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Maltreated Children's Ability to Make
Temporal Judgments Using a Recurring
Landmark Event

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This study examined whether maltreated children are capable of judging the location and order of significant events with respect to a recurring landmark event. 167 6- to 10-year-old maltreated children were asked whether the current day, their last court visit, and their last change in placement were "near" their birthday and "before or after" their birthday. Children showed some understanding that the target event was "near" and "before" their birthday when their birthday was less than three months hence, but were relatively insensitive to preceding birthdays. Hence, children exhibited a prospective bias, preferentially answering with reference to a forthcoming birthday rather than a past birthday. The results demonstrate that the recurring nature of some landmark events make questions about them referentially ambiguous and children's answers subject to misinterpretation.

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Abstract

This study examined whether maltreated children are capable of judging the location and order of significant events with respect to a recurring landmark event. One hundred sixty-seven 6- to 10-year-old maltreated children were asked whether the current day, their last court visit, and their last change in placement were “near” their birthday and “before or after” their birthday. Children showed some understanding that the target event was “near” and “before” their birthday when their birthday was less than 3 months hence, but were relatively insensitive to preceding birthdays. Therefore, children exhibited a prospective bias, preferentially answering with reference to a forthcoming birthday rather than a past birthday. The results demonstrate that the recurring nature of some landmark events makes questions about them referentially ambiguous and children’s answers subject to misinterpretation.

Keywords

child abuse, sexual abuse, forensic interviewing, temporal understanding

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When children testify regarding allegations of abuse, they are routinely asked about the timing of the alleged offense (Lyon & Saywitz, 2006). Timing is a legally relevant concept for several reasons. First, the prosecution is often expected to provide dates so the defendant can mount an adequate defense. Without the proper temporal information, a defendant may be unable to claim an alibi or challenge specific circumstances surrounding an allegation (Queensland Law Reform Commission, 2000). Second, in many cases involving sexual abuse, children's age at the time of the alleged offense affects the specific crimes that may be charged (Australian Law Reform Commission, 2010; Bradley, 2007; *R. v. Radcliffe*, 1990). And third, courts sometimes allow questions about timing as a means of assessing children's credibility (*State v. Taylor*, 2005).

Intuiting that child witnesses may be unable to provide exact dates and times during their testimony, attorneys sometimes ask children to judge the timing of an alleged event in relation to a landmark event, such as a holiday or a birthday (*R. v. R.W.*, 2006; *U.S. v. Tsinhnahjinnie*, 1997). Other professionals might similarly ask children whether the alleged event occurred "near" a landmark event. Alternatively or in addition professionals may ask whether the alleged event happened "before" or "after" a landmark event. For example, in the United Kingdom's Ministry of Justice's guide for interviewing children, the authors assert that "[t]ime and date estimates can . . . be made by reference to markers in the child's life (e.g. festive seasons, holidays, birthday celebrations, or their class at school)" (Ministry of Justice, 2011, p. 84; see also In the interest of K.A.W., 1986; Queensland Law Reform Commission, 2000). A cursory review of a sample of child sexual abuse trials tried in Los Angeles County from 1997 to 2001 revealed numerous questions about the proximity of abusive incidents to a birthday (*California v. Martin*, 2000), Thanksgiving (*California v. Egans*, 1999), and Halloween (*California v. Duval*, 1997).

Questions about landmarks may not be as straightforward as they first appear. One obvious problem is that "near" is undefined. But putting that problem aside, landmark events, such as holidays, recur. As a result, any event will have a different temporal relation to each occurrence of the landmark. For example, if the landmark is one's birthday, and at the time of the event in question one's birthday has just passed, then it is quite *near* and just *after* one's *last* birthday but *not near* and well *before* one's next birthday. Logically, unless a particular birthday is specified, when asked if an event is "near" one's birthday and "before or after" one's birthday, one could answer "yes and no" and "before and after."

Without specifying a birthday, questioners probably expect the child to respond "yes" if the event was proximate to *either* a past birthday or a forthcoming birthday. In turn, if the prior birthday was proximate, one would respond that the event occurred "after" one's birthday, and if the forthcoming

birthday was proximate, one would respond that the event occurred “before” one’s birthday. For example, imagine that one’s birthday is March 1, and the event occurred on March 5. If asked if the event occurred “near” one’s birthday, one would respond “yes,” and if asked if the event occurred before or after a birthday, one would respond “after.”

Whether and at what age children are capable of making such judgments is an open question. It is possible that children exhibit a prospective bias; that is, they might preferentially interpret questions about landmarks with respect to the future, rather than with respect to the closest occurring landmark. In the example just cited, in which the child’s birthday occurred on March 1 and the target event on March 5, the child would have to refer to a *prior* birthday to respond that the event occurred “near” and “after” his or her birthday. But if the child interpreted the question in light of a forthcoming birthday, then the child would respond that the event was “*not* near” and “before” her birthday.

