DEVELOPPEMENT D’UN SYSTÈME D’ÉVALUATION DE LA DISSOCIATION CHEZ L’ENFANT À PARTIR DES RÉCITS D’ATTACHEMENT

DEVELOPMENT OF A CHILD DISSOCIATION ASSESSMENT SYSTEM USING A NARRATIVE STORY STEM TASK

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Composition du jury

Développement d’un système d’évaluation de la dissociation chez l’enfant à partir des récits d’attachement

Development of a child dissociation assessment system using a narrative story stem task

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Abstract

Complex Trauma (CT) refers to the exposure to chronic or prolonged experiences of maltreatment that often occur in the context of a caregiving relationship. This concept also refers to the numerous sequelae that CT can have on the child’s functioning, including dissociation. Dissociation reflects a continuum of behaviours and processes that range from normative (e.g., daydreaming) to pathological (e.g., amnesia). The majority of children in the child welfare system have been victim to experiences of chronic maltreatment, which represents an important precursor in the development of disorganized attachment (DA). As such, many authors highlight the importance of assessing for CT exposure and associated sequelae given the pathological trajectories that are associated to these, including DA and the development of dissociative symptoms. The MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990) is a narrative task whose purpose is to activate children’s attachment representations. The Attachment-Focused Coding System for Story Stems (AFCS; Reiner & Splaun, 2008) is a valid coding system which uses four stories (out of the 14 available) from the MSSB that are considered more likely to activate the child’s attachment system. However, this system differs in that it is quicker to administer and to code, making it more accessible to researchers and clinicians. The AFCS screens for the majority of sequelae associated to CT but does not consider dissociation. The first theoretical article outlines the current state of knowledge surrounding child dissociation, as well as how this concept relates to DA and exposure to CT. This article also explores difficulties related to the assessment of dissociation symptoms in maltreated children and argues the relevance of using a narrative task like the MSSB to do so. The second empirical article aims to develop a child dissociation assessment system which examines
the verbal and non-verbal manifestations of children that emerge during the MSSB stories selected for use with the AFCS. The Child Dissociation Assessment System (CDAS) is composed of two complementary measures, the Child Dissociation Code (CDC), which screens for dissociative symptoms, and the Child Dissociation Tool (CDT), which then assesses how these symptoms affect several domains of functioning, should this be necessary. The CDAS is a response to the current lack of child dissociation instruments available and takes limitations identified amongst existing measures into account. Through this exploratory study, the authors sought to obtain interrater agreement, with an intraclass correlation coefficient (ICC) of 0.75. To achieve this, 20 MSSB protocols of children between 6 and 12 years old (10 from a clinical sample and 10 from a non-clinical sample) were scored using the CDAS. The Mann-Whitney statistical test was then applied to the CDC to compare the average scores obtained on this measure by both groups of children to verify whether it discriminated between a clinical and non-clinical population. Preliminary results indicated that the CDAS possesses adequate to excellent inter-reliability and that the CDC discriminated between a clinical and non-clinical sample of children, highlighting the relevance of using the CDAS and of pursuing a validation study.

*Keywords:* dissociation, narrative story stems, children, complex trauma, disorganized attachment, assessment
Sommaire

Les traumatismes complexes (TC) décrivent l’exposition à de multiples événements de vie traumatiques qui se produisent de manière répétée et prolongée et dont la figure parentale est souvent l’auteur. Cette nomenclature réfère également aux multiples impacts des TC sur le fonctionnement de l’enfant, dont la dissociation. La dissociation reflète une gamme de comportements et de processus allant de normaux (p. ex., rêverie) à pathologiques (p. ex., amnésie). La majorité des enfants suivis par la protection de la jeunesse (PJ) ont été victimes de maltraitance chronique, qui constitue l’un des principaux précurseurs de l’attachement désorganisé (AD). Ainsi, plusieurs auteurs notent l’importance d’évaluer l’exposition aux TC et leurs séquelles compte tenu des trajectoires pathologiques qui y sont associées, dont l’AD et le développement de symptômes dissociatifs. Le MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990) est une tâche narrative qui vise à activer les représentations d’attachement chez les enfants. L’Attachment-Focused Coding System for Story Stems (AFCS; Reiner & Splaun, 2008) est un système de codage se voulant simple et accessible pour les chercheurs et les cliniciens, qui est appliqué à quatre histoires du MSSB (sur 14) jugées plus susceptibles d’activer l’attachement de l’enfant. L’AFCS tient compte d’indices reflétant la majorité des séquelles engendrées par les TC mais ne considère pas la dissociation. Le premier article théorique vise à dresser un portrait de l’état des connaissances au sujet de la dissociation telle qu’elle se manifeste chez les enfants, son lien avec l’AD et avec l’exposition aux TC. L’article explore également les difficultés liées à l’évaluation des symptômes de dissociation chez les enfants et discute de la pertinence d’évaluer ceux-ci en utilisant une tâche narrative telle que le MSSB. Le deuxième article empirique vise à développer un système d’évaluation de la
dissociation chez l’enfant à partir des manifestations verbales et non-verbales de la dissociation qui émergent lors des histoires du MSSB sélectionnées par l’AFCS. Le Child Dissociation Assessment System (CDAS) est composé de deux outils complémentaires, soit le Child Dissociation Code (CDC), qui permet un dépistage de symptômes dissociatifs, et le Child Dissociation Tool (CDT) qui dans un deuxième temps précise les domaines de fonctionnement atteints par ces symptômes, le cas échéant. Le CDAS répond à un manque actuel d’instruments pour évaluer la dissociation infantile et comble les limites identifiées parmi ceux qui existent. À travers cette étude exploratoire, les auteurs visent un accord inter juges satisfaisant pour le CDAS, soit un coefficient de corrélation interclasse (CIC) de 0,75 ou plus. Pour ce faire, 20 protocoles du MSSB d’enfants âgés de 6 à 12 ans (10 issus d’une population clinique et 10 d’une population non-clinique) ont été codés à l’aide de ce nouveau système de dissociation. Ensuite, le test statistique de Mann-Whitney a été appliqué au CDC afin de comparer la moyenne des scores de dissociation obtenus par les deux groupes d’enfants pour vérifier si cet outil discriminate entre la population clinique et non-clinique. Les résultats préliminaires indiquent que le CDAS possède un taux d’accord inter juges adéquat à excellent et que le CDC discriminate entre des enfants issus d’une population clinique et non-clinique. Ces résultats soulignent la pertinence du CDAS et justifient la poursuite d’un travail de validation.

*Mots-clés :* dissociation, récits d’attachement, enfants, traumatisme complexe, attachement désorganisé, évaluation
# Table of contents

Abstract..........................................................................................................................iv

Sommaire.........................................................................................................................vi

Acknowledgements.........................................................................................................ix

Foreword...........................................................................................................................1

First article —
Assessing for dissociation in maltreated children: The theoretical and clinical relevance of narrative story stems.................................................................................................9

Introduction to the second article.....................................................................................42

Second article —
Development of the Child Dissociation Assessment System using a narrative story stem task: A preliminary study.................................................................................................46

Conclusion.........................................................................................................................84

References.........................................................................................................................89

Appendix A — Proof of acceptance: First article..............................................................94

Appendix B — Child Dissociation Code...........................................................................96

Appendix C — Child Dissociation Code Tool.................................................................98

Appendix D — Story Stems Attachment-Focused Coding System.................................100

Appendix E — Attachment-Focused Coding System for Story Stems Administration Manual..............................................................................................................110

Appendix F — Proof of acceptance: Second article.......................................................116

Appendix G — Excerpts of responses obtained using the Child Dissociation Code.........118
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Dad. Ova knjiga je za tebe.
Foreword
This thesis is composed of two articles which outline the process surrounding the development of a novel clinical measure of child dissociation using a narrative story stem task.

Children whose situations are signalled to youth protection tend to have extensive histories of maltreatment, which is often the reason for protective services involvement. Maltreatment includes physical, sexual, and psychological abuse, negligence and abandonment, as well as witnessing conjugal violence (Courtois, 2004). It has been shown that children who are placed in an out-of-home setting, such as in a group or foster home, are often more frequently exposed to multiple traumatic events and experience multiple forms of maltreatment. These children also tend to experience more mental health issues compared to children in the general population (Kerker & Dore 2006; Tarren-Sweeney, 2008).

Children in the welfare system tend to experience maltreatment that is most often authored by their caregiver (Greeson et al., 2011). Such interpersonal forms of trauma are captured by the concept of complex trauma (Herman, 1992). Complex trauma refers to chronic experiences of maltreatment that are often cumulated in childhood which often take place in the context of a caregiving relationship. This concept also refers to the impairments associated to prolonged experiences of interpersonal trauma such as attachment, neurobiology, affect regulation, behavioural control, cognition, self-concept, and dissociation (Cook et al., 2005).

Dissociation refers to a disruption in the integration of information and experience resulting in the separation of psychological processes that would normally go together (Putnam 1997). These disruptions may interfere with processes such as consciousness, emotions, memory,
identity, and perception (American Psychiatric Association, 2013), and reflect a spectrum of phenomena which range from normative (e.g., daydreaming) to pathological (e.g., amnesia).

Dissociation is considered an adaptive response for coping with traumatic situations (Putnam, 1997). Children who dissociate during a stressful situation such as abuse by a parent do so to self-soothe and psychologically separate or escape from an unavoidable situation. Dissociation becomes a maladaptive response for coping when children become reliant on this means to cope with any kind of stressor and it is used in multiple contexts. In such cases, dissociation is considered pathological because the degree and context in which it is used can interfere with children’s functioning or development (Putnam, 1997). More pathological or maladaptive forms of dissociation are associated with complex trauma experiences in childhood (Briere & Lanktree, 2008). In other words, dissociation reflects both a trauma-related sequel as well as a defense mechanism for coping with the trauma itself.

Complex trauma in childhood constitutes an important risk factor for developing a disorganized attachment (DA) (Madigan et al., 2006). Infants with DA display incoherent or disoriented behaviour toward their caregiver that reflects incompatible or contradictory intentions (Main & Solomon, 1986). Infants with DA tend to have experienced inconsistent or unpredictable caregiving relative to having their needs met by their attachment figure (Liotti, 1999). Consequently, they develop multiple discordant views of the self and of the attachment figure (Liotti, 2011; Main & Hesse, 1990). It is thought that DA infant behaviour is reflective of dissociative psychological processes due to similarities in clinical presentation (Liotti, 2011).
Prospective longitudinal studies suggest that DA in infancy accompanied by maltreatment experiences set the pathway for dissociation throughout the life course (Carlson, 1998; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006; Ogawa et al., 1997). Furthermore, exposure to future trauma increases the likelihood for children with DA to use dissociation as a coping mechanism (Liotti, 1999). As such, dissociation also represents a pathological developmental outcome to traumatic childhood experiences.

Assessing for dissociation in maltreated children appears crucial given associated impairments and negative outcomes; however, such a process is complicated by several factors. First, dissociation will manifest differently in children than in adolescents or adults due to developmental differences (e.g., preference for play over speech, more subtle clinical manifestations). Second, mental health professionals are also seldom trained to recognize dissociation in children (Zoroğlu, Yargic, Tutkun, Ozturk, & Sar, 1996). As such, symptoms either go unnoticed or are associated to more common diagnoses including externalizing or internalizing disorders, amongst others. Additionally, assessments in the child welfare system are rarely standardized. Rather, they tend to focus on managing problematic behaviour (Mash & Hunsley, 2005) instead of assessing for the spectrum of complex trauma impairments often seen in maltreated children (Pynoos & Nader, 1993). Finally, conducting comprehensive assessments can be difficult in the welfare system due to a lack of time and resources.

Currently, few child dissociation assessment measures exist. Amongst those most commonly used, limitations have been identified when used with populations of maltreated children. These include a biased or distorted report of children’s symptoms by an external source,
including a parent who is the author of maltreatment (Waters, 2005). Children may also fail to report symptoms due to them being outside of their awareness (Kluft, 1985), due to fear related to the aftermath of such disclosure (Macfie et al., 2001; Nader, 2008) or erroneously endorse symptoms when questioned directly to please (Waters, 2005). Narrative story stem tasks represent an ideal framework from which to examine for dissociative phenomena in maltreated children as they counteract many of these limitations.

This thesis’s main objective is to develop a practical yet comprehensive child dissociation assessment system for researchers and clinicians who are interested in populations of children who have complex trauma histories. This novel system will consist of two complementary measures that will reflect child dissociation’s theoretical underpinnings, as well as characteristics of existing child dissociation assessment tools. This assessment system will also be developed for use with a narrative story stem task during which dissociative phenomena may be observed.

