Chapter 12
The ABC's of CBCA: Verbal Credibility Assessment in Practice

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Introduction

Statement validity analysis (SVA) was developed during the 1960s and 1970s in the context of evaluating child witness statements of sexual abuse (e.g., Undeutsch, 1967, 1989). Criteria-Based Content Analysis (CBCA) is one component of SVA used to distinguish between event-based and intentionally fabricated statements of child and adult witnesses concerning sexual interactions and other topics (Vrij, 2005). It has become a widely accepted method of credibility assessment in many European courts (see Köhnken, 2004). The last author of the present chapter (JY) was instrumental in bringing this procedure to North America in the late 1980s (e.g., Yuille, 1988) and research conducted by him and other coauthors (DG, MT, BC) is presented in this chapter. Two of the authors (DG, DS) serve as expert

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witnesses who provide testimony on statement credibility in German courts. This chapter, thus, offers insights from both researchers' and practitioners' points of view, as well as from European and North-American perspectives. It offers a discussion of common misunderstandings of CBCA as well as case examples to demonstrate individual CBCA criteria definitions and rating heuristics.

The first part of the chapter provides a review of the research that has been conducted on CBCA during the past 20 years. As a comprehensive review of the respective studies was provided by Vrij (2005), and to avoid redundancy, the present summary is focused on a number of theoretical misconceptions about CBCA, which have direct implications for practice. The second part of the chapter provides case examples for CBCA criteria to address some of these misconceptions and to illustrate how the method can be applied meaningfully in the context of a hypothesis-testing approach. This amalgamation of criteria definitions and rating heuristics is meant to be helpful to practitioners who wish to familiarize themselves with SVA. It is also meant to inform researchers in terms of how to design research that resembles a comprehensive, forensic assessment context.

Insights, Limitations, and Misconceptions in CBCA Research

Many studies indicate that CBCA can differentiate truthful and deceptive statements better than chance. That is, CBCA criteria suggestive of credibility are more likely to be found in verbal accounts known to be true than in verbal accounts known to be fabricated. This has been found to be true both for children's (e.g., Akehurst, Bull, Vrij, & Koehnken, 2004; Akehurst, Manton, & Quandte, 2011; Esplin, Houed, & Raskin, 1988; Granhag, Strömwall, & Landström, 2006; Kim, Choi, & Shin, 2011; Roma, San Martini, Sabatello, Tatarelli, & Ferracuti, 2011; Steller & Köhnken, 1989; Strömwall, Bengtsson, Leander, & Granhag, 2004; Yuille, 1988; for review, see Vrij, 2005) and for adults' statements (e.g., Blandón-Gitlin, Pezdek, Lindsay, & Hagen, 2009; Schelleman-Offermans & Merckelbach, 2010; Ternes, 2009; Vrij & Mann, 2006; Vrij, Mann, Kristen, & Fisher, 2007; for review, see Vrij, 2005), with accuracy ratings ranging from 55 to 90% for trained CBCA coders. A few studies have also examined verbal clues to deception in offenders (Colwell, Hiscock, & Memon, 2002; Cooper, Ternes, Griesel, Viljoen, & Yuille, 2007; Lee, Klaver, & Hart, 2008; Ternes, 2009; Ternes, Cooper, & Yuille, 2010; Willén & Strömwall, 2011) and (mock) suspects of crime (Gödert, Gamer, Rill, & Vossel, 2005; Porter & Yuille, 1996). Few criteria seemed to work in a suspect/offender context; however, conclusive evidence is difficult to obtain for methodological reasons (e.g., ceiling effect; Ternes, 2009) and motivational issues (e.g., an accused suspect who has the right to remain silent may not provide a statement at all).

Throughout all of the aforementioned research, a number of limitations and issues have been highlighted about CBCA (also see Colwell, Hiscock-Anisman, & Fede, present volume). These are outlined and addressed in the following paragraphs and suggestions for practitioners are offered.

The Quality of the CBCA Judgment Depends on the Quality of the Interview

A number of idiosyncrasies across studies have limited the ability to generalize the research findings. For example, some CBCA studies have used primarily open-ended questions, some have used primarily closed questions, some have had participants write out their statements, rather than participating in an interview, and some have enforced length or time limits on the participants' statements (e.g., Buck, Warren, Betman, & Brigham, 2002; Köhnken, Schimossek, Aschermann, & Höfer, 1995; Lee et al., 2008; Steller & Wellershaus, 1996; Vrij et al., 2007). As a proper interview, with mainly open-ended, nonleading questions, is a component of SVA, this should be standard across studies. Research has shown that the type of question asked affects CBCA judgements: responses to open-ended questions tend to contain a greater number of CBCA criteria (Hershkowitz, Lamb, Sternberg, & Esplin, 1997). Moreover, Vrij et al. (2007) found that using accusatory interviews, which consisted of suggestive accusations and statements, did not result in verbal cues to credibility and these interviews were not effective at eliciting the verbal clues to credibility necessary for CBCA to effectively discriminate between true and fabricated narratives.

Some CBCA Studies Are of Limited Ecological Validity

Two common research paradigms have been applied to research the validity of CBCA in distinguishing truthful and fabricated accounts: laboratory and field research (Horowitz et al., 1997, 1998; Ruby & Brigham, 1998). In both field and laboratory studies, CBCA-trained judges review accounts of events that have been determined to be true or false, and assess whether each of the CBCA criteria are present in each account. In most laboratory studies, the participants are asked to describe what they witnessed immediately following a staged event, a film, or a slide show. However, when CBCA is applied in the legal context, it is generally applied to a statement about a crime by a victim, perpetrator, or bystander. Attempts have been made to approximate experimental parameters to possible forensic contexts. For instance, some research has had participants provide statements about events that they considered negative, emotional, and characterized by a lack of control, to simulate important characteristics of sexual abuse (e.g., Landry & Brigham, 1992; Ruby & Brigham, 1998; Santtila, Roppola, Runtti, & Niemi, 2000), and some laboratory research has used a mock crime situation so that participants believed they were witness to an actual crime (e.g., Gödert et al., 2005; Porter & Yuille, 1996), increasing the ability of these research study results to generalize to the legal context. However, most CBCA laboratory research has examined statements about relatively benign events, such as descriptions of videotaped events or nonthreatening interactive events (e.g., Akehurst et al., 2004; Vrij, Edward, Roberts, & Bull,

2000a; Vrij, Kneller, & Mann, 2000b; Zaparniuk, Yuille, & Taylor, 1995). The activities described in some laboratory studies were short and involved only minimal interaction (e.g., Blandón-Gitlin et al., 2009).

In contrast, in most field studies, real-life witnesses report crimes, often after a considerable delay. These procedural disparities mean that different storage and retrieval processes are likely to have taken place for accounts elicited in the laboratory and the field (see Hervé, Cooper, & Yuille, present volume). Whereas some of the laboratory research investigating CBCA is simply not applicable to situations in the criminal justice system where CBCA is likely to be applied, the experimental paradigm is useful to explore selected variables and conditions in isolation, which might then inspire more comprehensive research.

Risk of a Truth Bias and How it Can be Reduced

Most studies have revealed a truth bias. That is, the procedure usually produces more false positive (i.e., the statement is "credible") than false negative (i.e., the statement is "not credible") errors (e.g., Landry & Brigham, 1992). Contrary to other approaches to evaluating truthfulness, CBCA is focused on clues to credibility rather than deception. Although it can differentiate between event-based and fabricated statements, this differentiation only works one-way. That is, CBCA can lead an evaluator to assume that an account could not have been produced unless the person had experienced the event reported in the account. A common misconception is that the absence of CBCA criteria in a statement is indicative of deception (e.g., "The CBCA system is designed to identify reports of nonexperienced events by the absence of memory indices"; Hershkowitz, 2001, p. 1407). However, if the statement does not contain enough CBCA criteria, this is not proof of a lie. Other explanations have to be considered. For example, the person may not have wanted to provide a rich account (note: in forensic situations, this might happen if the witness wants to protect the accused). In order to avoid a truth bias, it is crucial that CBCA is used in the context of SVA. The central issue is if the quality of the account could have been produced by the person without having experienced the event in question. Thus, the person's intellectual and verbal abilities as well as his/her knowledge in the area the questionable account is concerned with set the threshold for the decision whether potential CBCA criteria are powerful enough to prove that he/she could not have invented the account.

This demonstrates the importance of a hypothesis-driven approach: CBCA can only be applied in a meaningful way if ideas have been developed as to how the statement could have originated, assuming that it is a lie. Following the principle of falsifiability (Popper, 1959), the lie hypothesis could only be rejected if sufficient data (i.e., CBCA criteria) exist to suggest the opposite (i.e., a genuine experience underlying the statement). Often, research studies—particularly laboratory research—lack the contextual information necessary for such decisions. This might be a reason for the truth bias found in the literature.

