

PhD Theses

The Development of Disorganized Attachment in Infancy

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The goal of the dissertation and the identification of its theme

During the last decade the relationship between disorganised (D) attachment at one year of age on the one hand and later dissociative personality disorders, controlling, externalising, and aggressive behaviours, and borderline pathology on the other has become a central topic of developmental psychopathology. The central aim of my doctoral dissertation is to present a new theoretical approach to account for the development of disorganised attachment and to summarize the results of my empirical studies to test the so-called “Flickering Contingency Switch” hypothesis that is based on the general contingency-based theoretical approach to infant disorganization.

Infants categorized as Disorganized at 12 months in the Strange Situation Test (SST) – which includes short episodes of separation from the caregiver – show a number of atypical behaviours. The characteristic of D attachment shown in the SST include: periodic dissociative states, the simultaneous appearance of tendencies to avoid and approach the caregiver, repetitive and bizarre circular reactions, fearful expressions towards the parent, slowed down movement, short periods of freezing, and sudden changes of emotional states. Some researchers proposed that D infants lack a coherently organized behavioural strategy for coping with stress-laden situations. Therefore, infants showing such atypical behaviours could not be categorized as belonging to any of the classical attachment categories (secure (B), avoidant (A), or resistant (C)). The frequency of occurrence of D attachment in middle-class non-clinical samples is 15%, but it is 80% in infants brought up in abusive and/or neglecting parental environments, or when the attachment figure experiences unresolved loss or trauma. A number of studies reported that disorganization at one year of age is related to later dissociative personality disorder. Disorganized attachment has been shown in longitudinal follow-up studies to lead to controlling and aggressive behaviours at 6 years, and to dissociative tendencies at 18 years.

According to one dominant hypothesis a central role is played in the development of D attachment by infants’ experiencing of the attachment figure as frightened or frightening. This results from a paradoxical situation when the attachment figure – who functions as secure basis – is at the same time represents the source of danger. This brings about the contradictory tendencies of approach and avoidance leading to the collapse of behavioural and attentional strategies.

This theory raises a number of problems, however, that remain unresolved. Is it really plausible to assume that the behaviours of a parent suffering from unresolved loss are equally frightening and traumatizing for the infant than the behaviours of a sexually and/or physically seriously abusive parent? This seems to be contradicted by the fact that several studies directly testing the frightened/frightening hypothesis found that while the presence of *dissociative parental episodes did significantly predict in each case* the D attachment status in the infant, *only a single study found a similar predictive effect of the presence of frightened/frightening facial expressions* in the parents. To provide a better account for these findings I propose an alternative approach that identifies *a particular type of dysfunctional pattern of contingent parental reactivity as the relevant common factor* that is equally characteristic of the different types of parental backgrounds that

predict disorganized attachment (such as parental abuse, unresolved trauma or loss, or serious parental depression).

Before turning to the details of this alternative hypothesis that is based on a contingency-based theoretical approach to the development of D attachment, let me first briefly describe *the role of contingency detection in early socio-emotional development*. Infancy researchers have produced a large body of empirical work that examined how human infants early capacity to detect response-stimulus contingencies plays an important role in emotion regulation. Infants already during the first months of life possess an ability to identify their degree of contingent control that their responses exert on different stimulus events in their environment. The detection of high contingent control they exercise over external events (e.g., when their leg movements induce the contingent movements of a mobile that is attached to their leg) induces feelings of efficacy that result in positive arousal in the baby. But how can young infants perceive differential levels of contingent relatedness between their responses and consequent environmental events? According to one hypothesis this is accomplished by an innate perceptual mechanism, the so-called “Contingency Detection Module” (CDM). This account emphasizes as the central adaptive function of the CDM in early development its role in establishing the primary representation of the bodily self. It has been demonstrated that – probably due to a genetically induced maturational change - the preferential degree of response-stimulus contingencies is modified in young infants around the 3rd months of life. During the first three months *infants preferentially engage and seek out perfectly response-contingent stimulation* (generated by the perceived proprioceptive stimulus consequences of their own bodily movements as shown by the dominance of Piagetian primary circular reactions) that induces positive arousal in them. From the third months on, however, infants become more motivated to engage *high, but imperfectly response-contingent (social) stimuli* (that is characteristic of an infant-attuned reactive caregiver). This “switching” of the setting of the preferential target of the CDM turns infants away from the dominant exploration of their own bodies orienting them towards exploring the social world instead.

