

## **ON ABBREVIATION: DIALOGUE IN EARLY LIFE**

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**ABSTRACT.** The development process of the mother-infant communication system is described as historical systems of relationships allowing for the emergence of self-organization patterns of this system. Three organizational patterns are proposed: establishment, extension and abbreviation. Each corresponds to typical manners of dialoguing. I will concentrate on the analysis of abbreviation, with the aim of inferring a concomitant dyadic achievement: (1) the emergence of a new space, broader than the immediate space of the actual partners' actions and (2) the infant's differentiation of his/her own position in the dialogue. Three interrelated characteristics of abbreviation contribute toward the present analysis: decreased duration and turn-takings, increased variability of abbreviated exchanges and the progressive inclusion of new partners' actions in abbreviated dialogues. The dyad abbreviates the dialogical exchanges in flexible and innovative ways, thereby suggesting that the infant learned a totality regarding the relationship, and not a point-by-point contingency of actions. It is my contention that abbreviated dialogues require mutual knowledge in which an emergent new space allows for the infant's differentiation of his/her own position in the dialogue.

**Keywords:** dialogue in infancy, communication development, self-organizing patterns, abbreviation, infant's positioning differentiation

This paper examines the construction process of the early mother-infant communication development as composing three patterns of organization achieved through this historical process that allows for the identification of the emergence of the self. The third pattern in particular, which I have called *abbreviation*, exhibits a type of dialogical exchange that, mainly through the analysis of the quality of the dyadic mutual knowledge, allows one to infer the emergence of a new functioning space, which I call "virtual space or reality". In this new space, the infant exhibits a process of differentiation of his/her own position in the dialogue.

My argument develops along the line of conceiving the *communication process* as constitutive of an interrelated achievement, the differentiation of the infant's position in the dialogue and the seeds of a symbolic functioning as the *locus* of emergence of the

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infant's self. Regarding the fundamental role of the communication process for the emergence of a symbolic functioning as a necessary condition for the constitution of the human subject, I am aligned with the classical and current socio-constructivist thinkers, such as Bruner (1990), Hermans (1996), Marková (2003), Mead (1934), Valsiner (2001, 2006) and Vygotsky (1986). Focusing on the emergence and development of the self, I am particularly relying on the *dialogical perspective of Mikhail Bakhtin* (1986, 1993). However, based on *dynamic systems thinking* (e.g., Thelen & Smith, 1994), I am proposing an analysis of the development of the communication process as a *self-organized system*, which progressively exhibits *patterns of organization* that demonstrate different characteristics of a mutually constructed, dialogical, shared understanding and knowledge. Through the analysis of the *history of the dyadic shared knowledge* exhibited in the successively constructed patterns of organization of the communication process, the emergence and differentiation of the self can be traced and identified. The careful examination of the characteristics of mother-infant dialogues, especially abbreviated dialogues, as I will suggest later in this paper, is the basis for inferring the emergence and differentiation of the self and the seeds of a symbolic functioning space.

Starting with a short discussion connecting the communication process and the self in infancy, I present dynamic systems principles that are relevant to our understanding of the communication process as a self-organizing system, followed by a presentation of Bakhtin's contributions toward conceptualizing selfhood as a dialogical enterprise. I then introduce abbreviation as a typical pattern of organization achieved through the communication process, discussing the characteristics of the abbreviated dialogues. Lastly, I present and discuss a microgenetic analysis of mother-infant dialogical exchanges in order to support the above arguments.

### **The Communication Process and the Self in Infancy**

The conception that the communication process is the *locus* of the emergence of the self has been proposed by a number of theoreticians and developmental researchers, who adopt different positions regarding the role of semiotic functioning as a condition for the emergence of the self.