Author’s Contribution

The first article provides a critical review of the child dissociation literature and focuses on the assessment of dissociative phenomena in maltreated children. More specifically, this article states that exposure to complex trauma in childhood and DA in infancy are two risk factors that interfere with the child’s development and increase the likelihood of developing pathological levels of dissociation in adolescence and adulthood (Carlson, 1998; Liotti, 1992; Ogawa et al., 1997). The authors then discuss the assessment of dissociation in maltreated children, including limitations associated to available measures. They then propose narrative story stem measures as a vehicle from which to assess for dissociative phenomena. An attachment-based measure such as
the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990) is then suggested given that the author of maltreatment is often the attachment figure. The Attachment-Focused Coding System for Story Stems (AFCS; Reiner & Splaun, 2008) is then discussed as a simple yet valid method for scoring the MSSB. This article was written by Amanda Plokar, author of this thesis in collaboration with Claud Bisaillon, thesis director. It was submitted for publication to the *Journal of Child & Adolescent Trauma (JCAT)* in October 2015 and was accepted for publication in February 2016 (see Appendix A for proof of acceptance). Below is the reference for the final version of the article as it was submitted to JCAT:


The first article led to the subsequent development of the Child Dissociation Assessment System (CDAS; Plokar & Bisaillon, 2017). The CDAS, which consists of two measures, the Child Dissociation Code (CDC; see Appendix B) and the Child Dissociation Tool (CDT; see Appendix C), was elaborated as part of this thesis. The CDC allows clinicians to screen for dissociative symptoms in children and was developed using the same scale as that used by Reiner and Splaun’s AFCS (2008; see Appendix D). The CDT examines how these symptoms impact different domains of functioning. These measures are meant to capture verbal and non-verbal dissociative symptoms in children as they complete the four MSSB stories selected for use by the AFCS (see Appendix E). The CDAS was used in the second article of this thesis. Below is the reference for the CDAS:
The second article in this thesis is a preliminary empirical study of the CDAS. The article first provides an overview of child dissociation literature citing theoretical concepts, including those introduced in the first article (e.g., development and definition of dissociation, relationship to complex trauma and disorganized attachment). The article then explores difficulties in the assessment of dissociation in populations of maltreated children in the child welfare system, as well as limitations associated to current available measures of child dissociation in reference to this population specifically. Thereafter, the MSSB is discussed as an ideal vehicle from which to examine for dissociative phenomena in maltreated children whom are often exposed to chronic forms of interpersonal trauma. The CDAS’s development procedure is then detailed, as well as the purpose of the system, including scoring information. The CDAS is then used to score the MSSB protocols of a clinical and non-clinical group of children. Preliminary data concerning inter-rater reliability is presented, as well as results of non-parametric statistical analyses (Mann-Whitney U test). Given the novelty of the measures developed, a modest sample size was used to verify the clinical relevance of these measures and to make any necessary modifications before proceeding to a larger-scale validation study. This article was written by Amanda Plokar, author of this thesis, in collaboration with Claud Bisaillon, thesis director. Miguel M. Terradas also participated in the development process of the CDAS, providing an expertise in the area of child trauma. The article was submitted for publication to the European Journal of Trauma & Dissociation in May and was accepted pending minor revisions in July 2017 (see Appendix F). The reference for this second article is as follows:
First article
Assessing for dissociation in maltreated children:
The theoretical and clinical relevance of narrative story stems

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Abstract

Dissociation reflects disruptions in information and sensory-processing which range from normative to pathological. These disruptions are different in children than in adults due to developmental differences which leave them more vulnerable to the effects of maltreatment. Chronic maltreatment and disorganized attachment in children, illustrated by atypical behavioural strategies toward the caregiver, predict the development of pathological dissociation in children which interferes with functioning and development. Therefore, assessing for these symptoms is crucial; however, the few instruments specifically targeting them present limitations. The authors suggest narrative story stems, playful tasks that activate the child’s attachment representations, to assess for dissociation in maltreated children. A theoretical and clinical rationale is provided given the source of maltreatment is often the caregiver.

Keywords: Dissociation, Maltreatment, Disorganized Attachment, Assessment, (Narrative)

Story Stems
Defining dissociation in children

Defining the concept of dissociation as it applies to children has been a subject of debate (Silberg, 2013). This is because most theories of dissociation focus on the clinical manifestations of adults rather than those of children. However, children may exhibit qualitatively different manifestations than adults due in part to their developmental phase (Wieland, 2015), some of which have been linked to normal developmental tasks (Putnam, 1996). For instance, children have a propensity toward fantasy play and imaginary playmates in the same way that adults primarily use language to express themselves (Silberg, 2013). Moreover, definitions of dissociation tend to imply that developmental milestones have first been achieved and then become disrupted. Because toddlers and young children are in the process of developing an integrated sense of self, dissociation could interfere with the achievement of this milestone (Macfie, Cicchetti, & Toth, 2001). Therefore, theories of dissociation must take these developmental differences into account if they are to be accurate for use with children (Wieland, 2015).

Children who are faced with frightening or highly stressful situations often cannot physically remove themselves from these situations. For example, children who are regularly abused by their parent in the family home might dissociate to create a psychological distance or separation between themselves and the threatening situation to decrease their distress (Silberg, 2013; Wieland, 2015). Dissociation may thus be understood as “a failure to integrate or associate information and experience in a normally expectable fashion” (Putnam, 1997). In other words, dissociation means there is a disconnection between things that would normally go together (Frey & Haycock, 2001). These discontinuities may interfere with the “usually integrated functions of consciousness, memory, identity, or perception” (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000).
From normative to pathological dissociation

There is debate surrounding what framework is best suited for understanding dissociation (Putnam, 1997). A categorical framework assumes distinct forms or types of dissociative behaviours and experiences; however, these typologies tend to be based on the clinical profiles of adults which apply less to children (Putnam, 1997). A dimensional framework is more frequently described in the literature on dissociation in children as it is more inclusive and facilitates comparisons between normal and clinical populations (Putnam, 1997; Silberg, 2013; Wieland, 2015). This approach describes dissociation as a “psychophysical process” that manifests on a spectrum ranging from normative to pathological (Putnam, 1997). As such, the mechanisms underlying dissociation are thought to be similar, what distinguishes normal from pathological is a question of degree, context, and impact. This framework will be the reference point for the remainder of this article.

Childhood developmental processes such as fantasy play, having imaginary companions, and daydreaming, have all been linked to normative dissociative mechanisms (Putnam, 1996). These processes are considered healthy and age-appropriate as they do not typically interfere with child development and functioning, and are experienced by virtually all children (Wieland, 2015). Fantasy play involves the child taking on different roles while juggling aspects of reality and non-reality. This type of play has been associated with cooperation, social competence, and peer acceptance and provides children the opportunity to overcome or dispose of painful emotions while working through aspects of reality (Bretherton, 1984). Imaginary companions allow children to practice social skills or experiment with various parts of the self while countering feelings of loneliness (Bouldin & Pratt, 1999; Singer & Singer, 1990). Finally, daydreams, which are complex fantasy productions that the child willfully enters under specific circumstances (including
boredom), have been linked to creativity and problem-solving (Putnam, 1996). These phenomena are all considered normal developmental tasks in children due to their playful origin and they generally do not have a negative impact on functioning (Putnam, 1996).

Pathological dissociation occurs when the degree of dissociation begins to interfere with the child’s development and is used in multiple contexts. Pathological dissociation will affect the child’s developing sense of self, interfere with memory recall, and contribute to alterations in perception and consciousness (APA, 2000). These can interfere with social and academic functioning where the child may not meet certain milestones expected of his or her age (Macfie et al., 2001; Putnam, 1997). Pathological forms of dissociation are often triggered by stress (e.g., cognitive, emotional, and physical), may be mild, moderate or severe in degree, and can vary at different times (Wieland, 2015).

Mild forms include a child being unattentive or “spacing out” as though time is suspended. Sudden shifts in emotions/behaviour may also occur. The child will veer from one emotional extreme to another where transitions between emotions (i.e., emotional midpoints) are either minimal or absent (Wieland, 2015). Some physical stressors, including a chronic lack of sleep, may also trigger mild dissociation in children (Frey & Haycock, 2001).

Moderate forms include feelings of depersonalization (feeling as though one is outside of their own body watching themselves from a distance) and/or derealization (feeling as though something isn’t actually happening or as though it isn’t reality) during stressful situations. The child may continue to experience these feelings if the stressful situation is repeated, as in the case of a child being abused by his or her caregiver. These feelings can also be triggered by stressful situations that are different from that during which they were originally experienced. As such, if a new event reminds the child of the original stressor due to similarities in nature (e.g., being yelled
at by an abusive parent and later, being yelled at by a teacher), depersonalization and derealization might be experienced once again to help cope with the feared stimulus (Wieland, 2015).

Severe forms of pathological dissociation include dissociative “self-states” during which the child appears to have different skills/abilities at different moments. These multiple parts of self will often take the form of “vivid imaginary friends” in children (Silberg, 2013). Dissociative amnesia, illustrated by the limited ability in recalling whether something actually happened, may also occur and interfere with the awareness of the existence of different “self-states” (Putnam, 1997; Wieland, 2015). In the most extreme cases, these clinical manifestations can have a severe impact on the child’s functioning and turn into a dissociative disorder in either childhood and/or later on (Putnam, 1997; Wieland, 2015). In the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders’ (5th ed., DSM-5.; American Psychiatric Association, 2013), the main criteria for dissociative identity disorder include the unwanted or involuntary presence of two or more distinct personality states and recurrent dissociative amnesias.

**The relationship between dissociation and complex trauma**

For a long time, children were seen as invulnerable to traumatic life situations because they were thought to be incapable of understanding or remembering them due to their age (Crocq, 2001; Rigamer, 1986). On the contrary, it is now recognized that due to their cognitive and physical immaturity, children are the most vulnerable in extremely distressing situations that place their development and safety at risk (Herman, 1992; Terr, 2008). Over the last 20 years, studies of child abuse led researchers to observe that certain forms of trauma are « more pervasive and complicated than others”; more specifically, those cumulated in childhood which stem from the parent-child relationship (Courtois, 2004; Herman, 1992).
To more accurately portray the experience of such forms of trauma, Herman (1992) introduced the concept of complex trauma. Complex trauma refers to chronic interpersonal trauma that often begins in childhood in the context of a caregiving relationship (Courtois, 2004; Herman, 1992). The person who is in charge of caring for the child’s well-being is often also the source of maltreatment; as such, the child is unable to depend on the person whom is meant to care for and protect him or her (Courtois, 2004). Maltreatment, which includes physical, sexual, and psychological abuse, negligence/abandonment, as well as witnessing conjugal violence (Courtois, 2004), represents one of the main forms of complex trauma to which children are exposed (Briere & Lanktree, 2008).

A history of complex trauma in childhood can lead to difficulties in several areas of functioning: attachment, neurobiology, affect regulation, behavioural control, cognition, self-concept, and dissociation (Cook et al., 2005; van der Kolk, 2005). Studies consistently find that maltreated children experience more dissociative symptoms than do non-maltreated children (Hulette, Freyd, & Fisher, 2011; Macfie et al., 2001; Putnam, Helmers, & Trickett, 1993). Macfie et al (2001) led a longitudinal study over 1-year that sought to determine whether maltreated versus non-maltreated preschoolers experienced different levels of dissociation. At baseline, they observed that maltreated preschoolers experience more dissociation than do those without maltreatment. Furthermore, an increase in symptomology was observed at the 1-year time period amongst maltreated children as compared to non-maltreated children where no differences were observed. A history of maltreatment can predict the development of dissociative symptoms, which in turn can influence a child’s developmental trajectory (Macfie et al., 2001; Wieland, 2015). Although more pathological forms of dissociation have been linked to a history of maltreatment in childhood, what is experienced as traumatic by one child may not be for another. As such, not
all maltreated children develop dissociative symptoms, though this remains an area for further investigation (Courtois, 2004; Greeson et al., 2011; Herman, 1992).

Childhood trauma and dissociation place children at increased risk for multiple difficulties throughout their life course including revictimization, learning difficulties, and exposure to additional trauma. Victimized children are more likely to have difficulty forming or maintaining friendships with peers due in part to trauma-related impairments, which can influence the child’s ability to successfully engage in age-appropriate tasks or activities. For example, a dissociative child who enters recurrent trance-like states during cooperative play is likely to stand out amongst peers. This behaviour may be perceived as bizarre or uncooperative, which can lead to social difficulties (D’Andrea, Stolbach, Ford, Spinazzola, & van der Kolk, 2012). These experiences are likely to have an impact on the child’s self-concept, or subjective sense of self, another area of impairment. As such, pathological forms of dissociation can exacerbate difficulties in other complex trauma-related areas of impairment (Cook et al., 2005).

**The function of dissociation amongst traumatized children**

Dissociative experiences and behaviours can be adaptive (positive valence) or maladaptive (negative valence). They are adaptive in abnormal situations where a child’s safety and well-being are compromised. Dissociation then becomes a survival tool to overwhelming stress that allows the child to protect him or herself by avoiding having to experience psychological and/or physical harm (Putnam, 1997; Wieland, 2015). Adaptive dissociation reflects a response to an external stress that leads the child to turn inward for coping. This protective mechanism allows the child to self-soothe and continue functioning in his or her day-to-day life without major disruption.

Putnam (1997) suggests that dissociation may best be understood as a defense mechanism against trauma that allows the child to compartmentalize overwhelming feelings and memories
such that they are experienced as separate from the self. This mechanism also filters traumatic material before it is registered into consciousness (Putnam, 1997; Wieland, 2015) which can be adaptive as it allows children to avoid thinking about conflicting realities (Putnam, 1997). Children continue being loyal toward a parental figure who they also recognize is source of pain. Such conflictual parenting represents one of the models for understanding disorganized attachment in children (Main & Solomon, 1986) and will be addressed later in more detail.

When a child is repeatedly exposed to overwhelming life situations, using dissociation to cope can evolve into an unconscious automatic response (Putnam, 1997). This reflex becomes maladaptive when a child habitually uses pathological forms of dissociation to cope with ongoing trauma. As a result, the child may inappropriately use these means to cope with a variety of situations, including those that go beyond the original trauma. Children may thereby avoid healthy experiences or opportunities for learning and growth, as well as facing normal stressors (such as taking a test). As such, information and experience do not get processed in a continuous manner, which can disrupt functioning and hinder cognitive, social, and emotional development (Wieland, 2015).

Because children are constantly in the process of reaching developmental milestones, “more established patterns can disrupt recent developmental achievements” (Sroufe & Rutter, 1984). Habitual use of dissociation can interfere with a child’s developing sense of self and lead to fragmented thinking, or, the opposite of an integrated sense of self (Wieland, 2015). The child who selectively dissociates aspects of him or herself that are linked to trauma to preserve psychological integrity will progressively lose control as identity disturbances become “more elaborate” (Putnam, 1997). Moreover, repeated compartmentalization often results in “intrusive thinking and flashbacks due to the unprocessed nature of traumatic material” (Putnam, 1997).
Complex trauma and dissociation amongst children in Youth Protection

The majority of children in protective services have a history of experiencing co-occurring forms of maltreatment over a prolonged period of time at the hands of a parental figure (Greeson et al., 2011). Exposure to prolonged relational trauma manifests itself through a multitude of mental health disorders, such as depression and substance use, as well as pathological forms of dissociative behaviour (Briere & Lanktree, 2008). Compared to a community sample, Hulette et al. (2011) found that levels of dissociation were higher amongst a group of children placed in foster care who had been maltreated before 5-years old. They also found a positive correlation between dissociation levels and number of foster placements. A history of complex trauma can thus compromise a child’s developmental pathway and lead to multiple deficits (Briere & Lanktree, 2008), especially in relation to the attachment system (Cook et al., 2005).

