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Talking Past Each Other: Interviewer and Child Verbal Exchanges in Forensic Interviews

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We used sequential analysis to examine the relationship between interviewer question types, child responsiveness, and subsequent interviewer prompting in 103 forensic interviews investigating sexual abuse allegations with children (6–16 years old). Broad open-ended prompts were more likely to elicit responses (83%) than nonresponses (17%) from children, but nonresponding was more highly associated with this type of prompt than expected by chance. Closed-ended prompts elicited more responses (96%) than nonresponses (4%) from children, and these prompts were more likely to elicit a response than expected by chance. Interviewers did not consistently engage in "pairing" and generally did not alter their questioning style in response to children's behavior. As expected, more frequent use of pairing was positively associated with open-ended prompting and negatively associated with focused prompting. Similarly, children's responding style remained consistent irrespective of the questions posed to them. Thus, much of the interviews seemed to be composed of interviewers and children talking past one another. Interviewing training and supervision of interviewing practice may benefit by including a focus on the pairing principle.

Keywords: forensic interviewing, children's eyewitness testimony, questioning techniques, child maltreatment, sequential analysis

Best-practice recommendations strongly emphasize the use of broad open-ended prompts (e.g., Invitations such as, "Tell me everything you can remember about that") throughout an interview to elicit reliable information from child witnesses (Lamb, LaRooy, Malloy, & Katz, 2011). Evaluation studies of forensic interviews with children have consistently shown that interviewers deviate from this recommendation and instead rely more on narrowly focused open-ended (e.g., Direct or "Wh–" type questions such as, "Who was in the room?") and closed questions (e.g., yes/no or option-posing questions such as, "Did he talk to you?") (Korkman, Santtila, & Sandnabba, 2006; Powell & Hughes-Scholes, 2009). The present study examined the contingencies between interviewer utterances, child responsiveness, and subsequent interviewer prompting to test predictions that frequent nonresponding from children and interviewers' failure to return to an open-ended style of questioning after posing a direct or option-posing question ("pairing"; Orbach & Pipe, 2011) may underpin interviewers' overreliance on narrowly focused prompts.

Why Do Interviewers Ask More Focused Than Open-Ended Questions?

Although broad open-ended prompts are more likely to elicit accurate (Brown et al., 2013) and detailed information (Korkman et al., 2006) and fewer errors (Bruck & Ceci, 1999), they also tend to elicit more nonresponses from children compared with other prompts (Korkman et al., 2006; Korkman, Santtila, Westeråker, & Sandnabba, 2008; Melinder & Gilstrap, 2009). Open-ended prompts may be too broad and fail to provide the necessary structure for young children to understand and answer them (Korkman et al., 2006; Melinder & Gilstrap, 2009). Conversely focused questions elicit shorter responses, but children are more likely to respond to them (Korkman et al., 2006, 2008). Direct and option-posing questions may assist children in responding because they specify what kind of information is required and restrict the possible range of response options.

Interviewers may ask more focused questions as a result of children's nonresponding (Gilstrap & Ceci, 2005; Korkman et al., 2006). However, Korkman et al. (2006, 2008) found that even when children were responsive, interviewers asked more direct or option-posing questions than invitations. Similarly, in a study of courtroom exchanges, Klemfuss, Quas, and Lyon (2014) found that children's responses did not predict the types of attorneys' questions. Thus, there is some evidence that child and interviewer exchanges may be independent of each other in a variety of contexts.

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Interviewers' overreliance on focused questions may develop, at least in part, from a failure to adhere to a best-practice principle called pairing. This recommends following the use of a focused or closed-ended question with a return to a broad open prompt (e.g., "Tell me everything you can remember about that") to elicit further details (e.g., Orbach et al., 2000; see Figure 1). Following this principle is likely to assist interviewers in maintaining an open style of prompting throughout the entire interview, but this has not been systematically investigated. Accordingly, we examined whether forensic interviewers who adhered to the pairing principle asked more open-ended prompts. We used sequential analysis to assess adherence by examining the contingencies between interviewer prompt types and their subsequent questioning. Sequential analysis is an apt method for examining such a process in conversational discourse (Jose, 1988). This approach provides an index of how likely a particular type of behavior is to follow or precede another type of behavior in a chain of interactions, while taking into account the base rates of the specific behaviors (Bakeman & Quera, 2011).

Gilstrap and Ceci (2005) and Melinder and Gilstrap (2009) used sequential analysis to examine interviewer–child interactions in interviews about a staged event and a medical examination, respectively. Both studies showed variability in interviewers questioning style but consistency in children's responding behavior. Children's previous responding behavior was more predictive of subsequent responding than the type of question posed to them.

Field studies using sequential analysis have focused on the interactions between attorneys' questions and children's responses in court (Klemfuss et al., 2014) or examined interviewers' supportive statements and children's reluctance in the nonsubstantive phase of the forensic interviews (Ahern, Hershkowitz, Lamb, Blasbalg, & Winstanley, 2014). These studies demonstrated that children's responding behavior was substantially driven by adult's behavior, but the reverse was not true. They did not, however, examine consistency in adult or child behavior independent of the intervening response (e.g., **Adult** → **Child** → **Adult** or **Child** → **Adult** → **Child**) and so we considered this in our study.

The previous studies highlight the utility of sequential analyses in examining speech acts. However, forensic interviews are characterized by a broader range of questioning strategies than previously examined (Gilstrap & Ceci, 2005; Melinder & Gilstrap, 2009) and are different from preparatory practices (Ahern et al., 2014) and courtroom exchanges (Klemfuss et al., 2014).