The “Flickering Contingency Switch” (FCS) hypothesis is based on the observation that infants brought up in the different types of parental environments that are associated with the development of disorganized attachment *experience with high frequency the sudden and unpredictable loss of contingent control over the behaviour of their caregiver*. Parents who are suffering from unresolved trauma or loss – due to painful intrusive ideation or “flash-backs” - often “switch off” and enter shorter or longer dissociative periods in the midst of the flow of contingent interactions with their offspring. As a result they become suddenly and unpredictably inaccessible for their infant whose communicative and emotion expressive responses that were previously successful in inducing contingent reactivity in the caregiver now temporarily lose their effectivity.

It is a well-documented clinical fact that parents who are sexually and/or physically abusive with their child have been victims of parental abuse themselves in their childhood. This is in line with research evidence indicating that parents who were maltreated as children show a higher likelihood of turning into abusers when they grow up. Furthermore, there is ample evidence indicating that early sexual and/or physical

maltreatment is a strong predictor of later development of dissociative disorders. Therefore, given that abusive caregivers are likely to have experienced maltreatment as a child themselves, it is likely that they – similarly to parents suffering from depression or mourning due to the recent loss of a significant other – also suffer from unresolved trauma. I hypothesize therefore that abusive parents do not only maltreat their children, but also frequently dissociate in the presence of their child. Clinical observations also suggest that abusive acts are frequently committed by the maltreating parent during dissociative states. There is no evidence, however, to support the claim that dissociative states generally lead to physical abuse. On the contrary, it is more likely that even in abusive parents the frequently occurring dissociative periods – similarly to those observable in parents suffering from loss or unresolved trauma – result in temporary “switching off” and the consequent sudden and unpredictable loss of contingent instrumental control by the infant over the reactivity of the parent.

The frightened/frightening face theory of disorganized attachment have recently tried to accommodate the findings of the preponderance of dissociative episodes in the indicated parental environments by suggesting that frightening/frightened expressions often involve dissociative components as well. In my dissertation I turn this argument around: while dissociative episodes may sometimes indeed be accompanied by frightened or frightening facial expressions (and seriously frightening abusive acts may also take place during the dissociative states of the parents), nevertheless, the available evidence seems to provide stronger support for the position that the frightened/frightening expressions are not central and inherent components of the frequently reoccurring dissociative periods that are the main characteristic features of the caregiving environment provided by parents who are in the state of unresolved loss or trauma. According to the present hypothesis the most characteristic maladaptive consequence of the frequently occurring temporary dissociative states of abusive parents is the consequent sudden and unpredictable loss of contingent relatedness that the infant is more likely to experience as unexpected and drastic loss of instrumental control and efficiency, helplessness, and abandonment than as “unresolved terror” which simultaneously induces flight from and approach to the attachment figure.

To summarize: It is proposed that *the relevant common pathogenic factor shared by parental maltreatment on the one hand, and unresolved parental loss and trauma on the other, is the dysfunctional dissociative contingency environment* that they present to the infant. As described earlier, around 3 months in normal development the target value of the CDM is ‘switched’ from a preference of perfectly response-contingent stimulation to high-but-imperfect social contingencies. I hypothesize that a necessary social environmental precondition for this resetting process to be successful is *the availability of sufficiently controllable and predictable social contingencies produced by a relatively stably responsive attachment figure*. This may be necessary during this critical period for the new target setting at lower-than-perfect social contingencies to become consolidated as the dominant steady state of the CDM. Perceived contingent control over the caregiver's behavior induces positive arousal and the experience of social efficacy in the infant, which is hypothesized to contribute to the development of secure attachment. If due to the deviant contingency environment generated by the dissociative periods of the attachment figure the above precondition is not satisfied (resulting in sudden losses of

contingent control by the infant and consequent feelings of helplessness), the dominant preference for high-but-imperfect social contingencies does not become sufficiently established. This results in the fixation of a dysfunctional 'loose or flickering contingency switch' with two dominant and competing target positions (one perfectly contingent, self-oriented and one less-than-perfectly contingent, other-oriented) leading to a dissociative style of attention organization. I hypothesize that the distress and helplessness associated with the attachment figure with whom periods of significant contingency loss are repeatedly experienced become triggering stimuli for disengagement and dissociation leading to the temporary collapse of the other-oriented organization of the attention system. During such periods of disorganization sources of perfectly contingent stimulation will become attractive and may gain temporary dominance over the attention system because they provide affect-regulative control experience by 'throwing the CDM switch back' to its initial target position of seeking out and generating perfect contingencies. The resulting instability of the attentional organization may be the central determining factor responsible for the propensity to dissociate that is so characteristic of the attachment behaviors of disorganized infants.