Particularly committed to the study of the self in infancy, we find a number of scholars who, in relying on the analysis of the communication process, investigate selfhood as emerging from the mutuality already present at birth and posterior differentiation constructed between partners in dialogue (Bråten, 1998; Fogel, 1993; Trevarthen, 1998; Tomasello, 1999). Anchored in emotional development in the context of communicative exchanges (Fogel et al, 1992; Pantoja, Nelson-Goens, & Fogel 2001) or the analysis of integrative cross-modal sensory information in infants (Rochat, 2003), these scholars highlight the path of the emergence and development of the infant's self before any characteristic of symbolic functioning is required. Such lines of research can

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be traced to Butterworth's findings on an *ecological self* (Butterworth, 1995), also identified by infancy researchers as the study of a *situated self*.

Understanding the partner's intention to communicate seems to be the first step recognized in the literature as demonstrating the infant's functioning in such a way that it is possible to infer that the infant recognizes the partner's role as separated from him/herself in the dialogue; this supposes a functioning space in which the infant can distinguish the partner's intention to communicate from what is communicated by him/her. The age range attributed to this achievement is the nine-month-old turning point (Rochat, 2003; Tomasello, 1999). This is the time of emergence of secondary intersubjectivity, according to Trevarthen and Hubley (1978). The infant's capacity to distinguish the partner's intention to communicate from what is communicated by him/her requires a functioning space. I am proposing that this functioning space exhibits the seeds of a symbolic or semiotic capacity as a necessary condition for the infant's distinguishing these two aspects of communication. However, from what previous achievements does this capacity historically come?

The dialogue between the line of research that examines selfhood as an ecological self, and the line of reasoning that requires functioning in a symbolic space for the existence of selves, appears to be a fruitful task. I am proposing that the analysis of abbreviated dialogues can shed some light on this topic, becoming a bridge between these two lines of research. Moreover, in tracing the historical development of abbreviated dialogues, some light can be shed on the origins of the nine-month turning point.

I turn now to the discussion on the dynamic systems perspective followed by the dialogical perspective, particularly in the work of Mikhail Bakhtin, highlighting the relevance of these two approaches for the present work.

### **Dynamic Systems Perspective: Establishment, Extension and Abbreviation**

Communication development can be conceived as a dynamic process of change that allows the joining together of partners' actions into dynamically stable organizational patterns of dialogical exchanges. These patterns are recognizable on the macro developmental level of analysis as corresponding to three organizational patterns, *establishment*, *extension* and *abbreviation* (Lyra, 1999b, in press; Lyra & Rossetti-Ferreira, 1995; Lyra & Souza, 2003; Lyra & Winegar, 1997). Each pattern corresponds to characteristic forms of dialogue that describe the initiation, continuity and termination of the dialogical event of partners' exchanges.

The importance of the dynamic systems perspective rests on offering conceptual heuristic tools for analyzing and understanding the process of change and the emergence of new developmental achievements from a historical system of relationships. The principle of self-organization and integration in the same conceptual

framework of both characteristics of development, stability and change, are relevant principles to dynamic systems thinking (Fogel, 1993; Fogel, Lyra & Valsiner, 1997; Lewis, 2000; Thelen & Smith, 1994; van Geert, 2003). Together with these two ideas, the emphasis of dynamic systems on the constant connection between a microgenetic and macrogenetic time-scale analysis allows us to address the process of transformation on a real-time scale and the corresponding dynamically stable patterns of organization on the macro level or developmental level (Thelen & Ulrich, 1991; van Geert, 2003).

The system under scrutiny in this paper is composed of partners' actions – those of a mother and her infant – as these actions co-regulate throughout historical time<sup>1</sup>. In order to capture the movement of mutual co-regulation and coordination of partners' actions, I have introduced a methodological tool that I call *dialogical highlighting dynamics* (DHD) (Lyra, 1998). Applied to microgenetic analysis, the method allows the researcher to identify actions that are distinguished by the partners in order to initiate, maintain and terminate the dialogical event of exchanges. Thus, DHD helps select actions that are negotiated as well as to determine the beginning and end limits of a dialogue event.

