements within each pair was counterbalanced across participants.

9.2 Results

Overall, participants preferred to speak of surprising beginnings rather than surprising endings in 72.4% of all pairs. No difference could be observed between “surprisingly early” and “surprisingly late” pairs, so preferences from both conditions were pooled. Beginnings were strongly preferred to describe transitions from winter to spring (70.7%), spring to summer (87.0%), and autumn to winter (91.3%) (all $ps < .001$). Summer to autumn formed an exception, as only 40.5% ($p = .051$) selected the beginning of autumn frame, presumably because summer is more of an event (more figure-like) than autumn in the participants’ subjective calendars. Autumn can actually be defined as a season that “marks the transition from summer into winter” (<https://en.wikipedia.org/wiki/Autumn>). In contrast, a definition of summer as the transition from spring into autumn would appear a bit odd.

These results agree with the contrast interpretation of surprise (Teigen & Keren, 2003), which claims that surprise primarily reflects a perceptual or conceptual contrast between observed and expected events. However, the experiment did not include a control condition in which one season ends and another begins as expected. It may be the case that even normal season changes are preferably described as beginnings rather than endings.

10. General Discussion

The preceding studies demonstrate a robust “beginnings advantage” in the perception of events in time. This was illustrated by entries in historical timelines (Study 1). People also believed that the dates when wars and reigns started were more important to remember than the dates when they ended (Study 2), and they considered the whys and hows of historical beginnings to be more interesting than the whys and hows of endings (Study 3). Studies 4 and 5 focused on transitional events that can be regarded either as the ending of a past period or as a beginning of a new one. The seasons studies (Study 6-8) showed that these findings are not due to a preference for recent events that are still of relevance to people in contemporary times; they also showed that the beginnings advantage is not limited to unique events that unfold in chronological time but also holds for reoccurring events in cyclical time. These studies indicated that people have more to say about beginnings than endings of adjacent, conceptually comparable natural events, and that they regard natural beginnings as having more causal and explanatory power than natural endings. Across all studies, beginnings were selected about twice as often as endings, as shown in Figure 7, which summarizes findings from seven of the eight studies reported in this paper.

Insert Figure 7 about here

10.1 Moderators and boundary conditions

Our studies establish the beginning advantage as a robust and pervasive phenomenon, which proved replicable across several contexts and domains. They show that the beginning

advantage is not determined by valence, as it can be found both for positively and for negatively valenced events. Neither does it require specific knowledge of the events in question. For instance, Norwegian students in Study 4 with very limited knowledge of American history believed that the importance of presidential elections resided more in what they inaugurated than what they concluded. Prior knowledge did not affect ratings of the social and cultural epochs described in Study 3, and applied equally well to unfamiliar and familiar wars and monarchs in Study 2.

However, all studies examined so far have concerned high-order extended events where the event boundaries are separated by months or years. When beginnings and endings are this far apart they acquire their own identities as separable part events, which can easily be compared and contrasted with each other. We believe that the beginning advantage also applies to brief events and events of medium duration, but this might be more difficult to demonstrate, as it would appear odd to ask participants about their preference for the beginning versus ending of a greeting or a meal. Such events could be studied with a different methodology, for instance eye movements or other indicators of attention.

Moreover, we do not claim that beginnings are perceived to be the most important part of any event and will trump endings under all circumstances. We can readily envisage at least three apparent departures from this rule, one having to do with the foreground/background quality of the events, the second with the timing of an achievement, and the third with cultural conventions.

10.1.1 Figure/ground effects

In the introduction, we considered the analogy between events and visual figures, with temporal boundaries as contours belonging to the figure, rather than to the ground. For transitional events, we assume that a beginning frame will only be preferred over an ending frame if the period they inaugurate has a figure-like quality. Accordingly, in Studies 2 and 3

the beginning of a war claimed more attention than its ending. But participants in Study 5 suggested that an account of how World War I ended would attract more attention than a corresponding account of how peace began. These observations are not contradictory if we think of wars as figures standing out from the ordinary course of history, as their prominence in cultural memory suggests (Liu et al., 2005). More generally, with sequences of historical events such as those depicted in Figure 1a one might expect that the ending of one event will be considered more important than the beginning of the *interval* between two events. Such a preference for seeing endings as part of the preceding events could explain why the collapse of the Soviet Union and the fall of the Berlin wall appeared more interesting as closing a chapter in European history than as opening a new era, whose identity is not yet clearly defined (Figure 4). Presumably, the beginning advantage occurs only if adjacent time periods have a more equal event status, as is the case with seasons and presidential terms.

10.1.2 Goal attainments

Events that entail goal attainment may form a second exception to the beginning advantage rule. Such “performance events” (Casati & Varzi, 2015; Kenny, 1963) will naturally be attended to and remembered mainly for their peak achievements, regardless of when those peaks are reached within the structure of an event.

In some goal-directed activities, like sports competitions, the crowning feat is attained towards the conclusion, determining the meaning of the event only at the end. In these cases, people might well rate their interest in the ending higher than the beginning. Most people will follow more closely the last few minutes than the first few minutes of a football match, and tennis finals attract a bigger crowd than the initial games, because the ultimate goal (winning) is only achieved at the very end.

We have not in the present research systematically explored what people consider the “high points” of the events in question (except from the estimated peaks of the historical

movements in Study 2), nor have we collected information on the degree of goal attainment entailed by the events in question. Arguably, it is more of an achievement to win an election than to conclude a term in office, so in the US presidents study, beginnings were highly correlated with goal attainments. However, our other studies indicate that events that are not specifically geared towards goal attainment, or where goal attainment does not coincide with task completion, are more noteworthy for their start phase than for their conclusions. Overall, we find that beginnings attract more attention regardless of how successful they have been.

10.1.3 Cultural conventions

We noticed in Study 1 a strong predominance of beginnings in popular lists of historical events. We took this as evidence for a general beginning advantage, rooted in the inherent asymmetry of temporal event boundaries and the way events become represented in the human mind. But such lists are also cultural products that in turn are written to inform and influence individuals' ways of representing history. Thus, the process could well be a circular one, with public history schemata creating or reinforcing the beginning advantage in the minds of modern readers. In medieval annals, which may be regarded as a forerunner of today's time-lines, events were chronicled year by year as they happened. As a result, deaths of important people (rather than their births) are frequently listed (Rosenberg & Grafton, 2010). By this approach, the beginning advantage might become attenuated or reversed, as beginnings only show their importance in retrospect and at a distance. Future research should examine the presence or reversal of a beginning advantage in yearbooks and popular reviews that chart recent rather than historical happenings.

10.2 The beginning advantage in perspective

We consider in this section five temporal asymmetries that have been reported in the research literature and may seem to be related to (supporting or opposing) our observation of a beginning advantage.

