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Research Article

WHERE DID 1850 HAPPEN FIRST—IN AMERICA OR IN EUROPE? A Cognitive Account for a Historical Bias

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Abstract—A professor of history at The Hebrew University noted that his students were often surprised to learn that some event in America happened at about the same time as another in Europe, because the American event seemed to them to have happened more recently. We confirmed the validity of this anecdotal observation experimentally, and offer an explanation. We discuss how this bias may be an effect of judgment, rather than memory. We then show experimentally that students like those who demonstrated the bias regarded America as the New World, as opposed to Europe's Old World. Our theoretical account, based on judgment by representativeness, posits that if one category is deemed more X than another (e.g., American history is deemed more "recent" than European history), then its members will be judged more X than members of the other, *ceteris paribus*. Hence, an American historical event will appear more recent than a contemporaneous European event.

Some years ago, a historian colleague¹ contacted one of us. He had noted among his (Israeli) students, he said, a tendency to place events in American history more recently in time than contemporaneous events in European history. For example, although Bismarck (1815–1898) and Lincoln (1809–1865) were contemporaries, his students often believed that Bismarck was deceased by the time Lincoln arrived on the historical stage. He could provide many such examples, he promised, but he was perplexed. Could a cognitive psychologist come up with some explanation for this puzzling bias?

A possible explanation seemed easy enough, as the associations "New World" and "Old World" quickly came to mind. What seemed harder by far, though, was to confirm our colleague's anecdotal impression. Were his examples adequately representative of a biased subjective historical timetable, or merely salient but exceptional examples of an unbiased one?

The attempt to test the empirical validity of the bias, which we call the *European-American bias* (or EAB for short), and to account for it through the New World-Old World distinction, motivated the present study.

EXPERIMENT 1: DOES THE EAB EXIST?

The opportunity to define a sample space of historic events was fortuitously provided by *The Timetables of History* (Grun, 1991). This book covers the period between 5000 B.C. and 1990 A.D. in terms of seven categories (e.g., religion, visual arts, science). The table's rows are the progressing years, and the table's columns are the seven cate-

gories. Within cells, events are listed chronologically. In the present study, we used only the first column, labeled "History and Politics."

Method

Stimuli

The study was confined to events from 1750 (when America, in the contemporary sense of the term, already had its own history) to 1961 (well before any of the participants had been born). Forty numbers between 1750 and 1961 were drawn at random, with replacement, and *The Timetables of History* was opened at the corresponding years. Half the time the first event listed for America was selected, and half the time the first event listed for Europe was selected. Events that could be considered part of both American and European history (e.g., 1776—"American Revolution: British defeated at Princeton, N.J.") or took place outside both these continents (e.g., 1941—"Rommel retreats in North Africa") were discarded. Repetitive events, individualized only by their date of occurrence (e.g., 1934—"General strike staged in France"), were rejected, as were individuals' birth or death dates.

Twenty of the events were then paired with the first event in the other continent that was listed on the following year, and 20 were paired with the first event in the other continent that was listed 10 years later. In the final questionnaire, order within pairs (i.e., which event was listed first), as well as between pairs, was randomized.

In addition, there were 20 filler pairs. These pairs consisted of events that we selected deliberately, rather than at random, with the following aims in mind: First, because most of the 40 target events were obscure and unfamiliar, we introduced some well-known events, to make the task less frustrating. Second, in order to disguise the underlying rationale of the study, none of the filler pairs consisted of an American versus a European event, and some events occurred neither in America nor in Europe. Half the filler pairs were spaced 1 year apart, and half were spaced 10 years apart. They were interspersed at random among the target pairs, subject to the constraint that no more than 5 target pairs appear consecutively. Tables 1 and 2 list some examples of the event pairs. Event descriptions are quoted verbatim from *The Timetables*.

Participants

Participants were 100 students at The Hebrew University, Jerusalem, Israel. Both men and women, mostly 20 to 25 years old, were included. They were recruited by announcements on bulletin boards around campus. They were promised that whoever answered the most questions correctly would get a prize of 300 shekels (about \$100 at the time).

Task and procedure

Respondents completed the questionnaire individually, in a quiet room. They were instructed to mark which member of each of the 60

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1. This colleague was Menahem Blondheim, then of the Department of American History at The Hebrew University.