The contribution of attachment theory

Attachment theory (Bowlby, 1969, 1973) stipulates that infants and young children possess an innate behavioural system meant to elicit help, care, and comfort from their primary attachment figure with whom they establish an enduring emotional bond. This system becomes activated by a range of experiences that promote varying attachment behaviours in infants and children. The goal of these behaviours (such as smiling to show happiness or crying to communicate distress) is to gain closeness with the attachment figure on whom the infant depends for survival.

An infant’s early attachment experiences will lead to the construction of internal working models (IWMs), which are mental representations of the self and others formed in the context of a caregiving relationship (Bowlby, 1973). These representations, including beliefs and expectations of self and others, allow the infant to better understand and predict his or her environment. As such, IWMs determine the ways in which a child will behave around new people.
and have an impact on how subsequent relationships transpire (Bretherton, 2005). Although IWMs are subject to change based on the quality of interpersonal experiences, they tend to stabilize in the first few years of life and become progressively resistant to change over time (Bowlby, 1979).

Mary Ainsworth and her collaborators (1978) elaborated the “Strange Situation” to systematically study attachment differences in infants. This experimental procedure allows for the assessment and observation of infant patterns of attachment to their caregiver. Researchers observed the reactions of infants during episodes of separation and reunion with their caregiver. The infant’s behaviour during these episodes was thought to accurately reflect his or her IWMs of the caregiving relationship. Observations led to the development of a taxonomy of three attachment types. Such types are thought of as being organized in that they are coherent and consistent across situations (Ainsworth, 1978).

Secure attachment is characterized by a balance between a need for closeness and exploration. Such infants are likely to have caregivers who are responsive and attentive to their needs. Insecure attachment can be considered avoidant or ambivalent. Avoidant attachment reflects the underactivation of the attachment system whereas ambivalent attachment reflects its overactivation. Caregivers with avoidant infants tend to be “insensitive and rejecting” of their infants’ needs and unavailable during times of distress while those with ambivalent infants tend to meet their needs inconsistently (Ainsworth, 1978).

**Disorganized attachment: An early example of dissociation**

Infants who display inconsistent, incoherent, or contradictory attachment strategies toward their caregiver behaviour at both reunion and separation reflect a fourth attachment pattern—disorganized attachment (DA) (Main & Solomon, 1986). Such behaviour includes interrupted (e.g., freezing) or odd (e.g., asymmetrical or jerky) movements and postures. Visible fearfulness
toward the caregiver is another marker of DA in infants (Main & Solomon, 1986). Researchers found that such infants display attachment behaviour that doesn’t fit into Ainsworth’s (1978) classification system of organized types. For example, such infants might crawl toward their caregiver and upon arrival, cover their eyes or turn their head as though being fearful.

DA in infancy has been hypothesized to represent the earliest example of a dissociative mental process because clinical markers of DA are similar to those of pathological dissociation (Main & Morgan, 1996). Both deviate from what is considered optimal functioning and reflect disruptions in consciousness, memory, and perception of the environment (APA, 2000; Liotti, 2011). For example, infants with DA will seem to engage in goal-directed attachment behaviour and then abruptly interrupt the behaviour for a period of time. During the interruption, perceptual alterations may be observed where the child appears to be in a trance-like state. Once the trance state ends, the child may resume the original behaviour as though nothing happened, reflective of disruptions in consciousness and memory (Liotti, 2011; Putnam, 1997).

It is suggested that such behavioural anomalies relate to the child’s perception of the parental figure’s caregiving that is experienced as unpredictable or rapidly shifting. When parents communicate fear and aggression in their caregiving attitude in situations where there is no danger, they yield “fright without solution” in infants (Main & Hesse, 1990). The infant thus internalizes competing views of the parent who represents both a safe haven and a source of danger.

Liotti’s attachment-based model (1999) for understanding the development of dissociative symptoms suggests that children’s response to trauma will be mediated by their attachment pattern. Children with organized attachment will construct coherent representations of reality, whereas those with DA construct multiple representations of the self and of their caregiver. The contradictory behaviour displayed by DA infants mimics disruptions in the “construction and
operation of the normally unitary IWM” reflective of the caregiving relationship (Liotti, 2011). Therefore, DA is conceptualized as the result of the infant developing “disaggregated” IWMs which suggest a dissociative mental process (Liotti, 1999).

**Disorganized attachment and complex trauma as predictors of pathological dissociation**

Early DA is related to a greater likelihood of developing dissociative symptoms when a history of complex trauma in childhood is present (Carlson, 1998). The severity of the symptoms is associated to the severity, chronicity, and timing of the trauma, as well as its source (Macfie et al., 2001; Putnam et al., 1993). When the caregiver is the source of maltreatment inflicted upon the child, dissociative symptoms are more disruptive (Freyd, 2002). Ogawa and colleagues (1997) led a retrospective longitudinal study which assessed children on five occasions between infancy and young adulthood. On the earliest occasion (at age 2), attachment was assessed. Children who had DA in infancy displayed higher levels of dissociation than infants with other attachment types. Moreover, when a history of trauma was also present (defined to include maltreatment, witnessing conjugal violence, prolonged separation from parent, life-threatening hospitalization, and death in the family), dissociation attained clinically significant levels (Ogawa et al., 1997).

Using the same sample as in Ogawa’s (1997) study, Carlson (1998) found that the infants with DA at age 2 were reported to have higher levels of dissociative behaviour on the Teacher Report form of the Child Behaviour Checklist in both elementary and high school (Achenbach & Edelbrock, 1986). Furthermore, this same group self-reported higher levels of dissociation on the Dissociative Experience Scale at age 19 (Carlson & Putnam, 1993). In fact, three adolescents from the original sample whose attachment had been assessed as disorganized in infancy were found to have developed dissociative disorders at the time of Carlson’s study (1998). As such, exposure to complex trauma in childhood and DA in infancy are two risk factors that impede upon the child’s
development and increase the likelihood of developing pathological levels of dissociation in adolescence and adulthood (Carlson, 1998; Ogawa et al., 1997).

The assessment of complex trauma and its sequelae

The assessment of complex trauma and its sequelae amongst children in placement is crucial considering the pathological trajectories associated to them (Collin-Vézina & Milne, 2014; van der Kolk, 2005). However, assessments are rarely carried out in a standardized manner amongst youth in protective services where histories of maltreatment are common (Mash & Hunsley, 2005). Rather, there is greater focus on managing externalized symptoms rather than assessing for the scope of complex trauma-related impairments (Carter, Briggs-Gowan, & Ornstein Davis, 2004; Pynoos & Nader, 1993). Yet, a comprehensive assessment would allow mental health professionals to better target the specific needs of this population and ultimately provide more specific and effective services (Greeson et al., 2011).

Currently, the number of tools to assess for trauma in children and adolescents is increasing. In 2002, Ohan, Myers, and Collett published a review of 15 instruments whereas Strand, Sarmiento, and Pasquale (2005) published an updated review comprising 35 instruments, including the addition of a complex trauma-specific category, reflecting the domain’s growth. Authors highlight the importance of continuing to do research in the area of child trauma assessment to improve the psychometric qualities of available instruments and to make them more accessible for use by mental health professionals (Collin-Vézina & Milne, 2014; Kliethermes, Schacht, & Drewry, 2014; Strand et al., 2005).

Despite this progress, multiple authors note that few tools are available to assess for complex trauma and its sequelae in children as compared to those available for adults. Adult trauma measures are considered inappropriate for use with children due to differences in
development and clinical presentation of symptoms (Collin-Vézina & Milne, 2014; Hawkins & Radcliffe, 2006; Strand et al., 2005). There are very few complex trauma assessment tools for use with very young children aged 7 or younger despite the vulnerability of this age group (Ohan et al., 2002; Strand et al., 2005). Moreover, the majority of available instruments will only assess for an isolated traumatic event rather than multiple traumatic events, therefore failing to capture the range of symptoms that can be seen in children with complex trauma histories (Hawkins & Radcliffe, 2006; Ohan et al., 2002; Strand et al., 2005).

**Clinical issues surrounding the assessment of dissociation**

Mental health professionals are rarely trained to recognize dissociative manifestations in children and tend to interpret these as more common diagnoses. Common misdiagnoses include attention deficit and hyperactivity disorder, somatoform and conversion disorders, externalizing disorders such as oppositional defiance, and mood disorders (Zoroğlu, 1996). As a result, dissociation often goes undetected in children and is instead misdiagnosed due to comorbid symptomatology (Silberg & Dallam, 2009).

Amongst childhood trauma measures, the majority will assess for dissociation as a symptom of post-traumatic stress disorder. However, researchers state that this diagnosis fails to capture the spectrum of symptoms that children with complex trauma histories exhibit and is therefore inappropriate (Courtois, 2004; D’Andrea et al., 2012). Although such measures allow for a screening of dissociative symptoms, they are less comprehensive and sensitive toward detecting the full range of dissociative phenomena.

Very few standardized instruments specifically assess for the full range of dissociative phenomena in children 12 and under. Upon examining the reviews of Ohan et al. (2002) and Strand et al. (2005), as well as both the European (Potgieter-Marks, Sabau, & Struik, 2015) and
International (2004) Societies for the Study of Trauma and Dissociation’s guidelines for the assessment of dissociative symptoms in children and adolescents, four child-friendly instruments are most often mentioned (see Table 1). These tools mostly have good psychometric properties; however, they are not all easily accessible. Moreover, they are to be interpreted with a degree of caution due to limitations pertaining to their type (observer, self, or clinician-report) when assessing maltreated children.

A limitation of observer-report measures when assessing maltreated children is that parents/caretakers are not the most reliable sources of information. Given that they are often linked to the maltreatment, their reports can be distorted or biased and must be considered with caution. One solution would be to consult with the child’s teacher who could represent a more reliable source of information. However, children of low-socioeconomic status (SES) often don’t have a teacher who can be consulted meaningfully (Macfie et al., 2001).

Similarly, self-report measures present some constraints when used to assess for dissociation in maltreated children. Children with histories of complex trauma might fail to report dissociative behaviour because it is normative to them or outside of their awareness. They may also choose to withhold such information due to fear of the implications of their report (Macfie et al., 2001; Nader 2008).

In relation to clinician-report measures, Pynoos, Steinberg, and Aronson (1997) observed that maltreated children often leave out emotional content when reporting trauma narratives because they are less effective at regulating their emotions as compared to adults. As such, they are more likely to inhibit their emotional response to cope with unpleasant emotions. Children are also more likely to endorse symptoms due to priming as compared to adults who tend to be less suggestible. Using a structured approach to assess for dissociation in children might therefore
influence the validity of their responses. As such, a semi-structured approach is preferable because “there is no preconception about how dissociation should present or what should be reported” which allows traumatic material to unfold naturally (Kenardy et al., 2007).

**A rationale for the narrative assessment of dissociation in maltreated children**

Narrative measures are semi-structured instruments that are commonly used to assess the attachment representations of children. In this type of measure, a clinician will present the child with the beginning of a pre-determined selection of stories (or story stems) which the child will be asked to complete verbally and by using toys. The most commonly used narrative measure is the MacArthur Story Stem Battery (MSSB) whose story stems are meant to evoke themes related to family relationships, threat, separation, and reunion (Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990). More specifically, the purpose of these stems is to activate the child’s IWMs and gain access into his or her inner world, including thoughts and feelings related to the self and to the caregiving relationship (Bretherton et al., 1990).

Several story stem coding systems exist (Bretherton et al., 1990; Hodges, Steele, Hillman, & Henderson, 2003); however, they are often reproached for being lengthy to administer and complex to score (Reiner & Splaun, 2008). The Attachment-Focused Coding System for Story Stems (AFCS; Reiner & Splaun, 2008) provides a valid and brief measure of children’s attachment representations and requires a brief training to administer, score and interpret as compared to other systems. The AFCS focuses on the four MSSB stories that are most likely to activate the child’s attachment system. These stories are then scored on a scale of 1 (*absence*) to 5 (*strong presence*) in relation to four parent-focused codes (*supportive or rejecting mother and father*) and five focused on the child (*attachment avoidance of mother and father, emotional dysregulation, avoidance of negative feelings/themes, and resolution of feelings/themes*). The AFCS provides
descriptive information that is meant to be interpreted in an integrative manner which is complementary to other sources of data.

Sam, a 6-year old boy who was neglected by his mother, was asked to complete the MSSB story stem “Spilled Juice” in which a child figurine is seated at the kitchen table with his or her parents. The child then accidentally spills juice and is asked to show or tell the examiner what happens next. Sam appears to daydream while holding onto the figurines and says nothing. To prompt his attention, the examiner asks Sam what happens after the juice spills. He then throws the mother figurine down while the child figurine cleans up the spill without saying a word.

A clinician applying the AFCS to this stem might interpret Sam’s response as being symbolic of a rejecting mother with whom avoidant attachment behaviour is displayed, emotional dysregulation, and an indicator of parentified behaviour due to a history of neglect. The content of this story stem, despite being non-verbal, could then be used to guide case conceptualization (e.g., the impact of Sam’s trauma history on his current functioning, how he might cope with negative feelings) and inform treatment-planning: such as formulating therapeutic objectives (e.g., to help Sam express his feelings in a more adaptive way) and selecting a therapeutic framework adapted to Sam’s needs.

Story stems can be used in a standardized manner that allows for comparison between clinical and non-clinical populations, which is relevant when assessing for trauma-related impairments amongst maltreated children. They also provide diagnostic information efficiently and effectively which is suited for use in managed care settings such as youth protection (Beresford, Robinson, Holmberg, & Ross, 2007). Given that levels of dissociation are higher
amongst children in these settings, story stems represent a convenient resource for clinicians. Macfie et al’s (2001) study described earlier successfully used part of the MSSB to assess maltreated children’s experience of dissociation.

Narrative measures provide insight into children’s trauma narratives and the way in which they experience and process traumatic life events (Kenardy et al., 2007). Their validity has been well demonstrated in the literature amongst maltreated children (Hodges et al., 2003; Holmberg, Robinson, Corbitt-Price, & Wiener, 2007; Venet, Bureau, Gosselin, & Capuano, 2007). Story stem methods have successfully distinguished amongst maltreated and non-maltreated preschool-aged children of low-SES in relation to positive and negative representations of parents (Toth, Cicchetti, Macfie, & Emde, 1997), and to representations of parental response to distress (Macfie et al., 1999). In another study, maltreated children’s narrative representations also provided behavioural information where conflictual themes were strongly correlated with externalizing/internalizing behaviour compared to non-maltreated children (Toth, Cicchetti, Macfie, Rogosch, & Maughan, 2000).