Although no research has examined children’s answers to questions of this sort, there is other evidence that they exhibit a prospective bias with respect to forthcoming events. Friedman and colleagues conducted several studies in which they asked children to judge the relative recency of prior recurring events, including their birthdays, Christmas, and Valentine’s Day. In Friedman, Gardner, and Zubin (1995), children were asked to compare two events and indicate which event occurred “a short time ago” or “a long time ago.” In Friedman and Kemp (1998), children were asked to make similar judgments by placing cards representing the events on a spatial continuum. Children under 9 years of age were proficient at reporting that proximate recent events were more recent than distal events, particularly if the temporal distance between the two events was large. Their performance was impaired, however, if a target event was coming soon; in those cases, they exhibited a tendency to say that the proximate forthcoming event was most recent. Friedman and Kemp (1998) argued that children might have an automatic tendency to shift their attention toward the future, even when directed explicitly to a past event. This automatic shift to the future, in turn, may lead to a prospective bias when children are asked about the temporal relation between an event and a landmark. That is, children may tend to orient toward the forthcoming occurrence of a recurring landmark event when making a temporal judgment, even when the previous occurrence of the landmark event is closer in time.

Compounding the problem with questions about recurring landmark events is that questions are likely to be phrased in a yes/no (“was it near your birthday?”) or forced-choice (“was it before or after your birthday?”) manner. Children have a tendency to answer yes/no and forced-choice questions with brief, unelaborated responses (Stolzenberg & Lyon, 2014). Indeed, they will choose “yes” or “no” in response to yes/no questions, even if they find the

question incomprehensible (Fritzley & Lee, 2003), rather than signal their incomprehension. Similarly, they will choose one of the proffered responses when asked a forced-choice question, even when neither of the choices is correct (Rocha, Marche, & Briere, 2013). Hence, even if children recognize that an event that is near one birthday is not near another, and that an event is both before and after their birthday, they are unlikely to signal their awareness if asked yes/no and forced-choice questions.

The Present Study

Children who had been removed from their parents' custody because of substantiated maltreatment were asked to make temporal judgments about their current visit to the courthouse as well as either their most recent court visit or their most recent change in placement (e.g., move to a different foster home). Studying maltreated children has two advantages: It allows us to make statements about the abilities of children whose temporal judgments are routinely assessed in court, and it enables us to identify emotionally salient events that can be objectively dated. Specifically, we asked children if the current day, their last court visit, or their last change in placement occurred "near" their birthday and "before or after" their birthday.

Based on prior research, we made several predictions. First, we hypothesized that, when asked the yes/no "near" question, most children would give an unelaborated "yes" or "no" response, and very few would respond that the correct answer was both yes and no. Similarly, we predicted that when asked the forced-choice "before or after" question, most children would simply answer "before" or "after." Second, we predicted that children would exhibit a prospective bias. With respect to the "near" question, they would tend to answer "yes" if a forthcoming birthday was relatively soon, but not if a birthday had recently passed. With respect to the "before or after" question, they would exhibit a tendency to answer "before." Third, we anticipated that children would show some ability to answer the questions sensibly, such that when a forthcoming birthday was in fact close in time, they would be more likely to respond that it was "near" and "before" their birthday than when the birthday was in the more distant future.

Method

Participants

Participants included 167 maltreated children (85 female) ages 6 to 10 years old ($M = 8.03$, $SD = 1.40$) waiting for court appearances in the Los Angeles

County Dependency Court. All children had been removed from the custody of their parents or guardians due to substantiated maltreatment. Children were excluded if they were unable to communicate clearly in English or were awaiting a hearing in which they might testify. The ethnic/racial background of the sample was diverse and consistent with the Dependency Court population in the county where data were collected (Needell et al., 2014): 53% Hispanic/Latino, 30% African American, 13% non-Hispanic Caucasian, 1% Asian, and 3% Other or unknown.

