The structural linguistic complexity of lawyers' questions and children's responses in Scottish criminal courts

2 authors:

Samantha J. Andrews
University of Cambridge
9 PUBLICATIONS **35** CITATIONS

SEE PROFILE

Michael E Lamb
University of Cambridge
543 PUBLICATIONS **18,788** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Implementation of a Forensic Interview Protocol for victims, witness and perpetrador children View project

Assessing what jury-eligible Scots believe about child sexual abuse View project

Research article

The structural linguistic complexity of lawyers' questions and children's responses in Scottish criminal courts

Samantha J. Andrews *, Michael E. Lamb

Department of Psychology, University of Cambridge, Free School Lane, Cambridge CB2 3RQ, UK

ARTICLE INFO

ABSTRACT

In the first study to systematically assess the structural linguistic complexity of lawyers' questions of children in Scotland, we examined 56 trial transcripts of 5- to 17-year-old children testifying as alleged victims of sexual abuse. Complexity was assessed using 8 quantitative measures of each utterance's components (number of questions, phrases, clauses, sentences, false starts, average word count, word length, and sentence length) and a composite measure was used in the analyses. Lawyers did not alter the complexity of questions when prompting children of different ages. Defense lawyers asked more structurally complex questions than prosecutors. Directive questions were the least structurally complex questions, followed by option-posing questions. Suggestive questions, followed by invitations, were the most structurally complex questions. Option-posing and suggestive questions were more complex when asked by defense lawyers than prosecutors. Of suggestive questions, confrontation and tagged questions were more complex than any other question type. Increased structural complexity led to more unresponsiveness, more expressions of uncertainty, and more self-contradictions regardless of which lawyer asked, the question type, or the children's ages. These findings highlight the additional risks associated with asking some types of questions in structurally complex ways and highlight the need for further innovations (e.g., the use of intermediaries) to facilitate the questioning of vulnerable witnesses in Scottish criminal courts.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

In adversarial jurisdictions, such as the United Kingdom, United States, and New Zealand, the cross-examination of witnesses is often deemed an essential factor in protecting the accused's right to a fair trial (e.g., Article 6 (3d), of the European Convention on Human Rights, 2017; Sixth Amendment to the US Constitution, 2017). Courts have a duty to allow witnesses to give their best evidence (Home Office, 2011, section 5.8) but in adversarial jurisdictions, lawyers aim to undermine the opponents' witnesses, and they question child witnesses accordingly (Andrews, Lamb, & Lyon, 2015a; Szojka, Andrews, Lamb, Stolzenberg, & Lyon, in press,). One major concern is that many of the questions that lawyers ask are linguistically complex, and that children may not possess the linguistic capacity and psychological competence necessary to effectively comprehend and respond to courtroom questioning (Hanna, Davies, Henderson, Crothers, & Rotherham, 2010; Zajac, O'Neill, & Hayne, 2012). Indeed, children seldom request clarification of grammatically complex and/or nonsensical

---

questions (Carter, Bottoms, & Levine, 1996; Zajac, Gross, & Hayne, 2003), perhaps because they have difficulty detecting whether or not they have understood the requests. Such questioning techniques violate guidelines, based on an extensive body of experimental and field research, outlining the best ways to elicit testimony (see Rush, Quas, & McAuliff, 2012; Spencer & Lamb, 2012) and raise serious questions about the extent to which courts ensure both that guilty suspects are convicted and that innocent suspects are not wrongly convicted.

Remarkably, however, there has been no prior systematic research on the linguistic complexity of lawyers' questions and how this affects children's responses in the United Kingdom, because proceedings are not routinely transcribed and are kept confidential by the courts. The current research builds upon an unprecedented collaboration with the Scottish judiciary (a pluralistic system within the UK based on shared common-law principles combined with some unique civil-law principles), which has publicly and privately expressed considerable concern recently about the risks associated with inappropriate procedures in relation to children's testimony, and thus comprises the first study to assess how structurally complex Scottish prosecutors' and defense lawyers' questions are and how children respond.

Operationalizing linguistic complexity is a complex issue in itself. By definition, the complexity of questions is enhanced whenever any lexical, syntactic, semantic, or pragmatic aspect of the question increases processing time (Walker, Kenniston, & Inada, 2013). The majority of previous studies have focused on lexical and syntactical measures of complexity, showing that much of the questioning conducted by lawyers during legal trials exceeds the communicative capacities of children and even adults (Brennan & Brennan, 1988; Perry, McAuliff, Tam, Claycomb, Dostal, & Flanagan, 1995). For example, many children are unfamiliar with or misunderstand terms commonly used in the courtroom (e.g., Flin, Stevenson, & Davies, 1989; Saywitz, Jeanicke, & Camparao, 1990) and this limits their ability to answer accurately (Evans, Lee, & Lyon, 2009; Perry et al., 1995). Other researchers have suggested that children are unable to comprehend many aspects of syntax that are commonly used in legal settings (e.g., Brennan & Brennan, 1988; Carter et al., 1996; Saywitz & Snyder, 1993), and that increased structural and syntactical complexity reduces the accuracy of children's reports (Cashmore & DeHaas, 1992; Zajac & Cannan, 2009; Zajac et al., 2003). Since adding length and additional structural components to questions is likely to greatly increase processing time, the current paper concerns itself with the structural complexity of lawyers' questions and the effects of complexity on children's responses. Specifically, structural complexity was assessed using 8 quantitative measures of each utterance's components (number of questions, phrases, clauses, sentences, false starts, average word count, word length, and sentence length).

Perhaps surprisingly, there is no consistent evidence regarding either the differential complexity of questions asked by prosecutors and defense lawyers or the effects of age on these lawyers' behavior. On the one hand, researchers have reported that defense lawyers tend to be less supportive and ask more complex and developmentally inappropriate questions than prosecutors (Cashmore & DeHaas, 1992; Davies & Seymour, 1998; Flin, Bull, Boon, & Knox, 1992; Goodman et al., 1992; Perry et al., 1995). For example, in a study conducted in New Zealand, Davies and Seymour (1998) found that defense lawyers asked 5- to 17-year-old children more questions involving complex language than prosecutors. Specifically, in comparison with prosecutors, defense lawyers asked more negative rhetorical questions, more multifaceted questions, more questions that lacked grammatical or semantic connections, more tagged questions, and more questions framed in the passive voice. There were no differences in relation to the children's ages, however, suggesting that lawyers did not alter their questioning when prompting children of different ages. Similarly, although Zajac and Cannan (2009) found that adults were asked more complex questions (coded using measures of both structural [i.e., classification and count of linguistic components] and syntactical [i.e., arrangement of linguistic components] complexity) than children, Zajac et al. (2003) found no relationship between age and complexity (both structural and syntactical) in a study of 5- to 13-year-olds. Evans et al. (2009) reported neither age nor attorney type differences in either wordiness or the syntactic complexity of the questions posed while examining 46 4- to 15-year-olds in cases from Los Angeles. Zajac and Cannan (2009) found that 31% of the defense attorneys' questions were complex, but so too were 25% of the prosecutors' questions, a surprisingly small difference. Indeed, Hanna, Davies, Crothers, and Henderson (2012) found that there were differences in the complexity of the questions asked by prosecutors and defense attorneys only in relation to three of the five types of questions examined. Specifically, prosecutors used more passives than defense lawyers, whereas defense lawyers used more double negatives and questions containing two or more subordinate clauses. There were no differences in the lawyers' use of complex vocabulary and difficult concepts.

It is unclear whether the inconsistent findings regarding the complexity of prosecutors' and defense lawyers' questions reflect secular changes in practices, differences between jurisdictions, or methodological differences. In addition, with the exception of Evans et al.'s (2009), all existing studies have involved very small samples, so further research using larger samples and more comprehensive measures of complexity may add clarity to a rather confusing picture.