Related to the above, research suggests that combining various channels (e.g., verbal clues to credibility and nonverbal clues to deception) improves the level of accuracy in distinguishing truth from lies (e.g., O'Sullivan, present volume; ten Brinke & Porter, present volume; Vrij, Akehurst, Soukara, & Bull, 2004a; Vrij, Edward et al., 2000a), which supports the idea that CBCA used in isolation should not be the sole determinant of credibility.

Can Event-Based and Erroneously False Statements be Differentiated?

It has been noted that CBCA does not have the potential to distinguish erroneously false statements from truthful accounts (Vrij, 2005). Indeed, Undeutsch's hypothesis that event-based accounts and lies differ for motivational and cognitive reasons does not apply to erroneously false statements (e.g., generated via suggestive processes). Thus, CBCA is only applicable to differentiate between a lie and a truthful account. Someone who reports a subjectively true story that is objectively/historically false will not attempt to conceal a "lie" (i.e., not be deceptive). Therefore, the motivational CBCA criteria will not apply in this context. The question is whether the person would cognitively be able to produce a statement that resembles an event-based memory in terms of other CBCA criteria.

The aforementioned issue has not been well researched. In fact, such undertakings are difficult because false memories and their recovery have to be induced (see Volbert, 2004). Here, laboratory studies are valuable. For instance, Blandón-Gitlin et al. (2009) found that accounts of true events received significantly higher total CBCA scores than suggested events (i.e., false memories) or fabricated events (i.e., lies). In contrast, Erdmann, Volbert, and Böhm (2004) demonstrated that accounts of pseudo-memories can be as rich as event-based statements and are, thus, difficult to differentiate by means of CBCA. To date, there is insufficient empirical evidence to show that accounts of pseudo-memories can be reliably differentiated from accounts of true events. Thus, CBCA remains a means by which only the hypothesis of a conscious lie can be falsified (Volbert, 2008). Based on a growing body of research on suggestive processes, other criteria and test strategies have been introduced to differentiate between false (erroneous) and reliably event-based memories (see Volbert, 2004).

Certain Circumstances Demand Caution

CBCA judgments have generally been found to be affected by age, verbal ability, social skills, and fantasy-proneness, irrespective of the truthfulness of the statements (Buck et al., 2002; Pezdek et al., 2004; Roma et al., 2011; Santtila et al.,

2000; Schelleman-Offermans, & Merckelbach, 2010; Vrij, Akehurst, Soukara, & Bull, 2002, 2004b; Vrij et al., 2004a). CBCA judgments have also been found to be affected by coaching. Vrij, Kneller, et al. (2000, 2002) have investigated the impact of teaching participants some CBCA criteria prior to being interviewed and showed that the narratives of participants who had been coached on how to make their account appear credible contained more CBCA criteria than the narratives of participants who had not received such coaching.

Other issues are relevant as well. Pezdek et al. (2004) found that CBCA scores were related to a child's familiarity with the event in question. Specifically, children who had been asked to recall a traumatic medical procedure they had experienced multiple times included a greater number of CBCA criteria in their accounts than children who had been asked to recall a traumatic medical procedure they had experienced only once. However, Strömwall et al. (2004) did not find that event familiarity affected children's CBCA scores for accounts about health examinations.

The above research suggests that, for credibility assessors, it is crucial to examine factors outside of CBCA in order to set an adequate threshold for the decision whether or not the CBCA criteria found in a particular account can be considered clues to a real experience underlying the statement. For young children, this threshold will be lower than that for older children and adults. Irrespective of the age of the witness, it is also crucial to assess for his/her familiarity with the area the statement is concerned with (e.g., for sexual abuse: knowledge about sexual practices and body functions). The question is whether the witness could have transferred his/her theoretical knowledge (or experiences from other events) onto his/her statement concerning the event in question. Finally, one should try to find out from a witness about his/her knowledge of the method (CBCA) itself. In some cases of high familiarity or a great likelihood of coaching, CBCA may not be applicable.

CBCA Is a Qualitative Method

Our examination of the research on CBCA has revealed limitations in some study designs that may suggest a lack of understanding of the theoretical underpinnings and proper applications of CBCA. The decision whether an account is credible ought to be based on a qualitative judgment rather than a summation of criterion scores. Vrij et al. (2007) maintain that they tend to use total CBCA scores in research because "total CBCA scores are typically used in real-life cases" (p. 505). If this is the case, then expert assessors have not been applying CBCA the way it was meant to be applied (e.g., Steller, 1989). Indeed, CBCA is not a standardized test with set norms suggesting certain interpretations. There are no commonly agreed-upon "decision rules" to determine whether a statement is credible (e.g., Tye, Amato, Honts, Devitt, & Peters, 1999). CBCA is a complex qualitative procedure, arguably akin to the structured clinical judgment approach used in the risk for recidivism area (Cooper, Griesel, & Yuille, 2007). A composite or total score would be hard to

interpret, as certain criteria should be given more weight than others. For example, *Logical structure* and an *Appropriate amount of detail* are, according to some practitioners, mandatory for credible accounts, whereas *Unusual details* or *Unexpected complications* are optional (Steller & Köhnken, 1989). A similar problem emerges if one attempted to establish a required minimum total score for credible statements. As mentioned above, in cases involving children, even a very low CBCA total score could be meaningful depending on the child's age and knowledge in the area. Thus, CBCA should be viewed as a semi-standardized, qualitative approach, rather than a quantitative approach.

How much Training Is Necessary?

Research has shown that training matters. Although some practitioners suggest that several days of intense training are necessary to become a reliable CBCA coder (e.g., Köhnken, 2004; Yuille, 1988), even short training sessions have been shown to improve raters' accuracy, defined as the ability to differentiate true statements from false statements (e.g., Landry & Brigham, 1992; Steller, 1989). In the authors' opinion, proper identification of potential CBCA criteria in a statement can be reached with relatively little training. However, extensive training and practical experience is necessary to decide whether the criterion "counts" under the given circumstances (i.e., whether it provides a clue to a genuine experience underlying the statement). Since no standard procedure exists to assess a person's cognitive and verbal abilities (i.e., as they apply to CBCA), a certain degree of psychological experience is required to reach an adequate judgment. Relevant information can be derived from the person's biography, his/her style of speech, a behavioral analysis, and sometimes psychometric test results (Steller, 2008). Also, the other components of SVA such as a properly conducted interview (e.g., Fisher & Schreiber, 2007) or the assessment of possible suggestive influences in the statement's genesis require considerable training and practical experience.

Which CBCA Criteria Are most Informative?

Schwind (2007) conducted a field study to analyze the internal consistency of CBCA to examine to which degree the criteria measure the same construct. Schwind also examined the individual criteria's selective power in order to determine which represents the construct best. A total of 138 written credibility assessments on statements from child and adult witnesses who claimed to have experienced various forms of sexual abuse and sexual violence (i.e., 91% of all cases), physical violence, blackmail, or insult were analyzed. The assessments had been prepared by expert witnesses contracted by the prosecution and by various criminal courts.

All assessments were based on SVA, as required by the German Supreme Court's ruling (Supreme Court [BGH], 1999), which has set a number of minimum standards for credibility assessments. For all 138 assessments and all CBCA criteria, an internal consistency (i.e., Cronbach's α) of .85 was obtained (note: 19 CBCA criteria were used; Steller & Köhnken, 1989). Thus, this research suggests CBCA captures one underlying construct. The removal of the motivational CBCA criteria from this analysis led to a decrease of Cronbach's α compared to the analysis that included all 19 criteria. In line with the context in which SVA was developed, the criteria showed highest reliability for child witnesses and for statements of sexual abuse, when the age of the witness and the type of alleged offence was controlled in the analyses.

Concerning the individual criteria's selective power, item-total correlations were calculated. *Logical structure, Quantity of detail, Contextual embedding, Description of interactions, Reproduction of conversation, Accounts of subjective mental states,* and *Attribution of perpetrator's mental state* revealed item-total correlations above 0.5 in all witness groups. This research suggests that these criteria best represent the underlying construct (i.e., event-base of the account). Indeed, they played the most important role in the experts' decisions regarding statement credibility. Whereas *Unstructured production, Reporting of unexpected complications during the incident, Unusual details, Self-depreciation,* and *Pardoning the perpetrator* showed a medium selective power (i.e., *r*'s between 0.5 and 0.3), the item-total correlations of the criteria *Related external associations, Raising doubts about one's own testimony, Admitting lack of memory, Superfluous details, and Spontaneous corrections* were all below 0.3. Thus, these latter criteria were less representative of the underlying construct (i.e., an event-base of the account) and were also less useful in determining whether a genuine experience was underlying the statement.