10.2.1 Remembered “firsts”

Autobiographical studies have shown that when older adults are asked to recall important events from their own lives, memories of events that occurred between the ages 15 and 30 are overrepresented, forming a “reminiscence bump”. Many of these events come in the category of “firsts” (first date, first job) and beginnings (of university studies, of family life). The reminiscence bump has been discussed as an instance of a ubiquitous “law of primacy” for memories (Tulving, 2008) and a developmental stage of identity formation (Rubin, Rahhal, & Poon, 1998), but can equally well be related to culturally transmitted life scripts (Berntsen & Rubin, 2004; Glück & Bluck, 2007). Our studies indicate that the preference for beginnings is not restricted to autobiographical memories, but applies also to semantic memory where events from history can only be known from a third person perspective. This finding may, in turn, offer an additional perspective of the mechanism behind reminiscence phenomena. People may not only report the “firsts” from the chapters in their lives because of a memory advantage, or because of culturally shared life scripts, but also due to a more general appeal of beginnings regardless of personal involvement. In the field of collective memory, similar primacy effects can be demonstrated. For instance, Chinese students showed elevated recall for the names of the first leaders of China within each of several historical periods (Fu, Xue, DeSoto, & Yuan, 2016).

10.2.2 The temporality effect

The priority of beginnings, both as events in their own right and as the initial phases of more comprehensive events, stands in apparent contrast to earlier findings concerning the temporality effect in historical explanations (Teigen, 2004). In those studies, people who were given two pieces of statistical information separated in historical time, preferred to explain why later numbers differ from earlier ones rather than the reverse. However, a closer analysis of these response patterns suggests that the first figure functions as a background or reference

value, which is taken for granted, whereas the second one stands out as a “change” that has to be explained.⁸ This indicates that people only perceived the second statistic as an event in its own right, to be contrasted with the past, and thereby acquiring its identity as a relative increase or a decrease. Similarly, beginnings presuppose contrast with a prior, “normal” state of historical affairs where the event in question did not exist (cf. Figure 1), so in both cases the event that begs explanation is perceived as a noteworthy change. This event (the second statistic in the temporality studies) is not presented as an ending, but rather as a peak or as a stage in an upward trend (Hohle & Teigen, 2015).

10.2.3 The peak/end-rule

Studies of remembered utility have suggested a priority of endings. According to the peak/end-rule (Kahneman, Fredrickson, Schreiber, & Redelmeier, 1993) people judge the overall attractiveness of an episode partly based on its high points (good or bad), and partly from the way it eventually turns out (as better or worse than in its earlier stages). According to this observation, endings seem to be given more weight than beginnings, in apparent contrast to the present findings. The difference may be attributed to several sources: (1) The peak/end-rule refers primarily to personal events that are actually experienced (in real time) by an individual, rather than events that are just heard or read about. (2) The rule refers to the judged pleasantness or unpleasantness, rather than the importance, of an episode, and concerns assessments of the event as a whole, rather than its boundaries or particular parts of it. (3) The effect applies primarily to simple, continuous sensory experiences, and has been difficult to replicate with events consisting of separable parts (Tully & Meyvis, 2016).

10.2.4 Causes and effects

⁸ This result is in line with the “Temporality effect” previously studied by Miller and Gunasegaram (1990) and Byrne et al. (2000). In these studies, it is argued that the second of two independent events is given more attention because it is easier to imagine that it could have been different; the second is more “mentally mutable” than the first one.

There are some superficial similarities between beginnings and endings, on one hand, and another ubiquitous pair of concepts, causes and effects, on the other. Both pairs of concepts refer to events extended in time, describe changes, and follow a temporal order: Beginnings occur, by definition, prior to the ending of the same event, and people generally believe that causes precede effects in time (Hastie, 2015, proposition 2). But, as demonstrated in the present studies, people are also more keen on *explaining* beginnings than endings, which imply that they (like all other occurrences) have causes of their own and can accordingly be conceived as an effect or outcome of preceding circumstances. Similarly, endings can both be viewed as effects and as causes of subsequent events, as when the end of one king's reign paves the way for his successor. Yet we suggest that beginnings, regardless of their causes, are typically viewed as imbued with some dynamic force that make them partly responsible for the sequence of events that follows (and occasionally, even for its ultimate decline, as when we discuss infelicitous beginnings that contain the seed of their own destruction). We believe accordingly that beginnings are, in comparison, viewed as more causal than endings.

10.2.5 Narratives

Ever since Aristotle's *Poetics*, beginnings and endings have played a central role in the analysis of plots and stories. All stories have beginnings and endings, but not everything that has a beginning and an ending is a story. Stories contain a sequence of events that are meaningfully interconnected and as a rule also causally related. Without such links, we may have a "chronicle" but no "narrative" (Carroll, 2001). We have in the present studies discussed beginnings and endings generally, not confined to narratives. In narratives, the ending often represents the final outcome or "fate" of the main actors involved, which might claim considerable interest, but mainly for those who have been able to follow (and involve themselves emotionally in) the ups and downs of the complete plot (Velleman, 2003).

Cause-effect relationships and narratives are directional: their components follow each other in an orderly manner. As a result, people reason more easily and more confidently from causes to effects, than the other way around (Hastie, 2015, proposition 3). A similar asymmetry may hold for narratives as well.

11. Conclusions

We have in this research demonstrated a pervasive beginning advantage for historical as well as for seasonal events. Beginnings are seen as more interesting and important than endings, more in need of an explanation, and are believed to catch people's attention more strongly. We argue that the beginning advantage follows from a contrast hypothesis, which claims that the introduction of something that did not exist before implies more of a change (a step "up") in the order of things than its subsequent removal (a step "down"), as illustrated by Figure 1. From this general idea, several specific predictions may be derived, including some that have not been tested in the present studies. For instance, we expect that endings may appear less surprising and more foreseeable than beginnings. This might be reflected in hindsight judgments (Roese & Vohs, 2012). And we may expect people (including historians) to develop a wider range of explanations, and perhaps disagree more fiercely, about how events started than how they came to an end.

The identity of events and their boundaries are often established in retrospect. At the time it happened, few would have regarded the assassination of archduke Franz Ferdinand as inaugurating World War I. Our claim that beginnings are regarded as more striking than endings may conflict with their actual importance at the time. A quest for origins, "roots", and "firsts" will tend to push the beginnings of an epoch further back, to a time where their influences on the subsequent train of events were, at best, minimal. It follows that a preoccupation with beginnings, as demonstrated by the present studies, may distort and perhaps exaggerate their historical role. This might also lead to a discrepancy between

contemporaneous (eyewitness) narratives and later accounts, aggravated by the importance attached to beginnings by posterity.

A beginning advantage may also be adaptive. Beginnings that are not in themselves causal may still serve as signs of underlying processes that are shaping history. They may accordingly be functional providing warning signals and motivate preventive actions, or signs of hope stimulating goal pursuance (Snyder, 2000). People with a keen eye for beginnings would be better prepared for the future than those announcing end-time prophecies.

Epochs have beginnings, and beginnings create epochs. Highlighting a beginning strengthens the entativity and coherence of the subsequent period of time. In this way, beginnings may play an important role in supporting social and national identity. National days are often created to celebrate historical beginnings (independence day, constitution day), dates that in retrospect appear important for the birth of the nation. In his investigations of the role of time in history, Zerubavel (1993) claims that origin “myths” are often chosen or invented deliberately to reinforce group identity. Such beginnings suggest historical continuity of the time span that follows, and discontinuity with anything that predated it. Beginnings mark a break with the past, so by announcing a beginning, the “pre-history” is devalued as somehow irrelevant and therefore not memorable. Indeed, “we tend to envision beginnings as preceded by actual void” (Zerubavel, 2003, loc. 1934). Thus, a concern for beginnings can be a rhetorical device with real political effects.