Research Questions and Hypotheses

First, we examined whether children's responding behavior could be reliably predicted from interviewers' questioning behavior. We focused on whether or not children gave a response to the question, rather than considering the level of detail and accuracy contained within their response for two reasons. First, interviewers may have difficulty in judging the effectiveness of their questions based on the level of detail children provide. Rather, they may perceive the relative effectiveness of different prompt types based simply on whether children made a response or not. For example, even when children provided their shortest responses to option-posing questions and much longer responses to invitations, interviewers were still more likely to follow up with an option-posing question rather than an invitation (Korkman et al., 2008). Thus, we tested the prediction that frequent nonresponding from children to open-ended prompts may contribute to an overreliance on focused and closed questions.

In our study, we examined a broad range of interviews, not simply those that progressed to a court hearing (cf. Hanna, Davies, Crothers, & Henderson, 2012). As such, full transcripts were not available, and given legal and ethical restraints on our access to DVD recordings we were unable to fully transcribe children's responses. Because of our focus on simple responsiveness rather than the level of detail children report (cf. Orbach et al., 2000) and consistent with previous research (e.g., Gilstrap & Ceci, 2005; Korkman et al., 2006, 2008; Melinder & Gilstrap, 2009), we expected that children would be more likely to provide a response to direct and/or option-posing questions than to other types of prompts. We also expected that children would be more likely to provide a nonresponse to invitations and cued invitations than other types of prompts. We also examined responses to interviewer summary statements. As summaries are seldom investigated in studies of interviewing and were not part of previous research that used sequential analysis (Gilstrap & Ceci, 2005; Klemfuss et al., 2014; Melinder & Gilstrap, 2009), we made no specific predictions about them. Summaries may serve as a retrieval cue in much the same way as a cued invitation, with children assuming they are

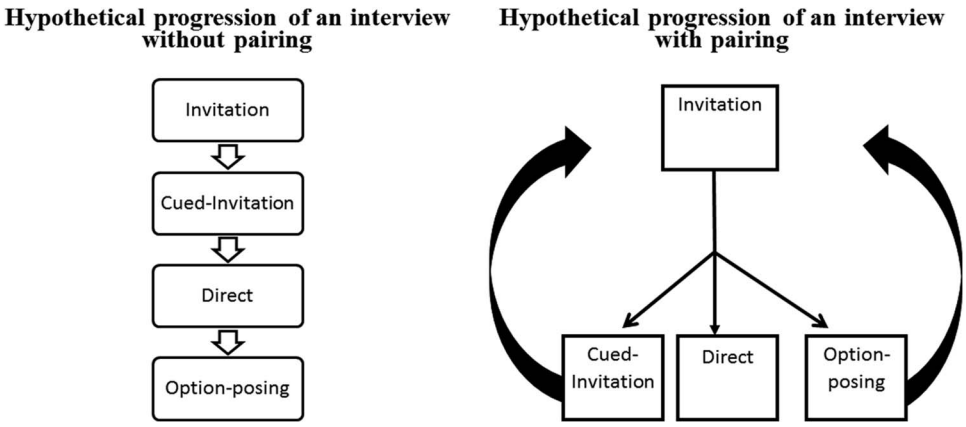

Figure 1. Hypothetical progression of an interview without and with pairing.

expected to respond to them. Alternatively, they may indicate to the child that the conversation has concluded, meaning children will not respond further.

Our second goal was to assess whether interviewers' subsequent questioning behavior could be predicted from children's responding behavior. We expected that consistent with Gilstrap and Ceci's (2005) and Melinder and Gilstrap's (2009) findings, interviewers would be more likely to ask direct and option-posing prompts when children did not respond to the previous question.

Third, we examined whether interviewers' questioning behavior could be predicted from their previous questioning behavior. We predicted that the pairing principle would not be followed, given the disproportionate numbers of direct and option-posing questions detected in studies of interviewer questioning (e.g., Korkman et al., 2006). We therefore expected that interviewers would remain consistent in their use of prompt types from one question to another irrespective of the type of question initially posed. We also predicted that interviewers' adherence to the pairing principle would be positively associated with higher proportions of invitations and cued invitations in the interviews.

Fourth, we examined whether children's responding behavior could be predicted from their previous responding behavior. We expected that children would remain relatively consistent in their responding style such that a response would be more likely to be followed by another response, and likewise, a nonresponse would be more likely to be followed by another nonresponse (Gilstrap & Ceci, 2005; Melinder & Gilstrap, 2009).

Finally, we considered whether interviewer characteristics influenced dyadic interactions in an interview. Although not extensive, some research indicates that experience and professional training are not predictive of superior interviewing practice (Powell & Hughes-Scholes, 2009; Powell, Wright, & Clark, 2010). Whether or not other factors such as frequency of interviewing and job descriptions are associated with interviewing practice is unknown; we therefore considered a range of interviewer and job factors as potential moderators in this study.

We also examined whether child's age and allegation characteristics (e.g., the frequency, type of abuse, and type of perpetrator) were statistically associated with interviewing practice. For example, younger children often report less information, on-topic information, and new information particularly to open-ended prompts (Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012) and are also more likely to be asked specific prompts than older children (Warren, Woodall, Hunt, & Perry, 1996). Thus, younger children may also be more unresponsive to open-ended questions, which then, in turn, increase the likelihood of an interviewer turning to more specific prompts. These moderation analyses were exploratory and, as such, no specific predictions were made.

Method

Participants

Participants were 98 children between 6 and 16 years old (M = 12.11 years, SD = 3.16 years), who were interviewed about sexual abuse allegations in New Zealand between June 2012 and May 2013, and 27 specialist child interviewers (all females). The majority of the children interviewed were females (91%). Parents/guardians of children who were interviewed gave their consent for a copy of the DVD interview recording to be viewed and analyzed by the research team. All specialist child interviewers in New Zealand were invited to participate in the research project (N = 81), and 27 consented. Twelve of the interviewers were social workers (44%), and the remainder were police officers (see Table 1 for interviewer characteristics).