It is also likely that the linguistic complexity of questions differs depending on the type of question involved. Some question types may be more likely than others to become convoluted (e.g., suggestive questions), as a result of which they could contain components that increase both complexity and the likelihood that children will be unresponsive, inconsistent, or become confused/uncertain. In particular, suggestive tag questions are thought to be especially complex (Gibbons & Turrell, 2008; R v W & M, 2010, EWCA Crim 1926 para 30), requiring the respondent to carry out at least seven cognitive operations to fully comprehend and respond to the question correctly (Walker et al., 2013). As Walker et al. (2013) suggested, "if the question is a long one, being able to hold in memory all the propositions in the questions and check each one for truth before responding to a tag like 'isn't that true?' is probably beyond the capability of any preteen." Indeed, the use of tag questions may not show up in the speech of some children until the early teens (Reich, 1986). No systematic field study has

yet addressed how linguistic complexity varies depending on the question type and how the type and linguistic complexity of the question together influence the ways in which children respond.

In forensic interviews, children are typically responsive to almost all the questions addressed to them (e.g., Lamb et al., 1996; Sternberg, Lamb, Davies, & Westcott, 2001), but laboratory analogue studies show that their answers to open-ended free-recall invitations (e.g., "Tell me what happened."), children are more likely to be accurate than their answers to closed-ended recognition prompts (e.g., "Did he touch you with his fingers?") for a number of reasons (e.g., Jones & Pipe, 2002; Lamb, Orbach, Hershkowitz, Horowitz, & Abbott, 2007). Younger children produce shorter and less detailed accounts in response to open-ended questions than older children and adults (e.g., Eisen, Goodman, Qin, Davis, & Crayton, 2007; Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Lamb et al., 2003), but their reports are no less accurate (e.g., Jack, Leov, & Zajac, 2014; Sutherland & Hayne, 2001). On the other hand, younger children are more likely than older children and adults to provide erroneous details in response to closed-ended questions (e.g., Waterman, Blades, & Spencer, 2004; see Melnyk, Crossman, & Scullin, 2007, for a review), perhaps in part because they are less willing to say "I don't know" in response to closed as opposed to open questions (Earhart, La Rooy, Brubacher, & Lamb, 2014).

Although defense lawyers are permitted to ask children misleading and suggestive questions in cross-examination, we know that such types of questions are less likely to elicit accurate information from children (Henderson, 2002). Suggestive prompts are most problematic because children, especially young children, may change details in their accounts and thus respond inconsistently, either by incorporating suggested information or acquiescing to perceived interviewer coercion (e.g., Bruck & Ceci, 1999; Bruck, Ceci, & Principe, 2006; Eisen, Qin, Goodman, & Davis, 2002; Lamb & Fauchier, 2001; London & Kulkofsky, 2010; Orbach & Lamb, 2001). Suggestive tag questions (e.g., "You're lying, aren't you?") are often considered especially detrimental (Lamb & Fauchier, 2001; Orbach & Lamb, 2001; Walker et al., 2013). Recent research distinguishing between different types of suggestive prompts – confrontational, suppositional, and introductory – in forensic interviews (Orbach, Lamb, Hershkowitz, & Abbott, in press, see Table 1) found that children were twice as likely to acquiesce than resist interviewers' suggestions. Contradictions were most likely to be elicited in response to suggestive introductory prompts, closely followed by suggestive confrontational prompts, although the latter elicited almost a third of all contradictory responses, despite accounting for only 5% of the total number of suggestive prompts. Younger children were asked fewer suggestive questions than older children, but were more likely to acquiesce in response to suggestive confrontational prompts, and were as likely to acquiesce in response to suggestive suppositional and introductory prompts.

Complementing the above-referenced studies of forensic interviews, researchers have also examined children's responses to different types of questions in court using transcripts from New Zealand (Zajac & Cannan, 2009; Zajac et al., 2003), the United States (Andrews, Ahern, Stolzenberg, & Lyon, 2017, in press; Andrews et al., 2015a; Andrews, Lamb, & Lyon, 2015b; Klemfluss, Quas, & Lyon, 2014; Stolzenberg & Lyon, 2014), and Scotland (Andrews & Lamb, 2016). As in forensic interviews (Andrews & Lamb, 2016), child witnesses in court were more often responsive than unresponsive (Andrews et al., 2015a; Klemfluss et al., 2014), although Andrews & Lamb, 2016 and Andrews et al. (2015a, in press) reported that children were more responsive to prosecutors than defense lawyers. Furthermore, in Scottish courts, as in the forensic interviews studied by Earhart et al. (2014), children responded with more uncertainty in response to directive questions, particularly those posed by defense lawyers (Andrews, Ahern, & Lamb, under review). In relation to report consistency, studies measuring children's self-contradictions have found that defense lawyers elicited more inconsistencies than prosecutors (Andrews & Lamb, 2016; Andrews et al., 2015a; Zajac et al., 2003; Zajac & Cannan, 2009), and that suggestive questions elicited more self-contradictions than any other prompt type, regardless of age (Andrews et al., 2015a; Zajac et al., 2003). As in Orbach et al.'s (in press) study of forensic interviews, Andrews & Lamb, 2016 found that both suggestive confrontational and suggestive introductory questions in court elicited significantly more self-contradictions from children than suggestive suppositions. Suggestive confrontational questions are relatively easy to spot, and thus can be monitored by the court and possibly restricted when necessary. However, suggestive suppositional and introductory questions involve lawyers assuming and introducing information not previously mentioned by the children (see Table 1) and are less easy to identify. One goal of the present study was thus to determine whether the different types of questions varied with respect to their linguistic complexity.

The current study was designed to explore how the linguistic complexity of questions (assessed at the utterance level on 8 dimensions: number of questions, phrases, clauses, sentences, false starts, average word count, word length, and sentence length) may affect children's responses at different ages, and how linguistic complexity may vary depending on who is asking (prosecutors or defense lawyers) and how the question is framed (question type). There has been no previous research on the linguistic complexity of lawyers' questions in the United Kingdom. The current study assessed the direct- and cross-examination of children in Scottish courts in a sample of transcripts involving 56 5- to 17-year-old children questioned in trials held between 2009 and 2014. We sought to create a more comprehensive measure of complexity than in previous studies by combining 8 items measuring lexical and syntactical complexity.

Based on the literature reviewed above, we predicted that lawyers would not alter the linguistic complexity of questions depending on the children's ages, and that defense lawyers would ask more linguistically complex questions than prosecutors. In relation to question types, we predicted that suggestive prompts would be more complex than option-posing prompts, and that both would be more complex than directive prompts and invitations, with suggestive tag questions being most linguistically complex. We further predicted that increased linguistic complexity would lead to more unresponsiveness, more expressions of uncertainty, and more self-contradictions, regardless of how old the children were.

Table 1
Coding Definitions and Examples.