Acknowledgements

This research was supported by European Cooperation in Science and Technology through COST Action IS 1205: “Social psychological dynamics of historical representations in the enlarged European Union”. We thank Andrew Barnes, University of Surrey, for technical assistance.

References

- Autumn (n.d.). In Wikipedia. Retrieved from <https://en.wikipedia.org/wiki/Autumn> on April 28th, 2016.
- Baars, B. J. (1986). *The cognitive revolution in psychology*. New York: The Guilford Press.
- Baron, J. & Ritov, I. (2004). Omission bias, individual differences and normality. *Organizational Behavior and Human Decision Processes*, 94, 74-85.
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. New York: McGraw-Hill.
- Berntsen, D., & Rubin, D. C. (2004). Cultural life scripts structure recall from autobiographical memory. *Memory & Cognition*, 32, 427-442.
- Bolhuis, J. J., & Bateson, P. (1990). The importance of being first: a primacy effect in filial imprinting. *Animal Behavior*, 40, 472-483.
- Bouchat, P. et al. (2016). Social representations of the great war. Brussels: Université Libre de Bruxelles: Unpublished manuscript.
- Brown, N. R. (2016). Transition theory: A minimalist perspective on the organization of autobiographical memory. *Journal of Applied Research in Memory and Cognition*, 5, 128-134.
- Bruckmüller, S., Hegarty, P., Teigen, K. H., Böhm, G., & Luminet, O. (in press). When do past events require explanation? Insights from social psychology. *Memory Studies*.
- Byrne, R. M., Segura, S., Culhane, R., Tasso, A., & Berrocal, P. (2000). The temporality effect in counterfactual thinking about what might have been. *Memory & Cognition*, 28, 264-281.
- Carroll, N. (2001). On narrative connection. In *Beyond aesthetics: Philosophical essays* (pp. 118-133). Cambridge: Cambridge University Press.
- Casati, R., & Varzi, A. (2015). Events. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*.
- Churchill, W. S. (1943). *The end of the beginning*. London: Cassell.

- Conway, M. A. (2005). Memory and the self. *Journal of Memory and Language*, 53, 594-628.
- Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self memory system. *Psychological Review*, 107, 261–288.
- Draper, S. W. (1988). What’s going on in everyday explanations? In C. Antaki (Ed.), *Analyzing everyday explanation* (pp. 15-31). London: Sage.
- Fischer, D. H. (1970). *Historians’ fallacies*. New York: Harper & Row.
- Fu, M., Xue, Y., DeSoto, A., & Yuan, T.-F. (2016). Remembering the leaders of China. *Frontiers in Psychology*, 7 (March), Article 373. doi: 10.3389/fpsyg.2016.00373
- Glück, J., & Bluck, S. (2007). Looking back across the life span: A life story account of the reminiscence bump. *Memory & Cognition*, 35, 1928–1939.
- Goldstein, D. G., & Gigerenzer, G. (2002). Models of ecological rationality: the recognition heuristic. *Psychological Review*, 109, 75–90.
- Gregory, W. L., Cialdini, R. B., & Carpenter, K. M. (1982). Self-relevant scenarios as mediators of likelihood estimates and compliance: Does imagining make it so? *Journal of Personality and Social Psychology*, 43, 89-99.
- Hard, B. M., Tversky, B., & Lang, D. (2006). Making sense of abstract events: Building event schemas. *Memory and Cognition*, 34(6), 1221–1235.
- Hastie, R. (2015). Causal thinking in judgments. In G. Keren & G. Wu (Eds.), *The Wiley Blackwell Handbook of judgment and decision making, Vol. II* (pp. 590-628). Chichester, UK: John Wiley.
- History. (n. d., b). In Merriam-Webster online. Retrieved from <http://www.merriam-webster.com/dictionary/history> on April 28th 2016.
- Hohle, S. M. & Teigen, K. H. (2015). Forecasting forecasts: The trend effect. *Judgment and Decision Making*, 10(5), 416-428.

- Hovland, C. I. (Ed.). (1957). *The order of presentation in persuasion*. New Haven, CT: Yale University Press
- Information Please Database (2007). *1900-1999 World history*. Pearson Education. Retrieved from <http://www.infoplease.com/ipa/A0005245.html#ixzz38T9FZnUB>
- Jones, E. E., & Goethals, G. R. (1971). *Order effects in impression formation: Attribution context and the nature of the entity*. New York: General Learning Press.
- Kahneman, D., Fredrickson, B., Schreiber, C. M., & Redelmeier, D. (1993). When more pain is preferred to less: adding a better end. *Psychological Science*, 4, 401-405.
- Kahneman, D., & Tversky, A. (1982). The psychology of preferences. *Scientific American*, 246, 160–173.
- Kenny, A. (1963). *Action, emotion and will*. London: Routledge and Kegan Paul.
- Klein, O. (2013). The lay historian: How ordinary people think about history. In R. Cabecinhas & L. Abadia, (Eds.), *Narratives and Social Memory: Theoretical and Methodological Approaches* (pp. 25 - 45). Braga: University of Minho.
- Kray, L. (2000). Contingent weighting in self-other decision making. *Organizational Behavior and Human Decision Processes*, 83, 82-106.
- Leahey, T. H. (2001). *A history of modern psychology*. Upper Saddle River, NJ: Prentice Hall.
- Liu, J. H., Goldstein-Hawes, R., Hilton, D. J., Huang, L.L., Gastardo-Conaco, C., Dresler-Hawke, E. ... Hidaka, Y. (2005). Social representations of events and people in world history across twelve cultures. *Journal of Cross-Cultural Psychology*, 36, 171-191.
- Lu, S., Harter, D., & Graesser, A. C. (2009). An empirical and computational investigation of perceiving and remembering event temporal relations. *Cognitive Science*, 33, 345-373.
- MacMillan, K. (2013). *The war that ended peace: The road to 1914*. New York: Random House.
- Major European Wars 1400-1950 (n.d.). Retrieved from

<http://tangsweb.o-f.com/general/wars.html>

- Mandel, D. R. (2014). Do framing effects reveal irrational choice? *Journal of Experimental Psychology: General*, *143*(3), 1185-1198. doi: 10.1037/a0034207.
- Miller, D. T., & Gunasegaram, S. (1990). Temporal order and the perceived mutability of events: Implications for blame assignment. *Journal of Personal and Social Psychology*, *59*, 1111-1118.
- Murdock, B. B. (1962). The serial position effect of free recall. *Journal of Verbal Learning and Verbal Behavior*, *64*, 482-488.
- Pillemer, D. B. (1998). *Momentous events, vivid memories: How unforgettable moments help us understand the meaning of our lives*. Cambridge, MA: Harvard University Press.
- Radvansky, G. A., & Zacks, J. M. (2014). *Event cognition*. Oxford UK: Oxford University Press.
- Roediger, H. L. III, & DeSoto, K. A. (2014). Forgetting the presidents. *Science*, *346*, 1106-1109.
- Roediger, H. L. III, & DeSoto, K. A. (2016). Recognizing the presidents: Was Alexander Hamilton president? *Psychological Science*, *27*(5), 644-650.
doi:10.1177/0956797616631113.
- Roese, N. J., & Vohs, K. D. (2012). Hindsight bias. *Perspectives on Psychological Science*, *7*, 411-426.
- Rosenberg, D. & Grafton, A. (2010). *Cartographies of time: A history of the timeline*. New York: Princeton Architectural Press.
- Ross, M., & Sicoly, F. (1979). Egocentric biases in availability and attribution. *Journal of Personality and Social Psychology*, *37*, 322-336.