Allegation Characteristics

In total we examined 103 interviews. Five children were interviewed twice; four different children were interviewed about the same allegation with the same suspect, and one child was interviewed about different allegations and different suspects. These nonindependent interviews were included because results were not affected when they were excluded from the sample. All of the children in the sample made a sexual abuse disclosure during the interview.

The majority of the allegations related to nonpenetration sexual abuse (62%). Children interviewed about nonpenetration sexual abuse were younger (M = 11.39 years, SD = 3.01 years) than those interviewed for penetration sexual abuse (M = 13.21 years, SD = 3.03 years), $t(100) = 2.97$, $p = .004$. Half of the allegations pertained to multiple episodes of abuse. Most of the suspects were known but not related to the children (66%), 20% were relatives, and 14% were strangers. Chi-square tests of independence revealed no significant differences between type of abuse and relationship of the child to the suspect, $\chi^2(2) = 0.06$, $p = .968$, episode of abuse and type of sexual abuse, $\chi^2(1) = 0.37$, $p = .541$. Most of the suspects were male (97%). The duration of the interviews ranged from 10 to 130 min (M = 51 min, SD = 23 min).

Procedure

Transcription. Official transcripts of the forensic interviews in this sample were not available. Interviewers' utterances were transcribed by the first author from interview DVD recordings. In accordance with the legal and ethical permissions governing our access to the DVD recordings, children's response behavior (i.e., response vs. nonresponse) was coded directly from the DVD

Table 1
Interviewer Characteristics

Interviewer	Full time (%)	Average year of experience (*SD*)	Average no. of interviews conducted per week (*SD*)
Police	26.67	3.96 (3.92)	3.20 (1.30)
Social worker	66.67	6.79 (8.34)	4.08 (1.56)

recordings, but the content of their responses was not examined directly.

Coding. The data for this study were drawn from the substantive phase of the interview when the interviewer asked the child to talk about the allegations, until the interviewer began discussing a neutral topic in preparation for ending the interview. The codes for interviewers' and for children's utterances were mutually exclusive (i.e., only 1 code could be given for a particular speech act) and exhaustive (i.e., there was always a code for every given behavior; Bakeman & Quera, 2011). This type of coding provided the stream of behavioral codes necessary for sequential analysis (i.e., Interviewer → Child → Interviewer → Child).

Interviewers' utterances. Interviewers' utterances were coded using the National Institute of Child Health and Human Development (NICHD) Investigative Interview coding scheme (Orbach et al., 2000). Interviewer utterances were coded as invitations, cued invitations, direct, option posing, suggestive questions, or summary statements (see Table 2 for definitions and examples). Detection of subtle suggestive utterances (e.g., those that introduced details not previously reported by the children) was difficult given the lack of transcripts to work from; however, given the strong reliability established across all categories for coding both interviewer utterances and child response type, we are confident that the coding of the data were highly accurate.

Children's responses. Children's responses were coded as response (provided information about the allegation) or nonresponse (did not provide further information about the allegation). Nonresponses included "I don't know," "I don't remember," "I don't understand," off-topic responses, restatements of previous utterances, and silence.

Reliability coding. All of the interviews were coded by the first author. Twenty-six interviews (25% of the total) were independently coded by one of two trained reliability coders. Interrater reliability was calculated on interviewers' and children's utterances and was substantial for both (interviewers' utterances, Cohen's $K = 0.74$, $p < .001$; children's utterances, Cohen's $K = 0.74$, $p < .001$). Twenty-one interviews (20% of the total) were also coded a second time by the first author to establish intrarater reliability. Very substantial intrarater reliability was achieved for both interviewers' (interviewers' utterances, Cohen's $K = 0.91$, $p < .001$; children's utterances, Cohen's $K = 0.87$, $p < .001$).

Results

Sequential Analysis

The GSEQ program (Bakeman & Quera, 2011), designed to conduct sequential analysis, was used to calculate lagged transitional probabilities between speech behaviors. We also used Yule's Q as a measure of effect size, which can be interpreted similarly to correlations, ranging from −1.0 to 1.0 (Bakeman & Quera, 2011). Yule's Q is an algebraic transformation of the log odds ratio. A positive Yule's Q value indicates that a particular type of speech act is more likely to be followed by another type of speech act, whereas a negative Yule's Q value indicates that a particular type of speech act is less likely to be followed by another type of speech act.

Total Base Rates

In total we coded 15,236 interviewers' utterances (6.7% were invitations, 11.6% were cued invitations, 55.2% were direct questions, 19.8% were option posing, 0.5% were suggestive questions, and 6.1% were summaries). Following Bakeman and Quera's (2011) recommendation, codes with low frequencies (i.e., suggestive questions) were excluded from further analyses. In total, we coded 15,236 children's utterances (92.3% responses, 3.95% restatements of previous utterances, 1.96% do not know utterances, 1.21% do not remember utterances, 0.38% do not understand utterances, 0.20% off-topic utterances). Given the low frequencies of the different subtypes of nonresponses these were combined as nonresponses for analysis (7.71%; Table 3).