Apart of the deviant parental contingency environment another important source of the development of problems of emotion-regulation and self-control in D attachment is hypothesized to lie in the dysfunctional patterns of emotion-reflective mother-infant mirroring interactions. The FCS hypothesis can provide a plausible account for this by applying the contingency-based Social Biofeedback Model (SBM) of parental affect-mirroring. According to the SBM the infant's developing ability for emotional self-control crucially depends on the cognitive accessibility and recognition of the internal emotion states of the self, which in turn is brought about through and as a result of contingent emotion-mirroring interactions with the caregiver. Infant-attuned emotion-reflective mirroring displays provide a source of very high contingent control over the parent's behavioural displays for the infant since such emotional mirroring displays are contingently related not only temporally, but also in terms of spatial distributional contingency (similarity of behaviour), and in terms of relative intensity to the infant's emotion expressive facial-vocal gestures. Furthermore, contingent face-to-face emotion-reflective maternal reactions also involve ostensive-referential communicative signals (such as eye-contact, smiling, and the salient motor 'markedness' of the affect-mirroring maternal emotion display) that – together with the highly contingent relatedness that the CDM indicates to hold between the infant's emotion expressive facial-vocal gestures and the maternal emotion-mirroring displays – support the infant's referential interpretation that the care giver's mirroring display refers to or is 'about' the infant's own contingently present internal emotional arousal state (while due to its "markedness" the emotion display is referentially 'decoupled' from the mother and so the expressed emotion is not attributed to the mother as her real primary and subjective emotional state). This is supported by the fact that the infant-attuned mother's contingent emotion-mirroring displays are clearly differentiated from realistic primary emotion expressions along a number of dimensions (such as their motor 'markedness', the lack of realization of expectable consequences, and the differentially high level of contingent relatedness). This leads to the referential 'decoupling' of the emotion-reflective display from the mother, and its referential 'anchoring' as an internalized second-order (cognitively

accessible) representation of the infant's primary and procedural emotion state. According to the SBM the high degree of contingent control over the care-giver's emotion-reflective reactions that the CDM indicates generates positive feelings of efficacy and instrumental self-agency that has an emotion-regulative controlling effect over one's own negative affect-states through the induction of parental affect-mirroring. Due to repeated experiences with successfully inducing emotion-regulative mirroring reactions in the other, infants learn that the communicative expression of their negative affect states provides a viable interpersonal strategy to achieve emotional-self-regulation and control over one's negative emotional impulses.

I further hypothesize that when the caregiver with unresolved trauma or loss dissociate due to being temporarily overwhelmed by internally generated painful memories or 'flashbacks', the child not only experiences a sudden and unpredictable loss of contingent control over the parent, but additionally also frequently observes the unaccountable appearance of unmarked realistic emotion expressions of painful negative affects on the mother's face. These two factors (loss of contingent control and unaccountable realistic negative emotional reactions of anger, pain, and fright by the mother) add up to result in feelings of helplessness and anxiety. If as a result during the early phases of development the infant becomes severely deprived from adaptive experiences of contingent emotion-reflective mirroring interactions with the caregiver, there will not develop a sufficiently differentiated introspective sensitivity and access to its internal emotional arousal states due to the insufficient establishment and internalization of stable cognitively accessible second-order representations of the self's procedural and non-conscious primary emotion states. This can account for the later problems that infants with disorganized attachment manifest in the domain of emotional self-control including a propensity for emotional escalation during affectively charged interpersonal situations, or their poor performance in tasks involving delay of gratification. Further symptomatic features of attachment disorganization such as aggressive impulsivity and hyper-reactivity to stress indicated by overly elevated cortisol levels can also be related as consequences of the dysfunctional emotion-regulative self-control system.

The main hypotheses of the research:

Hypothesis 1: On the assumption (based of the Social Biofeedback Theory of emotion-mirroring) that contingent emotion-reflective behavioural displays by the caregiver serve an emotion-regulative function, it is predicted that in a situation that induces stress in the infant mothers will in general increase the frequency of their contingent emotion-mirroring reactions to the infants' affect-expressive behaviours. Contingent maternal emotion-regulative mirroring is operationalized here as a) those 'marked' facial-vocal emotion displays that are congruent with and are contingently induced by the infant's corresponding emotion expressions, and b) those 'marked' verbal reactions that make reference to and are produced contingently with the infant's affective and intentional mental states and the behavioural expressions of such internal states.