Table 1. Examples of target event pairs

American event		European event	
Event	Date	Event	Date
1-year difference			
Kentucky becomes a state of the U.S.	1792	Louis XVI, trying to leave France with his family, is caught in Varennes and returned to Paris	1791
N. Dakota, S. Dakota, Montana and Washington become states of the U.S.	1889	Bismarck dismissed by William II	1890
10-year difference			
Franklin Pierce inaugurated as 14th President of the U.S.	1853	William, Prince of Denmark, becomes George I, King of Greece	1863
Oregon becomes a state of the U.S.	1859	Rome proclaimed a republic under Giuseppe Mazzini	1849

event pairs occurred first. They were informed that all events occurred “between the 18th century and the present.” The self-paced task took most participants about 15 to 30 min.

Results

Table 3 shows the percentage of target pairs that were answered correctly, across all participants. Overall, 58% of the responses were correct. The data were analyzed by a within-subjects analysis of variance. As the table shows, the harder event pairs (1 year apart) were ordered correctly less often than the easier pairs (10 years apart)—54% versus 62%, respectively, $F(1, 99) = 36, p = .0001$. More pertinent to the present purposes, the data show the EAB. When the more recent events were American, the error rate was only 36%, as opposed to 47% when the more recent events were European, $F(1, 99) = 29, p = .0001$. The effect size ($d = .85$) was large (Cohen, 1977). The bias was somewhat larger in the harder pairs than in the easier pairs—15% versus 7%, respectively, $F(1, 99) = 7.7, p = .007$.

Individually, 59% of the subjects showed the EAB, and 30% showed the converse bias. The rest were unbiased. Across respondents, the European event was selected as having happened earlier 55% of the time, $z = 2.91, p = .016$. The magnitude of the EAB did not depend on our respondents’ knowledge of history, as indicated either by the level of high school history they completed or by their level of knowledge in the filler questions.

Having established the validity of the EAB in this experiment,² we now attempt to account for it. Two literatures seem, *prima facie*, pertinent to the uncertain dating of historical events: the literatures on memory for dates and on estimation under uncertainty. We consider them in turn.

EXPERIMENT 2: IS THE EAB A MEMORY EFFECT?

Much theoretical and experimental work has been done on dating events. Almost all of it, however, concerns memory for events that

happened during the estimator’s lifetime—either autobiographical events or public events—rather than historical events that happened before the estimator’s lifetime.³

It is debatable whether results from contemporary events are generalizable to historical events. Objectively, historical events differ from contemporary public events only in their placement in time, and what is a historical event for a young person may be a contemporary public event for an older one. But cognitively, the difference is not merely quantitative, but also qualitative—the two kinds of events reside in different memory repositories. Only for contemporary events does a connection exist between the recency of the event itself and the recency of the memory thereof (because the contemporary public events typically studied were of the sort covered by newspapers, they probably came to the respondents’ attention roughly in real time). Similarly, only contemporary events can be cued by relating them to autobiographical events. Thus, memory for the date of a historical event is of necessity part of semantic memory only, whereas memory for contemporary events, if related to autobiographical events, may be part of episodic memory. In our study documenting the EAB, the dates of the events were probably not even in semantic memory, because our participants had never even heard of many of the events.

Nonetheless, two studies on memory for dates could perhaps relate to the EAB. One is by Brown, Rips, and Shevell (1985), who asked people to date contemporary public events. The events, presented and dated individually, were yoked in pairs such that events in a pair occurred in temporal proximity to each other and were similar (e.g., two assassination attempts, or two airline crashes), but one was better known than the other. Brown et al. found that the better known events tended to be dated as more recent than the lesser known events with which they were yoked. They labeled this effect the *accessibility prin-*

2. We conducted another experiment using a different design, which called for the dating, rather than ordering, of the 80 target events of Experiment 1. This additional experiment also confirmed the EAB, but cannot be described here because of space limitations (see, however, Moshinsky & Bar-Hillel, 2000).