Moreover, story stems allow mental health professionals to observe behaviours described to them by parents/caretakers and teachers from the child’s perspective (Beresford et al., 2007). Children’s responses to story stems “accurately mirror relationship organization” and have successfully been used to assess attachment patterns in samples of middle-SES preschoolers (Bretherton, Ridgeway, & Cassidy, 1990). Amongst this population, children’s attachment representations accurately reflected their parent’s experience. Such a semi-structured approach can elicit information that mirrors the experience of those closest to the child by providing an accurate portrayal of the child’s perception of his or her relationships (Beresford et al., 2007).
Furthermore, narrative measures allow children to express their understanding of external reality using both verbal and non-verbal communication (Hudd, 2005). Pathological forms of dissociation manifest themselves through the child’s discourse and behaviour; as such, assessing for subtle shifts in body language and non-verbal behaviour yields valuable information. Also, children with histories of chronic maltreatment might demonstrate fear toward a parental figure without directly naming this experience. Story stems thus provide an indirect window to the child’s traumatic experience without the child feeling pressured to disclose. Story stems may therefore encourage child collaboration during initial assessments with a professional, as well as decrease their anxiety (Buchsbaum, Toth, Clyman, Cicchetti, & Emde 1992). This team of researchers also observed that young children tend to enjoy the playful and usually non-threatening nature of narrative tasks, which makes them further suited to assess children with trauma histories seeing how they are not considered harmful to the child.

Concluding remarks

There is a strong rationale for using an attachment-based instrument like the MSSB to assess for dissociative phenomena in chronically maltreated children given that the perpetrator is often the attachment figure. Story stems represent a developmentally sensitive approach toward assessing for a range of symptoms in settings where trauma histories are common. The themes evoked by the stems are meant to activate the attachment system which provides information related to the child’s ability to cope with and resolve problem situations. Children with histories of chronic maltreatment are more likely to become disorganized during more evocative story stems and display more pathological forms of dissociation as a means for coping with stress. In addition, story stems are accessible and easy to administer which is invaluable when time and resources are limited, as in youth protection. Their semi-structured form allows for traumatic material to emerge
organically without imposing a pre-determined structure of what should appear, which makes them further appropriate in assessing for a range of dissociative manifestations.

While the current paper lacks empirical data, an avenue for future clinical inquiry would be to verify whether story stems discriminate between maltreated versus non-maltreated children or differentiate between normative versus pathological dissociative symptoms. Such information would improve diagnostic accuracy when working with children with trauma histories which would allow clinicians to properly orient youth to more appropriate services or treatment to deter them from more maladaptive outcomes. Finally, the content of the child’s story stems would represent an entry point from which clinicians could access the child, and subsequently be used to guide case conceptualization and therapeutic work.
Table 1

Overview of measures of childhood dissociation and their potential limitations by type

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Name</th>
<th>Author &amp; Year</th>
<th>Age range</th>
<th>Length of administration</th>
<th>Psychometric Properties</th>
<th>Potential limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent/Caregiver report</td>
<td>Child Dissociative Checklist (CDC)</td>
<td>Putnam, Helmers, &amp; Trickett, 1993</td>
<td>5-12</td>
<td>5 minutes</td>
<td>Good internal/test-retest reliability &amp; construct validity</td>
<td>Inaccuracy of parent’s report</td>
</tr>
<tr>
<td>Clinician report</td>
<td>Dissociative Features Profile (DFP)</td>
<td>Silberg, 1996</td>
<td>5-17</td>
<td>n/a</td>
<td>Still under development</td>
<td>Omission of emotional content related to trauma; child suggestibility</td>
</tr>
<tr>
<td>Self-report</td>
<td>Child Dissociative Experience Scale &amp; Posttraumatic Symptom Inventory (CDES/PTSI)</td>
<td>Stolbach, 1997</td>
<td>6-12</td>
<td>30 minutes</td>
<td>Good internal reliability &amp; predictive validity</td>
<td>Failure to report symptoms; withholding information due to fear</td>
</tr>
<tr>
<td></td>
<td>Children’s Perceptual Alterations Scale (CPAS)</td>
<td>Evers-Szostak, &amp; Sanders, 2002</td>
<td>8-12</td>
<td>10-15 minutes</td>
<td>Good internal reliability</td>
<td></td>
</tr>
</tbody>
</table>
References


Main, M., & Hesse, E. (1990) Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161-182). Chicago, IL: Chicago University Press.


Introduction to the second article
The first theoretical paper focuses on child dissociation literature, providing a definition of dissociation and highlighting associated behaviours and processes which range from normative to pathological. Dissociation is also discussed within a developmental framework as representing both an adaptive and maladaptive mechanism that children may use to cope with traumatic experiences (Putnam, 1997). Children who are repeatedly maltreated by their caregivers are said to have experienced complex trauma, of which dissociation is a resulting symptom (Courtois, 2004; Herman, 1992). Attachment theory (Bowlby 1969, 1973) is then introduced as a history of complex trauma in childhood tends to represent a precursor to the development of a disorganized attachment style, characterized by atypical or contradictory behavioural strategies toward the caregiver (Main & Solomon, 1986). Together, chronic maltreatment and disorganized attachment in children predict the development of pathological dissociation in children. Moreover, it was hypothesized that disorganized attachment may reflect a dissociative mental process because clinical markers for both are so similar (Carlson, 1998; Liotti, 1992). For instance, the freezing behaviour (i.e., staring into space for a length of time) associated to disorganized attachment may indicate underlying perceptual abnormalities which are associated to dissociation (Liotti, 2011; Main & Morgan, 1996).

Dissociation can negatively impact a child’s functioning and development; therefore, assessing for symptoms appears crucial. However, settings in which children are more likely to experience trauma-related symptoms (e.g., youth protection) tend to focus more on managing externalized difficulties rather than conducting thorough trauma assessments (Diseth, 2005; Mash & Hunsley, 2005). In addition, the few child dissociation measures available tend to produce
biased or unreliable results (Waters, 2005). They may also provoke anxiety in children who feel pressured to disclose symptoms (Macfie et al., 2001; Nader, 2008). Using a semi-structured measure is most often recommended to assess for trauma-related symptoms in maltreated children so as to not impose report of symptoms on children (Pynoos, Steinberg, & Aronson, 1997).

It has been shown that narrative story stem tasks such as the MacArthur Story Stem Battery (MSSB) represent an ideal framework for assessing for dissociation amongst maltreated children. They are developmentally appropriate, typically non-threatening, and allow for clinical material to unfold organically (Kenardy et al., 2007). Children tend to enjoy completing story stems as they are playful, which increases the likelihood for collaboration (Buchsbaum, Toth, Clyman, Cicchetti, & Emde, 1992). Story stems can be used in a standardized manner which permits comparison amongst clinical and non-clinical populations and allow clinicians to observe behaviours described to them by other sources (e.g., a parent or teacher) from the child’s perspective (Beresford, Robinson, Holmberg, & Ross, 2007). Story stems allow children to use both verbal and non-verbal means of communication, and they also provide a snapshot of their experiences and related thoughts and feelings without the child feeling forced to disclose (Hudd, 2005).

The Child Dissociation Assessment System (CDAS; Plokar & Bisaillon, 2017), which includes the Child Dissociation Code (CDC) and Child Dissociation Tool (CDT), was developed for use with a narrative story stem task given the benefits associated to these. The second study, which represents the first empirical study of the CDAS, details the development process of this novel system as it applies to the four MSSB stories selected for use by the AFCS. The authors sought to establish adequate inter-rater reliability amongst two raters scoring the CDC and CDT for the first time as applied to the MSSB, and to verify whether the CDC, a screening measure,
discriminates between children from a clinical and non-clinical sample. The CDT was applied to children who received elevated scores on the CDC to gain more information about what areas of their functioning are affected by their dissociative symptoms.

The results of the study indicate that both the CDC and CDT possess adequate to excellent inter-rater reliability amongst two raters scoring both measures for the first time. In addition, the clinical group of children in the study obtained significantly higher average CDC scores than did those in the non-clinical group. The CDT was applied to six children who obtained elevated CDC scores. Of these, all were part of the clinical group whereas no significant indicators of dissociation were observed amongst children in the non-clinical group. Excerpts of responses provided by children whose four MSSB stories were coded using the CDC are provided (see Appendix G). Furthering research using the CDAS appears indicated given the preliminary study’s promising results and implications for clinical practice. Future studies would allow for an opportunity to remedy limitations associated to the current study; more specifically, a limited sample size and addressing questions surrounding the system’s validity.
Second article
Development of the Child Dissociation Assessment System using
a narrative story stem task: A preliminary study

Amanda Plokar, Claud Bisaillon, and Miguel M. Terradas
Abstract

Introduction Chronic maltreatment and disorganized attachment in children predict the development of dissociation which can negatively impact functioning. Few measures of child dissociation currently exist and amongst these, limitations exist when they are applied to populations of maltreated children. Objective This paper details the development of the Child Dissociation Assessment System (CDAS), consisting of the Child Dissociation Code (CDC) and Child Dissociation Tool (CDT). The CDC allows clinicians to screen for dissociative symptoms while the CDT examines how these symptoms impact different domains of functioning. Method Both measures score verbal and non-verbal material which emerges during the MacArthur Story Stem Battery (MSSB), a child-friendly narrative story stem task whose non-threatening nature is suited for use with maltreated children. Using the CDAS, the MSSB protocols of 20 children between 6 and 12 years old (10 from a clinical sample and 10 from a non-clinical sample) were scored. Results The CDAS possesses adequate to excellent inter-rater reliability, and the CDC discriminates between maltreated and non-maltreated children. Conclusion The CDAS may be of interest for researchers and clinicians working with populations of maltreated children. Preliminary findings are promising and a larger-scale validation would be indicated.

Keywords: Dissociation; Narrative; Children; Trauma; Assessment
1. Youth in child welfare: Complex trauma histories

Children whose situations are investigated by child welfare services are most often signalled due to maltreatment. Maltreatment includes physical, sexual, and psychological abuse, negligence and abandonment, as well as witnessing conjugal violence (Courtois, 2004). Studies demonstrate that these children are more frequently exposed to multiple traumatic events and multiple forms of maltreatment (Brady & Carraway, 2002; Collin-Vézina, Coleman, Milne, Sell, & Daigneault, 2011; Collin-Vézina & Milne, 2014). Generally, these children experience more mental health problems compared to those in the general population (Kerker & Dore 2006; Tarren-Sweeney, 2008), including internalizing, externalizing, and posttraumatic stress symptoms (Greeson et al., 2011). In addition, there is a positive correlation between the number of trauma-related symptoms and number of traumatic events experienced by the youth (Griffin et al., 2009).

Interpersonal forms of trauma have been found to have a more profound impact on child security and development compared to other forms of trauma (Herman, 1992; Terr, 2008). Herman (1992) introduced the notion of complex trauma to describe relational forms of trauma. Complex trauma refers to chronic or prolonged experiences of maltreatment that are often cumulated in childhood and occur in the context of a caregiving relationship. This concept also refers to the pervasive impact that such trauma exposure can have on the child’s functioning and development relative to attachment, neurobiology, affect regulation, behavioural control, cognition, self-concept, and dissociation (Cook et al., 2005).

1.1 Child dissociation: Definitions and development

Dissociation refers to a continuum of behaviours and processes which range from normative to pathological where degree, context, and impact distinguish the former from the latter. Dissociation can reflect disruptions in several areas including consciousness (e.g., difficulties with concentration), memory (e.g., amnesia), identity (e.g., having a vivid imaginary playmate), emotion (e.g., extreme emotional shifts), and perception (e.g., trance-like states).
Putnam (1997) considers that child developmental processes such as having imaginary playmates and daydreaming reflect normative dissociation and are experienced by most children. Therefore, not all instances of dissociation in children should be considered pathological. Pathological forms of dissociation interfere with the child’s ability to integrate experience into something meaningful and coherent resulting in fragmentation of self (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). As such, while dissociation initially represents an adaptive mechanism whose goal is to protect the self, this mechanism can also become maladaptive.

Because children cannot meaningfully escape from a traumatic situation such as being abused by a parent, they may seek to create an emotional barrier or distance between themselves and the situation. In other words, children will use dissociation as an adaptive defense mechanism to self-soothe and protect themselves from the distress caused by the uncontrollable or unpredictable situation. When children rely on dissociation to self-soothe or dissociate in contexts that extend beyond the original trauma, it can become maladaptive and is reflective of an impaired capacity to express and regulate their emotional experience (Cook et al., 2005; Wieland, 2015).

More pathological or maladaptive forms of dissociation are associated to complex trauma in childhood (Briere & Lanktree, 2008). Hulette, Freyd, and Fisher (2011) compared levels of dissociation in 118 children (67 maltreated children placed in foster care and 51 non-maltreated children from the community). Compared to the community sample, the authors found that levels of dissociation were higher amongst the group of maltreated children placed in foster care. They also found a positive correlation between dissociation levels and number of foster placements. That being said, this study only used caregiver reports to measure dissociation rather than administering a developmentally appropriate measure to the child directly. In an earlier study, Hulette et al. (2008) observed that maltreated children who
experienced multiple forms of maltreatment (e.g., neglect, physical and sexual abuse) displayed significantly higher levels of dissociation compared to children who experienced only one form of maltreatment (e.g., physical or sexual abuse or neglect alone). Finally, Macfie, Cicchetti and Toth (2001) led a longitudinal study to compare levels of dissociation between 45 maltreated preschoolers recruited from a center serving disadvantaged families and 33 non-maltreated preschoolers. They used a child-friendly narrative measure to assess symptoms instead of relying on caregiver report. Within the maltreated group, 64% had experienced multiple forms of maltreatment including neglect, sexual, and physical abuse. At baseline, maltreated preschoolers were found to experience more dissociation compared to non-maltreated preschoolers. An increase in symptomology was observed at the 1-year mark amongst maltreated children whereas no difference was observed amongst non-maltreated children. Maltreated children who display dissociative symptoms are also more vulnerable to revictimization (DʼAndrea, Stolbach, Ford, Spinazzola, & van der Kolk, 2012), exposure to additional trauma (Cook et al., 2005), and tend to display poor academic functioning (Perzow et al., 2013). Although a history of chronic maltreatment can predict the development of dissociative symptoms in children, not all maltreated children develop such symptoms (Courtois, 2004; Greeson et al., 2011; Herman, 1992). Another such predictor associated to dissociation relates to the childʼs attachment type, and whether it is considered organized or disorganized.