Hypothesis 2: On the assumption that reliably contingent and 'marked' emotion-mirroring reactions of the caregiver contribute to the development of secure infant

attachment, it is predicted that already as early as 7 months the relative frequency of such contingent and ‚marked‘ affect-reflective maternal responses will be significantly different between groups of mothers whose infants will turn out to be securely *versus* insecurely attached later at 12 months of age.

Hypothesis 3: According to the „Flickering Contingency Switch“ hypothesis when infants with disorganized attachment experience sudden and unpredictable loss of contingent control over the behaviours of the mother, they will not seek emotion-regulation from interacting with the mother, but will generate and orient towards perfectly response-contingent stimulus contingencies that are induced by their own repetitive self-stimulative motor actions. It is hypothesized that this behavioural and attentional marker of disorganized attachment will be present significantly earlier (e.g., at 7 months) than at 12 months of age (when disorganized attachment is diagnosed in the SST). This prediction is based on the FCS hypothesis according to which the „loose“ and unstable setting of the preferential level of contingencies in the CDM becomes fixed in disorganized infants during the early critical period between 2- to 4-months of age. It is predicted, therefore, that the tendency to produce and preferentially engage perfectly response-contingent stimuli as a result of stress in 7-month-olds will correlate and predict disorganized attachment at 12 months in the SST.

Methods

Sample:

The reported research has been carried out on a sub-sample of a larger longitudinal study (The Budapest Family Study directed by Dr. Judit Gervai carried out at the MTA PKI). Seventy-five first-borne infants and their mothers participated in both tests (31 girls and 44 boys born healthy and on time (40+/-2 weeks), with birth-weight exceeding 2500 grams).

Test situations:

A) The Mirror Interaction Situation (MIS) at 7 months (five months *before* the administering the SST at 12-months).

B) The Strange Situation Test (SST) measuring infant attachment security at 12 months:

We used the standard Ainsworth SST to measure the infants‘ security of attachment to their mother at 12 months of age. The main results summarized here consist of the relevant differences found when comparing groups of infants showing disorganized (D) attachment (n=15), secure (B) attachment (n=36), and insecure attachment (n=39).

The MIS was designed to fulfil the following requirements:

1. We wanted to record mother-infant interactions in a situation that involved mild socially induced stress in the infants.
2. The situation had to allow for the simultaneous registration (on video) of the infants‘ behavioural and state-expressive reactions on the one hand, and the mothers‘ contingent facial-vocal as well as verbal reactions to the infant on the other.

3. We wanted to examine the effects of facial-vocal contingent emotion-regulative reactivity in situation where this is not confounded with other forms of emotion-regulative behavioural interventions (such as physical contact).
4. The situation had to present infants with a choice between two types of differentially response-contingent stimulus sources they could orient to:
 - a) the perfectly response-contingent visual consequences of their own motor activity (i.e., the mirror image of their own actions) versus
 - b) the variably response-contingent behaviours of their mother (i.e., their mother's mirror image).

To fulfil these conditions we developed a modified version of the well-known "Still-face" procedure (the MIS). While in the standard Still-face paradigm the baby and the mother are facing each other, in the MIS procedure they were seated next to each other both facing a one-way mirror. Furthermore, the mother and the infant were separated by an opaque occlusion screen, which ruled out the possibility of physical contact between them (Condition 3), but they could interact freely by facial and vocal gestures through the mirror. In this arrangement infants could choose to orient towards their perfectly response-contingent visual image (exploring the mirror image of their own actions) versus the variably response-contingent image of their mother's behaviour in the mirror (Condition 4). Two video cameras were placed facing (but invisible to) the subjects on the other side of the one-way mirror recording their facial and vocal behaviours. These video-records were fed into a mixer to create a synchronised time-coded split-screen record of their interactive behaviour for off-line coding and micro-analysis (Condition 2.). In every other respect the procedure was similar to the standard Still-face paradigm. The situation consisted of 3 two-minute episodes:

Phase 1.: 'Free interaction' in which the mother could freely interact with the baby, followed by

Phase 2.: the 'Still-face period' in which the mother was instructed to put on a motionless non-reactive emotionally neutral 'still-face'; and

Phase 3.: 'Free interaction' in which the mother could again interact freely with the infant (Condition 1).