- Rozin, P., Fischler, C., & Shields-Argelès, C. (2009). Additivity dominance: Additives are more potent and more often lexicalized across languages than are “subtractives”. *Journal of Behavioral Decision Making*, 4, 475-478.
- Rubin, E. (1915). Synsoplevede figurer. [Visually experienced figures]. Copenhagen: Gyldendalske Boghandel, Nordisk Forlag.
- Rubin, D. C., Rahhal, T. A., & Poon, L. W. (1998). Things learned in early adulthood are remembered best. *Memory & Cognition*, 26, 3–19.
- Rubin, D. C., & Umanath, S. (2015). Event memory: A theory of memory for laboratory, autobiographical, and fictional events. *Psychological Review*, 122, 1–23.
- Sewell, W. H. (1996). Historical events as transformations of structure: Inventing revolution at the Bastille. *Theory and Society*, 25, 841-881.
- Silvia, D. E. (2008). Interest – the curious emotion. *Current Directions in Psychological Science*, 17, 57–60.
- Snyder, C. R. (2000). *Handbook of hope : Theory, measures, and applications*. San Diego, CA: Academic Press.
- Stone, E. R., & Allgaier, L. (2008). A social values analysis of self-other differences in decision making involving risk. *Basic and Applied Social Psychology*, 30, 114-129.
- Teigen, K. H. (2004). When the past becomes history: Effects of temporal order on the explanations of trends. *European Journal of Social Psychology*, 34, 191-206.
- Teigen, K. H. (2015). Framing of numerical quantities. In G. Keren & G. Wu (Eds.), *The Wiley Blackwell Handbook of judgment and decision making, Vol. II* (pp. 568-589). Chichester, UK: John Wiley.
- Teigen, K. H., & Keren, G. (2003). Surprises: Low probabilities or high contrasts? *Cognition*, 87, 55–71.

- Thomsen, D. K., Pillemer, D., & Ivcevic, Z. (2011). Life story chapters, specific memories and the reminiscence bump. *Memory, 19*, 267–279.
- Tully, S. M., & Meyvis, T. (2016). Questioning the end effect: Endings are not inherently over-weighted in retrospective evaluations of experiences. *Journal of Experimental Psychology: General*. <http://dx.doi.org/10.1037/xge0000155>
- Tulving, E. (2008). On the law of primacy. In M. A. Gluck, J. R. Anderson, & S. M. Kosslyn (Eds.), *Memory and Mind: A Festschrift for Gordon H. Bower* (pp. 31–48). New York: Lawrence Erlbaum Associates.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211*, 453–458.
- Velleman, J. D. (2003). Narrative explanation. *The Philosophical Review, 112*(1), 1-25.
- Vendler, L. (1967). *Linguistics in philosophy*. Ithaca, NY: Cornell University Press.
- Withers, C. W. J. (2007). *Placing the enlightenment: Thinking geographically about the age of reason*. Chicago: University of Chicago Press.
- World Magazine* (1999, July 31). A historical timeline. Retrieved from http://www.worldmag.com/1999/07/a_historical_timeline
- Zacks, J. M., & Tversky, B. (2001). Event structure in perception and conception. *Psychological Bulletin, 127*, 3-21.
- Zerubavel, E. (1993). In the beginning: Notes on the social construction of historical discontinuity. *Sociological Inquiry, 63*, 457-459.
- Zerubavel, E. (2003). *Time maps: collective memory and social shape of the past*. Chicago: The University of Chicago Press.

Appendix A:

Material for Study 2

Alex is a British high school student preparing for an exam in European history. He understands the importance of memorizing a few of the more important dates and years. However, he realizes that it is impossible to remember everything. To simplify the task he decides to be selective and try to remember only some of these dates rather than all of them. For instance, a table of major European wars includes those listed below.

Mark five – 5 – of these 12 years that you think he should try to remember. (You don't have to know anything about these wars.)

Hundred years' war	1337-1453
The thirty years' war	1618-1648
The seven years' war	1756-1763
The Napoleonic wars	1803-1815
The Crimean war	1853-1856
World War I	1914-1918

There is also a chance that Alex will be asked about the reigns of British Kings and Queens, including those listed below.

Mark five – 5 – of these 14 years that you think he should try to remember. (You don't have to know anything about these monarchs.)

Richard the Lionheart	1189-1199
Henry IV	1399-1413
Henry VIII	1509-1547
Elizabeth I	1558-1603
William III	1689-1702
Victoria	1837-1901
George VI	1936-1952

Appendix B:

Material for Study 3 (based on Wikipedia)

Below you will read thumbnail descriptions of four historical movements, epochs or events. You may have heard about some of them before, but we assume that they are not very familiar to you. How do you think events like these develop over time? And if you had a chance to read a bit more about these events, what would you primarily like to know? It is important that all answers are made without looking up in books or on the internet! (No previous knowledge is assumed or required).

The Long Depression (1873-1879) was a worldwide economic recession, which has been described as “the first truly international crisis”. In the US 18,000 businesses went bankrupt during this seven years’ period, including hundreds of banks.

Immigration. Ireland and Norway were the two countries in Europe with the greatest number of emigrants to North America, relative to the size of the population. Most of the emigration from Norway to North America took place in the 40 years’ period from 1875 to 1915 (the great wave), when a total of 800,000 Norwegian immigrants settled in the US.

The Thirty Years’ War (1618-1648) was a series of wars fought in Central Europe, involving most of the countries of Europe. It was one of the most destructive conflicts in European history, and one of the longest continuous wars in modern history.

Cubism is a style of modern art characterized by abstract geometrical shapes. Picasso is perhaps the most well-known representative of the cubist movement. Art historians date the cubist epoch in France from 1907 to 1919.

Appendix C:

Material for Study 4

Below is a summary of all 25 presidential elections in USA in the 20th century. Mark the five elections you think the historian will include in his chapter – the elections you suppose are historically most important.

Election year	The candidate that lost R: Republican D: Democrat	The candidate that won R: Republican D: Democrat	The 5 most important elections
1900	D William J. Bryan	R William McKinley	
1904	D Alton B. Parker	R Theodore Roosevelt	
1908	D William J. Bryan	R William H. Taft	
1912	R Theodore Roosevelt	D Woodrow Wilson	
1916	R Charles E. Hughes	D Woodrow Wilson	
1920 [^]	D James M. Cox	R Warren G. Harding	
1924	D John W. Davis	R Calvin Coolidge	
1928	D Alfred E. Smith	R Herbert Hoover	
1932	R Herbert Hoover	D Franklin D. Roosevelt	
1936	R Alfred M. Landon	D Franklin D. Roosevelt	
1940	R Wendell L. Wilkie	D Franklin D. Roosevelt	
1944	R Thomas E. Dewey	D Franklin D. Roosevelt	
1948	R Thomas E. Dewey	D Harry S. Truman	
1952	D Adlai Stevenson	R Dwight D. Eisenhower	
1956	D Adlai Stevenson	R Dwight D. Eisenhower	
1960	R Richard M. Nixon	D John F. Kennedy	
1964	R Barry M. Goldwater	D Lyndon B. Johnson	
1968	D Hubert H. Humphrey	R Richard M. Nixon	
1972	D George S. McGovern	R Richard M. Nixon	
1976	R Gerald R. Ford	D Jimmy Carter	
1980	D Jimmy Carter	R Ronald Reagan	
1984	D Walter F. Mondale	R Ronald Reagan	
1988	D Michael S. Dukakis	R George H. Bush	
1992	R George H. Bush	D Bill Clinton	
1996	R Bob Dole	D Bill Clinton	

Appendix D:

Material for Study 5 (translated from Norwegian)

Version 1 (B = Beginning frame, E = Ending frame), counterbalanced in Version 2.