3. For studies involving autobiographical events, see, for example, Baddeley, Lewis, and Nimmo-Smith (1978); Linton (1975); Loftus and Marburger (1983); Rubin and Baddeley (1989); Thompson, Skowronski, and Betz (1993); and Thompson, Skowronski, and Lee (1988). For studies of public, but not historical, events, see, for example, Brown (1990); Brown, Rips, and Shevell (1985); Ferguson and Martin (1983); Friedman and Wilkins (1985); Kemp (1988); and Linton (1975). For studies of historical events, see Bratfisch, Ekman, Lundberg, and Kruger (1971) and Kemp (1987, 1988).

Table 2. *Examples of filler event pairs*

Event a		Event b	
Event	Date	Event	Date
1-year difference			
Boston Tea Party: protest against tea duty	1773	Coercive acts against Massachusetts include closing of port of Boston	1774
UN reopens Suez Canal to navigation	1957	Anglo-French ultimatum to Egypt and Israel calls for cease-fire	1956
10-year difference			
World War I: Anglo-French landings at Gallipoli	1915	Hitler reorganizes Nazi Party (27,000 members) and publishes vol. 1 of "Mein Kampf"	1925
Former Gestapo chief Adolf Eichman arrested	1960	Britain recognizes Israel	1950

ciple: "The more you know [about it], the more recent an event will seem, other things being equal" (p. 141).

Regarding contemporary events, the rationale for this principle lies in inverting a valid law of memory: Other things being equal, the vividness and detail of memories diminish over time. Hence, the amount of information recalled in a memory can be a cue to its storage age. But memories for historical events are not—cannot possibly be—the same age as the events, nor are the ages even correlated. Hence, the rationale for the accessibility principle does not hold for historical events. Furthermore, the accessibility principle applies to the retrieval of once-known dates from memory, not to the estimation of unknown dates on the basis of partial knowledge. The latter seems to have been what our participants did to order the rather obscure historical events we sampled from *The Timetables of History*. These two processes are so different that in a recent review called "Memory for the Time of Past Events," Friedman (1993) neither included studies of historical events nor listed them among excluded studies. Apparently, he simply (and correctly) regarded historical events as not even candidates for his survey. Nonetheless, whether the rationale holds or not, we wondered if perhaps Israeli students know more about American than about European history, and this makes American events seem more recent.

Because of space limitations, we do not report here the study we did to check our respondents' knowledge of American versus European historical events (a full report can be found in Moshinsky & Bar-Hillel, 2000), except to say that, if anything, the European events enjoyed a

slight and insignificant advantage. Thus, the accessibility principle no more underlies the EAB empirically than it does normatively.

The second memory study that might relate to the EAB is by Huttenlocher and Hedges (1992), who presented a framework for explaining biases in dating events from uncertain memory. Their theory assumes that an inexact, but unbiased, memory for the date of an event can be modeled by a distribution of values around the true date, from which the estimator samples at random. For illustrative purposes, it is convenient to think of the distribution as roughly normal (see Fig. 1). Knowledge that the event in question belongs to some category (e.g., American history) subjects the distribution to two kinds of effects, truncation and weighting with a prototype. Truncation refers to the fact that the distribution of estimates is truncated at the category boundaries (e.g., if American history is regarded as starting in the 18th century, then values from the 17th century or earlier are no longer viable). A truncated distribution, which is no longer symmetrical around the distribution median, could bias the estimate of a date. Weighting with a prototype refers to the pull that the value of the category prototype exerts on estimates. It introduces bias insofar as the category prototype may differ from the distribution's median.

If the prototypical event in American history is more recent than the prototypical event in European history, or if the lower boundary

Table 3. *Percentage of correct answers across all participants in Experiment 1*

Question category	Percentage of correct answers	SD
European event 1 year earlier	62	17
European event 10 years earlier	66	13
American event 1 year earlier	47	16
American event 10 years earlier	59	18
European event earlier—Total	64	12
American event earlier—Total	53	14

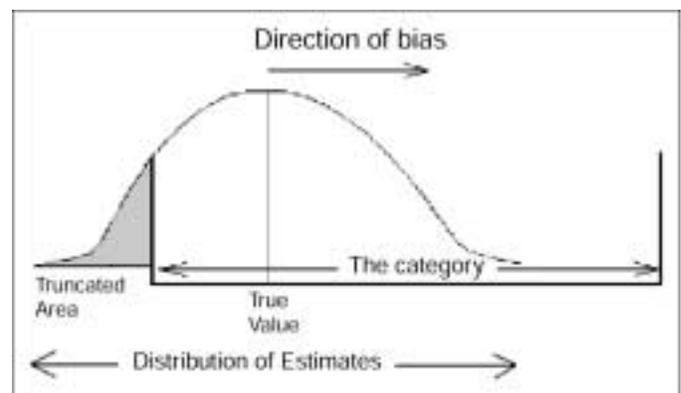


Fig. 1. Truncation of distribution around the true value as a result of a category's boundary (after Huttenlocher & Hedges, 1992).