To summarize, CBCA cannot be applied meaningfully unless it is used in the context of SVA. This includes a hypothesis-driven approach, a suitable interview to elicit the statement in question, and the assessment of contextual information such as the person's intellectual (particularly verbal) abilities, his/her social (particularly deceptive) skills, his/her familiarity with the type of experience in question, and possible coaching influences. The idea of the statement being representative of a cognitive performance is central in this evaluation. After CBCA criteria are identified in a given statement, the assessor considers all available contextual information and decides if the person could and would have fabricated his/her statement. CBCA is not suitable to test hypotheses related to suggestive processes that might have led to the statement in question. It only serves to test the lie hypothesis. According to falsifiability theory, CBCA/SVA cannot confirm the lie hypothesis. However, the idea that deception underlies the account can be rejected if the assessor concludes that the person, with his/her given abilities and background knowledge, could not have provided the statement unless he/she had experienced it. Thus, SVA is not a standardized, quantitative test but a complex, qualitative method that requires considerable psychological knowledge and training.

Practical Considerations in Rating the CBCA Criteria

Following is a demonstration of individual CBCA criterion scoring based on approximately 180 SVA assessments conducted by the first or third author (DG, DS) of real child and adult court witnesses' statements as well as statements obtained in the context of two large field investigations on adult sex trade workers' (Griesel & Yuille, 2012; $N = 119$) and adult male incarcerated offenders' reports of violence (Cooper, 2005; Cooper & Yuille, 2007; Ternes, 2009; $N = 150$; see Yuille, present volume). No ground truth was known for the reported events, save for the study with male offenders (e.g., official file information was examined—i.e., the criminal profile reports). Only the commonly known 19 CBCA criteria are discussed (e.g., Vrij, 2005) even though other criteria have been suggested (e.g., by the last author, JY) and discussed in the literature (e.g., Arntzen, 2007; for review see Greuel et al., 1998).

The purpose of this section of the chapter is not a comprehensive evaluation of each case presented but merely a discussion of considerations that influenced the ratings of individual criteria in the context of the case/research. Brief definitions of each CBCA criterion are provided below; more detailed descriptions are provided elsewhere (e.g., Köhnken, 2004; Steller & Köhnken, 1989; Vrij, 2005). Whenever possible, hypotheses were developed (e.g., based on forensic file information) to explain the genesis of the statement, assuming that it was a lie (see falsifiability theory above). Each case presentation begins with a brief description of the specific episode that was the subject of a respective statement. For confidentiality purposes and reading ease, all identifying information has been changed. All statements presented here were elicited by means of adequate interviewing (e.g., via the Step-Wise Interview Guidelines; Yuille, Cooper, & Hervé, in press; Yuille, Marxsen, & Cooper, 1999; or the Cognitive Interview; Fisher & Geiselman, 1992). The fact that, for some criteria, several examples are provided, whereas a few criteria are not illustrated by any case material, might reflect the frequency with which the pertinent criteria occur. It should be noted that some of the statements contain rather graphic and sometimes gruesome details. This cannot be avoided in a forensic context.

Criterion 1: Logical Structure/Coherence

The criterion of *Logical structure/coherence* requires that an account contains no contradictions and follows the laws of nature. It is a basic requirement for any account. *Case example*: A 21-year-old male Caucasian incarcerated offender, Mr. Smith, participated in Cooper's (2005) and Ternes' (2009) field investigation of violent offenders' memories for violence (see also Cooper & Yuille, 2007). His index offence was aggravated assault and he had been incarcerated for 2 years up to the point of his research interview. Via the Step-Wise Interview (Yuille et al., 1999; in press), he was asked to talk about a violent act that he did not remember well (i.e., a "poor" memory). He indicated he did have such a memory, and the respective event reportedly happened 3.5 years before his research interview. He described

how he damaged his friend's apartment in an LSD-induced rage. He claimed that he was drinking with a couple of friends when they "slipped a couple of hits of acid" in his drink. He did not have a recollection of his violent actions—he only remembered hearing his friends suggesting that he sleep it off. *Hypotheses*: Due to the research context, no complete SVA assessment was conducted. Due to insufficient context information, no hypothesis testing was possible. Nevertheless, CBCA was applied and is presented here to illustrate an individual criterion. The following includes excerpts from his statement:

> He stated that when he woke up: "I walked down the stairs, looked around the entire apartment, the fridge, the fridge was picked up and thrown across the room. Um the walls were, the wall was smashed through, uh the stove was, every, the entire apartment was just completely destroyed." A few lines later, in the same narrative, the participant continued, "I was, apparently, I was picking up couches, like I just threw the stove across the room it just … I don't remember." As the interviewer went through the event with the participant, following the initial free narrative, she asked for more information about what he saw when he woke up. At this point, he stated that one of his friends was "sittin' there with an apron on, cooking something at the stove." Only a few lines later, as he continued to describe the damage to the apartment, the participant stated that "the stove was pushed across the hallway … the stove was pulled out from the kitchen and there was rips in the carpet cause I guess I shoved it across the carpet, right, and the stove thing ripped some of the carpet and I shoved it all the way down the linoleum hallway and slammed into the door, so it was blocking the door."

Discussion: The above statement does not fulfill the requirement of *Logical structure/coherence,* since Mr. Smith described that he saw the stove being damaged and ripped out; yet, he mentioned his friend cooking on the very same stove a while after. These two pieces of information are contradictory. Such violations of the coherency criterion are very rare because liars usually are careful that their stories make sense. *Logical structure/coherence* is easy to rate and is necessary for the statement to fulfill the basic requirements for a judgment as "credible" (see Schwind, 2007). It is rated at the overall level of the statement. In this particular case, the account might have been insufficiently coherent because, for the purposes of research, Mr. Smith was asked to recall a poor memory. Thus, making sense was likely not a priority to him in this context.

Criterion 2: Unstructured Production/Spontaneity

The criterion of *Unstructured production/spontaneity* can only be applied to longer statements and refers to an unorganized and disconnected way of telling the account during the free narrative stage of the interview. *Case example*: A 17-year-old-girl, Ivy, was referred for an SVA of her report of sexual abuse by her uncle. She claimed about 15 individual episodes of abuse (e.g., uncle kneading her breasts, sticking his finger into her vagina, having Ivy watch him masturbate, having Ivy masturbate his penis). Some of these situations had happened repeatedly, she said. Supposedly, the abuse had started 3 years previous to her assessment, when she moved in with her aunt and uncle. According to file information, Ivy spontaneously informed her

mother's friend of her abuse. When her mother heard about this, she told Ivy to "stop lying." A few months later, Ivy told a teacher about the abuse. The school informed the authorities and Ivy was placed in foster care about 1 year prior to the assessment. According to file information, Ivy's intellectual development was comparable to an 8–10-year-old child. The accused uncle reported that he had cuddled with Ivy and "sexually educated" her but denied any intentional sexual interactions. He reported to have watched pornographic movies on occasion, while masturbating. He said Ivy might have seen him do this. Ivy was interviewed by the police, and—6 months later—by one of the authors for SVA. *Hypotheses*: The hypothesis of a partial invention or an aggravated depiction of sexual interactions was the primary hypothesis underlying the analyses. Due to the possibility that she might have seen pornographic movies, another hypothesis concerned the possibility that she transferred her (sexual) knowledge from these perceptions to her statement concerning the uncle. Hence, the analysis was particularly focused on those parts of her statement that could prove an involvement of her uncle. The alternative (truth) hypothesis was that Ivy's account was based in the experience of sexually abusive interactions with her uncle; as claimed by lvy. The following is a description of Ivy's statement:

> Ivy provided her statement in a highly disorganized fashion that did not follow a chronological order. For instance, certain details were merely mentioned at different points throughout her report but she did not provide a cohesive account of any of the alleged abusive actions. Each time, Ivy's story came out in an unorganized way, yet the details ended up fitting together and making sense (see *Logical structure/coherence*). When two interviews were compared to each other, a high degree of consistency became apparent. For example, in her police interview, she merely stated that the accused had denied her pocket money until she would masturbate him. Then, in the assessment interview, she provided a detailed account of masturbating her uncle's penis in the bathroom and spontaneously brought up the detail of her pocket money again. According to Ivy, her uncle had said that she had to do him this favor in order to receive her money and he gave her instructions on how to touch his penis. At a different point in time in the SVA interview, she explained that her uncle once kept her pocket money because she did not agree to have her picture taken by him. She had already mentioned the uncle's attempt to take her picture in her police interview; however, the detail was only later connected to the issue of her pocket money. Bit by bit, the story of her sexual abuse came together coherently. Single details (e.g., concerning contextual details) began to fit into the overall report.