Item 1:

In 1989, Denmark introduced laws allowing same-sex partnership (B)

In 1989, Denmark abolished laws against same-sex partnership. (E)

Item 2:

1918: After 4 years of intense hostilities, peace in Europe is finally restored. (B)

1918: After 4 years of intense hostilities, war in Europe has finally ended (E)

Item 3:

With Hitler's take-over in 1933 the era of the German Weimar Republic ended. (E)

With Hitler's take-over in 1933 the Nazi regime in Germany began. (B)

Item 4:

1543: Kopernikus' work *De revolutionibus* marked the beginning of the heliocentric system (B).

1543: Kopernikus' work *De revolutionibus* marked the end of the geocentric system. (E)

Item 5:

The 1951 general election ended a period of left-wing dominance in British politics. (E)

The 1951 general election inaugurated a period of right-wing dominance in British politics. (B)

Item 6:

In 1989 the Berlin wall was destroyed, marking the beginning of a reunified Germany. (B)

In 1989 the Berlin wall was destroyed, marking the end of a divided Germany (E)

Item 7:

1925: Short skirts are now in fashion. The era where women can show their legs has definitely begun. (B)

1925: Long skirts are now out of fashion. The era where women must hide their legs is definitely over (E)

Item 8:

Bergen and Oslo have taken turns in being capitals of Norway. Bergen lost its status as a capital in 1299. (E)

Bergen and Oslo have taken turns in being capitals of Norway. Oslo received its status as a capital in 1299. (B)

Item 9:

A series of elections in the sub-states of the Soviet Union lead to the dissolution of the union in 1991. (E)

A series of elections in the sub-states of the Soviet Union lead to the establishment of several independent nations in 1991. (B)

Item 10:

In 1971 women in Switzerland were given the right to vote. (B)

Until 1971, only men in Switzerland had the right to vote. (E)

Item 11:

The 2014 Olympic Winter Games were the first that allowed women to compete in ski jump. (B)

In the 2014 Olympic Winter Games, women were no longer banned from competing in ski jump. (E)

Item 12:

1945. Europe has changed its borders. Breslau (Wrocław) is no longer a German city. (E)

1945. Europe has changed its borders. Breslau (Wrocław) is from now on a Polish city. (B)

Item 13:

1916. Norway introduced laws prohibiting sale and manufacturing of hard liquor (B)

1916. Norway repealed laws permitting sale and manufacturing of hard liquor (E)

Item 14:

In 1927 hard liquor was no longer prohibited in Norway. (E)

In 1927 hard liquor was allowed again in Norway. (B)

Item 15:

In 1994, after 46 years of apartheid, laws about equal rights for blacks and whites were introduced in South Africa. (B)

In 1994, after 46 years of apartheid, laws discriminating blacks and whites were repealed in South Africa. (E)

Item 15:

With the October Revolution in 1917 the power of the Russian czar ended. (E)

With the October Revolution in 1917 the communists came to power in Russia. (B)

Item 16:

The union between Sweden and Norway lasted until 1905. (E)

Norway became independent from Sweden in 1905. (B)

Item 18:

1869. After 10 years of construction work, the Suez Canal has been opened. (B)

1869. After 10 years of construction work, the Suez Canal has been completed. (E)

Table 1. *Overview of the present studies*

Study	Comparison	Theme
Historical Events in Linear Time		
Study 1	Different events (Bs, Es)	Beginnings and endings mentioned in timelines
Study 2	Same event (B ₁ vs. E ₁)	Dates to be remembered (Wars and Reigns)
Study 3	Same event (B ₁ vs. E ₁)	Explanations of historical movements
Study 4	Transitions (E ₁ vs. B ₂)	Presidential elections as beginnings or endings
Study 5	Transitions (E ₁ vs. B ₂)	Framing memorable years
Natural Events in Cyclical Time		
Study 6	Transitions (E ₁ vs. B ₂)	Signals of seasonal changes
Study 7	Transitions (E ₁ vs. B ₂)	Explanations of seasons
Study 8	Transitions (E ₁ vs. B ₂)	Early and late season changes

Note: B = beginning, E = ending

Table 2. Mean ranks (1-4) of interest in reading descriptions and explanations of how four historical events started and ended, Study 3. Lower numbers indicate higher ranks.

Event	Descriptions: How				Explanations: Why			
	Started	Ended	t_{diff}	d	Started	Ended	t_{diff}	d
Long depression	1.94	3.35	12.90**	1.64	1.58	3.14	9.86**	1.97
Norw. immigration	1.97	3.06	8.04**	1.39	1.59	3.37 ^a	10.55**	1.98
Thirty years' war	2.14	3.12	3.88**	1.05	1.56	3.18	11.41**	1.91
Cubism in France	2.01	3.13	6.37**	1.11	1.88	2.97	6.93**	1.15

^a This alternative was misspelled in the questionnaires, see footnote 5.

** $p < .001$

Table 3. Mean totals (standard deviations) of self-coded reasons for why elections are important

Sample	N	Self-coded reasons			Differences between beginnings and endings		
		Beginnings	Endings	Other	t	p	Cohen's d
Norwegian	33	3.61 (2.34)	2.21 (1.83)	4.15 (2.60)	3.20	.003	.66
American	57	4.63 (2.48)	3.33 (2.18)	3.93 (2.43)	3.04	.004	.57

Note. Up to three reasons for five chosen elections allowed a maximum of 15 self-coded reasons per participant

Figure Captions

Figure 1. Events as elevated figures on a background of “normal” (uneventful) life. (a) Two events separated by an intermission, with well-defined beginnings (B) and endings (E) (e.g. two wars separated by a peaceful interval). (b) Adjacent events bounded by a transition period (e.g., two consecutive seasons).

Figure 2. Selection percentages of dates to be remembered from six European wars (top panel) and the reigns of seven British monarchs (bottom panel).

Figure 3. Mean preferences (percentages) for descriptions of how four historical movements started vs. how they ended, and for explanations of why they started vs. why they ended, Study 3. Error bars represent 95% confidence intervals.

Figure 4. Percentages of participants preferring transitions framed as beginnings, Study 4 (for descriptions of items, see Appendix D).

Figure 5. Mean number of completed statements about seasonal transitions framed as endings of one season or as beginnings of the next one, Study 6. Error bars represent ± 1 SEM.

Figure 6. Percentages of participants endorsing explanations for season changes in terms of beginnings or endings, Study 7. Error bars represent 95% confidence intervals.