How Did Children Respond to Interviewers' Prompts? (Interviewer → Child; Lag 1)

First, we hypothesized that children would be more likely than expected by chance to provide a response to direct or option-

Table 2
Definition of Interviewer Utterances

Interviewer utterances	Definitions	Example
Invitations	Questions or statements that prompted free-recall responses	"Tell me everything you can remember."
Cued invitations	Questions or statements that used details disclosed by the child as cues to prompt free-recall responses	"You told me that he took you to that special place. Tell me about that special place."
Direct questions	Open-ended prompts that refocus the child's attention on details about the allegation and asked for specific information or details using "Wh–" questions	"What were you wearing?" "When did this happen?"
Option posing	Focus the child's attention more narrowly on aspects of the account that the child did not previously mention, but do not imply that a particular response is expected. This might be formatted as a yes/no response, or option-posing question.	"Did anyone see what happened?" "Did he touch you under or over your clothes?"
Suggestive	Statements or questions that communicated to the child what answer the child should give or the interviewers assumed certain information that was not disclosed by the child.	"He touched you, didn't he?"
Summaries	Statements that repeated back exactly what the child had said	"You said he touched you." [After the child said, "He touched me."]

Table 3
Frequency of Different Interviewer Question and Child Response Types

Type	*N*	%
Interviewer question		
Invitations	1,024	6.7
Cued invitations	1,775	11.6
Direct	8,415	55.2
Option posing	3,015	19.8
Suggestive	77	0.5
Summary	930	6.1
Total	15,236	100
Child response		
Response	14,067	92.3
Nonresponse	1,169	7.7
Total	15,236	100

posing questions. Children were generally very responsive to interviewers' questions (92% of the time), but there was variability in their rates to different types of prompts (response rates ranged from 83.3% to 98.6% across different types). In particular, children's lowest response rate was to invitations (83.3%), followed by cued invitations (87.4%), direct questions (92.5%), option-posing questions (95.9%), and the highest response rate was to summary statements (98.6%; see Table 4 for observed and expected frequencies).

Next, we examined a simple two-code chain with sequential analysis to predict child behavior from interviewer behavior (interviewer → child). Interviews in which either the given (interviewer question) or target (child response) base rate was less than five instances were excluded from analyses by GSEQ. Yule's Q was computed for each interview and then averaged across the sample. Nonparametric sign tests were conducted to determine whether the majority of the Yule's Q values for the entire sample of interviews fell in the same direction as the mean (Bakeman, McArthur, & Quera, 1996). Children made responses to the majority (83.3%) of invitations; however, consistent with our prediction, the average Yule's Q for Invitation → Response was −.16, which indicates that responses were less likely to follow invitations than expected by chance. Fifty out of the 68 interviews (74%) yielded a negative Yule's Q value, which indicates that this pattern applied to the majority of the interviews. No significant relationship was found between cued invitations or direct questions and subsequent child responses, indicating that responses and nonresponses occurred at consistent levels with expected frequencies (see Table 5 for sequential analysis results). Option-posing questions (mean $Q = .46$) and summaries (mean $Q = .84$) were more likely to be followed by responses than expected by chance. Therefore, consistent with our first hypothesis, we found that invitations were more likely to lead to nonresponses than expected by chance, whereas the reverse was true for option-posing questions.

How Did Interviewers Respond to Children's Responses? (Child → Interviewer; Lag 1)

Second, we hypothesized that interviewers would be more likely to ask direct and option-posing questions when children did not respond to the previous question. Nonresponses were most frequently followed by direct questions (55.1%), then option posing (20.3%), cued invitations (13.9%), summary (4.6%), and invitations (3.4%; see Table 6). However, contrary to expectations, direct and option-posing questions were not more likely to follow a nonresponse than expected by chance (observed direct 55.2% vs. expected direct 55.9%; observed option posing 20.3% vs. expected option posing 20%).

Next, we conducted a simple two-code chain sequential analysis to predict interviewer behavior from child behavior (child → interviewer). In contrast to our expectations, no significant relationships were evident between children's responses and interviewers' subsequent use of invitations, cued invitations, direct, and option-posing questions. However, responses by a child were more likely to be followed by summaries from the interviewer (mean $Q = .45$; Table 5).

Did Interviewers Remain Consistent in Their Questioning Style? (Interviewer → Child → Interviewer; Lag 2)

Third, we expected that interviewers would show consistency in their use of prompt types. Direct questions were the most frequent type of interviewer utterance to follow all prompt types (see Table 7). However, when we compared observed versus expected frequencies, we found consistency in interviewers' questioning behaviors such that invitations were more likely to be followed by another invitation than expected by chance (observed invitation–invitation 20.7% vs. expected invitation–invitation 6.1%). Sequential analysis results showed that this pattern also held true for all other question types (see Table 5 and Table 7). Sequential analysis captures the contingency of interviewer behavior predicting subsequent interviewer behavior while skipping child behavior in between (i.e., **Interviewer → Child → Interviewer**). Therefore, we also examined how often interviewers did not ask an invitation or a cued-invitation after a direct or option-posing question that was followed by a response (i.e., **Direct → Response → Direct**, or **OP → Response → OP**). When a direct question was followed by a response, another direct or option-posing question was asked 81.3% of the time (in contrast to an invitation or a cued invitation if interviewers were pairing). Similarly, when an option-posing question was followed by a response, 80.3% of the time another direct or option-posing question was asked. Thus, consistent with our hypothesis, our results found strong consistency in interviewers' questioning behavior. The consistency of question use with

Table 4
Observed and Expected Frequencies Between Interviewers' Question Types and Child Response Types (Interviewer → Child)

	Child	
Interviewer	Response (%)	Nonresponse (%)
Invitation (Expected)	83.3 (92.3)	16.7 (7.7)
Cued invitation (Expected)	87.4 (92.3)	12.6 (7.7)
Direct (Expected)	92.5 (92.3)	7.5 (7.7)
Option posing (Expected)	95.9 (92.3)	4.1 (7.7)
Summary (Expected)	98.6 (92.3)	1.4 (7.7)