Discussion: Considering the long duration of Ivy's alleged abuse (i.e., 2 years), her low intellectual abilities, the length of her account (e.g., many individual situations), and the consistency of her claims over time, it had to be assumed that the *Unstructured production/spontaneity* of her statement was only possible based on genuine experiencing. It is unlikely that Ivy could have invented such a complex story and told it in such a disorganized fashion, yet kept all the details consistent.

Criterion 3: Appropriate Quantity of Detail

No case is presented here. In a way, *Appropriate quantity of detail* is straightforward to rate; that is, sufficient details have to be provided for the listener to understand the account. The presence of this criterion, together with *Logical*

structure/coherence, is a minimum requirement that every statement has to fulfill to be judged as credible (Greuel et al., 1998). However, the decision whether the amount of details (e.g., who, where, when, what, how) is appropriate is more complex: it depends on factors that research has found to influence the quality of witness statements (e.g., age, verbal skills, coaching, event familiarity). Furthermore, the time passed since the event in question, the number of previous retellings, and the subjective meaning attached to it need to be taken into account as well (see Hervé et al., present volume). Events of impact are thought to be remembered more easily and in more detail than benign events (see Yuille & Daylen, 1998) and the decision about what is deemed an *Appropriate quantity of detail* should be made in comparison to the interviewee's baseline verbal abilities. The rating of this criterion requires considerable knowledge of psychological processes and contextual case facts.

Criterion 4: Contextual Embedding

The criterion of *Contextual embedding* requires that the statement includes references to the situational circumstances of the person at the time of the alleged event (e.g., time, place). *First case example*: Ivy's case (see above) is used to illustrate this criterion. As part of her statement, she reported the following:

> She had developed an abscess on her buttocks during a church camp. Ivy reported the following (translated from German): "We rode our bikes there and had to sit on big rocks or on a pile of wood. When we came back home on Friday, something hurt on my behind. It became bigger and bigger." At a later time during her free narrative, she reported: "He had a substitute key to our apartment and came to smear my abscess with cream. This was after the surgery." Later she added: "And he would always touch my breasts. And I had had surgery on my abscess that needed to be smeared. Mom had said he (my uncle) was supposed to do it. And then he massaged my abscess and then he went further and then he turned me over and touched me from the front. And then I told him that I didn't like this. And he would keep sticking his finger into my vagina … And I told him I didn't like that so he stopped and went to wash his hands. I put my clothes back on and he helped me with it."

Discussion: The above passage describes a script memory (i.e., a general description of what happened in repeated similar episodes; see Hervé et al., present volume; Paz-Alonso, Ogle, & Goodman, present volume; Yarbrough, Hervé, & Harms, present volume). It illustrates the criterion of *Contextual embedding* (e.g., the church camp, during which the abscess was developed, followed by surgery and the need to cream the scar near her genital area). Importantly, the sexual touching is related to Ivy's living context and biography. Such links represent a high cognitive performance and are difficult to invent. Therefore, they provide a clue that Ivy actually experienced the alleged abuse. The reader might notice that the above passage also contains examples of other criteria (e.g., *Unstructured production/spontaneity; Details characteristic of a particular act;* see below). Double scoring is possible in CBCA (Steller, 1989), which provides further evidence that it is not a quantitative scale.

Second case example: Another case vignette is described to juxtapose the first case. It demonstrates that merely naming contextual details does not necessarily add to the credibility of a statement. This case concerns a 28-year-old woman, Ms. Dayton, who was referred for SVA (note: she had 9 years of formal education). She had accused her long-term ex-boyfriend, whom she had two children with, to have sexually assaulted her many times towards the end of their relationship. *Background and hypotheses*: After several attempts to separate from her (now ex-) boyfriend, Ms. Dayton had an affair with his brother-in-law. At the time of the assessment, she expected a child from the latter. After a fight between the two men, she was interviewed as a witness by the police. During the police interview, she accused her ex-boyfriend of sexually assaulting her. Thus, one hypothesis was that she had told a partial lie concerning the unwanted, violent nature of the described sexual interactions. This became the central focus of the analysis. Her motivation could have been to protect and support the father of her unborn child. The alternative hypothesis was that the account was founded in the experience of sexual violence by her ex-boyfriend. The following is a (translated) excerpt from her statement that describes the first alleged sexual assault:

> "It was September … the situation was the same as usual, always back and forth. On that day, I didn't want to sleep at home (note: her own apartment) because the day had been so stressful with him (note: her ex-boyfriend). I would always lie down with my daughter in her bed (note: she had earlier described the lower half of a bunk bed) when he would become too pushy. That evening, I did it the same but he didn't like that again. He was real mad and kept saying, 'lie down with me, not the child' … And I was so tired that day. I started sleeping at some point. Then I woke up … All of a sudden, the girl was gone from the bed and he was lying next to me. He started again with his touching. I said 'let it be, go out of the bed, let me alone.' But he did not care and went on to touch me between my legs. I told him to leave the bed already … and he was real mad. 'You can't tell me to leave, this is my place as much as it is yours', he said. And he continued to touch me all over. He tore down my pants and I turned around for him to let go of me. I tucked my covers in but he pulled them away and inserted it from behind. And I tried to push him off … his face scratched. He had lots of scratches on his face. He kept turning me and, at some point, I was so mad that I pushed him hard … he was then interrupted." In a later interview, Ms. Dayton denied to have pushed him.

Discussion: Of course, criteria that are missing from an account can never serve to prove a lie. That said, the above excerpt demonstrates that much contextual information was provided (e.g., in the formerly common apartment; in the children's room; in the girl's part of the bunk bed; after children were asleep), yet none of these contextual details tie in with the alleged core interactions (i.e., a sexual assault). Since it had to be assumed that Ms. Dayton had experienced sexual interactions with her ex-boyfriend (i.e., event familiarity), the focus of SVA was not to prove that sexual contact had happened. Instead, the question was if the sexual contact was violent. From the statement, this did not become clear. Although Ms. Dayton provided a lengthy and detailed statement, it remained unclear how the alleged sexual assault ensued (e.g., how positions in the tight space of a bunk bed were assumed; how he forced her into sexual interactions; how the situation ended).

Criterion 5: Descriptions of Interactions

According to Schwind (2007), *Descriptions of interactions* is another powerful criterion in CBCA assessments. The criterion requires a description of mutually connected actions and reactions (Greuel et al., 1998). Two cases are presented: one fulfills the criterion; the other does not. *First case example*: A 45-year-old woman, Mrs. Wilhelm, was referred for an SVA assessment. She claimed that her second husband had physically abused her on several occasions. *Background information*: Mrs. Wilhelm completed 9 years of schooling and, later, vocational training as a baker. After giving birth to two boys in her first marriage, she was married a second time (i.e., to the accused). Mrs. Wilhelm reported that her husband was an abusive alcoholic but had often promised to stop consuming alcohol and to stop assaulting her. She said her sons showed great affection towards him. Therefore, according to Mrs. Wilhelm, for a long time, she did not report the alleged abuse to the authorities. After many years, she separated from her husband during a stay at a psychiatric clinic when she first talked about the abuse. *Hypotheses*: The file did not reveal any information that suggested that Mrs. Wilhelm might have been subject to any suggestive processes in the course of her stay in the psychiatric clinic; the hypothesis of an intentional lie was tested. The alternative hypothesis was that her statement was based on a true experience. A summary of one alleged episode of abuse is as follows:

> Mrs. Wilhelm described that her husband once came home drunk. Supposedly, this had happened when they still lived with her parents-in-law. She stated he woke her up and brought her into a small room that served as a living room. He accused her of cheating on him but Mrs. Wilhelm reported that she told him, this was not true. Her husband then pulled some of her hair out, grabbed her neck, and choked her while pushing her against a window. Mrs. Wilhelm indicated her husband threatened to kill her by throwing her out of the window. She then scratched his arm to stop him. She stated that, by caressing his arm, she was able to calm him down enough for him to stop. Pretending that she had to use the bathroom, she then left the room and called the police from downstairs. The next day, she cut her hair to prevent him from pulling it again.

Discussion: The above demonstrates a *Description of an interaction.* A chain of actions and reactions is described, rather than a simple list of actions committed by the supposed perpetrator. Mrs. Wilhelm described an action by her husband (i.e., pulling her hair; pushing her against the window) then her own reaction (i.e., scratching, then caressing his arm) and then her husband's reaction to that (i.e., he stopped choking). This report of such intertwined actions and reactions would take a considerable effort to invent. Also, mentioning that she cut her hair provides evidence for *Contextual embedding* (see criterion 4). Considering Mrs. Wilhelm's rather average intellectual and verbal abilities, it seemed likely that this part of her statement was event-based.