Code	Definition	Example
Linguistic complexity items		
Number of questions	A count of the number of questions in each utterance, including imperatives and statements phrased as questions.	"How did he do it? What did he do? Did he touch you?" = 3 MQs
Number of phrases	A string of words which form a grammatical unit; smaller than a clause and need not contain a verb (Burton, 2012).	"The big man?" = 1 phrase "[He] [ran out] [of the house]?" = 3 phrases
Number of clauses	A count of the number of clauses in each utterance. A clause is a larger word group that includes a little more information. It consists of at least two phrases – one is a noun phrase known as the subject, and the other is a verb phrase.	"The big man shouted?" = 1 clause "The big man shouted and ran out of the house?" = 2 clauses
Number of sentences	A count of the number of sentences in each utterance. Sentences often contain a subject and predicate, and consist of a main clause and sometimes one or more subordinate clauses.	"The big man shouted and ran out of the house?" = 1 sentence
False starts	A count of the number of false starts (i.e., stumbles) within an utterance. False starts can occur within sentences as well as at the beginning.	"He – she never said anything – she she never – hold on, she never said anything to you at the hotel about this, did she? The first time you heard about it was on Tuesday – Wednesday, right?" = 4 false starts
Word count	A count of the number of complete words in each utterance.	
Average word length	The average length (in letters) of words within each utterance.	
Average sentence length	The average length (in words) of sentences within each utterance.	
Question types		
Invitation	Open-ended, input-free utterances used to elicit free-recall responses from children. Such questions, statements, imperatives, or contextual cues do not restrict the child's focus except in a general sense. Invitations can also follow-up on information just mentioned, or cue for additional free-recall elaboration about details previously mentioned.	"Tell me everything about the first time/last time/time you best remember." "Tell me more about that." "Tell me about/what happened with (content mentioned by the child)." "What was the very first thing that happened before (an occurrence/action mentioned by the child)?"
Directive	Open-ended questions that refocus the child on aspects or details of the allegation that they have previously mentioned, mostly using *WH-* utterances to request further information.	"Where/when/how did it happen?" "Why did you do that? What color was his t-shirt? (when the child mentioned earlier that he was wearing a t-shirt). "Where did he touch you?" (when the child mentioned earlier that a male touched her).
Option-posing	Closed-ended questions that refocus the child's attention on details of the allegation that they have not previously mentioned, although without implying an expected response. They can be formulated as "yes/no" or "choice" questions.	"Did he touch your skin?" (when the child had mentioned earlier that he touched her). "Were your clothes on when this happened?" "Did he touch you over your clothes or under your clothes?" "Was that photo he showed you from a photo album or a magazine or. . .?"
Suggestive	Statements or questions formulated in a way that communicates the expected response. They may introduce information not mentioned by the child but assumed by the lawyer or query the truthfulness of the child's response.	
Suggestive question subtypes		
Suggestive confrontation	Suggestive questions that 1) raise the possibility for the third time that reported information is not true, 2) are option-posing or suggestive questions asked for the third time on the same issue, 3) are instances where the lawyer refers to information disclosed by the child earlier in the direct-/cross-examination and uses it to confront the child by questioning, doubting, or contradicting his or her current statement, or 4) are instances where the lawyer refers to knowledge of undisclosed information about the investigated incident and confronts the child by using it to contradict information s/he disclosed.	"Are you sure?" (when asked for the 3rd time) Lawyer: "Did it happen once or more than once?" Child: "More than once." Lawyer: "So, it did happen more than once?" Child: "Yes." Lawyer: "This is a serious matter. I'll ask you again. Did it happen once or more than once?" [option-posing 3rd time] Lawyer: "What happened to your trousers?" Child: "They stayed on." Lawyer: "How did he touch your privates if your trousers were on?" [coercive confrontation internal] "You said (XXX), but your brother, who testified earlier, said that (contradicting info)."

Table 1 (*Continued*)

Code	Definition	Example
Suggestive supposition	Suggestive questions where 1) the lawyer asks a question built on an implicit assumption that an undisclosed peripheral action had happened, 2) the lawyer asks a question built on a potentially contaminating assumption that something central to the allegation had happened, 3) the lawyer asks a question built on an explicit undisclosed assumption (premise) that something had happened, or 4) the lawyer questions the child, ignoring an earlier contradicting response that rules out the question.	Child: "Then I went to meet X." Lawyer: "You met X. What did she tell you?" (when the child did not mention that X told anything) "What else did X do?" (when the child did not mention that X did anything else) "Was your mother there when he touched you?" (when the child did not mention that s/he was touched). "Did it hurt when he touched you?" (When child said s/he was not touched)
Suggestive introduction	Suggestive questions where 1) the lawyer introduces undisclosed information (e.g., the suspect's name, the location of the incident), 2) the lawyer summarizes or quotes the child incorrectly; modifies, incorrectly concludes (with or without using a statement which is appended or preceded by a 'tag'), incorrectly interprets, verbalizes the child's action response beyond what the response indicates, or chooses one of two contradictory responses, 3) the lawyer provides restrictive, non-exhaustive options, in a forced-choice question, or 4) the lawyer refers to knowledge he has, from a specified or an unspecified external source, of undisclosed information about the investigated incident.	"Tell me what happened with/at (a person/place not mentioned by child)." Child: "I went to the park. . ." Lawyer: "You said you went to skate park." "Did he touch you in the bedroom or in the living room?" (when child only mentioned that the suspect touched him/her at home) "Your mom told me (undisclosed information)." "I heard from the policeman that (undisclosed information)."
Tag question	Short questions that are tagged onto the end of statements implying an expected response.	"You're lying, aren't you?" "He touched you, didn't he?" "It happened three times, right?"
Children's responses		
Responsive	Verbal and action responses related to the lawyer's previous utterance. Utterances were assigned this category even if they did not contain new informative details, or when their meaning was unclear.	Lawyer: "Did he take your trousers off?" Child: "Yes." [responsive] Lawyer: "What did he do with your trousers?" Child: "I don't know." [responsive]
Unresponsive	Responses that 1) do not relate to the question asked in the previous lawyer utterance, but provide incident-related information. These include instances when children misunderstood the lawyers' questions. As well as, 2) non-substantive responses such as digressions and non-responses.	Lawyer: "What did he say?" Child: "I was – I said STOP and I tried to push him away from me, but he kept holding on to my waist." [unresponsive] Lawyer: "Well that can't be right, can it? Try again. Was he standing or sitting?" Child: "He licked my private, too". [unresponsive]
Uncertainty	Uncertain responses included don't know (including "not sure"), don't remember, digressions (i.e., the child responded but was off task, resistant, or provided an irrelevant response to the target question), requests for clarification, and non-responses.	Lawyer: "So it happened at around dinnertime?" Child: "I'm not certain". "I didn't understand. Can you repeat that?" Lawyer: "How did it happen?" Child: (no response).
Self-contradiction	Responses that negated what the children had previously disclosed during the proceedings or provided self- conflicting information.	Lawyer: "He licked you one time?" Child: "Yes." (later in the proceedings) Lawyer: "How many times did he lick you?" Child: "I don't know – like 5 times." [self-contradiction] Lawyer: "Did he touch your privates when you were in the car?" Child: "No." Lawyer: "But I thought he did touch you in the car. Did he touch your privates in the car?" Child: "No. I never – in the car he touched my privates." [self-contradiction]

2. Methods

2.1. Sample

The Court Service Team of the Scottish Court Service identified all cases conducted in six major criminal court-houses in Scotland between 2009 and 2014 in which alleged victims of child abuse had testified. Forty-three trials were identified and 36 of these were then selected for detailed study. Recordings of the cases were located, and the portions of the trials in which the children testified were transcribed. Cases involving children who needed the assistance of translators or retracted their sexual abuse allegations or had many sections of inaudible or missing audio were excluded. The 36 trials involved a total of 56 alleged victims of child sexual abuse. Nine cases (11 children) were from Aberdeen, 9 cases (19 children) from

Edinburgh, 12 cases (16 children) from Glasgow, 1 case (1 child) from Inverness, 3 cases (5 children) from Livingston, and 2 cases (4 children) from Perth. The trials included in the present study involved at least 25 different prosecutors, 24 different defense lawyers, and 22 different judges. There were 9 transcripts for which this information could not be determined.

Children reported single ($n = 18$) or multiple ($n = 38$) sexually abusive experiences involving penetration ($n = 38$), touching under clothes ($n = 10$), touching over clothes ($n = 3$), and indecent exposure ($n = 5$). The final sample included 40 girls and 16 boys of between 5 and 17 years of age ($M = 13.99$, $SD = 2.69$).

Age could not be entered into parametric tests as a continuous variable, because a Kolmogorov-Smirnov test indicated strong deviations from normality, $D(55) = .20$, $p < .001$. Therefore, children were categorized into three age groups at the time of trial: 12-year-olds and under ($n = 15$), 13- to 15-year-olds ($n = 26$), and 16- and 17-year-olds ($n = 15$). These categories were chosen because they accord with the Sexual Offences (Scotland) Act (2003); 16 years is the age of sexual consent, but a person aged 16 or over can claim to be innocent of the charge of committing sexual offences with a child aged between 13 and 16 years if that person 'reasonably believed' that the child was over the age of 16. However, this reasonable belief provision does not apply if the offence involved a child under the age of 13. No information was available concerning the children's socioeconomic and ethnic backgrounds.