Materials and Procedures

All study materials and procedures were approved by the Presiding Judge of the Juvenile Court, agencies that work with maltreated children, and the relevant institutional review board. Consent was provided by the Judge, and children assented to participation. The interviews began with general rapport building questions about the children's likes and dislikes. Then children were asked how old they were, current temporal locations, and the date of their birthday (see Wandrey, Lyon, Quas, & Friedman, 2012, for results). Next, children were asked to judge the temporal distance and order of a landmark event in relation to the present: (a) "Right now, is it near your birthday?" and (b) "Right now, is it before or after your birthday?" Finally, children were asked about one of two potentially significant past events, either their most recent visit to dependency court ($n = 85$) or their most recent change in custodial placement ($n = 82$; events were randomly assigned across age and gender). For each target event, children were asked to identify several temporal locations (i.e., age, grade, month, season during which the most recent occurrence of the target event took place), then they were asked to judge the timing of the target event in relation to their birthday: (a) "Was it near your birthday when you last [came to court/had to go live somewhere else with someone else]?" and (b) "Was it before or after your birthday when you last [came to court/had to go live somewhere else with someone else]?" Once the interviews were completed, children were thanked for their participation and given a small prize. Interviews were then coded. Children's responses for both "near" questions were coded as 0 = *no* and 1 = *yes*. Responses to both "before/after" questions were coded as 0 = *before*, 1 = *after*, and 2 = *both*. For all variables, coders reached a minimum interrater reliability of $\kappa = .80$.

Results

Preliminary analyses showed no differences in responses due to gender; participants in the court and placement conditions were comparable in terms of

gender and age. The *ns* vary for some analyses; 93% of missing data were the result of an inability to verify children's last court date or change in placement; in a small number of cases, the child was unresponsive to the interviewers' question or replied "I don't know" (5%); and some children were not asked a question because of experimenter error (2% of cases).

Children's Responses: Elaborated or Unelaborated

Virtually every child responded to each question with an unelaborated response. At least 95% gave an unelaborated "yes" or "no" to the "near" question about both the current day and the prior event; none asked for clarification. At least 92% gave an unelaborated "before" or "after" responses to the before/after questions; only one child (out of 164) answered "both," and none of the children asked for clarification. Subsequent analyses focused on children's yes/no and before/after responses.

Current Day Versus Birthday

Near question. To test whether children's responses to the near questions were affected by the proximity of a recent or forthcoming birthday, we examined the pattern of children's responses across three groups: (a) those whose birthdays occurred 3 months prior to the interview (recent birthday; $n = 41$; days since last birthday $M = 48.12$, $SD = 28.95$), (b) children whose birthdays would occur in the 3 months following the interview (forthcoming birthday; $n = 35$; days until next birthday $M = 41.30$, $SD = 22.39$), and (c) children whose birthdays occurred or would occur within 4 to 8 months of the interview (remote birthday; $n = 76$; days until next birthday $M = 174.49$, $SD = 51.10$). Children's responses to the proximity question (yes or no) were then compared across birthday groups via a chi-square test. Results revealed a significant difference in the pattern of responses by group, $\chi^2(2, 145) = 26.27$, $p < .001$. Examination of the percentages (Table 1) showed that whereas children with forthcoming birthdays were inclined to report that it was near their birthday (69%, binomial $p = .03$), children with recent birthdays were marginally more likely than not to deny that it was near their birthday (66%, binomial $p = .07$), and children with remote birthdays usually denied that it was near their birthday (79%, binomial $p < .001$).

Before/after question. We again compared children across the three groups (recent birthday, forthcoming birthday, and remote birthdays) and assessed whether they were more likely to respond "before" or "after" using a chi-square analysis. Results revealed a significant difference in children's pattern

Table 1. Children's Responses to Proximity Questions.

	Recent	Forthcoming	Remote
Timing of birthday relative to interview			
Near your birthday?			
No	25 (66%)	11 (31%)	68 (79%)
Yes	13 (34%)	25 (69%)	18 (21%)
Total	38	36	86
Before/after your birthday?			
Before	13 (35%)	22 (61%)	49 (63%)
After	24 (65%)	14 (39%)	29 (37%)
Total	37	36	78
Timing of birthday relative to past event (court/placement)			
Near your birthday?			
No	27 (87%)	16 (55%)	48 (80%)
Yes	4 (13%)	13 (45%)	12 (20%)
Total	31	29	60
Before/after your birthday?			
Before	12 (43%)	21 (78%)	33 (57%)
After	16 (57%)	6 (22%)	25 (43%)
Total	28	27	58

of responding, $\chi^2(2, 151) = 8.37, p = .02$. Examination of the percentages (Table 1) showed that children with remote birthdays were inclined to respond that it was before their birthday (63%, binomial $p = .03$). Although the other two groups did not exhibit a statistically significant preference for before or after (recent birthday binomial $p = .09$, forthcoming birthday binomial $p = .24$), children with a forthcoming birthday were more likely to report that it was before their birthday (61%) than children with a recent birthday (35%), Fisher's exact test $p \leq .04$.