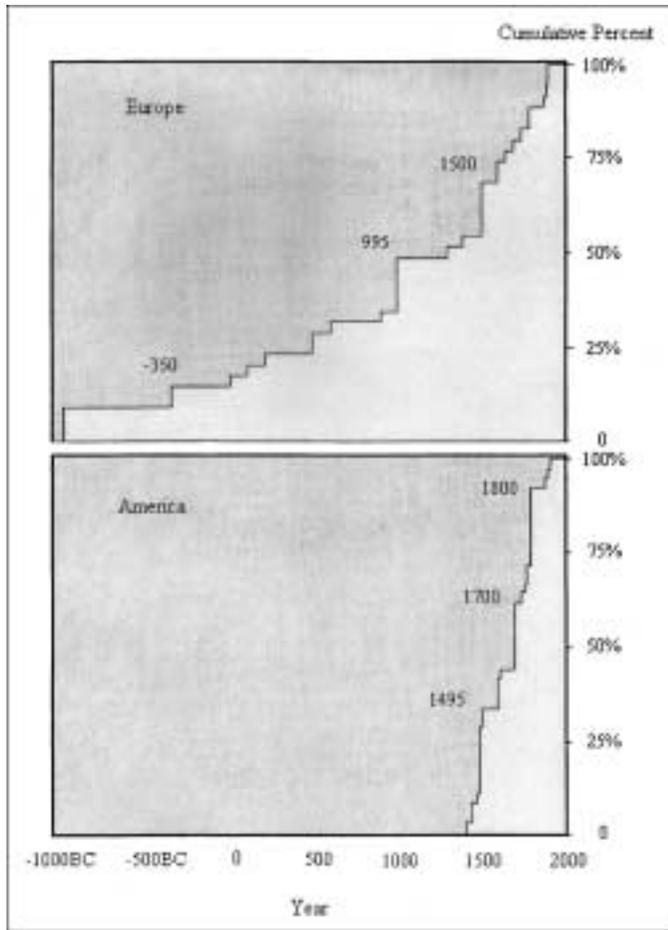


Fig. 2. Distribution of the low end of the range of the history of Europe (top) and America (bottom), as reported by participants in Experiment 2.

for American history is more recent than that for European history, this theory can offer a cognitive-process model for the EAB. The boundaries and prototypes of the categories of European history and American history were determined in the following experiment.

Method

The 80 students participating in this study were approached around campus and asked to volunteer. They completed the brief task in the spot where they were recruited (library, hall, etc.).

Participants were asked three questions: “What range of dates comes to your mind when you hear ‘The history of America’” (or “The history of Europe,” for half the participants); “What is the most notable event you can think of in American history?” (or, for half the participants, “in European history”); and “Can you date this event? If not, please guess.” The first question explored the categories’ boundaries, and the others the categories’ prototypes.

Results

Figure 2 shows the cumulative distributions of opening dates for European and American history, in 100-year increments. Both categories are naturally bounded from above by the present time, but American

history has a far more restricted range. The median range given for European history extended about 10 centuries back from the present time, whereas the median range for American history reached only about 3 centuries into the past. Only one third of the respondents believed European history was younger than 3 centuries, whereas almost all respondents believed American history was younger than 3 centuries.

Table 4 shows the answers given to the questions regarding the “most notable” historical events associated with Europe and America. Although Europe’s historical boundaries extend much further into the past than America’s, and therefore European history is “older,” its prototypes are not similarly “older” than American history’s prototypes.

Discussion

Because few respondents thought American history had started before 1700, participants’ own truncation of the possible dates of the historical American events roughly corresponded to the truncation that was imposed by telling participants explicitly that all the events they were to judge occurred in the 18th century and later. Thus, even though European events would have lost a longer tail to category truncation than American events, insofar as our instructions to participants induced a similar truncation on both types of events, the observed EAB is unlikely to have resulted from a truncation effect. Can it have resulted from a prototype effect?