DHD preserves the relational character of all dialogue. It proposes that dialogical exchanges occur through highlighting and, therefore, differentiating the partner's actions. Using an analogy with perceptual phenomena related to the “figure-background” gestalt idea, DHD conceives some partner actions (or at least one action) as working as a “figure” against a “background” of other possible actions that form the constantly changing flow of the dyadic actions. Thus, this process, which is conceived as also functioning for the partners, leads to the stabilization of the dyadic flow of actions and permits the partners to negotiate their actions in order to construct a mutual understanding. For research, it allows distinguishing what actions are the objects of negotiation between the partners.

The concepts of *establishment*, *extension* and *abbreviation* are based on these constructive and differentiated historical characteristics of DHD. Therefore, the observer can identify developmental achievements even when considering the constantly changing movement of dyadic exchanges; they represent periods of quasi-stability of the dynamic patterns of organization in mother-infant communication development.

Considering such ideas, establishment, extension and abbreviation can be defined as exhibiting the following characteristics.

*Establishment*; throughout successive or concomitant partner negotiations, at least one element (partner action) that composes dyadic exchanges is constructed as

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<sup>1</sup> An examination of the socio-cultural dynamic systems approach proposed by Nelson and Fivush, (2004) to analyze autobiographic memory, particularly regarding self emergence, deserves a further and extended exploration considering the age range and the system under scrutiny focalized in this paper.

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shared dyadic knowledge. For example, we have the mutual gaze between partners (in face-to-face exchanges – FF) or joint attention towards an object (in mother-object-baby exchanges - MOB).

*Extension*; the previously established shared dyadic mutual understanding or knowledge serves as a “background” against which the dyad can negotiate new elements (partner actions) and elaborate extended exchanges, such as “figures”. Considering the mutual gaze as shared knowledge, the dyad can exchange smiles, vocalizations, etc, in an extended way, for example, considering FF exchanges. Another example is a dyad that has previously established joint attention towards an object as shared knowledge; it can then negotiate arm and hand movements towards the object, composing extended exchanges of many turn-takings (MOB exchanges).

*Abbreviation*; this new organizational pattern of dyadic negotiation is defined by exchanges of short duration with a typical partner adjustment, which is quickly, easily and smoothly performed in a small number of turn-takings. The elements of dyadic exchanges, extensively negotiated and elaborated during the period of extension, now appear in an abbreviated or condensed fashion. Regarding face-to-face dialogues, the dyad can simply exchange a mutual gaze or mutual gaze together with some previously negotiated and shared elements (smiles, vocalizations, etc). Another example is the swift, easy and smooth adjustment of the shared joint attention of the dyad towards an object, followed by the mother offering the object to the infant and the infant grasping and holding it immediately (MOB exchanges).

Considering the characteristics of *immediacy* to initiate the dyadic exchanges, the *quantity of turn-takings* of these exchanges and the *smoothness* of the partner adjustments, establishment, extension and abbreviation present the following configuration (Lyra & Souza, 2003).

*Establishment*: the exchanges are neither immediately established nor smoothly adjusted and are characterized by a small quantity of turn-takings between the partners.

*Extension*: the exchanges become immediately initiated and the mutual adjustment of partners grows throughout the extension period; these exchanges have an especially long duration with a great quantity of turn-takings between partners.

*Abbreviation*: the exchanges are immediately initiated, smoothly adjusted and exhibit a short duration corresponding to a small quantity of turn-takings between partners.

To sum up, based on the conceptual and methodological thinking from the dynamic systems perspective, I can describe the process of mother-infant communication development as a sequence of dynamically organized patterns that allow identification of historically constructed mutual understanding and knowledge between the partners over time.

### Dialogical Perspective

I assume an ontological and epistemological dialogical perspective, anchored in the idea that the self emerges and exists as a *simultaneity of different positions* (Bakhtin, 1986). The simultaneity of the self relies on the interdependence of partners in dialogue. However, this interdependence also includes another requisite that states that each partner occupies a *unique place* or position within the interdependent dialogue (Bakhtin, 1986, 1993). The unique place in the world occupied by a unique person is used by the subject to “write” the autobiography of his/her life. This autobiography is written by each individual in the function of *author* of his/her life (Bakhtin, 1986). According to Bakhtin, the condition of being the author of one’s own life is the only possible way to exist. The absence of authorship makes it impossible for dialogue to be conceived as a constructive and creative enterprise.