Table 5
Significant Transitional Lags

Variable	Lag	Mean transitional probability (*SD*)	Mean *Q* (*SD*)	*N* of interviews in the same direction as the mean *Q*	Sign test *p* value	Effect size and 95% CI for Cohen's *d*
Invitation (I) → Nonresponse(C)	1	.81 (.15)	.16 (.64)	50/68 interviews	<.001	*d* = 1.09, 95% CI [0.43, 1.77]
Option Posing(I) → Response(C)	1	.94 (.07)	.94 (.07)	63/77 interviews	<.001	*d* = 1.59, 95% CI [0.78, 2.41]
Summary(I) → Response(C)	1	.98 (.04)	.84 (.37)	45/58 interviews	<.001	*d* = 1.33, 95% CI [0.82, 1.84]
Response(C) → Summary(I)	1	.08 (.06)	.45 (.59)	32/47 interviews	.019	*d* = .83, 95% CI [0.10, 1.56]
Invitation(I) → Invitation(I)	2	.20 (.13)	.36 (.55)	68/81 interviews	<.001	*d* = 1.83, 95% CI [0.94, 2.72]
Invitation(I) → Cued Invitation(C)	2	.21 (.17)	.15 (.53)	60/82 interviews	<.001	*d* = 1.09, 95% CI [0.49, 1.70]
Invitation(I) → Direct(I)	2	−.40 (.16)	−.25 (.34)	66/88 interviews	<.001	*d* = 1.21, 95% CI [0.59, 1.82]
Invitation(I) → Option posing(I)	2	−.13 (.11)	−.31 (.47)	64/88 interviews	<.001	*d* = 1.04, 95% CI [0.47, 1.62]
Invitation(I) → Summary(I)	2	−.08 (.09)	−.29 (.63)	39/60 interviews	.027	*d* = 0.68, 95% CI [0.07, 1.29]
Cued Invitation(I) → Cued Invitation(I)	2	.20 (.12)	.19 (.48)	70/93 interviews	<.001	*d* = 1.21, 95% CI [0.61, 1.81]
Cued Invitation(I) → Option Posing(I)	2	−.22 (.41)	−.22 (.41)	65/93 interviews	<.001	*d* = 0.88, 95% CI [0.35, 1.41]
Cued Invitation(I) → Summary(I)	2	−.26 (.49)	−.26 (.49)	45/64 interviews	.002	*d* = 0.93, 95% CI [0.29, 1.58]
Direct(I) → Direct(I)	2	.26 (.22)	.26 (.22)	92/103 interviews	<.001	*d* = 2.30, 95% CI [1.20, 3.41]
Direct(I) → Invitation(I)	2	−.31 (.33)	−.31 (.33)	66/81 interviews	<.001	*d* = 1.59, 95% CI [0.81, 2.39]
Direct(I) → Cued Invitation(I)	2	−.22 (.33)	−.22 (.33)	72/93 interviews	<.001	*d* = 1.33, 95% CI [0.69, 1.97]
Direct(I) → Option Posing(I)	2	−.08 (.26)	−.08 (.26)	67/102 interviews	.002	*d* = 0.73, 95% CI [0.26, 1.21]
Option Posing(I) → Option Posing(I)	2	.24 (.36)	.24 (.36)	84/102 interviews	<.001	*d* = 1.67, 95% CI [0.94, 2.40]
Option Posing(I) → Direct(I)	2	−.14 (.29)	−.14 (.29)	75/102 interviews	<.001	*d* = 1.15, 95% CI [0.94, 2.40]
Summary → Invitation	2	−.42 (.62)	−.42 (.62)	43/58 interviews	<.001	*d* = 1.15, 95% CI [0.41,1.89]
Response → Response	2	.91 (.06)	.16 (.60)	55/76 interviews	<.001	*d* = 1.04, 95% CI [0.42, 1.66]
Nonresponse → Nonresponse	2	.18 (.13)	.16 (.60)	55/76 interviews	<.001	*d* = 1.04, 95% CI [0.42, 1.66]

Note. CI = confidence interval; (I) = interviewer utterance; (C) = child utterance. → Indicates a significant positive relationship, i.e., "Invitation → Nonnesponse" means that invitations were significantly more likely to be followed by a nonresponse than expected by chance. → Indicates a significant negative relationship, i.e., "Invitation → Direct" means that invitations were significantly less likely to be followed by a direct question than expected by chance.

direct and option-posing questions demonstrated that interviewers were not adhering to the pairing principle.

To examine whether following the pairing principle was associated with increased use of more desirable prompts, we conducted bivariate correlations between interviewers' adherence to the pairing principle and the overall proportions of invitations and cued invitations they asked in interviews. We excluded any direct or option-posing questions that (a) did not elicit a response, (b) were followed directly by a monitor's break, or (c) were the last question of the interview. We also excluded any invitations and cued invitations that were involved in the pairing contingencies to determine whether adherence to the pairing principle was associated with higher proportions of invitations and cued invitations that did not occur within the pairing interactions. As predicted, higher adherence to the pairing principle was positively associated with higher proportion of invitations, $r(101) = .33$, $p = .001$, and cued invitations, $r(101) = .59$, $p < .001$. Conversely, higher adherence to the pairing principle was associated with lower proportions of direct ($r = -.43$, $p < .001$, and option-posing questions, $r = -.31$, $p = .002$. These results suggest that adherence to pairing was associated with conformity to recommended interviewing practice.