All defendants were male. In 95% ($n = 53$) of the cases, children knew the alleged abusers. The suspects were biological parents ($n = 8$), step-fathers/mothers' boyfriends ($n = 3$), other family members ($n = 20$), family friends ($n = 5$), friends/acquaintances ($n = 17$), and strangers ($n = 3$). Defendants were either convicted ($n = 42$) or acquitted ($n = 10$). The remaining 4 defendants were convicted but not for all alleged sexual offences.

In accordance with the Victims and Witnesses (2014), many of the children were accorded 'special measures' when they testified. All courts were closed to the public. Four children received no other special measures. Other children gave evidence in court with screen and a supporter present ($n = 15$), or just a supporter present ($n = 5$). The remaining children gave evidence via a live TV link either with a supporter present ($n = 21$) or without a supporter present ($n = 3$), or their evidence was taken on commission[1] ($n = 8$).

2.2. Coding of transcripts

The transcripts contained direct- and often redirect-examinations, in which the prosecution questioned the children, and cross-examinations, in which the defense questioned the children. No transcripts contained recross-examinations. Lawyers' substantive questions and children's corresponding responses were coded. Substantive utterances were defined as those designed to elicit or provide information about what happened during the alleged incidents, what immediately preceded or followed the alleged incidents, within-incident interventions (e.g., unexpected interruptions exposing the abuse) and witness details (e.g., witness interventions), other features of the abuse (e.g., how long the incidents lasted, where they happened), disclosure, and prior substantive formal questioning (e.g., what the child said happened in the forensic interview). All inaudible and partially inaudible prompts were excluded for the purposes of this study.

Lawyers' substantive questions were coded for 8 different aspects of structural linguistic complexity (definitions and examples of all codes listed below are provided in Table 1), the types of questions lawyers asked were coded (see Table 1), and children's responses were coded (see Table 1).

2.2.1. Linguistic complexity. For each lawyer utterance, a coder tabulated the number of questions, phrases, clauses, sentences, and false starts. Each utterance was also entered into an automated linguistics program – the ATOS analyzer for text (see http://www1.renaissance.com/Products/Accelerated-Reader/ATOS/ATOS-Analyzer-for-Text/lang/english) – which calculated three further variables to measure structural complexity: word count, average word length (number of letters), and average sentence length (number of words). In order to create an overall measure of structural linguistic complexity, z-scores were generated at the utterance level for the 8 measures of complexity. Z-scores were used to ensure that each item was weighted equally within the composite by controlling for the ranges of scores for each item. The internal consistency of the composite score was high, $\alpha = .81$. The 8 z-score measures were then averaged to create the linguistic complexity composite used as the dependent variable in all tests reported below. The mean score for structural question complexity was .00 ($SD = .65$, range 1.97–8.16).

It is important to note that analysing the averaged z-scores as a composite measure is useful for determining where differences occur. However, interpretation of the composite scores beyond identifying differences should be done only when contextualised alongside the raw complexity item scores to retain a sense of how complex questions actually were (e.g., negative z-scores [below the mean of .00] indicate lower complexity relative to the comparison(s) within the sample, yet these may still be regarded as very complex questions for children to monitor and answer when the raw item scores are considered). Table 2 provides descriptive statistics to aid such interpretation.

---

[1] Evidence is taken by a commissioner only when the witness is considered especially vulnerable. In these instances, delays in testifying may increase distress and trauma, significantly hindering the witness's ability to give evidence. Evidence is therefore taken before a commissioner appointed by the court. The evidence is taken in full (direct-, cross-, and re-direct-examination) from the witness, proceedings are video recorded, and later received at the subsequent trial (see Vulnerable Witnesses Scotland Act, 2004).

Table 2
Descriptive statistics for measures of Linguistic Complexity.

Item	Raw score			Z-score by item score within the lowest quartile			
	M	SD	range	0%	6.25%	12.5%	25%
Number of questions	1.06	.30	0–8	−3.65	−1.93	−.28	3.21
Number of phrases	4.26	3.16	1-57	−1.35	−.24	.87	3.08
Number of clauses	2.46	1.79	0–28	−1.37	−.39	.58	2.52
Number of sentences	1.20	.55	0–10	−2.19	−.82	.99	2.37
Number of false starts	.11	.43	0–9	−.25	1.49	2.66	5.55
Word count	14.50	11.58	1–184	−1.17	.26	.73	2.72
Average word length	3.77	.81	2–15	−4.21	−1.88	2.12	8.93
Average sentence length	10.89	7.47	2-87	−1.46	−.72	.01	1.49

2.2.2. Lawyers' question types.

2.2.2.1. Question types. Lawyers' substantive utterances were categorized into one of the four categories commonly used to differentiate among interviewer utterances in forensic interviews (e.g., Lamb, Hershkowitz, Orbach, & Esplin, 2008): invitations, directive, option-posing, and suggestive prompts.

2.2.2.2. Suggestive question subtypes. Suggestive questions were further categorized into one of 3 categories (using a coding system designed by): suggestive confrontation, suggestive supposition, and suggestive introduction. All suggestive prompts were also coded for whether they were tagged or untagged.

2.2.3. Children's responses.

2.2.3.1. Responsiveness. Children's responsiveness was categorized exhaustively into one of two categories: responsive and unresponsive.

2.2.3.2. Uncertainty. Uncertainty was coded when children indicated that they did not know/remember/were unsure about the answer, when they digressed, requested clarification, or did not answer.

2.2.3.3. Self-contradictions. Self-contradictions were defined as responses that negated what the children had previously disclosed during the proceedings or provided conflicting information.

2.3. Inter-rater reliability

Another rater independently coded 20% of the transcripts that were randomly selected. Inter-rater reliability in the identification of linguistic codes, and the identification and classification of all question and response codes were consistently high, Kappas > .83. Reliability assessments were performed throughout the duration of coding and all disagreements were resolved by discussion.

3. Results

3.1. Analytical plan

The reliability and internal consistency of the composite measure of complexity were first assessed. A series of preliminary discriminant function analyses were then conducted to determine whether gender, case verdicts, the number of children testifying in each case, and the use of special measures were associated with complexity. Research questions were addressed using repeated-measures analyses of variance (RM-ANOVAs), with the linguistic complexity composite measure entered as the dependent variable, children's age entered as the between-subjects independent variable (12 years old and under, 13–15 years old, 16 and 17 years old), and all other variables entered as within-subjects repeated-measures factors: lawyer role (prosecutor, defense), question types (invitations, directives, option-posing, suggestive prompts), suggestive question subtypes (confrontation, supposition, introduction), tag questions (tagged, untagged), responsiveness (responsive, unresponsive), uncertainty (uncertainty present, uncertainty not present), and self-contradictions (contradiction present, contradiction not present). When Mauchly's test of sphericity was violated, Greenhouse-Geisser corrections were applied. All parametric tests were conducted with child as the unit of analysis, and power analyses confirmed that all inferential tests reported had enough power (set at 0.8) to detect at least medium-sized effects. When investigating statistical interactions involving measures of the children's responses, question type and lawyer role were analyzed in separate RM-ANOVAs to ensure adequate statistical power. Pairwise comparisons (with Bonferonni corrections) were used to follow-up significant two-way interactions. The structural linguistic complexity composite measure was aggregated to the child level by averaging it across the repeated-measures (e.g., when investigating whether linguistic complexity differed with question type,

lawyer role, and children's age, the mean linguistic complexity score was cross-tabulated for each child by question type and lawyer role).

3.2. Preliminary analyses

Discriminant function analyses revealed no significant effects for gender, case verdicts, the number of children testifying in each case, and type of special measures afforded with respect to the overall mean z-scores for linguistic complexity, thus these factors were not included in any of the analyses reported below.

3.3. *Factors associated with variations in the complexity of lawyers' questions*

A one-way ANOVA was conducted to investigate whether the linguistic complexity of lawyers' questions differed depending on the age of the children being questioned. Importantly, there was no significant difference, $F(2, 55) = .08$, $p = .92$, $\eta_p^2 = .003$.