1.2 Predictors of dissociation

Attachment theory (Bowlby 1969, 1973) posits that infants possess an innate behavioural drive toward eliciting help and support from their primary attachment figure. This figure represents a secure base for infantʼs exploration of their environment, as well as a safe haven to turn to when the infant is in distress. The attachment system is triggered by a range of experiences that promote attachment behaviours in infants and children. The purpose of these
behaviours is for infants to communicate their needs (e.g., smiling to show happiness, crying to signal pain or hunger) and gain closeness to the attachment figure on whom the infant depends for survival.

The development of internal working models (IWM), or mental representations of self and others, are based on memories of early attachment experiences. As such, children’s IWMs will reflect their memories of the attachment figure’s availability or unavailability to respond to their distress signals and their needs for comfort and affection. These representations also mirror the infant’s beliefs concerning what strategies to use to gain closeness to the attachment figure (Bowlby, 1973).

Infants who display incoherent or disoriented behaviour toward their caregiver or contradictory attachment strategies during episodes of separation-reunion from a parental figure reflect a disorganized attachment pattern (Main & Solomon, 1986). Such infants display incompatible intentions in their behaviour such as crawling toward their parent and suddenly freezing in their tracks or approaching their parent while turning away their face. The majority of children served by protective services are victims of caregiver-related maltreatment, which constitutes an important risk factor for developing a disorganized attachment (DA) (Madigan et al., 2006).

Liotti (1999, 2000) suggests that DA infants form IWMs that presume negative outcomes related to seeking help from their caregivers who were experienced as inconsistent or unpredictable in response to their distress signals, as well as when looking for comfort. As a result, they develop multiple incompatible views of the self (e.g., confusion surrounding identity, whether they are worthy of care and affection) and of the attachment figure whom represents both a source of safety and threat (Liotti 2011; Main & Hesse, 1990). Main and Morgan (1996) suggest that the bizarre attachment behaviours displayed by DA infants are thought to reflect their disaggregated IWMs (Liotti, 1999) which are indicative of dissociative
mental processes (e.g., perceptual abnormalities such as freezing, identity-related issues). Additionally, exposure to future trauma is likely to reactivate the DA infant’s non-unitary IWMs which increases his or her propensity toward dissociation for coping (Liotti, 1999).

Prospective longitudinal studies suggest that DA in infancy accompanied by maltreatment experiences set the pathway for dissociation throughout the life course (Carlson, 1998; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006; Ogawa et al., 1997). Ogawa and colleagues (1997) carried out a prospective longitudinal study amongst 168 at-risk children from birth until age 19 to assess for dissociation across developmental periods. They found that severity, chronicity, and age of onset of trauma were strong predictors of dissociation in young adulthood, as was disorganized attachment in infancy. However, this study used behavioural questionnaires to assess for dissociative symptoms in childhood and adolescence which were not explicitly meant to assess for dissociation.

2. The assessment of dissociation in maltreated children

In light of the maladaptive precursors and outcomes associated to pathological forms of dissociation, assessing for these symptoms is paramount. The clinical manifestations of dissociation in children will often differ from those of adolescents and adults due to developmental differences (Nader, 2011). Children are more likely to use play to communicate whereas adolescents and adults tend to use speech (Silberg, 2013). Developmental tasks in childhood (e.g., discovery of self and the world for the first time) will differ from those of adolescents (e.g., puberty) and adults (e.g., professional development) as well. Furthermore, there is often a discrepancy between chronological and functional age amongst children with complex trauma histories due to a multiplicity of sequelae (Becker-Weidman, 2009; Nader, 2008). Adapting the assessment process to the child’s functional rather than chronological age is recommended, as is taking into account the normative playful behaviour that most children display.
Although children served by the child welfare system are more likely to display pathological dissociative symptoms due to complex trauma exposure, assessments are rarely carried out in a standardized manner in such settings (Mash & Hunsley, 2005). Rather, there is an increased focus on behavioural difficulties instead of assessing for the spectrum of complex trauma impairments often seen in maltreated children (Diseth, 2005; Pynoos & Nader, 1993). While professionals seek to gather information about the child’s past trauma exposure, some forms of trauma may go unreported which suggests that trauma histories may be inaccurate or incomplete (Waters, 2005). As such, if a child exhibits symptoms related to an unreported trauma, professionals might have difficulty making sense of his or her clinical manifestations due to a lack of understanding where this symptom originates. Moreover, conducting comprehensive assessments can be difficult in the welfare system due to a scarcity of resources.

In addition, mental health professionals rarely receive training to detect for dissociative manifestations in children; as such, these often go unnoticed, misunderstood, or associated to more common diagnoses including attention-deficit/hyperactivity disorder, somatoform and conversion disorders, or externalizing and internalizing disorders (Diseth, 2005; Zoroğlu, Yargic, Tutkun, Ozturk, & Sar, 1996). Professionals may even bypass dissociative symptoms due to their own discomfort diagnosing these given their apparent rarity (Reycraft, 2013). Children therefore do not receive treatment or intervention services which are adapted to their specific needs.

Children with complex trauma histories may also exhibit cognitive or language delays which make it even more difficult to understand the significance of their behaviours (Beeghly & Cicchetti, 1994; Yehuda et al., 2005). These children may have puzzling clinical presentations that are more easily labelled as autism spectrum disorder rather than dissociation related to a history of maltreatment. Assessing for dissociative symptoms in maltreated children
is crucial for early identification of symptoms, allowing for a better-informed course of treatment by selecting more appropriate interventions (Waters, 2005).

2.1 Overview of child dissociation measures and associated limitations

Only over the last 25 years have researchers begun to develop assessment tools to detect dissociative symptoms in children. Conclusive figures pertaining to the prevalence of dissociative symptoms amongst children are not yet available. Amongst maltreated children, prevalence rates have varied from 19 % to 73 % (Putnam, Helmers, & Trickett, 1993; Waterbury, 1991); however, it is difficult to reliably estimate the proportion of children who manifest dissociative symptoms due to a lack of standardized measures (Silberg, 2000).

The number of tools available for use with children 12 and under pales in comparison to that which is available for use with adolescents and adults (Ohan, Myers, & Collett, 2002; Strand, Sarmiento, & Pasquale, 2005). More often, adult versions of measures are adapted for use with adolescents while child versions are seldom developed. What’s more, disorders typically deemed as adult disorders are often reported to have had their onsets during childhood and adolescence, highlighting the importance of detecting symptoms early and preventing them from evolving into a full blown disorder (Angold & Egger, 2007; Putnam et al., 1993).

The following dissociation measures are most commonly recommended to assess children who are 12 and younger (Ohan et al., 2002; Potgieter-Marks, Sabau, & Struiik, 2015; Silberg, 2004; Strand et al., 2005). The Child Dissociative Checklist (CDC; Putnam et al., 1993), an observer report measure, has strong psychometric properties and is brief to administer. However, the usefulness of such measures depends on who is completing them. In the case of a maltreated child whose abusive parent is consulted, responses can be unreliable or biased (Waters, 2005). The Child Dissociative Experience Scale & Posttraumatic Symptom Inventory (CDES/PTSI; Stolbach, 1997) and Children’s Perceptual Alterations Scale (CPAS; Evers-Szostak & Sanders, 1992), are self-report measures which require the child select
amongst a variety of statements describing dissociative experiences. Some children may fail to report their symptoms because their behaviour is normal to them and outside the scope of their awareness; as such, they would not recognize or relate to items describing dissociative phenomena (Kluft, 1985). Maltreated children might also be fearful of reporting certain symptoms due to the implications of making certain statements, particularly when the perpetrator of abuse is still involved (Macfie et al., 2001; Nader, 2008; Waters, 2005). Structured clinical interviews to diagnose symptoms of dissociation in children do not currently exist. Because children tend to be more suggestible, they might provide responses to please the clinician if asked directly about a symptom (Pynoos, Steinberg, & Aronson, 1997). Furthermore, direct questions pertaining to trauma might also trigger children who will inhibit their emotional response to cope with unpleasant emotions resulting in erroneous information gathering (Pynoos et al., 1997). Overall, it seems that the limitations associated to these measures makes them less suited to assess for dissociation in a population of maltreated or traumatized children served by child welfare. Measures that assess children’s attachment representations, such as the Child Attachment Interview (CAI; Target, Fonagy, Smueli-Goetz, Datta, & Schneider, 1998), might be worthwhile given the common theoretical underpinnings between DA and dissociation. Nevertheless, this measure requires extensive training and relies on the child’s verbal capacities as verbatim transcripts are used for scoring, despite children tending to use other modalities to express themselves, such as play.

2.2 The value of narrative story stems to assess for child dissociation

Narrative story stem measures appear to be of value to assess for dissociation in vulnerable children as they counteract certain limitations associated to other types of measures. They are playful in nature which makes them friendly for use with children who tend to rely more on play than speech to communicate thoughts, feelings or experience (Buchsbaum, Toth, Clyman, Cicchetti, & Emde, 1992; Silberg, 2013). Narrative measures are developmentally
appropriate and non-threatening which is suited to assess traumatized children whose functional age may differ from their chronological age (Nader, 2008), or those who might be reluctant to participate due to fear of being asked trauma-related questions (Becker-Weidman, 2009; Nader, 2011). Narrative measures also do not impose report of a specific experience or symptom on the child which differs from measures which are based on selecting pre-determined responses or direct questioning (Kenardy et al., 2007). Children feel less anxious during narrative tasks because they can indirectly represent difficult situations without feeling pressured to disclose or justify the origin of what they choose to enact. Moreover, they may do so in a way that is most comfortable for them which allows children to feel more in control or secure (Buchsbaum et al., 1992). Narrative measures also involve an interactive component with the examiner which would be of value given the interpersonal nature of complex trauma. Trauma-related sequels are likely to influence the child’s relationship with the examiner during the story stem task as some collaboration is involved (Clyman, 2003).

An attachment-based measure such as the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990) represents a suited task to assess for dissociation in maltreated children as it encompasses all of these elements. The MSSB is a semi-structured narrative task comprised of 14 incomplete story stems that evoke relational themes such as conflict, separation or reunion. As such, traumatic material is more likely to manifest organically because there is no preconception about how dissociation should present (Kenardy et al. 2007). To administer, the assessor arranges figurines of children and adults, as well as furniture, in a pre-determined way (e.g., a family seated around a kitchen table). He or she then starts off the story and asks the child to show and/or tell what happens next using prompts to clarify what the child is saying or showing. This double-solicitation (“Show me and tell me what happens”) facilitates the symbolic expression of the child’s internal world through both verbal and non-verbal means, which allows the examiner to
observe dissociative manifestations in either modality (Hudd, 2005). Each story stem involves a dilemma which children must address and resolve, thereby eliciting their representations of self and others, including relationships with their caregivers.

Children’s stories provide a snapshot of their IWMs, which may be incoherent such as in the case of children with DA who may have conflicting or competing views of self (Bretherton, Ridgeway, & Cassidy, 1990). Moreover, DA behavior can be indicative of dissociative processes as both have a similar clinical presentation (Main & Morgan, 1996). Also, DA predicts the development of subsequent dissociation; as such, an attachment-based measure seems especially suited to look for dissociation in maltreated children who are more likely to have this attachment style. Similarly, dissociation is more commonly observed in the context of an interaction during which the attachment system is placed under stress (Carlson, 1998; Lyons-Ruth et al., 2006; Ogawa et al., 1997). In an attempt to self-soothe, children might use dissociation to cope with unpleasant emotions evoked by the story stem. Furthermore, the content or themes of the story stems are fairly universal (e.g., such as needing help after getting hurt) which makes them relatable for children who are better able to imagine themselves experiencing these situations in relation to their own experiences with family (Splaun, 2012).

Many authors have adapted the MSSB task and developed various coding systems to score and interpret the information obtained through the MSSB. Although some coding systems involve complex scoring procedures (e.g., Bretherton et al., 1990; Hodges et al., 2003), the Attachment-Focused Coding System for Story Stems (AFCS; Reiner & Splaun, 2008) is a brief and valid method used to assess the quality of the child’s attachment representations. The system’s nine codes capture several complex trauma sequelae related to attachment, affect regulation, behaviour, cognition, and self-concept, making it especially suited for use in child welfare settings where resources such as time are scarce and complex trauma histories and related symptoms rampant. That being said, dissociation is not explicitly considered by this
system; nor is it referenced as the origin of a child’s verbal or non-verbal response during the story stem task. It would therefore be useful to develop a dissociation code to add to the AFCS thereby providing a screening for such symptoms. This additional code would render the AFCS more holistic in relation to the assessment of complex trauma impairment amongst maltreated children.

3. Objective

This study’s first objective is to develop a novel child dissociation assessment system. This system is comprised of two complementary measures, one which screens for dissociative symptoms in children while the other examines how these symptoms impact different domains of functioning. This system assesses material which emerges during a developmentally appropriate narrative story stem task. The playful nature of the task provides access to children’s verbal and non-verbal dissociative manifestations. The study’s second objective is to establish adequate inter-rater reliability between two independent raters scoring the dissociation measures for the first time. The third objective is to verify whether the screening measure discriminates between children from a clinical and non-clinical sample, while also taking the small sample size into account. We expect that children in the clinical sample will obtain, on average, higher dissociation scores compared to those in the non-clinical sample.