Figure 7. Preferences for beginnings and endings (mean percentages) in seven different studies (Study 6 omitted as this study did not ask for preferences)

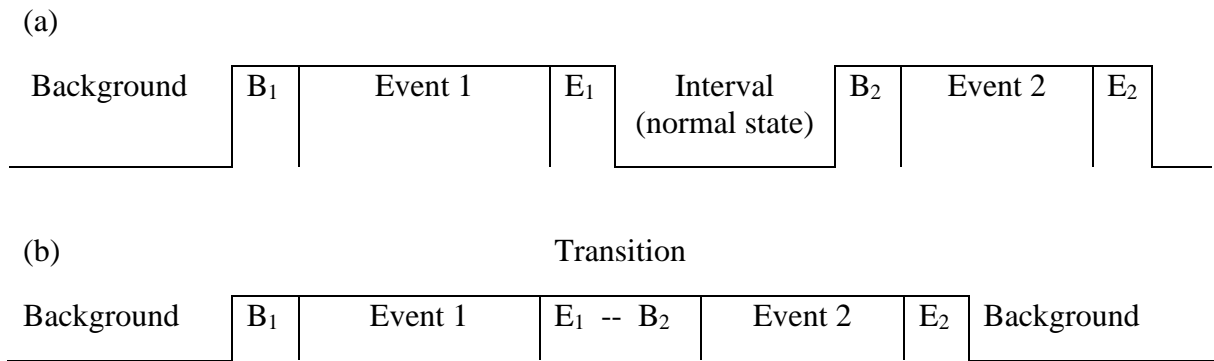


Figure 1. Events as elevated figures on a background of “normal” (uneventful) life. (a) Two events separated by an intermission, with well-defined beginnings (B) and endings (E) (e.g. two wars separated by a peaceful interval). (b) Adjacent events bounded by a transition period (e.g., two consecutive seasons).

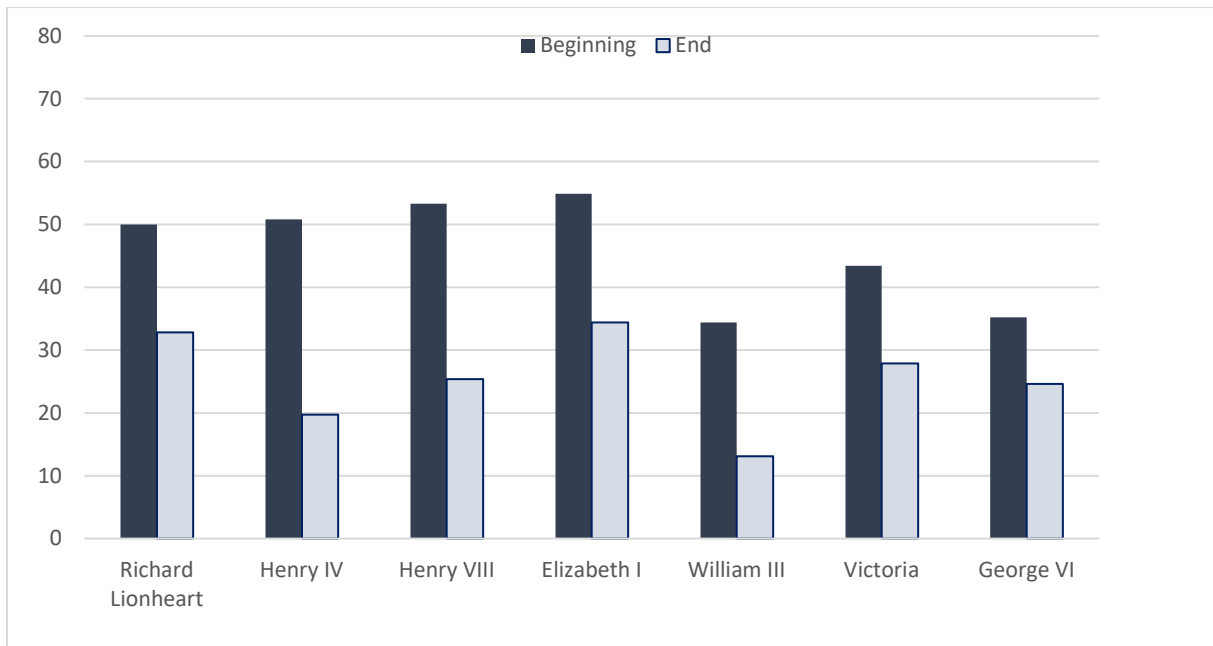
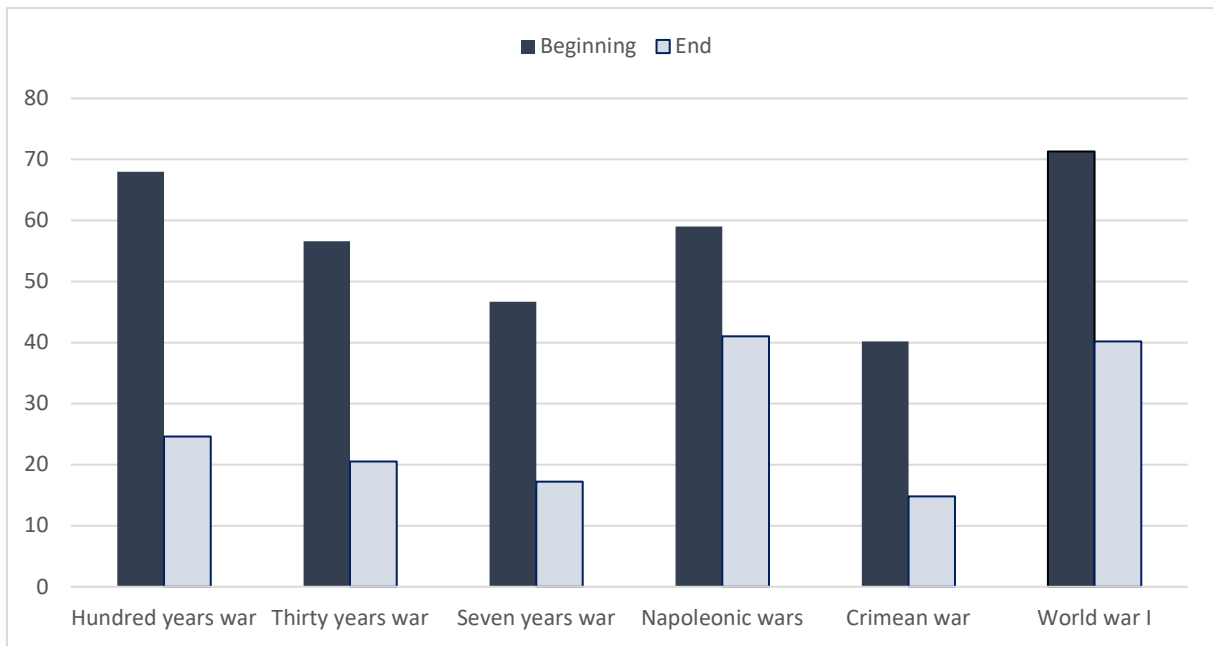


Figure 2. Selection percentages of dates to be remembered from six European wars (top panel) and the reigns of seven British monarchs (bottom panel).