Second case example: A 36-year-old, incarcerated man, Mr. Taylor, participated in the study of offenders' memories for violence introduced above (Cooper, 2005; Ternes, 2009). At the time of his research interview, he had been incarcerated for 18 years for second degree murder. He was Aboriginal and reported to have 17 years of

education. He was asked to describe an act of instrumental (i.e., planned) violence he had committed (see Cooper & Yuille, 2007). Mr. Taylor reported that, 20 years previous to the research interview, he was working with some people who had "problems" with a "rat" (i.e., someone who had betrayed them). Supposedly, he was paid 150,000 dollars to deliver a "noticeable, very violent" message to this person. In the research interview, he indicated that he kidnapped the man, brought him to a warehouse, and tortured him in order to find out how much information he had divulged. He stated, he kidnapped him in front of his wife by putting a gun to the back of his head; he then "threw" him into a van. Mr. Taylor indicated that, at the warehouse, he sliced two fingers off the man, who then told him the information he was seeking. The rest of the torture was reportedly "for show." He said, he cut off all the victim's fingers and toes and that, when the victim passed out, he cut off his eyelids so that he would not further lose consciousness. Mr. Taylor continued by stating that he proceeded to skin his victim by using a hot knife so that he would not bleed to death. He noted, the man died of a "Colombian necktie," explaining that such is when the tongue is pulled out through a slit made in the throat. *Hypotheses*: No complete SVA was conducted; hence no hypothesis testing was possible (e.g., due to the research context, no information was collected about this offender's experiences and interests such as hunting and his knowledge of other offenders' crimes; thus little was known about his event familiarity). The following verbatim passage from his statement serves to illustrate the criterion of *Description of interactions* in isolation:

> I didn't start cutting off the fingers right away. I used nut crackers on his nails, um, on his knuckles first. To start gauging how much information that he had given. And uh, by the time I had broken all his knuckles, I was satisfied that he wasn't lying anymore. I called and let the appropriate people know what he had given up and hadn't given up and then I went back to work on him. I kept asking him the same questions over and over and over. What did you say, who did you say it to. Who is the name of the undercover guy that is working and all that stuff. Then, I started cutting fingers off … every time I cut it, a digit off or something, I put the pruning shears back into the fire. I made like a barbecue so it would cauterize it as it was cutting so he wouldn't bleed to death. One after another … after I was done with the finger and the toes, that's when I stopped for a little while. I went and had something to eat. Came back, it was just after eight in the evening when I started to peel his skin off. And that took pretty much the rest of the night into the next day. He kept passing out. And I had to stop every once in a while to let the knife get hot again.

Discussion: The above is a poor example of a *Description of an interaction.* Good examples would follow a pattern of intertwined actions and reactions (A-B-A), where an action of one person is described, followed by a reaction of another person, followed by a reaction of the first person again (see Mrs. Wilhelm's statement above). Mr. Taylor's statement, however, follows the pattern A-A-A ("I used nut crackers," "I had broken all his knuckles," "I called," "I kept asking," "I started cutting off fingers," etc.). Despite the lengthy, detailed, and charged presentation of the statement, Mr. Taylor did not describe any concrete reaction of the supposed victim, except that the man stopped lying and kept passing out. However, these are not descriptions at a behavioral level (e.g., a description of what the supposed victim said was the truth; a description of how the offender noticed that his victim had

passed out). Subsequent to his interview, it was found out that this research participant had a long history of deceptive statements.

Criterion 6: Reproduction of Conversation

The criterion *Reproduction of conversation* is a particular kind of a *Description of an interaction*. It is fulfilled if a complex sequence of conversation is reported, e.g., if the person describes a chain of connected, intertwined questions and answers (Greuel et al., 1998). *Case example*: Ivy's case (see above) is used again to illustrate this criterion. At one point in her statement, the following was indicated:

> "He used to have pictures on his computer. Once he called me and showed me some of them." Later, Ivy said, "once in a while, he sat upstairs and would play around with his computer. And my aunt doesn't know he has these sex photos on there to look at." She was later asked to expand on these previous remarks. Ivy reported: "Once he said that supposedly he cannot delete these pictures." Assessor: "And how did this topic come up?" Ivy: "Because I went upstairs and wanted to go into my room and I told him … I saw him sitting at his computer. So I went there. Up to that point, he was looking at some sort of music but when I came, he said, 'I have to show you something.' And then he clicked and showed me these pictures and said, 'You can't tell anyone about this!' I asked him, 'Then why don't you delete these pictures?' and he said, 'I can't do that'… because my aunt didn't know about them." Assessor: "Do you remember what you saw in these pictures?" Ivy: "Two women or one woman and a man, I don't know, I didn't look at it closely because I was about to go, I wasn't interested in the picture."

Discussion: Ivy's example indicates a *Reproduction of a conversation.* It contains specific contents and it is clear from Ivy's report who said what. Considering her low intellectual abilities, and in the context of the overall assessment, this episode was counted as a clue to a genuine experience.

Criterion 7: Unexpected Complications During the Incident

The criterion *Unexpected complications during the incident* is met if unsuccessful, incomplete, or interrupted actions are described (Greuel et al., 1998). *First case example*: Mrs. Wilhelm's case (see above) is used again to illustrate this criterion. At one point in time in her interview, she reported the following episode:

> Shortly after her wedding, she and her husband went to a carnival party at a pub. She said her husband got drunk, and that he later saw her chatting with some elderly men. He came up to her, pulled her out of the pub and pushed her into the mud on the ground in front of the pub. Mrs. Wilhelm further reported that her husband also fell into the dirt because she clung on to him.

Discussion: The part of Mrs. Wilhelm's statement that describes her husband falling down with her illustrates an account of an *Unexpected complication.* Mrs. Wilhelm's reported clinging ties in with her husband's questionable abuse (i.e., pushing). The detail would not have been necessary if Mrs. Wilhelm had invented her husband's pushing. Therefore, from a motivational point of view, this detail

would not have been an "obvious" one to include in a fabricated statement; hence it would be difficult to invent. In the context of the overall assessment, this detail was rated as a clue to a genuine experience.

Second case example: This case concerns another participant from the above described field study (Cooper, 2005; Ternes, 2009), Mr. Lee. At the time of his research interview, he was a 30-year-old offender incarcerated for living off the avails of prostitution. His research interview occurred in his third year of incarceration for this offence. He reported to have 11 years of education. He was asked to describe an act of reactive violence. Mr. Lee indicated that he had engaged in such an act about 7 years previous to the interview, around the time when he had started "selling a bit of crack." He described a fight in a "crack house" that involved several men, noting the house had hardwood floors. Reportedly, he was under the influence of marijuana at the time. *Hypotheses*: No hypothesis testing was possible due to the lack of sufficient background information in the research context. CBCA was applied to illustrate individual criteria in isolation. The following includes a verbatim excerpt from Mr. Lee's research interview:

> Mr. Lee reported that, in the course of the fight, he had been shot in the hand. He described grappling with one of the men and stated, in his own words that, at one point in time, "I'm bleeding pretty good out of my hand, so it's getting pretty slippery on this floor, so we ended up uh, wrestling. He grabs me, I slip on the blood, I fall." He described that he fell down the stairs and the other man "pretty much" used him "as a sled."

Discussion: The slipping is an example of an *Unexpected complication,* which ties in with the earlier shooting of Mr. Lee's hand. Such a chain of actions is generally not easy to fabricate. A complete SVA assessment would require an analysis of Mr. Lee's verbal and cognitive abilities as well as his knowledge and experience with fights and shootings in order to judge whether he could have invented this statement. Note: the information that this event reportedly happened when he first started selling crack provides evidence of *Contextual embedding* (see above).

Criterion 8: Unusual Details

The criterion *Unusual details* is defined by the rarity of the details provided; however, they are not unrealistic details (Greuel et al., 1998). *Case example*: Griesel (2008; Griesel & Yuille, 2012) conducted a field study in which sex trade workers were asked to talk about sexually violent events they had experienced. One participant, a 29-year-old female, Ms. Parker, entered the sex trade when she was 12 years old and quit prostituting herself at the age of 17. She reported to have 9 years of formal education and to have experienced several types of childhood abuse (including sexual abuse). Although she had a history of drug abuse, she was clean and sober at the time of her research interview. When she was asked to recall a sexual assault she remembered well via the Step-Wise Interview (Yuille et al., 1999), she reported an event that occurred when she was 14 years old (note: she denied being under the influence of any drugs at the time). She reported that a friend of her pimp took her to a hotel room and anally sexually assaulted her. *Hypotheses*: Due to the

research context and lack of sufficient background information, no concrete hypotheses could be tested. CBCA was applied only to discuss the rating of individual criteria. Following is a verbatim excerpt from the research interview with Ms. Parker:

> I go about, you know, what I would normally do in any situation. So, got undressed and was there and, and uh, but he wasn't into normal things, and um. He uh, he pinned me down onto the bed, and um. Took uh, took out a bottle of roll-on deodorant. And proceeded to cover my entire body, including my face, my eyes, in my ears, um. Like literally cover my entire body with this roll-on deodorant … it's kind of got this dry, um, sticky, unclean feeling to it, um. And I, he was hu-, this guy was huge and I couldn't get up … he has me pinned down onto the bed, he's got me covered in this crap that … and I mean my whole body. There wasn't a single part of my body that, that was … that didn't have this stuff on it, and the smell of it, um, I mean it was incredibly sick, sweet, it was a really sweet smelling deodorant, like I don't, you know, they all have different scents and this one was just overly potently fruity kinda sweet smelling and, and it was so sticky and then he started to roll over me. Like to rub it off my onto him, and um, which was really hurting me especially in the abdomen area cause he was really, really big and he just kept rolling back and forth over me … and then he um, and I, I mean my face was in the bed so I couldn't, um, see what was going on. And um, I had never had anal sex before this point and he um, decided that was where he was going. But before that, he took the little roller thing off and literally poured the rest of this bottle, of deodorant, like the liquid deodorant, all over my ass and, in it and um, and then (smacks hands together) you know, proceeded to do, to put himself in, in my ass which I'd never had that before. Was the most, one of the most painful experiences of my life … the deodorant actually made it less lubricated because it was sticky and tacky and, and so every time he went in and out it was, it was like, I felt like my skin was ripping. And I was bleeding.