Bakhtin's notion that states that there is only one unique place with respect to both time and space that a subject occupies in the world is linked to the characteristic of *answerability* (or responsiveness) of this subject (Bakhtin, 1986, 1993). From the unique place the individual occupies there is another requirement for existence, namely, the inescapable necessity to respond to the world, the answerability character of all selves. Bakhtin would say that “there is no alibi” for us, because answering to the world is not a choice, but a condition of existence (Bakhtin, *Estetika*, p.179, in Holquist, 1990, p. 29). This world to which we respond is a world of otherness, a world of selves. As a consequence, dialogue is absolutely pervasive. In other words, the world of dialogue, which is characteristic of the human species, is a social world of selves-in-dialogue. It is from the above-described conception that the dialogical perspective – or, to put it better, dialogism (Holquist, 1990) – is applied in the present work.

It is my contention that the uniqueness and answerability of the self’s condition, authoring his/her simultaneity of different positions, requires the emergence and existence of a dimension or space that allows the subject to function in a dynamic, flexible manner, using past history and projecting the present towards the future. For Bakhtin (1986, 1993), this is the symbolic space in which language works; therefore, it requires a symbolic capacity.

One of the tenets of dialogical approaches is their dependence upon language or a symbolic system (e.g., Marková & Foppa, 1990). This system necessarily mediates the exchange between the subject and the surrounding social and physical world and is constitutive of an individual’s cognitive and affective capacities (Vygotsky, 1978, 1986; Vygotsky & Luria, 1994) and selves (Mead, 1934). Therefore, referring to dialogical communication means that language and symbolic systems are at the center of all considerations. From this perspective, dialogue requires the symbolic system present in the language domain.

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Regarding the beginning of life, one of the most difficult challenges is to trace how the infant enters the dialogical symbolic world. I assume that the infant is born in a “dialogical closure” (Bråten, 1998). This means that the infant is able to establish dialogical exchanges before the establishment of any language or constituted symbolic system<sup>2</sup> (Fogel, 1993, 2001; Lyra, in press; Lyra & Souza, 2003; Trevarthen, 1998). Moreover, I also assume that the dialogical system of communication from the early beginnings of life is constitutive of the self and responsible for the emergence of a new functioning space that I have called “virtual space or virtual reality”. The term virtual has an analogy with Sinhá’s notion of “virtual cognition”, a dimension of possibilities that exists and functions together with the space of actual actions (Sinhá, 2004, 2005). Regarding symbolic play, Sinha (2005) explains the meaning of virtual in connection with the fictional and the literal dimensions in symbolic play. “Symbolic play is thus an instance of ‘virtual cognition’, in which the imaginary and the real fuse or blend into an experiential arena in which the ‘mental’ and the ‘physical’ are, as it were, dissociated from their customary, conventional or canonical correlations, and reassembled in a new, blended space” (Sinhá, 2005, p. 8). The virtual space of human functioning is, therefore, fictional and literal – fictional in the sense of possibilities of actions not yet actualized but also and always connected with the literal side of functioning, corresponding to actions already concretely realized; “...the fictional character implies the co-ordination of two mental spaces, the literal and the fictional...” (Sinhá, 2005, p. 8). I use the idea of virtual space for the purpose of having a term that presents some characteristics of symbols, as symbols allow one to deal with possibilities for action. In this new space, infant functioning presents new possibilities for actions which allow novelty creation. The actions already known by the infant, throughout the infant’s history guided by the contingent learning of them, are expanded in this new space of possibilities. The virtual plane corresponds to these possibilities and the literal one to the already learned actions. This new transitional space represents a kind of bridge between the co-regulation and coordination of partners’ actions guided by the contingent learning principle toward a functioning space guided by the array of possibilities offered in the symbolic system.