3.3.1. Question types. A question type X lawyer role X children's age RM-ANOVA with Greenhouse-Geisser corrections applied ($\varepsilon = .69$ and .81) revealed a significant main effect for lawyer role, $F(1, 53) = 4.04$, $p = .05$, $\eta_p^2 = .07$. Defense lawyers ($M = .08$, $SD = .04$) asked more complex questions than prosecutors ($M = -.05$, $SD = .05$). There was also a significant main effect for question type, $F(2.09, 110.97) = 15.96$, $p < .001$, $\eta_p^2 = .23$: Directive questions ($M = -.12$, $SD = .03$) were less complex than option-posing ($M = -.03$, $SD = .02$), invitations ($M = .03$, $SD = .03$), and suggestive ($M = .05$, $SD = .02$) questions, and option-posing questions were less complex than suggestive questions. There was also a significant interaction between question type and lawyer role, $F(2.42, 128.31) = 4.81$, $p = .006$, $\eta_p^2 = .08$. Pairwise comparisons revealed that, when prompting children with option-posing and suggestive prompts, defense lawyers' questions were more linguistically complex ($M = .03$, $SD = .03$; $M = .11$, $SD = .03$) than prosecutors' questions ($M = -.09$, $SD = .03$; $M = -.01$, $SD = .03$, respectively). There were no other significant differences.

3.3.2. Suggestive question types. A suggestive question subtype X lawyer role X age RM-ANOVA with Greenhouse-Geisser corrections applied ($\varepsilon = .83$) revealed a main effect for lawyer role, $F(1, 53) = 5.34$, $p = .03$, $\eta_p^2 = .09$. As noted above, defense lawyers' suggestive questions ($M = .11$, $SD = .03$) were more linguistically complex than prosecutors' ($M = -.01$, $SD = .03$) and there was also a main effect for suggestive question subtype, $F(1.66, 87.89) = 7.59$, $p = .002$, $\eta_p^2 = .13$. Pairwise comparisons showed that suggestive suppositions ($M = -.05$, $SD = .04$) were less complex than suggestive confrontation ($M = .12$, $SD = .05$) and suggestive introduction ($M = .06$, $SD = .03$) questions. There were no other significant differences.

3.3.3. Tag questions. A tagged/untagged X lawyer role X age RM-ANOVA again revealed the main effect for lawyer role, $F(1, 53) = 10.19$, $p = .002$, $\eta_p^2 = .16$ (see above for descriptive statistics) as well as a main effect for tagged/untagged suggestive questions, $F(1, 53) = 19.86$, $p < .001$, $\eta_p^2 = .27$. Tagged suggestive questions ($M = .14$, $SD = .03$) were more linguistically complex than untagged suggestive questions ($M = -.02$, $SD = .02$). There were no other significant differences.

3.4. *How were children's responses affected by question complexity?*

3.4.1. Responsiveness. A responsiveness x lawyer role X age RM-ANOVA again showed the main effect for lawyer role, $F(1, 53) = 10.85$, $p = .002$, $\eta_p^2 = .17$ (see above for descriptive statistics) as well as a main effect for responsiveness, $F(1, 53) = 4.11$, $p = .05$, $\eta_p^2 = .07$: Children's unresponsive answers were elicited by more complex questions ($M = .04$, $SD = .03$) than responsive answers ($M = -.01$, $SD = .02$). There were no other significant differences.

A responsiveness X question type X age RM-ANOVA with Greenhouse-Geisser corrections applied ($\varepsilon = .86$ and $\varepsilon = .83$) again showed the main effect for responsiveness, $F(1, 53) = 11.09$, $p = .002$, $\eta_p^2 = .17$, and a main effect for question type, $F(2.60, 138.02) = 11.23$, $p < .001$, $\eta_p^2 = .18$ (see above for descriptive statistics) but no significant interactions.

3.4.2. Uncertainty. An uncertainty X lawyer role X age RM-ANOVA showed the main effect for lawyer role, $F(1, 53) = 10.11$, $p = .002$, $\eta_p^2 = .16$ (see above for descriptive statistics) and a main effect for uncertainty, $F(1, 53) = 15.93$, $p < .001$, $\eta_p^2 = .23$. Children's expressions of uncertainty were elicited by more complex questions ($M = .08$, $SD = .03$) than responses that did not express uncertainty ($M = -.02$, $SD = .02$). There were no other significant effects.

An uncertainty X question type X age RM-ANOVA with Greenhouse-Geisser corrections applied ($\varepsilon = .84$ and $\varepsilon = .64$) again showed the main effect for uncertainty, $F(1, 53) = 18.33$, $p < .001$, $\eta_p^2 = .26$, and also a main effect for question type, $F(2.55, 134.91) = 17.95$, $p < .001$, $\eta_p^2 = .25$ (see above for descriptive statistics), but no significant interactions.

3.4.3. Self-contradictions. A contradictions X lawyer role X age RM-ANOVA revealed the significant main effect for lawyer role, $F(1, 53) = 4.69$, $p = .04$, $\eta_p^2 = .08$ (see above for descriptive statistics) and no other significant effects, although there was a non-significant trend, $F(1, 53) = 3.16$, $p = .08$, $\eta_p^2 = .06$, indicating that children's contradictory responses tended to occur more often in response to more linguistically complex questions ($M = .09$, $SD = .06$) than non-contradictory responses ($M = -.01$, $SD = .02$).

A contradictions X question type X age RM-ANOVA with Greenhouse-Geisser corrections applied ($\varepsilon = .76$ and $\varepsilon = .71$) showed the main effect for question type, $F(2.29, 125.68) = 6.60$, $p = .001$, $\eta_p^2 = .11$, and the non-significant trend for contradictions, $F(1, 53) = 3.54$, $p = .06$, $\eta_p^2 = .06$ (see above for descriptive statistics). However, there were no interactions.

4. Discussion

Although, as predicted, defense lawyers tended to ask more complex questions of children in the courtroom than prosecutors did, this study revealed considerable variability. Many of the lawyers' questions were quite simple in structure, whereas others were more complex. Importantly, and as expected, both prosecutors and defense lawyers asked similarly complex questions of children regardless of their age. As expected, suggestive questions were the most complex. Variations in the complexity of questions had an impact on the quality of children's responses. Children were less likely to respond, more likely to express uncertainty, and, as a trend, more likely to contradict themselves when questions were more complex.

At first glance, the average structural complexity of the questions asked may seem relatively low (see Table 2). The average utterance contained one question, formed by 14 relatively short words within one sentence, with few false starts. However, the average number of phrases per utterance was 4, and the average number of clauses per utterance was 2.5, suggesting that the average utterance contained multiple clauses. Such questions are notoriously difficult for children, particularly those aged 12 years and under, to monitor and answer accurately (see Walker, 1993; Walker et al., 2013). Furthermore, the high standard deviations and wide ranges are noteworthy. Some lawyer utterances contained 8 questions, some involved as many as 10 sentences, some included up to 184 words, and some contained words that averaged as many as 15 letters in length! Such questions would likely be extremely difficult for adults to monitor and answer, let alone children responding in extremely stressful and upsetting circumstances and after long delays between the event(s) in question and the courtroom testimony.

These issues are further exacerbated by the lawyers' manifest insensitivity to the children's ages. In line with our prediction, lawyers did not alter the structural complexity of the questions they posed depending on the children's ages, suggesting insensitivity to children's developmental capacities and limitations. Put another way, both prosecutors and defense lawyers used similarly complex questions to address 5- to 12-year-olds and 16- to 17-year-olds. Although further research utilizing larger samples is needed to assess the robustness of this finding, studies conducted in New Zealand (Davies & Seymour, 1998; Zajac et al., 2003) and California (Evans et al., 2009) similarly showed lawyers' inattention to children's ages, implying that this problem is not unique to Scotland, but may be a common characteristic of adversarial legal systems. Taken together, these findings suggest that learning why and how to alter questioning practices in line with children's ages should be a significant focus of training, not only for defense lawyers, but also for prosecutors and judges.