Discussion: The details about the deodorant being poured all over Ms. Parker's body illustrate an unusual use of deodorant. It is a great example of an *Unusual detail.* If the statement was invented, such information would be difficult to fabricate, unless Mr. Parker had had similar experiences elsewhere (event familiarity). The deodorant detail is highly informative because it is tied to the account of the alleged anal sexual assault. Interestingly, the cited passage also involves an account of Ms. Parker's *Subjective mental state* (see below; the deodorant's scent; being hurt from the man rolling onto her; being hurt from anal intercourse) as well as information about the *Contextual embedding* (see above; e.g., hotel room; first anal intercourse). Again, double coding is possible in CBCA since it is a qualitative procedure. In this case, Ms. Parker provided an example of a detailed and rich statement, with remarkable hints to a genuine experience.

Criterion 9: Superfluous/Peripheral Details

The criterion of *Superfluous/peripheral details* is met if many details are provided in a statement that are irrelevant for understanding the event in question (see Greuel et al., 1998). *Case example*: A 20-year-old woman, Ms. Heuser, was referred for an SVA assessment. She claimed that the former boyfriend of her mother had sexually abused her from the ages of 12–18. The man and her mother had separated but remained friends soon after the abuse had reportedly started. Ms. Heuser claimed

that, over the course of the years, her and her abuser had provided oral sex to each other, and had had sexual intercourse with each other in various ways. Ms. Heuser reported that, throughout the time of the alleged abuse, she had been in several short relationships with peers. When she was 18 years old, she reported her mother's ex-partner to the police. Ms. Heuser reported a total of 20 different, individual episodes of sexual abuse (e.g., the first instance of oral sex; the first instance of vaginal intercourse). *Hypotheses*: There were several hypotheses tested in the SVA assessment: One of them was that Ms. Heuser could have made up the entire story. Another was that she could have falsely transferred her sexual knowledge from other relationships onto her statement concerning the accused. As the accusation in this case was not about adult sexual assault, but child sexual abuse, the crucial question was whether Ms. Heuser had experienced any sexual interactions with her mother's ex-partner as a child. The alternative hypothesis was that she provided a true statement based in a real experience. Two (translated) excerpts from her lengthy overall statement are as follows:

> When Ms. Heuser described how the accused gave her oral sex for the first time, she mentioned: "… soon after the first time (reference to the pervious incident), I remember we were sitting on my mother's bed … not where the head goes but on the side … It was dark, and in the hallway a lamp was shining, the lighting was kind of dim."
>
> Ms. Heuser also described a series of incidents when the accused had sexual intercourse with her in the back of a vehicle while they were in a car wash. Ms. Heuser said: "He used to have tissues in the car to wipe himself off. He used to jump out of the car and would clean all windows with some sort of windshield wiper because little drops of water would be on them. I still remember that, while he did this, I would get dressed again slowly and watch him manually clean his car."

Discussion: The aforementioned details (e.g., the lamp; wiping the windshield) were spontaneously mentioned by Ms. Heuser. They can be considered *Peripheral details* because they are not central to any of the reported abusive actions (e.g., oral sex, vaginal intercourse in the car wash). Yet, they are described in conjunction with sexual interactions and, in combination with all the other CBCA criteria that were present in her statement (not discussed here), add to the sense that Ms. Heuser's statement was based on actual experiencing. The peripheral details also tie in with the *Contextual embedding* (see above) of each event, which is important in differentiating Ms. Heusers' statement of abuse with the accused from sexual experiences with her boyfriends. That is, they hint at the fact that the accused might have been involved in the reported incidents.

Criterion 10: Accurately Reported Details Misunderstood

The criterion *Accurately reported detail misunderstood* is rated if a phenomenon is described but its meaning is not understood or is incorrectly interpreted. If this criterion is present, it usually only happens in children's statements (see Colwell et al., present volume). *Case example*: Florian, an 8-year-old boy, was referred for an SVA assessment, and consequently provided a statement alleging he was abused by his adult brother. The alleged abuse became known after Florian tried to engage another

boy at a birthday party into sexual play. In this context, he told the other boy that his brother had stuck his "wiener" into his (Florian's) "bum." When the other boy told his parents about this conversation, Florian was asked further questions by his friend's parents and his own foster parents about the alleged experiences with his brother. Eventually, the local child welfare office reported the abuse to the police, and Florian was formally interviewed. He reported several acts of oral and anal intercourse. Florian indicated that his brother had also watched pornographic movies with him, which contained depictions of oral and anal intercourse between a man and a woman. *Hypotheses*: Considering the context in which the statement first originated, it had to be considered that Florian lied intentionally in order to justify his sexual play with a friend at the party. Also, it had to be tested if Florian could have transferred the knowledge he acquired from watching the aforementioned pornographic movies onto the contents of his statement concerning sexual interactions with his older brother (i.e., a partial lie—viewing pornography being true). The alternative hypothesis was his entire account was true (i.e., being shown pornographic movies by his brother; engaging in sexual interactions with him). The following is an excerpt from his statement:

> Florian reported one situation that had supposedly taken place in a hut with a ladder and a slide on a playground. There, he and his brother sat next to each other and the accused opened Florian's pants, took his penis out and sucked on it. Florian described that his pants had been pulled down to his knees. Florian explained that his penis had become "big" at that time. After that, his brother reportedly did "the same" on himself. When asked, Florian reported that, while he was getting dressed again, his brother had opened his own pants and taken out his "wiener." Florian proceeded to demonstrate a masturbatory gesture. The assessor asked: "How long did he do this? Did something else happen?" Florian: "Something white came out." Assessor: "Where and when did that come out?" Florian: "What?" Assessor: "Where and when did it come out?" Florian: "I don't know." Assessor: "Where did it come from?" Florian: "From his wiener." Assessor: "And what happened next?" Florian: "It was flowing out." Assessor: "Where?" Florian: "Into his pants." Assessor: "Did your brother take off his pants entirely?" Florian: "They were like mine before." Assessor: "You mean they were down to his knees?" Florian: "Yes." Assessor: "And his underwear?" Florian nodded his head. Assessor: "Have you ever seen something white coming out?" Florian: "No." Assessor: "What did that white stuff look like? Can you describe that a little more?" Florian: "It was all white and was something like … like cream. Like a … What's that called? Like cream so that your skin doesn't dry out … bodymilk … or whatever that's called."

Discussion: Florian's description of "bodymilk" that supposedly came out of the accused's penis represents an *Accurately reported detail misunderstood*. When asked, Florian denied that the pornographic movies he had watched contained anything similar. Assuming this background information was true, it could be assumed that he did not have any alternative sources of knowledge to construct the above described part of his statement. This criterion is powerful because it cannot be assumed that the boy could have entirely invented such a phenomenological accurate description of male masturbation. Although he had knowledge of pornographic material, it was not viewed as likely that he transferred the "bodymilk" detail because he denied that he had ever seen anything like that before (assuming this denial was true). This demonstrates how careful the circumstances of a witness have

to be assessed before a judgment can be made as to whether a criterion represents a clue to a genuine experience.

Criterion 11: Related External Associations

The occurrence of this criterion is extremely rare in our experience. According to Arntzen (2007), it is fulfilled if a witness talks about a conversation with the person he/she was supposedly involved with that refers to a different yet similar experience. The report of related actions has to resemble the core of the event in question; however, these interactions would have been experienced at another time. For instance, in case of an incestuous relationship between a father and a daughter, she might report a conversation with him that concerned a sexual experience with her boyfriend (e.g., reference to a specific sexual act; reference to the boyfriend's body shape). The interlacing of the reported act in question with the reported conversation is key to this criterion. It is particularly useful to test the hypothesis of knowledge from other experiences being transferred onto the person accused in the present statement (Greuel et al., 1998).