I assume the dialogical character of the partners’ exchanges precedes the emergence of symbolic functioning (Lyra, 1999; Lyra & Rossetti-Ferreira, 1995; Lyra & Souza, 2003; Lyra & Winegar, 1997). Each dialogical exchange event belongs to both partners at once. Therefore, it is impossible to separate the participants and the communication flow as distinct units. This continuous conception of dialogue is opposed to a discrete view of communication (Fogel, 1993; Fogel & Lyra, 1997; Marková (1990). I propose that the conceptual unit of dialogue has a minimum three-

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2 The relationship between language and the dialogical character of partners’ exchanges and between the immediate or mediate quality of these exchanges are presented by Jakubinskij in a very interesting way (Bertau, 2005). Particularly, his discussion of abbreviated dialogue merits exploration in the context of dialogue in early life. Unfortunately, I only had contact with Jakubinskij’s work after finishing this paper.

turn composition: (1) the initial turn is the participation of the first partner, (2) the response of the other partner is the second turn, and (3) the third turn is the first partner's response regarding the second partner's turn. This three-step conception of a minimum dialogue unit is coherent with the necessarily creative nature of the dialogue; at the moment in which the first partner responds to the second, he/she has been changed through the necessary participation of the second partner in his/her response. The emergence of novelty is established as a necessary part of this dialogue (Lyra, 1999).

The analysis of abbreviated dialogues needs to investigate how this dynamic organized communicative pattern allows the recognition of the differentiation of the infant's positioning in dialogue. I turn now to explore abbreviation.

#### *Abbreviation in dialogue*

One of the main functions of symbols is to "abbreviate" reality in such a way that frees the subject from functioning in an immediate time and space, thereby allowing the subject a more flexible manner of dealing with the world. In the symbolic domain, past and present information blended in swiftly recombined ways are used to prepare the subject for the unknown future in a more adapted manner (Valsiner, 2001, 2006). I am arguing that abbreviation seems to fit the criteria of flexibility and creativity that are characteristic of symbolic functioning.

What happens when partners abbreviate dialogue? The idea of abbreviation, as Vygotsky (1986) elaborates in the famous example of the dialogue between Kitty and Levin from his analysis of Tolstoy's novel *Anna Karenina*, refers to a type or format of dialogue in which only just a few words – or almost no words – are necessary for a mutual understanding between partners. The idea of this phenomenon is that, under certain circumstances and relying on the relationship history, partners abbreviate their dialogue. The interpersonal communication process is achieved by previously constructed internalized mutual knowledge between partners. Therefore, it is not necessary to externalize all elements of the communication message. The externalized communication is abbreviated. However, what are the qualities and characteristics of the internalized knowledge of the partners? Considering the infant, what can we infer from abbreviated mother-infant dialogues? In Vygotsky's terms, this last point would correspond to the analysis of the organizational characteristics of "internal or inner speech" (1978; 1986).

#### *The three characteristics of abbreviation and dialogical exchanges with objects*

In order to describe abbreviation I will rely on three interrelated notions that describe the characteristics of abbreviated mother-infant dialogues. The analysis also addresses the nature of the dialogues and the characteristics that it allows us to infer regarding the position of the partners in dialogue, particularly the infant's position. The

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first notion upon which to elaborate is *duration*; the *brief time* spent in the abbreviated dialogues, also reflected in the *smaller quantity of turn-takings* used by the partners in comparison to the typical extended dialogues that take place in the preceding period of organization of the communication process – *extension*. This characteristic suggests an achievement of a different level of mutual understanding and knowledge between partners.

Let us give examples of the mother-infant exchanges with toys (MOB type of dialogues). In these examples, baby and mother are negotiating exchanges with objects, particularly the task of the mother offering the object and the baby taking it – the give-and-take game. The examples below describe what I call *prototypical extension* and *prototypical abbreviation*. These two characteristic ways of extension and abbreviation appear more often in the developmental moment in which these dynamically organized patterns begin to dominate the dialogical exchanges. Both aspects slowly change over time; extension undergoes a process of transformation that becomes increasingly similar to the following pattern of organization, abbreviation, which in turn is transformed, mainly with regard to the increasing quantity of turn-takings due to the inclusion of novelty that sometimes requires a little more time and turn-takings within the dyadic exchanges. Nonetheless, this slight elongation of time in abbreviation is never similar to the period of extension in which actions are slowly introduced into the dialogues one by one, suggesting a contingent learning of the sequence of actions and requiring long periods of turn-takings.