However, unlike Evans et al. (2009), and to a greater extent than Zajac and Cannan (2009) and Hanna et al. (2012), we found that, as predicted, defense lawyers asked more structurally complex questions than prosecutors. Similarly, Cashmore and DeHaas (1992), Davies and Seymour (1998), Flin et al. (1992), Goodman et al. (1992), and Perry et al. (1995) also found that defense lawyers asked more linguistically complex questions than prosecutors. The inconsistency between these findings and those reported by Evans et al. (2009) may be due to methodological differences, since Evans et al. focused mainly on the syntactic complexity of the questions asked. Further research is needed to elucidate whether different results are obtained when researchers focus on different aspects of complexity.

In general, our findings supported our predictions with respect to question types. Open-ended directive questions were less linguistically complex than closed-ended option-posing questions, open-ended invitations, and suggestive questions. Suggestive utterances were the most linguistically complex questions, particularly when asked by defense lawyers. Additionally, suggestive confrontational questions and tagged questions were the most linguistically complex forms of suggestive questions. Not only do such questions pose risks to the veracity of children's responses because of their suggestiveness (Orbach et al., in press; Spencer & Lamb, 2012; Walker et al., 2013), but such risks are exacerbated due to the high degree of linguistic competence they demand (Walker et al., 2013). The current findings thus support recent calls for courts to restrict the use of the suggestive questions (Carloway, 2013; Lord Chief Justice's Criminal Practice Directions, 2013; Spencer & Lamb, 2012), particularly suggestive confrontational and tagged questions, that dominate cross-examinations (Andrews & Lamb, 2016; Andrews et al., 2015a).

Invitations may have been more linguistically complex than directive and option-posing questions because the majority of invitations were formulated as cued-invitations (e.g., "You mentioned [person/object/action]. Tell me more about that" as opposed to general invitations (e.g., "Tell me what happened") (Andrews & Lamb, 2016). By definition, cued-invitations refocus the child's attention on previously mentioned details and uses them as contextual cues, thus increasing the structural complexity of the question.

Lastly, and as predicted, increased linguistic complexity led to more unresponsiveness, more expressions of uncertainty, and (non-significantly) more self-contradictions. Our findings are consistent with those of studies showing that increased complexity reduces the accuracy of children's reports (Cashmore & DeHaas, 1992; Zajac et al., 2003; Zajac & Cannan, 2009). Increases in such responding may have deleterious effects on the evaluation of children's testimony (Bruer & Pozzulo, 2014; Goodman, Golding, & Haith, 1984; Myers, Redlich, Goodman, Prizmich, & Imwinkelried, 1999; Semmler & Brewer, 2002), and the consequences may be serious. In the present study, children's responses were largely influenced only by the linguistic complexity of questions, regardless of who asked them and how the questions were formulated, suggesting that linguistic complexity is a powerful determinant of children's responses. It is possible that interactions with lawyer role and question

type would be present in a larger sample that had enough power to detect very small effects but such differences would be of less practical significance than the larger effects found in the present study.

In line with previous research (Andrews & Lamb, 2016; Andrews et al., 2015a) we found no age differences in the children's responses, suggesting that young witnesses of all ages are remarkably responsive and consistent in the face of challenging courtroom questioning. By contrast, the experimental literature shows linear developmental trends in children's ability to respond effectively to demanding questions (see Andrews et al., 2015a). However, since the accuracy of children's responses cannot be assessed in field research, it is possible that children simply acquiesce to the large number of suggestions and option-posing questions asked of them in court (Andrews & Lamb, 2016; Andrews et al., 2015a). Indeed, because option-posing and suggestive questions are more likely to be linguistically complex, it is possible that many children are responsive to questions they do not fully understand, and thus our results underestimate the deleterious effects of question complexity on children's responses. Further experimental research, in which the accuracy of children's response can be monitored, is needed to investigate these issues.

Furthermore, whilst long words and sentences are often more difficult to comprehend than shorter ones (Walker et al., 2013), longer words can be more familiar than shorter words (e.g., feign versus pretend) while longer sentences can be easier to understand than shorter ones because comprehensibility can be affected by factors such as word order, negation, voice (active vs. passive), and the familiarity of the words used (Perera, 1980; Scott & Koonce, 2013). Further research is needed on how often, why, and to what extent sentences with identical numbers of clauses, phrases, and words are differentially comprehensible.

Although the cross-examination of witnesses is often deemed essential to protect the accused's right to a fair trial (e.g., Article 6 (3d), of the European Convention on Human Rights, 2017; Sixth Amendment to the US Constitution, 2017), courts have a duty to allow witnesses to give their best evidence (Home Office, 2011, section 5.8). The findings obtained in the present study, supported by research conducted over the past 30 years in a variety of jurisdictions, suggest that lawyers, particularly defense lawyers, in adversarial systems ask questions of children that sometimes exploit their developmental limitations. Such questioning techniques violate guidelines, based on an extensive body of experimental and field research, outlining the best ways to elicit truthful testimony (see Rush et al., 2012; Spencer & Lamb, 2012) and raise serious questions about the extent to which courts ensure both that guilty suspects are convicted and that innocent suspects are not wrongly convicted.

Since it is now widely accepted in Scotland that gathering evidence from young and vulnerable witnesses requires special care, and that subjecting them to traditional adversarial forms of examination and cross- examination is no longer acceptable (Evidence and Procedure Review Report [Section 2.1], Scottish Court Service, 2015; Carloway, 2013; Spencer & Lamb, 2012), the findings described above should be particularly worrisome. It is clear that major reforms are warranted. In particular, the fundamental proposition explored in the Evidence and Procedure Review Report, Scottish Court Service (2015) is that substantial improvements can be made to the administration of justice. Such improvements might involve the widespread use of pre-recorded statements in place of testimony in court and the implementation of Ground Rules Hearings, at which judges stipulate what types of questions can be asked. These procedures (bringing into force Section 28 of the Youth Justice and Criminal Evidence UK Act, 1999) are currently being implemented in England and Wales under the premise that a properly conducted witness interview before trial may be far more informative and appropriate than a belated appearance in court during the trial (Evidence and Procedure Review Report [Section 1.24], Scottish Court Service 2015; Westera, Kebbell, & Milne, 2013). Furthermore, evidence-based "Toolkits" (see Advocacy Training Council, 2011) have been introduced in England and Wales to provide continuing education and thus improve practice, in recognition of the fact that many lawyers and judges need guidance on how best to question children appropriately. These Toolkits were endorsed in the Lord Chief Justice's Criminal Practice Directions (2013). Furthermore, intermediaries (i.e., trained professionals who are present at trial to facilitate communication between vulnerable witnesses and lawyers) have had their roles greatly expanded in recent years across England and Wales, and are increasingly used by judges in Crown courts to assist the court by highlighting complex questions and mediating miscommunications (Plotnikoff & Woolfson, 2015). This potentially valuable special measure is presently not available in Scotland. Although the use and effectiveness of special measures have not been systematically assessed, it is likely that systematic training of judges and lawyers, perhaps alongside the greater use of well-trained intermediaries, may be necessary to ensure that practice in Scotland changes in the intended direction.

Acknowledgements

References

Advocacy Training Council (2011). Retrieved from: http://www.advocacytrainingcouncil.org.

Andrews, S. J., Lamb, M. E., & Lyon, T. D. (2015a). Question types, responsiveness and self-contradictions when prosecutors and defense attorneys question alleged victims of child sexual abuse. *Applied Cognitive Psychology, 28*, 253–261. http://dx.doi.org/10.1002/acp.3103

Andrews, S. J., Lamb, M. E., & Lyon, T. D. (2015b). The effects of question repetition on responses in direct- and cross-examinations of children alleging sexual abuse in court. *Law and Human Behavior, 39*, 559–570. http://dx.doi.org/10.1037/lhb0000152

Andrews, S. J., & Lamb, M. E. (2016). How do lawyers examine and cross-examine children in Scotland? *Applied Cognitive Psychology Applied Cognitive Psychology, 30*(6), 953–971.