This criterion did not come up in any of the case and research material reviewed in preparation for this chapter. According to Schwind (2007), this criterion was rarely encountered by other credibility assessors as well; therefore, it did not have good selective power.

Criterion 12: Accounts of Subjective Mental State

The criterion *Account of a subjective mental state* is satisfied if emotional or bodily reactions or cognitive reflections are reported related to the event in question (Greuel et al., 1998). *Case example*: Mrs. Wilhelm's case is used again to illustrate this CBCA criterion. The relevant part of the summary of her report is as follows:

> Mrs. Wilhelm reported that, soon after her wedding, she had tossed her wedding ring into a corner of their apartment. She indicated she was furious after her husband had beaten and pushed her into the mud in front of a pub after the aforementioned (see above) carnival party where he was intoxicated. She said that she later searched for the ring to no avail.

Discussion: The report of Mrs. Wilhelm's rage is an example of an *Account of a subjective mental state.* It is presented in the form of a behavioral act (i.e., tossing a ring), which was supposedly provoked by her husband's abusive behavior (i.e., pushing her in the dirt). As such, this detail is not a mere statement of Mrs. Wilhelm's mental state (e.g., "I was mad") but is tied in with the core of her story (i.e., the questionable abuse). Interestingly, the detail of tossing the ring is also connected with the overall story of her marriage (i.e., she subsequently searched for the ring). Hence, this example also serves as an illustration of *Contextual embedding* (see above).

Criterion 13: Attribution of Perpetrator's Mental State

The criterion of *Attributions of perpetrator's mental state* is met if the witness reports emotional reactions of the accused, e.g., by reporting physical or physiological processes. In the case of an offender's statement, the criterion could be met if the statement provider provides an attribution of another person's mental state. *First case example*: Mrs. Wilhelm's case is used again to illustrate the rating of this criterion. The relevant summary of her account is as follows:

> Mrs. Wilhelm reported that her husband once returned home intoxicated at night and assaulted her on her nose. She indicated that, shortly before this event, she had had surgery on her nose. She recalled that the assault hurt so badly that, for the first time, she actually cried for help and defended herself by striking back at her husband's chin. She reported that he seemed amused by such and commented that she "strikes like a smith [strong and powerful]."

Discussion: Among other criteria (e.g., the *Description of an interaction*; see above), this section fulfills the criterion of an *Attribution of the perpetrator's mental state* (i.e., her husband's change from aggression to amusement). His state was not merely claimed (e.g., "he was aggressive," "he had fun"), which would have been easier to invent, but was derived from Mrs. Wilhelm's description of interwoven actions and reactions. Again, this detail ties in with the core of her statement (i.e., abusive behaviors by her husband) and can therefore be considered a clue to credibility.

Second case example: A second case is presented as a less pronounced example of this criterion. The aforementioned 36-year-old Mr. Taylor from Cooper's (2005) and Ternes' (2009) field study on violent offenders' crimes also reported an incident of reactive violence—stabbing another inmate in prison. *Hypotheses*: Due to the research context, no SVA assessment was conducted; hence no hypothesis testing was possible. CBCA criteria were coded in isolation. The following is an excerpt from Mr. Taylor's statement:

> I remember looking along the dining hall, seeing all the amazed looks on people's faces. I guess they figured I was just some kind of punk white boy in there, not standing up for himself.

Discussion: The mentioning of "amazed looks" concerns the report of the inner reactions of other inmates who witnessed the reported stabbing, hence it could be considered an *Attribution of another persons' mental state*. Technically, the cited statement fulfills this criterion. However, the other persons' amazement is merely named but not explained on a descriptive level (e.g., a description of faces with their mouths wide open). Also, in his statement, the offender formulates a guess about other people's thoughts. This part cannot be counted as a clue to the statement's credibility because the offender draws the information from his thoughts, not his memory (i.e., "I guess"). The possibility that he constructed and added this detail retrospectively has to be considered. Possibly, it mirrors the way he wished to be seen by others (not as "some kind of punk white boy"; i.e., a motivational factor). This illustrates how each criterion has to be discussed and evaluated in context, the

question being if this person could have cognitively invented the detail. The conclusion offered in this case does not imply that the stabbing did not happen the way the offender described it; it only means this criterion, on its own, is not suitable to prove the statement's credibility.

Criterion 14: Spontaneous Correction

The criterion *Spontaneous correction* is satisfied if the statement provider spontaneously corrects his/her statement, thereby showing a critical perspective on his own (supposed) memory. *Case example*: Mr. Lee from the field study on violent offenders' memories (Cooper, 2005; Ternes, 2009) reported being shot in the hand during an act of reactive violence (see above). *Hypotheses*: CBCA criteria were coded without a formal SVA assessment; hence, no hypotheses were tested. The following is an excerpt from Mr. Lee's statement in the form of an introduction to his act of violence:

> It was rush hour on Friday, and uh, we went into this house to get some pot and, like we walked in, first, you know the memory's a little bit shagged. I need to go back a second. First we didn't go there directly to buy, to buy pot. We got a call on the cell phone saying … our buddy … He was screaming in pain and there was some noise and some, some, something was going on up there, so he called us, so that's why we went directly down there, but we didn't get pot anyway.

Discussion: The above excerpt from Mr. Lee's statement includes a *Spontaneous correction* (i.e., about going to a house to purchase marijuana). Whether or not it can be considered as fulfilling a CBCA criterion has to be carefully evaluated. On the one hand, a liar would not be expected to include "a mistake" in his/her statement and correct him/herself (note: if an interviewer challenges him/her on a contraction and then the story changes, this is merely a correction, not a spontaneous correction). Evidence towards this criterion counts only if the correction is spontaneous and improves the statement (e.g., adds more precision to an action that was already mentioned). On the other hand, a correction might simply be an effort to resolve a contradiction in the statement, which could happen, for example, if the person did not carefully prepare the lie. This could match Lee et al.'s (2008) observation that *Spontaneous corrections* were more often present in false than in truthful narratives. Therefore, it is important that the correction occurs spontaneously, as in the above cited case, not when the person is prompted to explain seemingly contradictory parts of the statement. Nevertheless, this criterion is difficult to rate without the context of other potential CBCA criteria.

Criterion 15: Admitting Lack of Memory

The literature from the 1980s suggests that *Admitting lack of memory* could be a hint towards an event-based account (e.g., Steller & Köhnken, 1989). *Case example*: A 36-year-old Aboriginal offender, Mr. Morris, with 12 years of education,

participated in the aforementioned field study of memory for violent crimes (Cooper, 2005; Ternes, 2009). In the research interview, he reported an instrumentally violent crime he had committed when he was 18 years old. He reported to have been under the influence of marijuana at the time. He explained that he was paid by a pizza service to hurt the owner of another, competing pizza service. Supposedly, this was his first such "contract." He described that, together with an accomplice, he beat a man and the man's son with a club after they had pulled up in their pizza delivery vehicle. Mr. Morris indicated that, before the "hit," he and his accomplice had collected money from a female acquaintance who was working as a prostitute for his accomplice. *Hypotheses*: As with the other study participants, no formal SVA assessment was performed, and no specific hypotheses were tested as to how this account could have originated. The following includes an excerpt from Mr. Morris' research transcript:

> When asked by the interviewer what his female acquaintance was wearing that day, Mr. Morris admitted that he did not remember: "No, I, I, didn't even really look over at her much that day, because I was just pretty much just listening. I remember hearing a few things, but I was really looking out the window. Like I remember looking out the window a lot that day. I was just off in my own world." Earlier in his statement, he had stated: "Umm, I remember sitting and rolling my joints up and I remember thinking how good this is going to be for my career and all that, I am going to be a hit man now. I remember going through those thoughts, and I was pretty much going through those thoughts all day."

Discussion: The aforementioned research participant *Admitted lack of memory* for his female acquaintance's clothing. Motivationally speaking, admitting lack of memory is not expected from someone who tells a lie because it is assumed that liars are motivated to provide a complete account and to answer all questions asked of them. Note that Schwind's research (2007) demonstrated that not many experts use this criterion in actual SVA assessments. Our experience suggests that the criterion occurs both in statements that are deemed credible and not-credible. Evidence towards this criterion should be applied in combination with other criteria (e.g., *Appropriate amount of detail*, *Coherence*) because the central (i.e., questionable) part of a statement should be comprehensible (see also Greuel et al., 1998).