Did Children Remain Consistent in Their Responding Style? (Child → Interviewer → Child; Lag 2)

Fourth, we hypothesized that a child response would be more likely to be followed by another response, and similarly, a child nonresponse would be more likely to be followed by another nonresponse. We found that a response was more often followed by another response (93.3%) than a nonresponse (6.7%; Table 8). A nonresponse was also more often followed by a response (79.6%) than a nonresponse (20.4%). However, taking base rates into account, a nonresponse was more likely to be followed by another nonresponse than expected by chance (observed nonresponse was 20.4% compared to expected nonresponse of 7.7%). In support of this finding, the average Yule's Q for Response → Response was .16, indicating that responses were more likely to be followed by further responses. Conversely, nonresponses were more likely to be followed by further nonresponses (mean *Q* =

Table 6
Observed and Expected Frequencies Between Child Response Types and Interviewers' Question Types (Child → Interviewer)

	Interviewer				
Child	Invitation (%)	Cued invitation (%)	Direct (%)	Option posing (%)	Summary (%)
Response (Expected)	6.1 (6.1)	11.6 (11.8)	55.9 (55.9)	20.0 (20.0)	6.3 (.7)
Nonresponse (Expected)	3.4 (6.1)	14 (11.8)	55.2 (55.9)	20.3 (20.0)	4.6 (.7)

Table 7
*Observed and Expected Frequencies Between Interviewers' Question Types and Subsequent Interviewers' Question Types (**Interviewer** → Child → **Interviewer**)*

	Interviewer				
Interviewer	Invitation (%)	Cued invitation (%)	Direct (%)	Option posing (%)	Summary (%)
Invitation (Expected)	20.7 (6.1)	19.4 (11.8)	40.3 (55.9)	12.6 (20)	6.9 (6.2)
Cued invitation (Expected)	7 (6.1)	22.5 (11.8)	50.4 (55.9)	14.9 (20)	5.1 (6.2)
Direct (Expected)	4.2 (6.1)	9 (11.8)	62.7 (55.9)	18.2 (20)	5.9 (6.2)
Option posing (Expected)	6.3 (6.1)	10.4 (11.8)	46.8 (55.9)	30.9 (20)	5.5 (6.2)
Summary (Expected)	2.0 (6.1)	12.6 (11.8)	50.8 (55.9)	19.2 (20)	12.2 (6.2)

.16). These patterns (Response → Response and Nonresponse → Nonresponse) applied to 72% of the sample. Thus, consistent with our prediction, children demonstrated consistency in their responding more than expected by chance, irrespective of whether they made a response or a nonresponse (see Table 5). These results suggest that children were fairly consistent in either relating the information they knew or in being unresponsive.

Moderation Analyses for Interviewer, Child, Allegation Characteristics, and Interview Length

We conducted moderation analyses to explore whether interviewer characteristics (professional affiliation, interviewing experience, interview load) influenced the strength of sequential associations. Given that interviewers conducted multiple interviews, resulting in nested data, hierarchical linear modeling (HLM) was used to examine the relationship between Yule's Qs of sequential associations (Level 1) and interviewer characteristics (Level 2). We found that none of the interviewer characteristics significantly moderated any speech act associations. We were also interested in whether the child's age, allegation characteristics (type of abuse, number of episodes, and relationships to perpetrators), and interview length moderated the strength of significant sequential associations. Multiple regression analyses were conducted. None of the child, allegation characteristics, or interview length significantly influenced these associations.

Exploratory Analyses: Did Early or Late in the Interview Matter?

Given that we found invitations were significantly more likely to be followed by nonresponses and this association was not moderated by interviewer, allegation characteristics, children's age nor interview duration, we were interested in whether this association was more likely to happen in the early or latter stages of the interviews. For example, it is possible that children were more likely to provide a nonresponse to an Invitation in the first half of the interview if they were reticent, had difficulty with retrieving the event under investigation, or did not understand their task (e.g., Lamb & Brown, 2006). As the interview progressed, with increased rapport and the target event identified, it is possible that children might be more likely to provide responses. Alternatively, children may be more likely to be nonresponsive to invitations in the second half compared with the first half of the interview if their recall was exhausted.

To explore these possibilities, we divided each interview into two equal halves regardless of length and conducted paired sample *t* tests to compare the Yule's Q of specific sequential associations in the first half versus second half of interviews. We found no significant difference in the Yule's Q for the Invitation → Response association in the first versus second half of interviews, suggesting that children were as likely to provide nonresponses to invitations early or late in the interviews. However, a significant difference in the Yule's Q for Option Posing → Response for the first half ($M = .64$, $SD = .41$) versus the second half of the interviews ($M = .38$, $SD = .57$), $t(29) = 2.19$, $p = .037$, $d = -0.52$, 95% confidence interval (CI) [−0.009,1.04], was found. Children were less likely to provide responses to option-posing questions in the second half of an interview compared with the first half, perhaps because of having exhausted their recall.

We also examined whether use and consistency of invitations and cued invitations were more evident in the first half compared with the second half of the interviews, and whether pairing was more likely to happen in the early or latter stages of interviews. We found no significant differences in the Yule's Q between the first half versus second half of the interviews for the following associations: **Invitation** → Child → **Invitation**, **Cued Invitation** → Child → **Cued Invitation**, **Option Posing** → Child → **Invitation**, **Option Posing** → Child → **Cued Invitation**, **Direct** → Child → **Invitation**, and **Direct** → Child → **Cued Invitation**. Thus, interviewers' consistency in their use of invitations and cued invitations and adherence to pairing did not differ at the beginning or at the latter stages of interviews. However, we found a significant difference in Yule's Q for **Option Posing** → Child → **Option Posing** between the first half ($M = .11$, $SD = .49$) and second half of the interviews ($M = .24$, $SD = .36$), $t(81) = -2.06$, $p = .043$, $d = 0.30$, 95% CI [−0.005, 0.61]. This result indicated that the consistent use of option-posing questions (i.e., **Option Posing** → Child → **Option Posing)** was more frequent in the second than the first half of the interviews, perhaps because of increasing pressure for interviewers to gather undisclosed details.