The examples used in this text resulted from weekly video-records (20 minutes each, obtained from the second to eighth months of the infant's life) of healthy mother-infant exchanges registered in a laboratory setting similar to a home living room with a chair, toys and a carpet. The mother was instructed to play with her baby as she would at home. Thus, the mother could choose to use or not use toys.

### EXAMPLE 1 (EXT prototypical)

#### EXTENSION

Dyad J (baby's age – 14 weeks old)

Duration: 37 seconds

- (1) Mother holds a toy within the baby's visual field and squeezes it, making it produce noises
- (2) Baby looks at the toy and moves his arms and hands
- (3) Mother continues to squeeze the toy while shaking it within the baby's visual field

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(4) Baby continues to look at the object while moving his arms and hands

(5) Baby looks away

EXAMPLE 2 (ABB prototypical)

ABBREVIATION

Dyad J (baby's age – 21 weeks old)

Duration: 4 seconds

(1) Mother brings a toy to the baby's visual field and squeezes it, making it produce noises

(2) Baby looks at the toy and reaches for it with his arms, taking it from his mother's hand.

The prototypical abbreviation (EXAMPLE 2) shows a reduction of time (duration) and quantity of turn-takings of the dialogical event in comparison with the prototypical extension (EXAMPLE 1), which is the preceding period of organization of the communication process. This type of shortening of time and turn-takings is very characteristic of abbreviated dialogues and occurred in healthy infants (Lyra, in press; Lyra & Rossetti-Ferreira, 1995; Lyra & Souza, 2003; Lyra & Winegar, 1997) as well as in preliminary studies of two infants with Down Syndrome (Melo, 2006) and one deaf infant (Griz, 2004). A noticeable chronological delay of appearance of abbreviated dialogues was found in the mother-infant dyads with Down syndrome infants, but a less extreme delay was identified in the mother-infant dyad involving a deaf infant.

The other two notions used to describe the characteristics of abbreviated dialogues are *variability* and *novelty*, as both demonstrate the *characteristic of flexibility* of abbreviated dialogues; I am suggesting that flexibility reflects an organized totality that functions in a “virtual space” that simultaneously allows for maintenance and change in dialogues.

*Variability* is a pervasive aspect of all living systems (Edelman, 1997; Thelen & Smith, 1994; van Geert, 2003). However, how does variability enable moving the system forward? The point I want to make is that variability needs to be analyzed with regard to the quality or characteristic of the status of the system – the dynamically organizational pattern in which variability occurs.

I analyze variability with regard to the frequency and quality of variability, particularly by a comparison between variability during the abbreviated period of dialogical exchanges and that which takes place earlier, mainly during the extension

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period. Both frequency and quality use DHD as a criterion for distinguishing the different ways in which a single organizational pattern of dialogical exchanges can appear in slightly different actions or composition of actions. This means that the format in which the exchanges are negotiated by the dyad is maintained, but can be accomplished through different actions and/or composition of actions. For instance, the mother can offer the object to the baby, talking and smiling as the object approaches the baby's hand, or the mother can merely shake the object as it approaches the baby's hand. The baby can take the object from mother's hand and keep looking at the object, whether vocalizing or not, or can take it and put the object in his/her mouth. Frequency refers to the different actions and/or composition of actions that can be grouped into subcategories. The quality of these subcategories can be analyzed in terms of the inclusion of completely new actions or the recombination and/or elaboration of actions previously used by the dyad. For instance, a new action that constitutes a type of subcategory can be identified if the baby takes the object from the mother's hand instead of waiting for the mother to place the object in his/her hand, or if the mother offers two objects to the baby instead of just one as she did earlier. It is important to notice that these analyses should be carried out while bearing in mind the particular history of each dyad. It is not the specific action or actions chosen by the dyad that create a subcategory, but a particular dyadic history in which actions or composition of actions create different ways of maintaining the same organizational pattern of dialogical exchanges, even when making use of different possibilities of actions. The identification of subcategories is, therefore, an empirical task that uses DHD as an analytical tool.