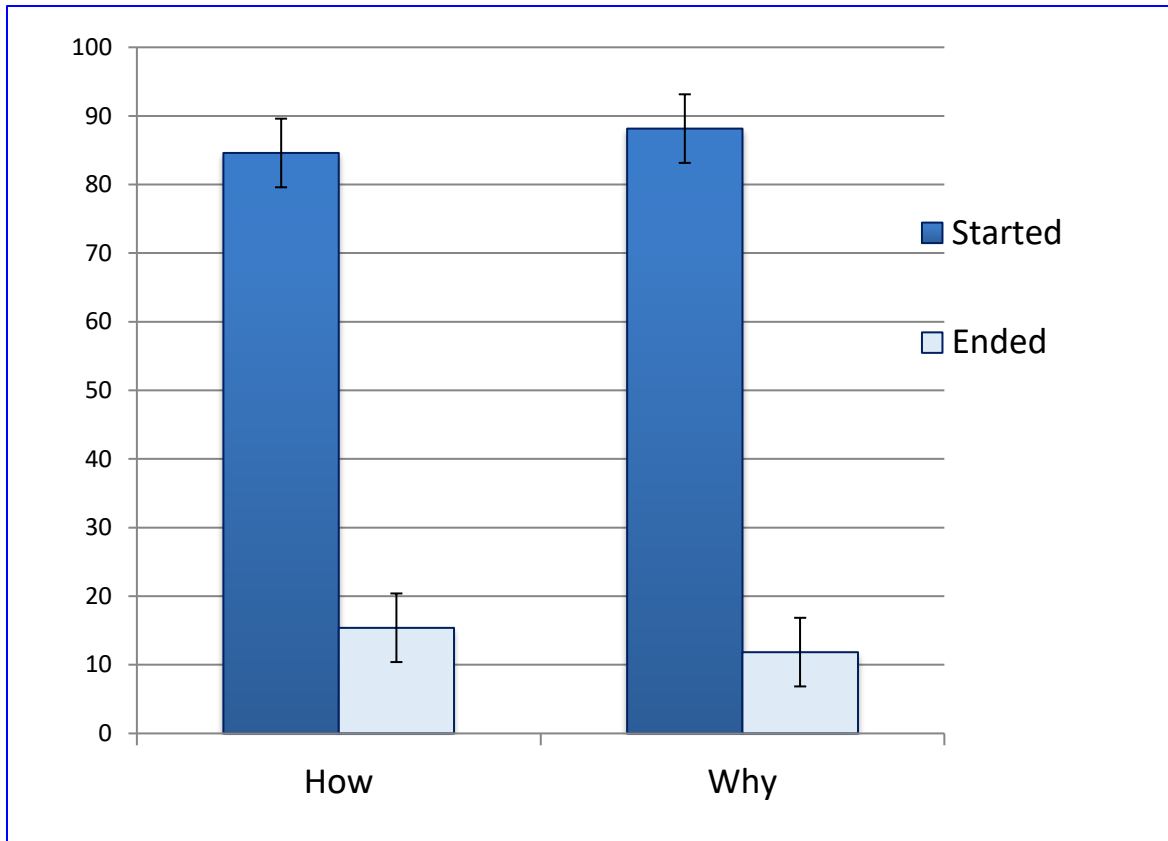


Figure 3. Mean preferences (percentages) for descriptions of how four historical movements started vs. how they ended, and for explanations of why they started vs. why they ended, Study 3. Error bars represent 95% confidence intervals.

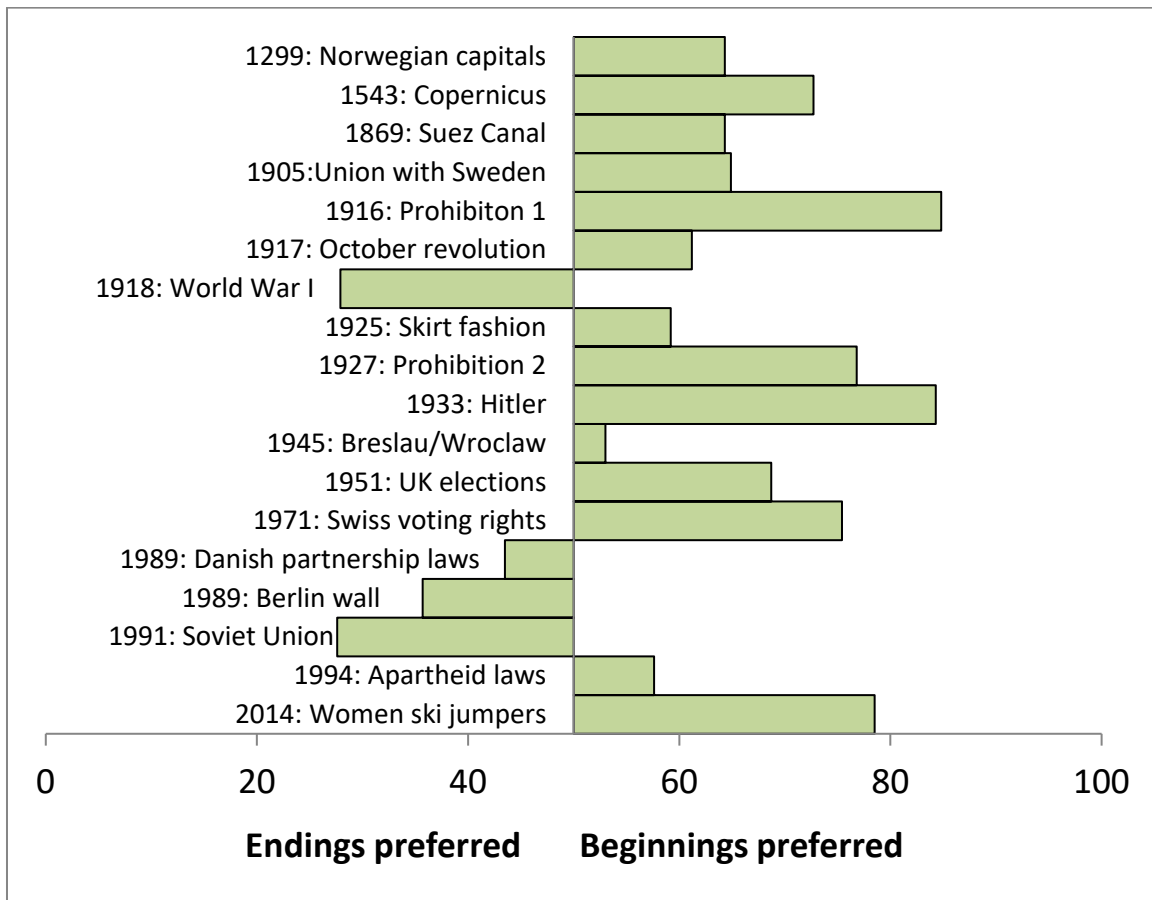


Figure 4. Percentages of participants preferring transitions framed as beginnings, Study 4 (for descriptions of items, see Appendix D).