In Huttenlocher and Hedges’s (1992) theory, the prototype is identified with some “central value (the mean or median of observed instances)” (p. 254). This position resembles Friedman’s (1993) conclusion that “when we are unsure about when some event took place, we resort to strategies, such as selecting a probable range of times . . . and guessing that it took place in the middle of the range” (p. 52). For categories such as American and European history, it is unclear what a central value might be. If it refers to the midpoint of the entire historical range, then Europe’s central value is considerably earlier than America’s. The respective midpoints of the maximal ranges given by our respondents were approximately 500 versus 1700, and the midpoints for the median ranges were approximately 1700 versus 1850 (see Fig. 2). Arguably, however, the central value for historical events should refer to the midpoint of the range of notable historical events only, such as those listed in Table 4. If so, the difference in pro-

Table 4. The “most notable” historical events in Europe and in America, from Experiment 2

Most notable event	Frequency	Date
Europe		
Acceptance of Christianity	2	300
French Revolution	15	1789–1799
World War I	9	1914–1918
World War II	19	1939–1945
The Holocaust	4	1941–1944
America		
Declaration of Independence	5	1776
Civil War	17	1861–1865
End of slavery	2	1865
Atomic bomb is dropped	5	1945
J.F. Kennedy murder	2	1963
Vietnam War	7	1962–1973