Prior Event Versus Birthday

Near question. Next, children's responses to whether their most recent court visit/placement change was near their birthday were analyzed across the same groups: Recent birthday ($n = 32$; days since last birthday $M = 25.44$, $SD = 154.34$), forthcoming birthday ($n = 19$; days until next birthday $M = 66.84$, $SD = 80.54$), and remote birthdays ($n = 71$; days until next birthday $M = 177.54$, $SD = 83.50$), using a chi-square test (Table 1). The pattern of responses was significantly different across the groups, $\chi^2(2, 120) = 9.47, p = .01$. Children with recent birthdays were inclined to deny that it was near their

birthday (87%, binomial $p < .001$), as were children with remote birthdays (80%, binomial $p < .001$). Children with forthcoming birthdays were evenly divided (55%, binomial $p = .71$; Table 1).

Before/after question. Chi-square analysis revealed that children's responses regarding whether their last court visit or change in placement occurred before or after their birthday differed across the three groups, $\chi^2(2, 113) = 7.01, p = .03$; Table 1). Post hoc tests indicate that that children with forthcoming birthdays were more likely to respond that the event occurred before their birthday (78%, binomial $p = .01$). Children with recent or remote birthdays were at chance levels of responding (recent 43% before, binomial $p = .57$, remote 57% before, remote $p = .36$).

Discussion

Legal authorities frequently assert that children ought to be able to date events with respect to their proximity to significant landmark events, including children's own birthday (In the interest of K.A.W., 1986; Ministry of Justice, 2011; Queensland Law Reform Commission, 2000). We asked 6- to 10-year-old maltreated children whether the current day and their last court visit or their last change in placement occurred "near" and "before" or "after" their birthday. Given children's tendency to provide unelaborated answers to yes/no and forced-choice questions, we predicted that children would respond in a similarly limited fashion to questions about whether events were "near" or "before or after" their birthdays, making it unclear whether they were referring to preceding birthdays or forthcoming birthdays. This prediction was clearly supported: Children virtually always provided unelaborated answers.

We also predicted that children's responses would exhibit a prospective bias. This hypothesis was also supported, though the findings were somewhat more complicated (and more interesting). The "near" questions showed the clearest evidence of prospective bias. Children were only inclined to respond that it was "near" their birthday if the current day was proximate to a forthcoming birthday. Both with respect to current day and prior court or placement judgments, children were inclined to say that it was not "near" their birthday even if a prior birthday was proximate. Children were equally divided with respect to whether a prior court visit or placement was near their birthday; we suspect that some children's prospective bias led them to answer that the prior event was not near their birthday because it was not proximate to the birthday that was forthcoming *at the time of the interview* (rather than at the time of the prior event). If this interpretation is correct, it reveals the strength of children's bias to understand "near" questions in light of birthdays

they currently anticipate. With respect to the before/after questions, children were inclined to choose “before” but never chose “after” above chance (though they came close when the current day was proximate to a recent birthday), consistent with a prospective bias. However, the pattern was less clear than for the “near” questions.

The legal implications of the results are that interviewers should proceed with great caution when attempting to use recurring landmark events when questioning children about time. The questions “was it near your birthday” and “was it before or after your birthday” are inherently ambiguous, and children’s responses to them are often misleading because of their tendency to think about an upcoming birthday. We suspect that this problem is compounded when interviewers are asking children about target events that are themselves recurring, which is common in sexual and physical abuse because such abuse typically occurs repeatedly over time.

In closing, the present study offers new insight into children’s ability to judge the timing of significant events with respect to a recurring landmark event. Future research can examine age and maltreatment effects, identify other referentially ambiguous temporal questions, and help us develop optimal strategies for obtaining accurate temporal information from child witnesses.

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Author Biographies

Kelly McWilliams is a developmental psychologist whose work focuses largely on children's eyewitness memory and forensic interviewing. Through laboratory and field research, she has examined current investigative and prosecutorial practices in the legal system, and their influence on the behavior and responses of child witnesses.

Thomas D. Lyon is developmental psychologist and legal scholar who has studied maltreated children’s competencies as witnesses for over 20 years. His career goal is to maximize children’s productivity as witnesses while minimizing error. He has conducted research with maltreated children with the support of the Los Angeles County Dependency Court since 1995. Working with the Court and with local schools, his lab has conducted a series of studies examining how maltreated and comparable non-maltreated children respond to innovations in forensic interviewing.

Jodi A. Quas is a developmental psychologist who conducts innovative research in the field of child maltreatment. She has considerable expertise designing and carrying laboratory-based and naturalistic investigations regarding children’s memory and eyewitness abilities, and also expertise designing studies to examine others’ (e.g., adults, jurors, legal professionals) evaluations of children’s statements.



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