4. Method

4.1 Participants

Participants were 20 children (13 boys) aged between 6 and 12 years old ($M = 9.6, S.D. = 1.51$) whose MSSB protocols were gathered in two previous studies. These protocols were used to score the novel child dissociation measures. The clinical group consisted of 10 children (7 boys, $M = 9.6, S.D. = 1.76$) placed in the child welfare system in Quebec and living in an out-of-home residential setting. These children have extensive histories of maltreatment (i.e., physical, psychological or sexual abuse, neglect, or at serious risk for neglect) or display severe
behavioural issues. The non-clinical group consisted of 10 children (6 boys, $M = 9.6, S.D. = 1.34$) who served as a comparison group. Participant protocols from both groups were selected randomly amongst those for whom consent was obtained for participation in the current study. Children with autism, significant cognitive impairment or language delays were excluded from the previous studies due to the nature of their difficulties (e.g., interpersonal, verbal) and how these might bias their results completing an interactive task like the MSSB.

### 4.2 Procedure

The development of the Child Dissociation Assessment System’s (CDAS; Plokar & Bisaillon, 2017) two complementary measures were elaborated following a thorough review of child dissociation literature (Cook et al., 2005; Kenardy et al., 2007; Kluft, 1985; Putnam, 1997; Waters, 2005; Wieland, 2015), as well as the latter’s relationship to complex trauma and disorganized attachment (Cook et al., 2005; Hulette et al., 2008, 2011; Liotti, 1999, 2000, 2011; Macfie et al., 2001; Main & Morgan, 1996; Main & Solomon, 1986; Ogawa et al., 1997). Dissociation items included in already-published assessment tools possessing good psychometric properties were also investigated (Evers-Szostak & Sanders, 1992; Putnam et al., 1993; Stolbach, 1997; Target et al., 1998).

Following the literature review, dissociation criteria were identified by the authors during weekly clinical discussions related to observations made during the initial coding process using test protocols. This process is detailed in the next section. Final versions of the criteria were selected through a discussion and revision process to ensure that they captured a range of dissociative phenomena through as few criteria as possible. Once criteria were finalized, they were submitted for consultation to a clinical psychologist with significant expertise in the area of childhood trauma and dissociation. The feedback of this expert was integrated into the final versions of the two measures.
After obtaining approval by the Université de Sherbrooke Research Ethics Committee, as well as by that of the Centre jeunesse de Montréal – Institut universitaire, parents or legal tutors of children whose MSSB protocols were audio and video recorded during two previous studies and who agreed to be communicated with to participate in future studies were contacted by telephone to discuss the current study in greater detail. For the non-clinical sample, consent forms were sent and collected electronically to parents of children who accepted that the authors make a secondary use of data gathered in the previous study to be used toward the current article’s objectives. For the clinical sample, consent was obtained verbally from parents or legal tutors of children over the telephone. Information about the study was sent to them electronically or by mail.

While both groups of children were assessed in environments with a similar appearance (e.g., a quiet office-type space), coders were aware of their sample of origin as participant data was gathered during prior studies.

Coders alternated between collectively and independently coding eight MSSB test protocols (four from each sample) to ensure a common understanding of the dissociation measure’s criteria. Scores were discussed and adjusted in the event of disagreement until reaching a finalized version of the measure. Then, each coder independently scored four protocols (with an even number from the maltreated and non-maltreated sample each time) on three separate occasions for a total of twelve. Disagreements amongst coders during each coding session were resolved through clinical discussions until consensus was achieved. During the preliminary stages of coding, a satisfying interrater agreement was obtained with an intraclass correlation coefficient (ICC) of at least 0.75 (Tabachnick & Fidell, 2012). In the final stages of coding, interrater agreement was found to be excellent, or consistently above 0.75. Although the dissociation measure was applied to 20 MSSB audiovisual recordings by the two
coders, sixty percent (twelve protocols) of the total sample was conserved for independent coding. Therefore, the test protocols were excluded from this part of the process.

During the coding process, the two raters observed that children who obtained elevated scores on the dissociation measure varied in terms of their clinical presentation (i.e., symptoms appeared related to different areas of functioning, or processes, ranging from memory to attention) and that their clinical manifestations were subtle and fluctuated within and between story stems. It was also noted that informal moments between story stems provided additional clinical material (i.e., related to the interaction between child and examiner).

As such, a second measure was elaborated to be used in complement to the first with high-scoring children to better specify the nature of their impairments and more adequately capture the subtlety of their manifestations. The criteria selected for the second measure include a more elaborate version of those present in the first, as well as impairments listed in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM–5; APA, 2013) relative to dissociative disorders. The authors observed that these areas, or domains, tended to be most commonly affected during the story stem task.

Using the second measure, coders collectively scored four MSSB protocols at a time (two from each sample for a total of twelve protocols) using a similar process and rationale to that described for the first measure (i.e., to practice scoring the novel measure on test protocols, to ensure common understanding of criteria, etc). After agreement as to the second measure’s final version was reached, only protocols of children who obtained elevated scores on the CDC were assessed independently by coders using the second measure (or, six in all).

4.3 Instruments

The Child Dissociation Assessment System (CDAS), composed of two complementary measures, was developed to assess for verbal and non-verbal manifestations of dissociation in children as they completed the MSSB. This narrative task requires children to complete the
beginning of stories presented to them using figurines. Stories presented to children involve a
dilemma or a potential for conflict, often between parent and child (e.g., child ignores parent’s
instructions). The child is first asked to listen to the start of the story stem and is then invited to
complete it by telling and showing the examiner what happens next.

The MSSB stories used in the current study are those selected by the AFCS. The AFCS
involves four MSSB stories that are most likely to activate the child’s attachment
representations (Spilled Juice, Burnt Hand, Bathroom Shelf, and Burglar in the Dark) and takes
approximately 20 minutes to administer. These stories are scored on a scale ranging from 1
(absence of) to 5 (strong presence of) in relation to four parent-focused codes (supportive or
rejecting mother and father) and five that focus on the child’s behaviour (attachment avoidance
of mother and father, emotional dysregulation, avoidance of negative feelings and story themes,
and resolution of these feelings/themes). Scores obtained on each story are then added and
divided by four yielding the child’s average score per code (Reiner & Splaun, 2008). While this
scoring system is not used for scoring in the current study, the authors developed the first
measure to have a similar structure and scale to the codes in the AFCS so as to fit within this
system and allow for comparisons between codes.

Child Dissociation Code. The system’s first measure, the Child Dissociation Code (CDC),
is a screening measure for child dissociation. The CDC is scored on a scale from 1 (absence of
dissociation) to 5 (strong presence of dissociation) for each of the four MSSB stories selected
for use with the AFCS. An average CDC score per child is obtained by adding all four individual
story stem scores together and then dividing this total by four. Lower scores indicate an absence
of or milder forms of dissociation whereas higher scores indicate moderate to severe forms of
dissociation. The CDC consists of three criteria that are assessed as children complete the
MSSB: a. focus, b. narrative structure, and c. collaboration with the examiner.
a. Focus

Dissociation is thought to be associated to disruptions in the area of attention (Putnam, 1997). Children who experience trauma have been found to alter their attentional strategies to keep threatening stimuli outside of their awareness using inhibition (Becker-Blease, Freyd & Pears, 2004). Maltreated children are more likely to inhibit, or pay selective attention, to threatening material (DeMarni-Cromer, Stevens, DePrince, & Pears, 2006). Children who focus throughout the narrative task are able to concentrate on what they are saying or doing. They produce stories with minimal or no distraction from internal or external stimuli and are attentive to the examiner and the task guidelines. Focused children are aware of and responsive toward their immediate surroundings without delay. Children completing the story stem task who dissociate will have difficulties sustaining their focus throughout the task. They are slower to respond to the examiner and/or task demands, or may not respond for a period of time (e.g., may cease blinking during this time). They can withdraw from what they are saying or doing, fixate on or become engrossed by something that is related (e.g., play material) or unrelated (e.g., staring outside a window) to the task, or display hyperactive/impulsive behaviours. These behaviours will interfere with children’s ability to concentrate, as well as their awareness of what is going on in their environment.

b. Narrative structure

The nature of the interruptions manifested by children who dissociate are likely to interfere with the narrative structure of their stories. Bruner (1990) states that narrative structure includes “setting, characters, goals, actions, and means” which come together via a conflict or tension that drives the story being told. A central tenet of narrative story stems is that they culminate in a dilemma that children must address and resolve as they are asked to complete the stem (Bretherton et al., 1990). Children whose narrative structure is continuous engage in purposive and goal-oriented story telling. They produce stories that have direction and progress
in a coherent and linear manner. Parts of the story will be interconnected and result in a story that is logical, consistent, and easy to follow. Narrative may be elaborate with content that contributes to progressing the overall story by adding richness. Or, narrative may be more succinct or descriptive while still focusing the story in a logical direction. Children who dissociate during the story stem task are likely to produce a story that has a discontinuous narrative structure. Such stories will be difficult to follow due to content that is disjointed or disorganized overall. Sequences of the child’s narrative will be choppy and difficult to connect to other parts of the story and to the story as a whole. Discontinuous stories lack clear direction and include sequences of elaborate storytelling that do not progress on their own or progress without logic or clarity (i.e., a child is sleeping in his bed and wakes up in a stranger’s house). Discontinuous stories may shift abruptly and/or end suddenly.

c. Collaboration with the examiner

Completing the MSSB requires collaboration between child and examiner (Bretherton et al., 1990). It was observed that maltreated children tended to be more controlling with and nonresponsive to the examiner while completing the MSSB (Macfie et al., 1999). Examiners interact with children as they complete the story stem using prompts to clarify content and ensure a common understanding of narrative (Reiner & Splaun, 2008). Children who are collaborative during the story stem task will engage with the examiner (e.g., making eye contact, help place materials such as figurines). They will adjust and respond to examiner prompts in an appropriate and timely manner (e.g., responding to a clarification prompt). Examiners will mainly use non-directive prompts to summarize what children are saying as they tell their story. Children who dissociate during the story stem task will be less collaborative as they are less engaged (e.g., lack of eye contact, less reactivity). Children may interrupt the examiner when he or she is speaking or show irritation following examiner’s prompts. They may also display controlling behaviour with the examiner (e.g., telling the examiner what they
want to do) and/or task materials (e.g., repeatedly playing with a figurine that is not used in a story). Examiners use more directive prompts (e.g., Tell me how this story ends) to guide the child through the task.

**Child Dissociation Tool.** A second measure was applied to any of the four MSSB recordings of children who obtained an elevated score (of 4 or 5) using the CDC. The *Child Dissociation Tool* (CDT) assesses how dissociation affects seven domains of functioning to provide a more nuanced clinical portrait of the child’s dissociative manifestations. The CDT also examines material that emerges during the presentation of and transition between each story stem. Manifestations are assessed in relation to seven domains: 1. consciousness, 2. memory, 3. identity, 4. perception, 5. emotion and affect regulation, 6. narrative structure, and 7. collaboration with the examiner. A baseline of child functioning reflecting the absence of dissociation is also described in relation to each domain of functioning providing a comparison point. Each domain is assessed on a 3-point scale in relation to whether the child displays impairment in a domain of functioning as they complete each of the four MSSB stories selected for use with the AFCS. The scoring scale ranges from 0 to 2 where 0 = no impairment observed, 1 = sometimes or on 1 to 2 occasions, and 2 = often or on more than 2 occasions. A final score is obtained for each story stem by adding together the seven individual domain scores. Scores of 0 reflect an absence of dissociation, scores between 1 and 6 reflect normative to mild forms of dissociation, and scores of 7 to 14 reflect moderate to severe forms of dissociation.

### 4.4 Statistical Analysis

Intraclass correlations coefficient (ICC) were used to assess the degree of reliability or agreement between two raters scoring the CDC and CDT for the first time as applied to the four stories in the MSSB. Due to the study’s limited sample size, the data do not meet parametric assumptions. As such, a non-parametric independent samples test (Mann-Whitney U) was used to verify whether there is a difference between the clinical and non-clinical group’s average
score on the CDC. The significance level used for the latter test was set at $p < 0.05$. The software package Statistical Package for the Social Sciences (SPSS) Release version 17.1 was used to conduct the analyses required for this study.

5. Results

Twelve participant protocols (6 from the clinical group and 6 from the non-clinical group) were scored independently using the CDC (60 % of the total sample). For this measure, an ICC of 0.94 was obtained with a 95 % confidence interval ranging from 0.90 to 0.97. Six participants (30 % of the total sample) obtained elevated scores on the MSSB using the CDC; as such, the CDT was applied to their protocols. For the CDT, an ICC of 0.85 was achieved between two raters, with a 95 % confidence interval ranging from 0.41 to 0.96. The ICC’s obtained are considered excellent (CDC) and adequate (CDT) which suggests a high degree of reliability between raters (Tabachnick & Fidell, 2012).

A Mann-Whitney U test indicates that the clinical group’s average CDC scores ($Mdn = 2.75$) differ significantly from those of the non-clinical group ($Mdn =1.25$, $U = 8.50$, $z = −3.12$, $p < 0.05$, $r =−.71$). According to Cohen’s guidelines for interpreting effect size (Cohen, 1992), the difference between the clinical and non-clinical group was medium to large.

6. Discussion

Given the lack of child dissociation assessment measures available and the limitations associated to these, the purpose of this study was to develop a novel child dissociation assessment system that does not present such limitations. The CDAS, which consists of two complementary measures (the CDC and CDT), was developed to score material gathered on the MSSB, a child-friendly narrative story stem task. Preliminary data indicate the CDC and CDT have excellent inter-rater reliability. Moreover, the present study found that the clinical group (of maltreated children in a child welfare setting) exhibited more dissociative symptoms
during the MSSB than did children in the non-clinical group, as evidenced by significantly higher average scores on the CDC.

6.1 Clinical implications and illustrations

Together, the CDC and CDT represent a child dissociation assessment system that is simple to administer and score, and is suited for mental health professionals working in managed-care settings. These measures are especially relevant for use in the child welfare system where children are more likely to display pathological dissociative symptoms due to experiences of complex trauma (Briere & Lanktree, 2008; Mash & Hunsley, 2005). Developmental psychology posits that dissociation in children tends to be less obvious as compared to adults whose symptoms tend to be more salient (Kenardy et al., 2007; Nader, 2011). In this study, dissociation observed in children completing the story stems was often subtle and fluctuated between and within story stems with regard to focus, narrative structure, and collaboration with the examiner. Symptoms were more akin to episodes of “micro-dissociation” rather than manifesting in a more explicit or constant manner. Below are several excerpts to illustrate the range of responses given by children whose MSSB stories received a code other than “1” (which would suggest an absence of dissociation) on the CDC.