Table 8
*Observed and Expected Frequencies Between Child Response Types and Subsequent Child Response Types (**Child** → Interviewer → **Child**)*

	Child	
Child	Response (%)	Nonresponse (%)
Response (Expected)	93.3 (92.3)	6.7 (7.7)
Nonresponse (Expected)	79.59 (92.3)	20.4 (7.7)

Finally, we were interested whether children's consistency in responding style was more likely to occur in the early or latter stages of the interviews. It is possible that children's persistence in nonresponding (i.e., **Nonresponse** → Interviewer → **Nonresponse)** may occur in the latter rather than early stages of the interviews as their recall is exhausted or cognitive capacity is reduced through the course of the interview. Refuting this hypothesis, no significant differences in the Yule's Q association for **Response** → interviewer question → **Response** or **Nonresponse** → interviewer question → **Nonresponse** was obtained between the first half versus second half of the interviews, suggesting that other factors besides ease of recall may influence children's consistency in responding style throughout the whole of the interviews.

Discussion

The current study explored possible reasons for why forensic interviewers typically use more narrowly focused questioning than is recommended (e.g., direct and option-posing questions), including nonresponsiveness from children and nonadherence from interviewers to the pairing principle. We explored four hypotheses and a set of related research questions, all of which will be discussed in the following section.

Hypothesis 1: How did children respond to interviewers' prompts?

We found partial support for our hypotheses that children would be more likely than expected by chance to provide a response to direct or option-posing questions and less likely than expected by chance to respond to invitations and cued invitations. Children were generally very responsive to interviewers' questions, but their responding varied according to the type of question posed (Korkman et al., 2006, 2008). Invitations were more likely to elicit responses (83%) compared with nonresponses (17%); however, as expected, heightened nonresponding was more strongly associated with invitations than expected by chance. Consistent with our predictions, option-posing questions were more likely to be followed by responses than expected. In contrast to previous studies (Korkman et al., 2006, 2008; Melinder & Gilstrap, 2009) and our predictions, we did not detect any significant variations from base-rate probabilities in children's response type when asked direct questions. We made no specific predictions about summaries but observed that they were more likely to elicit responses than expected by chance.

Our results support previous contentions that children's responsiveness to different questions reflects the level of scaffolding contained within them (Korkman et al., 2006; Melinder & Gilstrap, 2009). Invitations may be challenging for children because they do not specify what kind of information the child should include in their response. The sociocultural theory of autobiographical memory development suggests that children learn how and what to remember and report when talking about past experiences from interactions with supportive adult conversational partners (Nelson, 2013; Nelson & Fivush, 2004). The very openness of invitations, deemed a positive attribute because they do not contaminate or bias responses, may contribute to the difficulty children had in responding to them. This interpretation is supported by the fact that the association between invitations and nonresponses persisted throughout the entirety of the interview (i.e., it did not appear to reflect motivational or recall-related processes). Of course our results only speak to the tendency to respond at all and not the quality of response when children do answer to an invitation.

Option-posing questions typically contain an anticipated answer or provide a constrained set of response options, meaning they are less ambiguous and more concrete than open prompts and thus perhaps easier for children to respond to because of this scaffolding. However option-posing questions are also more risky in terms of their influence (Korkman et al., 2006, 2008) on the quality of a child's response and, therefore, should be used prudently.

Our results suggest that summaries may be a part of a particularly effective interviewing strategy. Summaries are one of the recommended techniques in building rapport with children in forensic interviews, with rapport positively influencing responsiveness (Hershkowitz, 2011). Accurate restatements of a child's utterances may reinforce responding by building rapport and communicating to the child that the interviewer is actively listening. In the clinical literature with adults, counselors who used more summaries were rated by clients as more interested and supportive (Rautalinko, 2013) and were rated higher in terms of rapport (Sharpley, Fairnie,Tabary-Collins, Bates, & Lee, 2000). Finally, our results also suggest that cued invitations may be an especially effective questioning approach. They are very open-ended and yet provide structure to children by indicating the kind of information that the interviewer would like the child to elaborate upon. They are effective at eliciting reliable and detailed information (Brown et al., 2013) and in our sample were not associated with heightened nonresponding in the same way as broader invitations.

Hypothesis 2: How did interviewers respond to children's responses?

We hypothesized that, consistent with Gilstrap and Ceci's (2005) and Melinder and Gilstrap's (2009) findings, interviewers would be more likely to ask focused and closed-ended questions when children were not responsive to the earlier question. We found no significant relationships between nonresponses and any interviewer utterance types, however. This result suggests that other factors besides heightened nonresponding to invitations may contribute to an overreliance on focused and closed questions. When children did respond, we found interviewers were more likely to use a summary than any other prompt type. Given that summaries seem to be particularly effective in eliciting responses from children, interviewers may recognize this prompt as a technique that is likely to encourage children to keep talking about the allegation.

Hypothesis 3: Did interviewers remain consistent in their questioning style?

As expected, we found strong consistency in interviewers' questioning behaviors irrespective of intervening child response; interviewers as a group did not adhere to the pairing principle. Interviewers did not encourage children to elaborate on responses to direct or option-posing questions by posing a broader open prompt. Many opportunities for child-led reporting were thus missed. Individual interviews that included more instances of pairing contained more invitations and cued invitations and fewer direct and option-posing questions. Our study provides the first evidence that

adherence to the pairing principle does indeed facilitate the increased use of open-ended prompts. Failure to adhere to the pairing principle is clearly a contributing factor to interviewers' use of more focused questioning than is recommended, and one that could easily be targeted in training. Evaluations of interviewing performance should therefore include a routine assessment of this practice.

Hypothesis 4: Did children remain consistent in their responding style?