Criterion 16: Raising Doubts About One's Own Testimony

The criterion is fulfilled if the person mentions objections to his/her own account. This criterion has not been encountered by the authors in their research material or case work evaluated for this chapter. It was shown to be rare in other experts' SVA assessments, too, and it correlated only marginally with statement credibility in Schwind's (2007) study of internal consistency.

Criterion 17: Self-deprecation

The criterion *Self-deprecation* is met if the person portrays him/herself or his/her actions in an unfavorable fashion, e.g., by reporting own mistakes or taking part in

an abusive action (Greuel et al., 1998). *Case example*: An 11-year-old boy, Lovis, was referred for an SVA assessment based on his report of being sexually abused by an elderly man who was the uncle of his mother's boyfriend. The alleged abuse was detected after Lovis' mother observed the accused kiss Lovis on his mouth one morning. When Lovis was asked if the accused had "touched" him, Lovis responded in the affirmative. In subsequent interviews by a social worker and the police, Lovis disclosed further details. *Hypotheses*: One hypothesis in this case concerned the possibility of a coached statement (e.g., applying sexual knowledge gained from informal questioning and formal interviews to the statement). Thus, it had to be tested if Lovis was able to provide autonomous supplements to the information that had been communicated to him during previous interviews (as documented in the file). The following includes two translated excerpts from Lovis' interview:

> Lovis reported that the accused visited his family several times during a period of time that started about 1 year prior the disclosure of the alleged abuse. Each time, the accused slept in Lovis' room on an extra mattress. Lovis reported that they used to kiss each other "good night" and "good morning." He reported that on one particular morning: "I waited until he was awake and then he said, 'why haven't you come down here?' So I went down there and we cuddled a little bit. And then it started that he teased me … not that he touched me down there … And then I started to pull his pants down. Yah. And then it all developed. He never hurt me or asked something of me. In the beginning, he used to rub me and my penis became hard. He moved my foreskin back and forth quickly, again and again."
>
> Lovis also reported that he had become curious and wanted to insert his penis into the accused's rectum: "Yah, then … I had a hard-on, I believe. And then I … he was lying on his tummy … I lay onto him, with my tummy against his back, and tried to stick my penis in his hole. I don't know any more if it worked or if it didn't work" Assessor: "Why don't you know this?" Lovis: "I don't know, I forgot …" Assessor: "Can you tell me how you tried to stick it in there?" Lovis: "I spread his bum cheeks a little bit apart so that I could see the hole, and then I tried to get in with my penis but it didn't work." When asked, Lovis denied that the accused had ever tried to do the same with him.

Discussion: The above is particularly valuable because Lovis reported that he initiated sexual acts with the accused. Thus, it counts as evidence of *Self-deprecation*. According to file information, the possibility that Lovis initiated sexual contact had never been suggested to him in any interview. From a motivational point of view, the evidence towards self-deprecation would not be expected from a child who attempted to wrongfully accuse a person of sexually abusing him.

Criterion 18: Pardoning the Perpetrator

The criterion *Pardoning the perpetrator* is met if a witness exonerates the accused perpetrator or refrains from incriminating him/her further (Greuel et al., 1998). *Case example*: Ivy's case is used again to illustrate this criterion. The following includes *excerpts* from Ivy's statement:

> Above it was described how Ivy's uncle would smear cream on an abscess near her genital area. In this context, Ivy said: "And I told him I didn't like that so he stopped and went to wash his hands."

> Another time during her interview, Ivy said that the accused had announced that he wanted to take pictures of her breasts and her vagina. Reportedly, Ivy said she did not want this to happen. She noted that he refrained from getting the camera.

Discussion: The fact that Ivy refrained from further incriminating her uncle (i.e., he stopped an abusive act; he did not use violence; he refrained from planned pornographic production) fulfills the criterion of *Pardoning the perpetrator*. From a motivational point of view, this is unexpected from a witness who means to portray the perpetrator and his abuse as maximally drastic.

Criterion 19: Details Characteristic of a Particular Act

This criterion is met if the witness reports several details throughout his/her statement that cannot be expected from him/her based on common knowledge, yet the details correspond with known offender patterns (e.g., the grooming behavior of a seductive pedophile). *First case example*: Ivy's case is used again to illustrate this criterion. The below includes part of the SVA assessor's formulation:

> When Ivy's statements of individual episodes of her alleged abuse by her uncle were organized into chronological order, it became apparent that the abuse had started with the touching of her breast and progressed to more serious forms of abuse (e.g., having Ivy touch his genitals; inserting fingers into her vagina) which were slowly and progressively introduced as part of normal bodily care actions.

Discussion: Based on the background information provided from Ivy (e.g., her general knowledge about child sexual abuse), the increasing severity of the sexual interactions she reported with her uncle cannot be considered part of her general knowledge base. The aforementioned development is typical of incestuous relationships, where there is a gradual increase in the severity of the abuse (e.g., Arntzen, 2007; Leclerc, Proulx, & Beauregard, 2009). Hence, it is evidence towards *Details characteristic of a particular act*. Her description of an episode where her uncle used the pretext of body care (i.e., applying cream to an abscess on her buttock) to insert a finger into her vagina also demonstrates a *Detail characteristic of an act* of progressively severed sexual abuse. Indeed, it is not uncommon for perpetrators to introduce sexual activity in the context of normal activities (e.g., Berliner & Conte, 1990). It is unlikely that Ivy could have invented the gradual progression of her abuse and the context of bodily care in one of the specific abuse situations based on her general sexual knowledge.

Second case example: Lovis' case is also used again to illustrate this criterion (see above). Below is a summary of part of his statement to the credibility assessor:

> Lovis and his uncle had started out by kissing each other "good night." Lovis reported that they then pulled each other's pants down and touched each other's penises "for fun." He reported taking the initiative in an attempt to penetrate his uncle anally (see above). In addition, he stated that, on other occasions, his uncle had sucked his (Lovis') penis. Lovis denied that his uncle had ever asked him to perform such an act on him. Lovis said he had always liked the uncle, who gave him presents, bought him exactly the toys he had wanted,

let him play with the computer and would never become mad at him for mistakes he made. He said that he never knew that the behaviors he and the uncle had engaged in were considered abusive.

Discussion: The description of gradually more intense and intimate touching coupled with evidence of grooming behavior (e.g., presents) fulfills the criterion of *Details characteristic of a particular act*. The same is true for the reported reciprocity of sexual touching. Considering Lovis' background experience (i.e., no other sexual abuse), it seemed unlikely that he could have invented these aspects of his statement. Such specific details are known to those working in this area but usually not a child witness. Hence, together with some of the other CBCA criteria found in his account (not all discussed here), they provide a strong clue to a genuine experience underlying the statement.

Conclusion

The partial intent of this chapter was to demonstrate some of the logic behind CBCA and to dispel some misconceptions about its use in research and practice. The other focus was to explain the reasoning behind the ratings of individual CBCA criteria via cases from research and clinical practice. Clearly, a multiple hypothesis-driven approach is necessary for SVA assessments, which includes CBCA. Some of the factors that have been discussed in the literature (e.g., age, event familiarity, coaching affecting CBCA ratings) do not necessarily limit the applicability of SVA, if proper hypotheses are formed and evidence is gathered to take these challenges into account (e.g., possibility of knowledge transfer; evaluation of cognitive and verbal abilities necessary to invent the statement; possibility of a partial lie). Although some CBCA criteria can be more powerful than others, a meaningful pattern of several criteria is usually necessary to judge an account as credible. Such decisions are qualitative (e.g., no "scores," no standardized minimum amount of criteria), and the frame of reference is always within the individual—a comparison of the person's statement with other individuals' CBCA performance is not useful.

Behavioral channels other than verbal content have been discussed as clues to deception in the literature (e.g., Ekman, 2009; ten Brinke & Porter, present volume). These could be used by an SVA assessor to obtain and assess more precise and complete information during the interview, which would form the basis for an SVA evaluation (e.g., together with file information, etc.). For instance, an observation of a micro-expression, or a change in verbal style or body language might provide important clues related to a critical passage of a statement (Cooper, Hervé, & Yuille, 2009).

The above notwithstanding, SVA is not a tool to identify deception. As explained above, there are only two possible outcomes of SVA: credible or not credible. The former implies that no theory other than an actual experience explains the origin and the high quality of the statement. The latter suggests that several origins of the statement are possible (e.g., an intentional lie; the witness' lack of motivation to provide more details and/or details of a higher quality). Therefore, the absence of CBCA

criteria does not mean anything other than the statement was not suitable to provide evidence of credibility. It is not the job of an SVA assessor to prove a lie.

At the beginning of the chapter, a relatively new area of research—verbal credibility assessments on offender statements—was introduced. Some of our case examples were derived from a large field study on violent offender's narratives of violence. It is hoped that some of the reasoning in the above case presentations will inspire future research and practice in the area of verbal credibility assessment with offenders and other relatively neglected populations.

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