Andrews, S.J., Ahern, E., & Lamb, M.E. (under review). Children's expressions of uncertainty when testifying about alleged sexual abuse in Scottish courts.

Andrews, S. J., Ahern, E. C., Stolzenberg, S. N., & Lyon, T. D. (2017). The productivity of wh- prompts when children testify. *Applied Cognitive Psychology, 30*(3), 341–349. http://dx.doi.org/10.1002/acp.3204 (in press)

Brennan, M., & Brennan, R. (1988). *Strange language: Child victims under cross- examination.* Riverina, NSW: Riverina Institute of Higher Education.

Bruck, M., & Ceci, S. J. (1999). The suggestibility of children's memory. *Annual Review of Psychology, 50*, 419–439. http://dx.doi.org/10.1146/annurev.psych.50.1.419

Bruck, M., Ceci, S. J., & Principe, G. F. (2006). The child and the law. In K. A. Renninger, I. E. Sigel, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 4) (6th ed., Vol. 4, pp. 776–816). New York, NY: John Wiley & Sons, Ltd.

Bruer, K., & Pozzulo, J. D. (2014). Influence of eyewitness age and recall error on mock juror decision-making. *Legal and Criminological Psychology, 19*, 332–348. http://dx.doi.org/10.1111/lcrp.12001

Burton, M. (2012). *Grammar for sentence combining: Underpinning knowledge for adult literacy practitioners.* UK: National Institute of Adult Continuing Education.

Carloway, L. C. S. (2013). Scots criminal evidence and procedure—Meeting the challenges and expectation of modern society and legal thinking. *Speech addressed to the Criminal Law Conference at Murrayfield* [Retrieved from: http://www.scotland-judiciary.org.uk/Upload/Documents/CriminalLawConferenceMurrayfield9May2013.pdf].

Carter, C., Bottoms, B., & Levine, M. (1996). Linguistic and socioemotional influences on the accuracy of children's reports. *Law and Human Behavior, 20*, 335–358. http://dx.doi.org/10.1007/BF01499027

Cashmore, J., DeHaas, N. (1992). The use of closed-circuit television for child witnesses in the act. *Australian Law Reform Commission Research Paper No. 1.*

Davies, E., & Seymour, F. (1998). Questioning child complainants of sexual abuse: analysis of criminal court transcripts in New Zealand. *Psychiatry, Psychology and Law, 5*, 47–61. http://dx.doi.org/10.1080/13218719809524919

Earhart, B., La Rooy, D. J., Brubacher, S. P., & Lamb, M. E. (2014). An examination of don't know responses in forensic interviews with children. *Behavioral Sciences & the Law, 32*, 746–761. http://dx.doi.org/10.1002/bsl.2141

Eisen, M. L., Qin, J., Goodman, G. S., & Davis, S. L. (2002). Memory and suggestibility in maltreated children: age, stress arousal, dissociation, and psychopathology. *Journal of Experimental Child Psychology, 83*, 167–212. http://dx.doi.org/10.1016/S0022-0965(02)00126-1

Eisen, M. L., Goodman, G. S., Qin, J., Davis, S. L., & Crayton, J. (2007). Maltreated children's memory: Accuracy, suggestibility, and psychopathology. *Developmental Psychology, 43*, 1275–1294. http://dx.doi.org/10.1037/0012-1649.43.6.1275

European Convention on Human Rights, Art 6(d). Retrieved from: http://www.echr.coe.int/Documents/Convention_ENG.pdf.

Evans, A. D., Lee, K., & Lyon, T. D. (2009). Complex questions asked by defense attorneys but not prosecutors predicts convictions in child abuse trails. *Law and Human Behavior, 33*, 258–264. http://dx.doi.org/10.1007/s10979-008-9148-6

Evidence and Procedure Review Report, Scottish Court Service (March, 2015). Retrieved from: https://www.scotcourts.gov.uk/docs/default-source/aboutscs/reports/reports-and-data/reports-data/evidence-and-procedure-full-report—publication-version-pdf.pdf?sfvrsn=2.

Flin, R. H., Stevenson, Y., & Davies, G. M. (1989). Children's knowledge of court proceedings. *British Journal of Psychology, 80*, 285–297. http://dx.doi.org/10.1111/j.2044-8295.1989.tb02321.x

Flin, R., Bull, R., Boon, J., & Knox, A. (1992). Children in the witness-box. In H. Dent, & R. Flin (Eds.), *Children as witnesses. Wiley series in the psychology of crime, policing and law* (pp. 167–179). Oxford, England: John Wiley and Sons.

Gibbons, J., & Turrell, M. (Eds.). (2008). *Dimensions of forensic linguistics.* Amsterdam, The Netherlands: John Benjamins Publishing Company.

Goodman, G. S., Golding, J. M., & Haith, M. M. (1984). Jurors' reactions to child witnesses. *Journal of Social Issues, 40*, 139–156. http://dx.doi.org/10.1111/j.15404560.1984.tb01098.x

Goodman, G. S., Taub, E. P., Jones, D. P., England, P., Port, L. K., Rudy, L., et al. (1992). Testifying in criminal court: Emotional effects on child sexual assault victims. *Monographs of the Society for Research in Child Development, 57*, v-142. http://dx.doi.org/10.2307/1166127

Hanna, K., Davies, E., Henderson, E., Crothers, C., & Rotherham, C. (2010). *Child witnesses in the New Zealand criminal courts: a review of practice and implications for policy.* Auckland: Institute of Public Policy, AUT University.

Hanna, K., Davies, E., Crothers, C., & Henderson, E. (2012). Questioning child witnesses in New Zealand's criminal justice system: is cross-examination fair? *Psychiatry, Psychology and Law, 19*, 530–546. http://dx.doi.org/10.1080/13218719.2011.615813

Henderson, E. (2002). Persuading and controlling: The theory of cross-examination in relation to children. In H. Westcott, G. Davies, & R. Bull (Eds.), *Children's testimony a handbook of psychological research and forensic practice* (1st ed., pp. 279–293). New York: J. Wiley.

Hershkowitz, I., Lamb, M. E., Orbach, Y., Katz, C., & Horowitz, D. (2012). The development of communicative and narrative skills among preschoolers: lessons from forensic interviews about child abuse. *Child Development, 83*, 611–622. http://dx.doi.org/10.1111/j.1467-8624.2011.01704.x

Home Office (2011). Achieving the best evidence in criminal proceedings. Guidance on interviewing victims and witnesses, and guidance on using special measures. Retrieved from: http://www.cps.gov.uk/publications/docs/best_evidence_in_criminal_proceedings.pdf.

Jack, F., Leov, J., & Zajac, R. (2014). Age-related differences in the free-recall accounts of child, adolescent, and adult witnesses. *Applied Cognitive Psychology, 28*, 30–38 [10.1002/acp.2951]

Jones, C. H., & Pipe, M. E. (2002). How quickly do children forget events? A systematic study of children's event reports as a function of delay. *Applied Cognitive Psychology, 16*, 755–768. http://dx.doi.org/10.1002/acp.826

Klemfluss, J. Z., Quas, J. A., & Lyon, T. D. (2014). Attorney's questions and children's productivity in child sexual abuse criminal trials. *Applied Cognitive Psychology, 28*, 780–788. http://dx.doi.org/10.1002/acp.3048

Lamb, M. E., & Fauchier, A. (2001). The effects of question type on self- contradictions by children in the course of forensic interviews. *Applied Cognitive Psychology, 15*, 483–491. http://dx.doi.org/10.1002/acp.726

Lamb, M. E., Hershkowitz, I., Sternberg, K. J., Esplin, P. W., Hovav, M., Manor, T., et al. (1996). Effects of investigative utterance types on Israeli children's responses. *International Journal of Behavioral Development, 19*, 627–637. http://dx.doi.org/10.1177/016502549601900310

Lamb, M. E., Sternberg, K. J., Orbach, Y., Esplin, P. W., Stewart, H., & Mitchell, S. (2003). Age differences in young children's responses to open-ended invitations in the course of forensic interviews. *Journal of Consulting and Clinical Psychology, 71*, 926–934. http://dx.doi.org/10.1037/0022-006X.71.5.926

Lamb, M. E., Orbach, Y., Hershkowitz, I., Horowitz, D., & Abbott, C. B. (2007). Does the type of prompt affect the accuracy of information provided by alleged victims of abuse in forensic interviews? *Applied Cognitive Psychology, 21*, 1117–1130. http://dx.doi.org/10.1002/acp.1318

Lamb, M. E., Hershkowitz, I., Orbach, Y., & Esplin, P. W. (2008). *Tell me what happened: structured investigative interviews of child victims and witnesses.* Chichester, UK: Wiley.