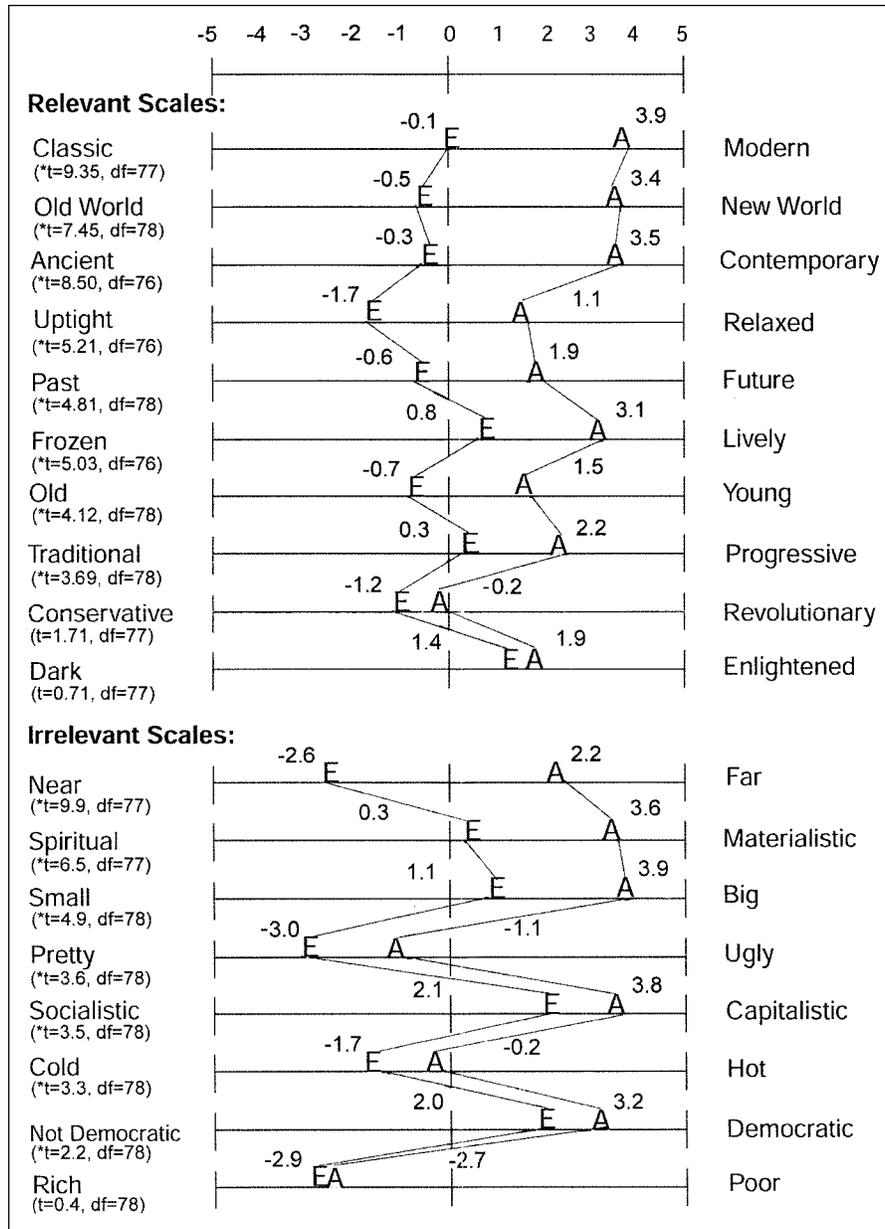


Fig. 3. Average ratings given to America (A) and Europe (E) on the 18 bipolar scales. Significant differences are marked by an asterisk ($p < .05$).

totypes for European and American history shrinks to naught. The midpoint for Europe’s “most notable” events, after removing the two outlying listings of the acceptance of Christianity, is 1867 (although with this outlier included the midpoint is 822), and the midpoint is 1874 for America.

All in all, it seems that the success of Huttenlocher and Hedges’s model in explaining the EAB is arguable at best. In addition, they presented their proposal as a model of uncertain memory, and it is arguable to what extent our tasks involve memory. Although it is quite simple to adapt the model to pure estimation, we offer a far more compelling explanation of the EAB as a category effect in the next section.

EXPERIMENT 3: THE EAB AS A REPRESENTATIVENESS EFFECT

Categories’ effects on cognition—on perception, memory, inference, and the like—are their ontological *raison d’être*, and are myriad. In this section, we postulate that the EAB is a category effect based on mere associations.

Consider two categories *A* and *B* and a feature *X* such that category *A* is more *X*-ish than category *B*. For example, let *A* and *B* be, respectively, females and males, and let *X* be “tenderness”; or let *A* and *B* be engineers and lawyers, respectively, and let *X* be “mathematically

skilled.” Suppose that a and b are members of A and B , respectively, who are equally X -ish (e.g., a man and a woman who are equally tender, or an engineer and a lawyer who are equally skilled in mathematics). The category effect we stipulate predicts that when judging which of an unfamiliar pair (a , b) is more X -ish, people are biased by category membership. If a is in A and b is in B , and X characterizes A more than B , people will tend to guess that a is more X -ish than b .

This prediction resembles a well-known prediction tested by Kahneman and Tversky (1973). In a classic study, respondents were given two categories, engineers and lawyers, on the implicit assumption that the former are more mathematically skilled than the latter. Individuals were described, and the respondents were asked to guess which of the two professions each belonged to. An individual who was mathematically skilled (“Jack . . . spends most of his free time on . . . mathematical puzzles,” p. 241) was judged more likely to be an engineer than a lawyer. In general, an individual whose category membership is not known, but whose attributes are, will be judged more likely to belong to a category whose characteristic attributes the individual shares (i.e., the category of which he or she is most “representative”; Kahneman & Tversky, 1972) than to a category whose characteristics the individual does not share.

Our model inverts this prediction of judgment by representativeness as follows: An individual whose category membership is known, but whose attributes are not, will be judged more likely to possess the attributes characteristic of that category than will another individual who does not belong to that category. Applied to the dating of historical events, this model makes the following prediction: If America is regarded as the New World and Europe as the Old World (“newness” being the target attribute X), then, *ceteris paribus*, American events will be judged “newer” (i.e., more recent) than European events.

The following experiment ascertained that our participants indeed regarded America as the New World and Europe as the Old World.

Method

The same 80 participants from the second experiment filled out a semantic differential (Osgood, Suci, & Tannenbaum, 1957) on a sheet of paper containing eighteen 11-point scales running between opposite adjectives. Ten of the pairs were associatively related to “new” versus “old,” and 8, included to disguise the purpose of the task, were not (see Fig. 3). Forty participants rated America on these scales, and 40 rated Europe. Neither group knew about the other. The scales were ordered randomly, both within and across items.

Results

Figure 3 shows the average ratings that America and Europe received on the 18 bipolar scales. Hypothesis-relevant and hypothesis-irrelevant scales are shown separately, ordered by the magnitude of the difference between the ratings given to America and to Europe. The labels are placed so that the ratings for America are all to the right of those for Europe.