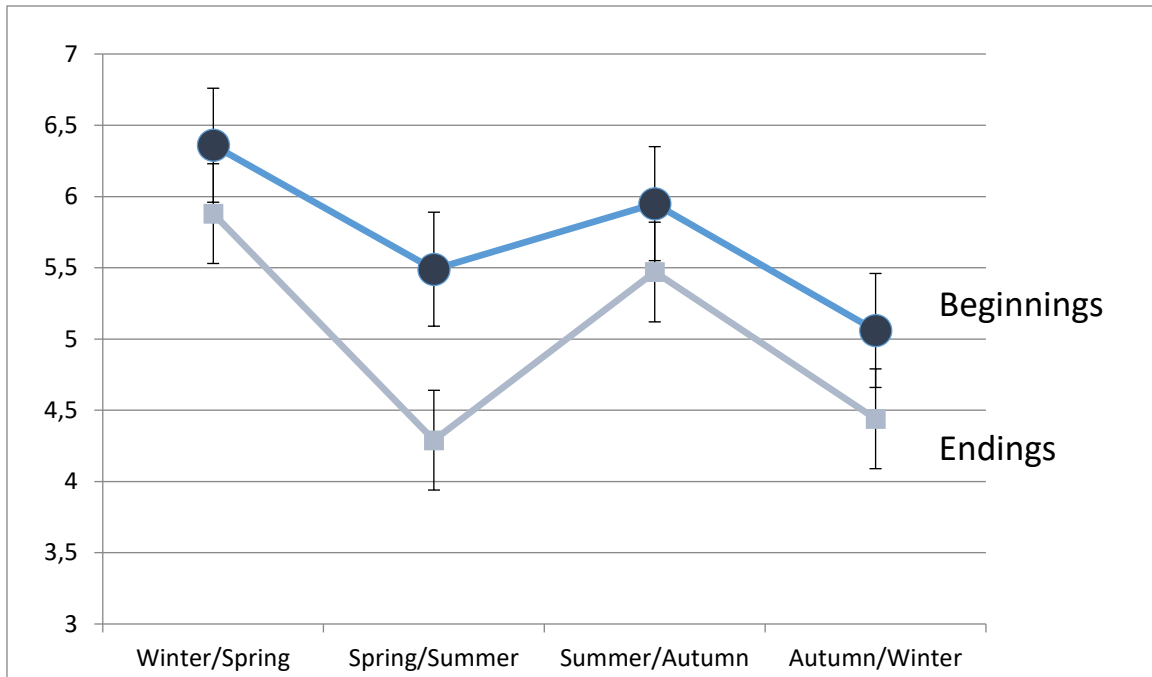


Figure 5. Mean number of completed statements about seasonal transitions framed as endings of one season or as beginnings of the next one, Study 6. Error bars represent ± 1 SEM.

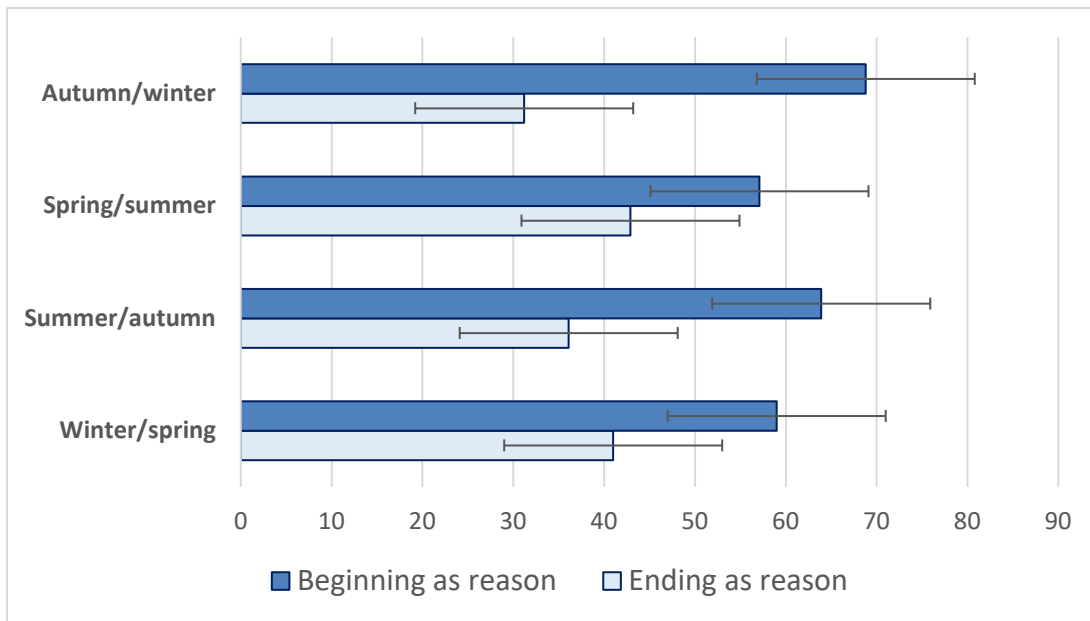


Figure 6. Percentages of participants endorsing explanations for season changes in terms of beginnings or endings, Study 7. Error bars represent 95% confidence intervals.

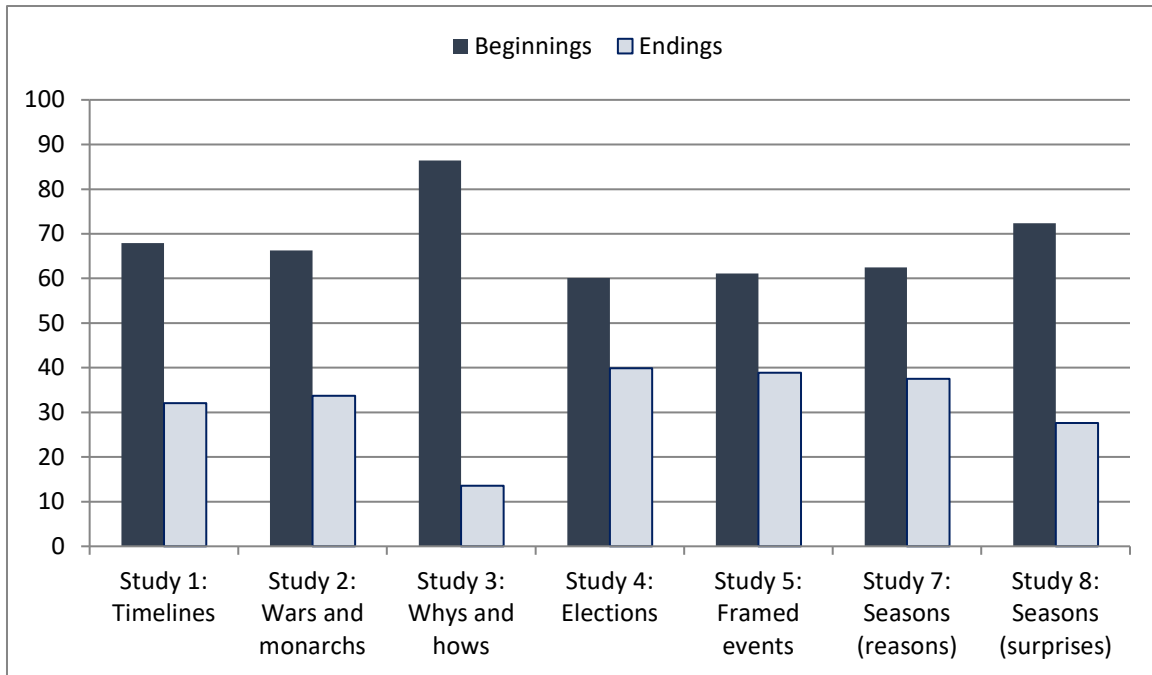


Figure 7. Preferences for beginnings and endings (mean percentages) in seven different studies (Study 6 omitted, as this study did not ask for preferences)