As expected, children's responding style remained relatively consistent irrespective of the questions posed to them throughout the entirety of the interviews. Thus, it appears that children who were willing or able to provide information about allegations did so irrespective of the type of questions posed to them. Conversely, children who were not willing or able to talk about the allegations did not become more forthcoming in response to a different questioning technique. Effective methods of addressing reluctance within an interview are an important direction for future research (Saywitz, Larson, Hobbs, & Wells, 2015), especially given that reluctance to disclose sexual abuse is relatively common in children (London, Bruck, Ceci, & Shuman, 2007). Children's reluctance may be influenced by many factors (e.g., Pipe, Lamb, Orbach, & Cederborg, 2013); however, preparing a child to talk about the allegations by building rapport and providing episodic recall practice may mitigate motivational barriers and help children understand their role as informants (Brown et al., 2013; Saywitz et al., 2015). We are currently examining the sequential relationships between interviewer's questions and children's responses during the preparation phase to determine whether these relate to the interactions between interviewers and children when discussing the allegation.

Rather than reflecting a dynamic and reciprocal process, our results suggest that two parallel processes occurred during the interview, that is, individuals "talked past each other." Interviewers' questioning behaviors were chiefly driven by their previous questioning, and similarly, we found children's responding behaviors were chiefly driven by their previous response type. A number of possibilities exist as to why interviewers remain consistent in their questioning strategy. One of these reasons may reflect interviewers' inaccurate monitoring of the kinds of questions they are using (e.g., Powell, Benson, Sharman, Guadagno, & Sternberg, 2013). In our study, we noted that 12.6% of the direct questions posed started with "Tell me," an introductory language token typically used with invitations. Interviewers, thus, may mistakenly believe they are using more open-ended questions than they actually are and thereby inaccurately monitor their questioning strategy as it unfolds in the interview. This inaccuracy may have contributed to persistence with focused questioning and, therefore, poor adherence to the pairing principle.

However, other possibilities should be considered given that only a small proportion of direct questions in our sample might be misconstrued as invitations. Interviewers may perceive that open-ended questions are not as effective as more specific prompts (Wright & Powell, 2006) or may underestimate the role of a sensitive and effective questioning strategy in a successful forensic interview (e.g., Wright, Powell, & Ridge, 2007). Finally, focused and closed-ended questions might be helpful for eliciting necessary details that have not been obtained from open-ended prompts or for clarifying previous inconsistencies or ambiguous statements (Orbach & Pipe, 2011).

Did Interviewer, Child, or Allegation Characteristics or Interview Length Moderate Any Utterance Associations?

We examined whether background factors affected the strength of the previously identified associations but did not find any significant moderations. In contrast to previous studies showing that younger children were less likely than older children to respond to an invitation (Hershkowitz et al., 2012; Melinder & Gilstrap, 2009), in our study children's age did not moderate the sequential pattern of Invitation → Nonresponse. Our results were consistent with previous research demonstrating that interviewing experience does not significantly predict quality of interview practice (Powell & Hughes-Scholes, 2009). Furthermore, frequency of interviewing, job description, and allegation characteristics did not moderate contingent behaviors during the interviews and neither did the length of the interview. Our results highlight the importance of ongoing supervision and feedback for all interviewers, as experience, workload, and training background did not act as protective factors against undesirable practice (Lamb, Sternberg, Orbach, Esplin, & Mitchell, 2002).

Limitations

Although providing important insights into the interactions between forensic interviewer's questions and children's responses, we must acknowledge a number of limitations in our study. Interviewers volunteered to participate in this study, and therefore our sample may have been comprised of interviewers who were more motivated to have their work evaluated and receive feedback about it. The high level of responsiveness overall, and relatively infrequent occurrences of the various types of nonresponding (e.g., "I don't know" vs. no response at all) meant that we were unable to detect important differences in how interviewers and children changed their verbal behavior following different types of nonresponding behavior. Children's responsiveness to questions may also reflect other dimensions of the questions than simply their structure—for example, questions may vary according to the type of content they assess and in grammatical complexity. A brief examination of linguistic complexity indicated that in our sample option-posing questions tended to be longer than invitations (M = 11.66, SD = 2.36 vs. M = 9.16, SD = 2.32), $t(102) = -8.27$, $p < .001$, but contained fewer complex words (measured by proportion of words containing six or more letters (M = 0.06, SD = 0.07 vs. M = 0.15, SD = 0.10), $t(102) = 7.09$, $p < .001$. However, given that summaries (M = 0.21, SD = 0.32) also contained proportionally more complex words than option-posing questions (M = 0.06, SD = 0.07), $t(96) = -4.32$, $p < .001$, and yet were not associated with higher nonresponsiveness, the argument that more complex utterances result in nonresponding is not supported. The content of both questions and children's responses may also have influenced the contingencies, and examining these issues in future research with the sequential analytic method will be illuminating.

Future Research

Our findings suggest that the pairing principle is an important one for interviewing. As such, we need to develop effective ways of encouraging interviewer' adherence to it. This may include both training and supervision approaches that focus on how questions are distributed throughout an interview and in relation to one another. We may also gain a better understanding of interviewers' decisions about questioning strategy by asking interviewers to review their interviews and describe their process (e.g., Guadagno, Hughes-Scholes, & Powell, 2013). Such data would allow us to understand how implicit and explicit beliefs, expectations, and attributions may contribute to the dynamics of how the interview progresses.

Conclusions

Our findings suggest that interviewers are not optimally flexible in their questioning strategy and generally do not adjust to children's styles of responding. The consistency in children's responses suggests that children who are ready or willing to talk about the allegation will do so, and children who are not willing or able to talk about the allegation may not be more forthcoming irrespective of the types of questions posed to them. Our findings highlight the need for further research examining the reciprocal dynamics within interviews to complement the existing research base about how to support vulnerable witnesses to give useful evidence. Much yet remains to be done to determine how and why interviewers and children behave the way they do in forensic interviews.

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