Excerpt 1

Child 1: “(…) She hurt herself so they approach the sink to put a band-aid on her finger. Alexandra takes the band aid…oops, I mean Daniella (smirks at the examiner as though aware of her error). So, Daniella goes to the sink and grabs the bandaid and puts it on her sister” (resumes telling a story with good narrative structure). Story was coded “2” due to a minor lack of focus/concentration which was quickly recognized and corrected.

Excerpt 2

Examiner: (tells the beginning of the story stem) “(…) Uh, oh, he spilled the juice all over the floor”.
Child 2: *(gets out of seat and grabs the figurines)* “No, the juice doesn’t fall!”.

Examiner: “You need to wait for me to finish telling the start of the story. Then, you can tell me and show me what happens next in your story. Okay?”.

Child 2: *(child sits back down and rolls his eyes)* “Okay, fine”.

Story was coded “3” due to child’s difficulty focusing on task instructions and because collaboration with examiner was slightly affected due to child interrupting the examiner and displaying some controlling behaviour.

*Excerpt 3*

Child 3: “(...) Then, the kids approach the sink to put on a band aid”.

Examiner: *(says an expected prompt using the mom figurine)* “Hello boys, I am back! What happens next?”.

Child 3: *(Child stares at the figurines for 14 seconds without blinking)*.

Story was coded “4” due to child seeming absorbed/entranced for a length of time and due to being unresponsive to the examiner as a result.

*Excerpt 4*

Child 4: “(...) The mom puts her kids in the oven and kills herself”.

Examiner: “The mom puts her kids in the oven and kills herself? How is this happening?”.

Child 4: *(looks at the figurines)* “Kids! Supper is ready! » *(mimics a woman’s voice while holding the toy mom figurine and does not make eye contact with the examiner)*.

Examiner: “The mother came back to life after being dead? I am confused”.

Child 4: *(continues to stare at figurines)* “I’m done”.

Story was coded “4” due to child’s unresponsiveness to the examiner’s prompts on several occasions and because of a discontinuous/inconsistent narrative.
The CDC and CDT are sensitive to subtle dissociative fluctuations so as to better capture dissociative phenomena as they manifest in children during the MSSB. They also assess for a range of clinical manifestations, including those that are normative given that dissociation does not always indicate pathology (Putnam, 1997), as evidenced by lower scores on both measures.

The CDC was developed using the same scale as Reiner and Splaun’s AFCS (2008), allowing for comparison across codes. Together, these provide a more holistic assessment of children’s complex trauma symptoms as they emerge through the MSSB given the AFCS does not include a dissociation code. Once the CDC has been proven a valid and reliable screening measure of child dissociation, future studies might focus on whether the CDC correlates with those from the AFCS. It is expected that the CDC will correlate positively with certain AFCS codes (namely, emotional dysregulation, avoidance of negative feelings/themes, and resolution of feelings/themes), and provide users with a more specific understanding of what certain behaviour might represent (i.e., using dissociation as a coping mechanism for avoiding triggering content rather than unspecified emotional dysregulation) or where it may originate (i.e., lack of focus associated to dissociation rather than an attention deficit). Finally, the AFCS and CDC both represent a standardized manner to score the MSSB, allowing comparison between children, clinical groups, and different research or clinical teams. Furthermore, the CDC may be of interest to researchers looking to examine for dissociation in large samples of children without having to code every participant in great detail. Researchers may then focus exclusively on participants who obtained elevated scores, and then proceed to using the CDT.

The CDT was developed as a complement to the CDC to provide a more nuanced view of the child’s dissociative symptoms relative to several domains of functioning in a user-friendly format. In this study, the CDT successfully identified six children that manifested dissociative symptoms ranging from mild to moderate that primarily affected the areas of consciousness (e.g., fixates on something suddenly, is jumpy, cannot sit still), memory (e.g.,
forgets or confuses the name of story characters on several occasions), emotion and affect regulation (e.g., sudden and marked shifts such as going from excitable to irritated), narrative structure (e.g., a house shakes violently because someone is stomping on the floor), and collaboration with the examiner (e.g., won’t put down a figurine after being asked to). Of these children, all were part of the clinical group who had histories of maltreatment whereas no significant indicators of dissociation were observed amongst children in the non-clinical group. The CDT may serve as a non-diagnostic tool that assists clinicians working with maltreated children in making sense of children’s symptoms, making more informed clinical decisions relative to treatment, and adapting the treatment process accordingly. For instance, once an alliance has been established between child and clinician, treatment may focus on dissociative symptoms which manifest in specific areas of children’s functioning as per their results on the CDT. Moreover, the CDT facilitates exchange of information between clinicians relative to children’s dissociative symptoms as it provides a common, more objective, vocabulary.

6.2 Study limitations

There are several methodological limitations that need to be taken into account when interpreting the findings of this study. Due to the novelty of the measures developed, a modest sample size was used to verify their clinical relevance and to allow for any modifications before proceeding to a larger-scale validation study. As such, results must be interpreted with caution as they may not accurately represent clinical and non-clinical child populations. In this sense, the generalizability of findings is limited. Studies using larger sample sizes of children who are randomly selected from the population might produce more representative results. Moreover, no children in the study obtained a score of 5 on the CDC (the highest score possible). Likewise, no children obtained extremely elevated scores on the CDT (reflecting severe dissociation). As such, these areas remain to be verified empirically.
The CDC was developed to resemble the AFCS which requires examiners to subscribe to a standard set of administration guidelines, such as when to prompt a child during the MSSB. In practice, differences in examiner administration style were observed, with some being more active and prompting children more frequently. Given the current study used data gathered in previous studies, examiner style could not be discussed with examiners and then modified. It is therefore important to be cautious when scoring and interpreting children’s story stems by considering the examiner’s style in relation to material produced by children and whether this may have impacted the child’s story or task collaboration.

Additionally, it was observed that clinical material (e.g., interaction between child and examiner during MSSB set-up) emerged before the story stem was presented and during transitions between stems. However, the AFCS only scores material presented after the examiner asks the child to “show me and tell me what happens next”. As such, this informal material is not considered during scoring. While the CDC also possesses this limitation as it is based on the AFCS guidelines, these informal moments are considered by the CDT.

Two raters were used to establish reliability with regard to both measures developed as part of this exploratory study. As such, the subjective nature of clinical decision making must be recognized as a component of using human judgments to establish reliability. It would be recommended for future studies to include more than two raters so as to allow for cross-checking amongst several sources thereby strengthening the system’s overall reliability. Multiple raters would allow for results to be a more accurate reflection of the measures’ psychometric properties and ensure final forms of both measures are optimal for assessing child dissociation.

Finally, it is possible that CDAS coders’ awareness of children’s samples of origin (maltreated versus non-maltreated) may have impacted their scoring. Therefore, future studies
should ensure that coders are blind to participants’ risk factors associated to a stronger likelihood for dissociation to avoid this potential bias.

6.3 Concluding Remarks

The current study describes the development of the CDAS, which consists of the CDC and CDT, as well as highlights the potential for using narrative story stems to assess for dissociation in children. Criteria included in the CDAS were elaborated following a thorough review of child dissociation literature, clinical discussions, and consultation with an expert in child dissociation. The current results are promising and demonstrate the CDAS possesses adequate to excellent inter-rater reliability, and that the CDC deciphers between children issued from a clinical and non-clinical sample. Given the lack of available assessment instruments and limitations that these present, this novel system would be especially relevant for use in settings where children are more likely to have experienced complex trauma. Clinical material obtained through the CDAS could be compared to or used as a complement to other sources of data. Once research addresses this study’s limitations (namely, a small sample size), future studies may examine how this system’s measures relate to different variables (such as participant sex, age, maltreatment subtype, attachment style, etc.), thereby contributing to child dissociation literature.
References


Main, M., & Hesse, E. (1990) Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161-182). Chicago, IL: Chicago University Press.


Conclusion
The first article of this thesis focused on providing a theoretical and clinical rationale for using a narrative story stem task such as the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buschbaum, Emde, & the MacArthur Narrative Group, 1990) to assess for dissociation amongst maltreated children. First, an examination of the child dissociation literature was presented to provide an understanding of dissociation as it manifests in children and the function of this. Then, the relationship between experiences of complex trauma amongst youth in protective care, attachment disorganization, and the subsequent development of dissociation symptoms was discussed. Next, difficulties that arise in the assessment of trauma-related symptoms such as dissociation was addressed. The few available child dissociation tools were then presented and examined relative to any limitations pertaining to their type. To conclude, an argument for using a narrative story stem task to assess for dissociation was made.

For these reasons, the Child Dissociation Assessment System (Plokar & Bisaillon, 2017) was developed as part of this thesis. The CDAS, made up of the Child Dissociation Code (CDC) and the Child Dissociation Tool (CDT), was created for researchers and clinicians interested in working with maltreated children whom are more likely to exhibit dissociative symptoms. The CDC allows to screen for dissociative symptoms whereas the CDT identifies the nature of dissociation-related impairments (i.e., what area of functioning is affected). Because dissociation is predicted by interpersonal forms of trauma and disorganized attachment, an interpersonal and attachment-based task such as the MSSB was used.

The second article of this thesis represented the first empirical study of the CDAS as applied to the four MSSB stories selected for use with the AFCS (Reiner & Splaun, 2008).
The CDAS was used to score the MSSB protocols of 20 children (10 from a clinical sample and 10 from a non-clinical sample). Inter-rater reliability was assessed, as was the CDC’s ability to discriminate between children from a clinical and non-clinical sample using a non-parametric statistical analysis (Mann-Whitney U test). Preliminary results indicate that the CDAS possesses adequate to excellent inter-rater reliability between two raters scoring this system for the first time. Also, the clinical group of children in the study obtained significantly higher average CDC scores than did those in the non-clinical sample, suggesting the CDC has the capacity to discriminate between clinical and non-clinical samples of children. Furthermore, children whom were also scored using the CDT due to elevated scores on the CDC all belonged to the clinical sample whereas children in the non-clinical sample did not display significant indicators of dissociation during the MSSB.

Given the lack of child dissociation assessment tools and the limitations associated to these when used to assess maltreated children, developing a new instrument was needed. In light of the results described above, the current thesis underscores the clinical value of using the CDAS, but also of using a narrative story stem task as a vehicle to assess for child dissociation. The CDAS is recommended for clinicians working in managed-care settings such as the child welfare system where trauma histories tend to be normative and resources scarce (Mash & Hunsley, 2005). The CDC and CDT appear sensitive to the subtle fluctuations that occur when children dissociate so as to better capture child dissociative phenomena during the MSSB. These measures also assess for a range of clinical manifestations, including those that are normative given that dissociation does not always indicate pathology (Putnam, 1997).

The CDC, which serves as a screening measure, was developed using the same scale as Reiner and Splaun’s AFCS (2008). Given the AFCS does not include a dissociation code but
screens for several other complex trauma-related impairments; together, they provide a more thorough screening of children’s complex trauma symptoms as they manifest during the MSSB. Once the CDC has been proven a valid and reliable screening measure of child dissociation, future studies might focus on whether the CDC correlates with those from the AFCS, allowing for comparison across codes.

The CDT may provide a more nuanced assessment of children’s dissociative symptoms in relation to what they look like as children complete the narrative task and the areas of functioning they affect. Clinicians may benefit from using this tool to better understand the nature of children’s dissociative symptoms and guide subsequent intervention. Moreover, the CDT provides professionals working with dissociative or maltreated children with an objective way to describe symptoms in such a way to facilitate the exchange of clinical information.

Several limitations have been identified in relation to the empirical study’s exploratory nature. First, the restricted sample size limits the generalizability of findings. Second, no children obtained the highest scores available on either the CDC or the CDT; as such, these areas remain to be verified using a larger sample. Third, differences in examiner administration style were observed which may have influenced the content of children’s stories or the quality of their collaboration. Fourth, the CDAS was scored by two raters using this system for the first time. Future studies ought to include more than two raters so as to strengthen the system’s overall reliability. Fifth, the external validity of the CDAS cannot be stated given the lack of comparison to an already-validated child dissociation measure from which to compare the current results to in spite of the limitations identified relative to existing measures. Finally, future studies should ensure that coders score participants without previous knowledge of their sample of origin to avoid potential bias.
Despite these limitations, preliminary results are encouraging and furthering research using the CDAS appears indicated. These studies could then address any of the current limitations identified. A larger-scale validation study could be done using a larger sample size to increase statistical power and include criteria for external validation (such as school reports by teachers). This study might also include several raters to further increase the system’s reliability. The CDAS would be recommended for use in settings where children are more likely to have experienced interpersonal forms of trauma given dissociation is more frequently observed in children with such histories. Future studies may also focus on investigating the results obtained using the CDAS relative to other variables, such as attachment style or maltreatment subtype. Overall, in light of the few child dissociation measures available and the limitations associated to these when applied to maltreated populations of children, the CDAS as applied to the MSSB stories selected for use with the AFCS represents an innovative approach. The preliminary study’s results suggest that the CDAS has value for both researchers and clinicians highlighting the system’s applicability and value.
References


Main, M., & Hesse, E. (1990) Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161-182). Chicago, IL: Chicago University Press.


Appendix A

Proof of acceptance: First article
Dear Ms. Pickar,

We are pleased to inform you that your manuscript, “Assessing for dissociation in maltreated children: The theoretical and clinical relevance of narrative story stems”, has been accepted for publication in Journal of Child & Adolescent Trauma.

You will receive an e-mail in due course regarding the production process.

Please remember to quote the manuscript number, WCAT-D-15-00065R1, whenever inquiring about your manuscript.

With best regards,

Robert Geffner, PhD, ABPP, ABN
Editor in Chief
Appendix B

Child Dissociation Code
This code is intended to assess for manifestations of dissociation as they appear in children’s verbal and non-verbal communication during the story stem task, while also considering the relational aspect of the task. Dissociation is examined on a continuum ranging from normative to more pathological in relation to 1. the child’s ability to focus throughout the task (e.g., alert and consistent versus unresponsive and detached), 2. narrative structure (e.g., continuous and fluid versus interrupted and choppy), and 3. the quality of the child’s interaction with the examiner (e.g., engaged and collaborative versus disengaged and uncollaborative).