Note how the Old World adjectives line up on the left for all the relevant scales. For six of these scales, America and Europe were actually rated on opposite sides of the scale midpoint, showing that Europe is indeed perceived as the Old World, and America as the New World. In contrast, the adjectives that line up on the left in the irrelevant scales have nothing in common, and America and Europe are on opposite sides of the midpoint of these scales only once.

Discussion

The first experiment confirmed that Israeli students tend to date European historical events somewhat earlier than contemporaneous American historical events. Experiment 3 shows that these students also think of America as the New World and of Europe as the Old World. We propose that the latter fact accounts for the former, through a cognitive category effect. Insofar as the central value of European history precedes the central value of American history, the category effect we report here may reflect an extension of Huttenlocher and Hedges’s (1992) model of estimation under uncertainty. More generally, it can be understood through the representativeness heuristic, according to which judgments of target cases—in this case, of the recency of historical events—are biased by associative matching to the characteristics of the categories to which the target cases belong.

Although we use the term bias, the EAB thus seen is a normatively appropriate cognitive strategy, because Europe does, indeed, have an older history than America. If all the events listed in *The Timetables of History* were put into a large book bag, and two events—one European and one American—were sampled at random, chances are that the European event would, indeed, be earlier than the American event.⁴

The category effect we posit to explain the EAB is general enough to allow predictions of similar biases in other judgment tasks—for example, geographical estimates rather than historical estimates. In fact, a geographical counterpart of the EAB has already been experimentally documented.

Stevens and Coupe (1978) found that people tend to judge Reno as lying to the east of San Diego (and Seattle as lying south of Montreal), although the opposite is true. They offered a model whereby “spatial information is stored hierarchically” (p. 422): Reno is in Nevada, San Diego is in California, and Nevada is east of California (also Seattle is in the United States, Montreal is in Canada, and Canada is north of the United States), and people infer the geographical relationship of the two cities from the geographical relationship of the two superordinate units—the states (or countries) in which these cities are located. Stevens and Coupe’s model is a special case of ours. Our model is not limited to geographical location, or even to a continuous variable such as temporal location; we need no assumptions about how information is organized in memory, because our model appeals to associations even when they do not reflect objective relationships; and our model is not about achieving cognitive economy when storing encountered information (although that can follow as a side effect) but rather can also be applied to explaining inferences about novel exemplars (e.g., dating historical events one has never even heard about).

GENERAL DISCUSSION

In the words of Miller’s famous presidential address (1969), this article describes a case of “giving psychology away.” An informal observation by a professor of history was presented as a psychological puzzle. Experiments confirmed the validity of the observation and an intuitive cognitive explanation of it. The sequence of experiments conducted was not motivated by a theory, but rather by this observation; hence, the EAB is not a test of some theoretically based prediction, but a curious fact in search of an explanation.

A common question we encounter when presenting this work is, “But do Americans, or Europeans, also exhibit the EAB?” Interesting as

4. This is not strictly true without some assumptions (or facts) about how the American versus European events are distributed over the time scale.

such comparisons are, our thesis is not incomplete without them. Asking whether Americans are subject to the same bias has no methodological priority over asking whether, say, the Chinese are subject to it. We make no claim and no prediction as to who should be subject to the EAB, because such a prediction follows from our model only *ceteris paribus*, and we cannot always assume that other things are equal. For example, Americans may know more about their own history than about Europe's, and Europeans may not think of Europe as the Old World.

Our story is self-contained: Israeli students are subject to a curious bias that no one predicted—it was just noticed. Cognitive psychology was able to illuminate it, just as our colleague hoped when he approached us. The road from theory to empirical prediction, we know, is bumpier than the road from phenomenon to theoretical explanation. This study took the road less bumpy.

Acknowledgments—We wish to thank Menahem Blondheim, for calling our attention to the EAB; Avihu Zakay, for help with translating the events from *The Timetables of History* into Hebrew; Ilan Yaniv, for suggesting the analysis in the first experiment; Barbara Tversky, for alerting us to the analogous spatial-location bias; and a bevy of constructive reviewers. This work is a master's thesis conducted by the first author under the supervision of the second author.

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