London, K., & Kulkofsky, S. (2010). Factors affecting the reliability of children's reports. In G. M. Davies, & D. B. Wright (Eds.), *New frontiers in applied memory* (pp. 119–141). New York, NY: Psychology Press.

Lord Chief Justice's Criminal Practice Directions (2013). Retrieved from: https://www.judiciary.gov.uk/wpcontent/uploads/JCO/Documents/Practice+Directions/Consolidated-criminal/criminal-practice-directions-2013.pdf.

Melnyk, L., Crossman, A. M., & Scullin, M. H. (2007). The suggestibility of children's memory. In M. P. Toglia, J. D. Read, D. F. Ross, & R. C. L. Lindsay (Eds.), *Handbook of eyewitness psychology: Memory for events* (Vol. 1) (pp. 401–427). Mahwah, NJ: Lawrence Erlbaum.

Myers, J. E., Redlich, A. D., Goodman, G. S., Prizmich, L. P., & Imwinkelried, E. (1999). Jurors' perceptions of hearsay in child sexual abuse cases. *Psychology, Public Policy, and Law, 5*, 388–419. http://dx.doi.org/10.1037/1076-8971.5.2.388

Orbach, Y., & Lamb, M. E. (2001). The relationship between within-interview contradictions and eliciting interviewer utterances. *Child Abuse & Neglect, 25*, 323–333. http://dx.doi.org/10.1016/S0145-2134(00)00254-4

Orbach, Y., Lamb, M. E., Hershkowitz, I., Abbott, C. B. (in press). Allegedly abused children's responses to suggestion in the course of forensic interviews.

Perera, K. (1980). The assessment of linguistic difficulty in reading material. *Educational Review, 32*(151-), 161.

Perry, N. W., McAuliff, B. D., Tam, P., Claycomb, L., Dostal, C., & Flanagan, C. 1. (1995). When lawyers question children: is justice served? *Law and Human Behavior, 19*(6), 609. http://dx.doi.org/10.1007/BF01499377

Plotnikoff, J., & Woolfson, R. (2015). *Intermediaries in the criminal justice system*. Bristol: Policy Press.

R v W and M [2010] EWCA Crim 1926.

Reich, P. (1986). *Language development*. Englewood Cliffs, NJ: Prentice-Hall.

Rush, E., Quas, J. A., & McAuliff, B. D. (2012). Child witnesses' experiences of distress in criminal courts: sources, consequences and solutions. In M. K. Miller, & B. H. Bornstein (Eds.), *Stress, trauma, and well-being in the legal system* (pp. 89–121). New York, NY: Oxford University Press.

Saywitz, K. J., & Snyder, L. (1993). Improving children's testimony with preparation. In G. Goodman, & B. Bottoms (Eds.), *Child victims, child witnesses: Understanding and improving testimony* (pp. 117–146). New York: The Guilford Press.

Saywitz, K. J., Jaenicke, C., & Camparo, L. (1990). Children's knowledge of legal terminology. *Law and Human Behavior, 14*, 523–535. http://dx.doi.org/10.1007/BF01044879

Scott, C. M., & Koonce, N. M. (2013). Syntactic contributions to literacy learning. In C. A. Stone, E. R. Silliman, B. J. Ehren, & G. P. Wallach (Eds.), *Handbook of language and literacy* (2nd ed., Vol. 1, pp. 283–301). New York: The Guilford Press.

Semmler, C., & Brewer, N. (2002). Effects of mood and emotion on juror processing and judgments. *Behavioral Sciences & the Law, 20*, 423–436. http://dx.doi.org/10.1002/bsl.502

Sexual Offences Act (2003). Retrieved from: http://www.legislation.gov.uk/ukpga/2003/42/part/1/crossheading/child-sex-offences.

Sixth Amendment to the US Constitution: Rights of Accused in Criminal Prosecutions (pg. 1399). Retrieved from: http://www.gpo.gov/fdsys/pkg/GPO-CONAN-1992/pdf/GPO-CONAN-1992-10-7.pdf.

Spencer, J. R., & Lamb, M. E. (Eds.). (2012). *Children and cross-examination: Time to change the rules?*. Oxford and Portland, Oregon: Hart Publishing.

Sternberg, K. J., Lamb, M. E., Davies, G. A., & Westcott, H. L. (2001). The Memorandum of Good Practice: theory versus application. *Child Abuse & Neglect, 25*, 669–681. http://dx.doi.org/10.1016/S0145-2134(01)00232-0

Stolzenberg, S., & Lyon, T. D. (2014). How attorneys question children about the dynamics of sexual abuse and disclosure in criminal trials. *Psychology, Public Policy, & Law, 20*, 19–30. http://dx.doi.org/10.1037/a0035000

Sutherland, R., & Hayne, H. (2001). Age-related changes in the misinformation effect. *Journal of Experimental Child Psychology, 79*, 388–404. http://dx.doi.org/10.1006/jecp.2000.2610

Szojka, Z., Andrews, S. J., Lamb, M. E., Stolzenberg, S. N., & Lyon, T. D. (2017). in press). Challenging the credibility of alleged victims of child sexual abuse in Scottish courts. *Psychology, Public Policy, & Law.* [in press].

Victims and Witnesses [Scotland] Act, 2014. Retrieved from: http://www.legislation.gov.uk/asp/2014/1.

Vulnerable Witnesses [Scotland] Act, 2004. Retrieved from: http://www.legislation.gov.uk/asp/2004/3.

Walker, A. G., Kenniston, J., & Inada, S. S. (Eds.) (2013). *Handbook on questioning children: A linguistic perspective*. Washington D.C: American Bar Association.

Walker, A. (1993). Questioning young children in court: A linguistic case study. *Law and Human Behavior, 17*, 59–81. http://dx.doi.org/10.1007/BF01044537

Waterman, A. H., Blades, M., & Spencer, C. P. (2004). Indicating when you do not know the answer: the effect of question format and interviewer knowledge on children's 'don't know' responses. *British Journal of Developmental Psychology, 22*, 335–348. http://dx.doi.org/10.1348/0261510041552710

Westera, N., Kebbell, M., & Milne, R. (2013). Losing two thirds of the story: A comparison of the video recorded police interview and live evidence of rape complainants. *Criminal Law Review, 4*, 290–330.

Youth Justice and Criminal Evidence [UK] Act 1999. Retrieved from: http://www.legislation.gov.uk/ukpga/1999/23.

Zajac, R., & Cannan, P. (2009). Cross-examination of sexual assault complainants: A developmental comparison. *Psychiatry, Psychology and Law, 16*, 36–54. http://dx.doi.org/10.1080/13218710802620448

Zajac, R., Gross, J., & Hayne, H. (2003). Asked and answered: Questioning children in the courtroom. *Psychiatry, Psychology and Law, 10*, 199–209. http://dx.doi.org/10.1375/pplt.2003.10.1.199

Zajac, R., O'Neill, S., & Hayne, H. (2012). Disorder in the courtroom? Child witnesses under cross-examination. *Developmental Review, 32*, 181–204. http://dx.doi.org/10.1016/j.dr.2012.06.006