**Code 1** when child remains focused throughout the task and has a continuous narrative (e.g., use of same characters who progress through story in linear fashion). Child engages in the task (e.g., elaborates verbally, uses figurines) or tells a succinct or descriptive story. Child collaborates with examiner (e.g., makes eye contact, helps place materials), requires minimal or no support to progress through task, and follows guidelines without difficulty (e.g., waits for instructions, listens to examiner).

**Code 2** when child occasionally loses focus (e.g., due to mild excitability, lack of concentration, some withdrawal) and has a continuous narrative. Examiner mainly uses the expected prompts to help child progress through task (e.g., repeating child’s discourse or using clarifying questions). Additional prompts may be used to help the child if he or she appears to misunderstand task guidelines. Collaboration with examiner remains adequate.

**Code 3** when child loses focus more frequently and has a mostly (but not fully) continuous narrative. Child may have difficulty progressing or ending his or her narrative and requires more support from the examiner on several occasions. Examiner mainly uses unstructured directive prompts that are aimed at progressing or closing the child’s narrative (e.g., ‘Tell me how your story ends’). Collaboration with examiner is mildly affected, although child adjusts him or herself to examiner prompts appropriately most of the time.

**Code 4** when child is mostly unfocused throughout task and sequences of narrative are discontinuous or choppy. Child is withdrawn, hyperaroused or seems absorbed by something on several occasions and is less responsive to examiner and/or task demands. Story is difficult to follow overall and seems to not end despite multiple examiner prompts aimed at progressing or closing the child’s narrative. Story may end very suddenly or abruptly. Collaboration with examiner is moderately affected as child shows minimal awareness for his or her behaviour and rarely adjusts to examiner prompts.

**Code 5** when child is completely unfocused and narrative is discontinuous. Child shows the most severe forms of withdrawal, hyperarousal or absorption for which they show no awareness despite examiner intervention. Child may fixate on extraneous traumatic material, become unresponsive and not produce a story, repeatedly confuse reality and fantasy, or consistently fail to remember what he or she is saying or has been asked to do. Collaboration with examiner is severely affected as child does not adjust him or herself to prompts or support and may even fail to to acknowledge the examiner’s presence.
Appendix C

Child Dissociation Tool
CHILD DISSOCIATION TOOL (CDT; Plokar & Bisaillon, 2017)

This tool assesses for manifestations of dissociation as they appear in children’s verbal and non-verbal communication during the story stem task. Manifestations are examined on a continuum from normative to more pathological across 7 domains of functioning, and in relation to a baseline of child functioning reflecting the absence of dissociation.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Baseline (no dissociation)</th>
<th>Forms of dissociation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consciousness</td>
<td>Ability to sustain focus/concentration throughout task, shows awareness for what is going on (e.g., is responsive, attentive to examiner/task).</td>
<td>Difficulties with focus due to absorbed/hyperaroused or disconnected/withdrawn state, lack of awareness of what is going on in environment as a result (e.g., is less responsive or fixated on something), seems restless, jumpy or fidgety (e.g., rocks in chair).</td>
<td>0 1 2</td>
</tr>
<tr>
<td>2. Identity</td>
<td>Ability to distance self from task, displays a clear and firm boundary between self in reality and characters in narrative.</td>
<td>Confusion between self/story characters, consistently inserts self into narrative (e.g., child helps character in story who gets hurt rather than describing another character), regressive themes or behaviour that are out of context, speaking to oneself.</td>
<td>0 1 2</td>
</tr>
<tr>
<td>3. Memory</td>
<td>Ability to consistently remember characters, information and storyline throughout task.</td>
<td>Inconsistencies or gaps in storyline and/or characters, presence of intrusive extraneous traumatic material, child may confuse or forget character names.</td>
<td>0 1 2</td>
</tr>
<tr>
<td>4. Perception</td>
<td>Ability to accurately perceive, interpret and use stimuli (such as toy figurines) throughout task, child distinguishes between reality and fantasy.</td>
<td>Responding as though narrative is occurring for real (e.g., hurting parent in story equals parent is hurt in real life), appearing unfamiliar with environment despite nothing changing, expressing that things feel fuzzy or not real, staring blankly, daydreaming, or freezing as though time is suspended.</td>
<td>0 1 2</td>
</tr>
<tr>
<td>5. Regulation of Emotions/Affect</td>
<td>Ability to manage emotions throughout task, appropriate display of affect and expression of emotions in relation to narrative and/or examiner.</td>
<td>Difficulty managing emotions in relation to task and/or examiner, sudden and marked shifts in emotions/affect that are out of context and discordant with what is being said (e.g., lability/outbursts, blunted or flat affect/monotonous voice and immobile face), emotional body language (e.g., clenched fists), handling figurines aggressively.</td>
<td>0 1 2</td>
</tr>
<tr>
<td>6. Narrative structure</td>
<td>Story is continuous, coherent, flows from start to finish, and easy to understand overall. Narrative may be succinct or descriptive. Content is realistic and relates to story stem in some way.</td>
<td>Story is discontinuous, choppy, confusing, or incoherent overall. Abrupt shifts in narrative, story doesn’t seem to progress and/or ends very suddenly. Content is bizarre, nonsensical or unbelievable (e.g., house shakes violently because characters are fighting).</td>
<td>0 1 2</td>
</tr>
<tr>
<td>7. Quality of interaction with examiner</td>
<td>Child is engaged or collaborative (e.g., holds eye contact), listens to examiner, adjusts to examiner prompts appropriately, and may help place task materials (e.g., figurines).</td>
<td>Child is less engaged/collaborative, controlling with examiner and/or task materials (e.g., won’t put down figurine), interrupts or does not listen to examiner, does not adjust to examiner prompts and/or seems irritated by examiner’s prompts (e.g., rolls eyes, head turned to examiner), examiner uses more directive prompts.</td>
<td>0 1 2</td>
</tr>
</tbody>
</table>

**SCORING:** Does child display impairment in domain?

0 = no.
1 = sometimes (1-2 occasions).
2 = often (> 2 occasions).

**CLINICAL RANGE:**

0 = absence of dissociation.
1 to 6 = normative to mild forms of dissociation.
7 to 14 = moderate to severe forms of dissociation.
Appendix D

Story Stems Attachment-Focused Coding System
Document retiré pour respect du droit d’auteur
Document retiré pour respect du droit d’auteur
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Appendix E

Attachment-Focused Coding System for Story Stems Administration Manual
Document retiré pour respect du droit d’auteur
Document retiré pour respect du droit d’auteur
Document retiré pour respect du droit d’auteur
Document retiré pour respect du droit d’auteur
Document retiré pour respect du droit d’auteur
Appendix F

Proof of acceptance: Second article
Ref: EJTD_2017_38
Title: Development of the Child Dissociation Assessment System using a narrative story stem task: A preliminary study
Journal: European Journal of Trauma & Dissociation

Dear Miss. Plokar,

Thank you for submitting your manuscript to European Journal of Trauma & Dissociation. I have received comments from reviewers on your manuscript. Your paper should become acceptable for publication pending suitable minor revision and modification of the article in light of the appended reviewer comments.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers’ comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript:

- Locate your manuscript under the header ‘My Submissions that need Revisions’ on your ‘My Author Tasks’ view
- Click on ‘Agree to Revise’
- Make the required edits
- Click on ‘Complete Submission’ to approve

What happens next?

After you approve your submission preview you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log in to EVISEs at:

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Professor Tarquinio
Editor-in-Chief
European Journal of Trauma & Dissociation
Appendix G

Examples of responses obtained on the Child Dissociation Code
Exemples des réponses obtenues au Child Dissociation Code

Légende :
E: Examineur
P: Participant

Code 1 :

E: «Raconte moi et montre moi ce qui se passe».
P: (maintient un contact visuel avec l’examineur mais regarde les figurines lorsqu’il les utilise) «Ben, Gabriel échappe son jus. Il se lève et ramasse le jus. Là il prend une serviette et nettoie le dégât avec sa mère qui s’est levée aussi pour l’aider. Là il se rassoie et demande à sa mère de lui remettre du jus dans son verre (montre qui fait quoi avec les figurines). Gabriel finit de boire son jus. Et c’est tout».
P: «Est-ce que ton histoire est terminée? ».
E: (regarde l’examineur) «Oui, c’est terminé».

L’histoire est codée « 1 » parce que l’enfant raconte une histoire cohérente et fluide, se concentre bien et n’a pas besoin de soutien de la part de l’examineur.

P: (l’enfant aide l’examineur à ranger les figurines de l’histoire précédente et à placer les figurines nécessaires avant le début d’une autre histoire).
E: «Merci. Alors maintenant, je vais te raconter une autre histoire».

L’histoire est codée « 1 » parce que l’enfant s’engage dans la tâche en aidant l’examineur et collabore bien.

Code 2 :

P: «(…) Elle s’est fait mal alors elles vont au lavabo pour prendre le pansement. Alexandra prend le pansement et…je veux dire Daniella» (regarde l’examineur avec un petit sourire). Alors, Daniella prend le pansement au lavabo pour le mettre sur sa sœur (…) ».

L’histoire est codée « 2 » parce que l’enfant perd sa concentration temporairement mais reconnaît son erreur rapidement et est capable de se reprendre sans l’aide de l’examineur.

P: «(…) Quelqu’un va ramasser le jus et remplir le verre de David».
E: «Qui remplit le verre de jus pour David?».
P: « La maman » (*pointe à la figurine maman*).

E: « Et qu’est ce qui se passe avec le jus par terre? ».

P: (*regarde l’examinateur et répond rapidement après*) « Ben, c’est la maman qui va tout ramasser. Elle ramasse le jus ».

E: « Est-ce qu’il y a quelque chose d’autre qui se passe dans ton histoire? ».

P: (*regarde l’examinateur*) « Maman dit de faire attention et David boit son jus. La fin » (*range doucement les figurines*).

L’histoire est codée « 2 » car l’enfant raconte une histoire cohérente et maintient sa concentration. Cependant, l’enfant nécessite plus de soutien de la part de l’examinateur pour progresser/élaborer la narration.

**Code 3 :**

E: (l’examinateur raconte le début de l’histoire au jeune suite aux consignes) « (…) Le jus tombe sur la table et… ».

P: (l’enfant retire les figurines de la main de l’examinateur en lui coupant la parole) « Non, le jus ne tombe pas ».

E: « Il faut attendre que je finisse de raconter mon histoire et ensuite tu peux la continuer comme tu veux ».

P: « Ok » (l’enfant roule les yeux mais attend la consigne avant de commencer).

L’histoire est codée « 3 » car l’enfant est incapable de se concentrer, interrompt l’examinateur et démontre un comportement contrôlant qui interfèrent avec la qualité de la collaboration. L’enfant est attentif suite à la relance de l’examinateur.

P: « (…) L’enfant dort dans son lit et la mère fait du kung fu pour éloigner le voleur (*imite les sons d’une bataille pour montrer la mère qui fait du kung fu*) ».

E: « Alors la maman fait un saut de kung fu. Est-ce qu’il y a quelque chose qui se passe ensuite ? ».

P: (*continue à jouer avec la figurine et commence à siffler pendant 3 secondes*) « Elle fait un saut périlleux ».

E: Est-ce que ton histoire se termine avec la maman qui fait un saut périlleux ?

P: (*regarde l’examinateur*) « Les parents donnent des coups au voleur (*imite des sons de bataille en jouant avec les personnages*) » Le voleur est mort. Ils ont réussi. Ils dansent dans le salon. »
E: Maintenant, dis-moi comment ton histoire se termine.


L’histoire est codée « 3 » parce que l’enfant a besoin de plus de soutien de la part de l’examineur et semble avoir de la difficulté à progresser son narratif. L’enfant répond à la majorité des relances de l’examineur et son histoire est fluide malgré qu’elle soit longue.

Code 4 :

P : « (...) Ensuite, ils vont proche du lavabo pour mettre le pansement et la mère revient »

E : (dit une relance en utilisant la figurine de la mère) « Bonjour les garçons! Je suis revenue! Qu’est ce qui se passe ensuite? »

P : (détourne son regard sans cligner des yeux pendant 14 secondes).

L’histoire est codée « 4 » car l’enfant ne répond pas aux relances de l’examineur comme si l’examineur n’était pas présent. L’enfant semble être dans un état de transe pendant une période de temps significative.

P: (l’enfant raconte son histoire quand soudainement, ses yeux s’élargissent et il suraute dans sa chaise en fixant le coin de la salle) « Ah! Qu’est-ce que c’est? Un monstre! C’est un géant!»

E : (n’observe ou n’entend rien de particulier) « Euh, qu’est ce qui se passe?»

P : (l’enfant ne répond pas à la relance de l’examineur et semble nerveux).

L’histoire est codée « 4 » car l’enfant devient soudainement très hypervigilant malgré l’absence de menace dans l’environnement. Il perd sa concentration et arrête de raconter une histoire et ne répond pas aux relances de l’examineur.

P: « (...) La mère met ses enfants dans le four et se tue ».

E: « Alors la mère met les enfants dans le four et se tue après. Qu’est ce qui s’est passé? ». 

P: «(…) Ensuite, ils vont proche du lavabo pour mettre le pansement et la mère revient »

E: «(…) Ensuite, ils vont proche du lavabo pour mettre le pansement et la mère revient »

L’examineur continue de parler et l’enfant répond avec un ton de voix autoritaire.

P: « Les parents continuent à se pratiquer au kung fu dans le salon après. Fini. On passe au suivant »

E: « Alors la mère met les enfants dans le four et se tue après. Qu’est ce qui s’est passé? »

P: «(…) La mère met ses enfants dans le four et se tue ».

E: « Alors la mère met les enfants dans le four et se tue après. Qu’est ce qui s’est passé? ». 

P: «(…) La mère met ses enfants dans le four et se tue »

E: « Alors la mère met les enfants dans le four et se tue après. Qu’est ce qui s’est passé? »

P: « C’est terminé » (l’enfant ne regarde pas l’examineur quand il parle).
L’histoire est codée « 4 » car le narratif n’est pas fluide (p. ex., des inconstances au niveau du contenu), l’enfant ignore les relance de l’examinateur à plusieurs reprises et n’a aucun contact visuel avec celui-ci et semble être absorbé par son histoire au détriment de la relation avec l’examinateur.

**Code 5 :**

n/a