Coding:

We developed a complex behavioural coding system to analyse the patterns of interactions induced by the MIS. The time-coded video-records of the MIS were coded by two independent coders (the author being one of them) who were both blind to the attachment status of the infants at the time of coding. Inter-rater reliability was sufficiently high ($Kappa=.86$). The coding of the 12-months SST for attachment status were carried out by certified coders of the Budapest Family Study research group.

Statistical Analysis:

All statistics have been computed by the SPSS program package. In the majority of comparisons where the variables were not normally distributed, we used appropriate non-parametric (Kruskal-Wallis and Mann Whitney) tests. In the few cases where the variables were normally distributed, an Analysis of Variance (ANOVA) and two-sample t-tests were applied.

The major types of behavioural categories coded:

The infant's behaviours:

1. Emotional state
2. Gaze direction
3. Generating and exploring perfectly contingent self-movements in the mirror (EPCSM)

The mother's behaviours:

1. Emotional state
2. Gaze direction
3. Verbal references to the infant's mental, attentional, or emotional states
4. 'Marked' contingent maternal reactivity including facial and/or vocal emotion-mirroring, or verbal attunement

Results

In the MIS at 7 months (similarly to the classical Still-face procedure) *the suddenly and unpredictably occurring period of maternal unavailability (and loss of contingent control) during the two-minute still-face intervention induced negative emotions and stress in the large majority of infants irrespective of their (later) attachment status.* This is indicated by the fact that infants' negative emotion state has significantly and steadily increased across the three phases of the MIS. Furthermore, the amount of positive emotion expressions showed a significant decrease during Phase 2 when compared to Phase 1. At the same time, the fact that following the still-face intervention (Phase 2) the amount of infants' positive emotion expressions significantly increased during Phase 3 (when mothers could respond again to the infants' expressive overtures) indicates the efficacy of maternal reactivity in bringing about an emotion-regulative effect. In particular, irrespective of the infants' attachment status, the combined category of "contingent and 'marked' maternal reactivity" (including facial emotion-mirroring+vocal emotion-mirroring+verbal attunement) showed a significant increase from Phase 1 to Phase 3. This provides support to Hypothesis 1 according to which emotion-regulation is a central function of contingent maternal reactivity. The finding also *corroborates the assumption of the social biofeedback model that the "markedness" of parental emotion-reflective expressions plays an important role in the emotion-regulative effect of contingent maternal reactivity* by indicating to the infant that the maternal emotion display makes reference to (is 'about') the infant's own emotion state rather than being the automatic expression of the mother's own primary and real emotional state. The more specific predictions based on Hypothesis 2, however, were not borne out by our findings: at 7 months we did not find significantly more "contingent and 'marked' maternal reactivity" in the group of infants who showed secure attachment at 12 months of age in the SST. It is possible, however, that the hypothesized link between 'marked' maternal reactivity and attachment security did not show up in the present study due to a). the relatively small sample size, and b). the artificiality of the laboratory situation that

made the mothers conscious of being video-taped. This latter factor may have resulted in a relative uniformity of overly controlled maternal reactions that could have worked against the spontaneous emergence of real differences in styles of maternal reactivity to infant stress.

A further question addressed in our study concerned whether the changes observable in mothers' positive and negative emotion expressions were related to the changes of the infants' emotional states, and whether there were any differences in this regard between the different attachment groups. No such difference emerged between the various attachment groups in the amount of negative maternal emotion expressions. This again may be related to the fact that the mothers who were overly conscious about being video-taped could have inhibited their negative emotion expressions towards the infants in the MIS. However, when looking at the *change in the amount of positive emotion expressed by mothers, we did find a close-to-significant tendency for an interaction between the different phases of the MIS and secure versus insecure attachment groups*. This effect was due to the fact that the relative amount of positive emotions manifested by mothers of secure versus insecure infants *changed in the opposite direction between Phase 1 and Phase 3 of the MIS. While mothers of secure infants tended to decrease the amount of positive affect expressed, mothers of insecure infants tended to show a slight increase of the amount of positive emotion displayed* from Phase 1 to Phase 3, but neither of these changes were significant in themselves. When comparing the four different attachment groups on this measure, however, the interaction between attachment status and the change in the amount of positive affect shown in the two Phases (1 and 3) was significant. Nevertheless, none of the pair-wise comparisons between the four attachment groups yielded a clearly significant difference. Only the *mothers of infants with disorganized attachment showed a close-to-significant tendency to increase the amount of positive emotion expressed* in Phase 3 as compared to Phase 1. On the other hand, it seems highly informative that for the mothers of insecurely attached infants a significant contrast was found indicating that as their infants increased the amount of negative emotion state expressed, their mothers significantly increased the amount of positive affect that they manifested between Phase 1 and Phase 3. Importantly, this contrast was by far the strongest in the case of mothers whose infants showed attachment disorganization at 12 months of age. From the point of view of the social biofeedback model this indicates a *highly non-adaptive maternal strategy that attempts to cope with and modify the infants' increasingly negative emotion state by presenting an increasing amount of the opposite kind of (positive) maternal emotion displays* that are non-contingent and affectively incongruent with the infant's actual negative emotional state expressions. This finding is further supported and extended by another most telling significant difference that we found between the mothers of securely versus insecurely attached infants with regards to the change in the relative frequency of verbal references made by the mothers to their infants' mental (intentional and emotional) states. Such verbal references to the internal states of the infants changed significantly – and in the opposite direction – from Phase 1 to Phase 3 for the two attachment groups. On the one hand, mothers of securely attached infants tended to increase the frequency of their verbal references to their infants' intentional and emotional states from Phase 1 to Phase 3, though this increase did not reach statistical significance.

In contrast, *mothers of insecurely attached infants significantly decreased the frequency of their verbal references to their infants' internal states, while at the same time the amount of their positive emotion expressions showed a significant increase from Phase 1 to Phase 3.* Thus, the fact that as their infants' negative emotion state has increased, mothers of insecure infants both decreased their contingent verbal references to their babies' internal states and increased their emotionally mis-attuned and non-contingent positive emotion displays, indicates that these mothers became more and more disattached from their infants as those experienced and expressed an increasing amount of stress reactions. This finding then provides support for Hypothesis 2 that predicted that *mothers whose infants*

will show secure versus insecure attachment at 12 months, will exhibit already at 7 months a qualitative (and significant) difference in their relative ability to attune to and contingently reflect their infants' internal intentional and emotional states. It is possible that the infants' own expressive reactivity towards their mothers may not yet show marked differences at 7 months of age. However, by the time they are tested in the SST at 12 months they show clear signs of having already developed differential strategies to modify their originally automatic instinctual orientation towards their caregiver when experiencing stress and to modulate the relative amount and kind of emotional communications they direct towards the mother as a function of the expectable kind and degree of maternal reactivity that they had experienced by then.

According to Hypothesis 3 (the „Flickering Contingency Switch“ hypothesis), it was predicted that when infants with disorganized attachment experience sudden and unpredictable loss of contingent control over the caregiver's behaviours (as in Phase 2 of the MIS), they will not seek emotion-regulation from interacting with the mother, but will prefer to generate and orient towards perfectly response-contingent stimulus contingencies that are induced by their own repetitive self-stimulative motor actions. This prediction has received support from the finding that at 7 months following the stress-inducing still-face intervention in Phase 2, the amount of generating and exploring perfectly contingent self-movements in the mirror (EPCSM) was significantly higher (during Phase 3 of the MIS) in infants showing disorganized attachment than in the group of infants showing secure attachment at 12 months in the SST. In fact, when the necessarily less-than-perfectly response-contingent maternal reactivity has become suddenly unavailable during the still-face period, both the securely attached and the disorganized infants turned towards EPCSM to regulate their negative emotion state showing no difference in the amount of EPCSM during Phase 2. However, when during Phase 3 the mother has become reactive again, the securely attached infants significantly decreased the amount of time spent with EPCSM and turned to the mother for emotion-regulation. In contrast, the level of EPCSM continued to remain high in the disorganized infants during Phase 3 and so during this period of maternal availability the disorganized group spent significantly more time with EPCSM than did the securely attached group. This finding provides clear support for the FCS model that predicts that due to the deviant dissociative early contingency environment of infants who show disorganized attachment at 12 months these infants will already show signs of preferential orientation towards sources of self-induced perfectly contingent stimulation as their preferred source of emotion-regulation already at 7 months of age. In sum: This early tendency to produce

and preferentially engage perfectly response-contingent stimuli as a response to socially induced stress in 7-month-olds as shown in the MIS correlates and predicts disorganized attachment at 12 months in the SST.

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