From the analysis described above, it is possible to check the frequency of each subcategory plotted against the weekly register that corresponds to periods of establishment, extension and abbreviation. Figure 1 displays the plotting of the subcategories in relation to the infant's age (weekly records) in the Dyad 2M record. We can observe that variability increases particularly from the 25<sup>th</sup> to 26<sup>th</sup> weeks of the infant's age, when the system or communication achieves a total "preference" for functioning as abbreviated dialogues - at the 26<sup>th</sup> week, 100% of the dialogues are abbreviated (before the 26<sup>th</sup> week of the infant's age the "preference" for functioning as abbreviated dialogues was not 100% because we still have dialogues characterized as extension).

I have found increasing variability, measured by the frequency of different subcategories in two of the five dyads analyzed. Two other dyads presented this increase in subcategories from the extension period and the maintenance in the abbreviation period (Table 1).

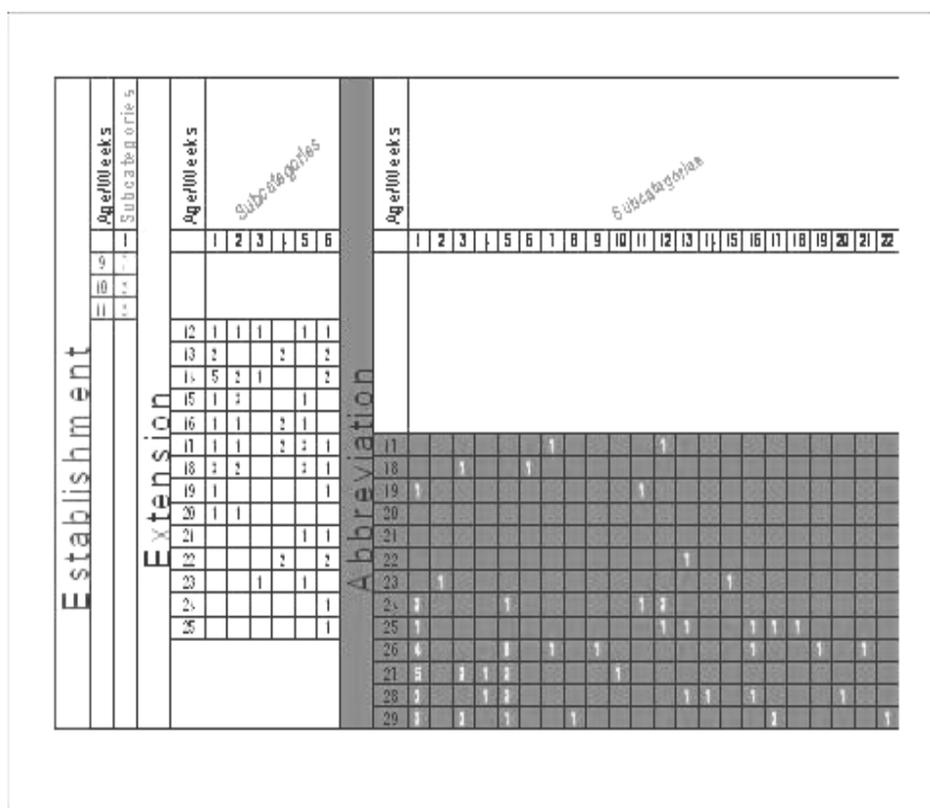


Figure 1. Dyad 2M (Souza & Lyra, 2000). Variability of subcategories (frequency) according to infant's age in establishment, extension and abbreviation - MOB type of dialogue

It is very important to stress that this increase in variability needs to be analyzed in conjunction with the next step of our analysis – the quality of the partners' actions throughout the history of construction of dyadic shared understanding and knowledge, particularly during abbreviation period. Moreover, each dyad presents a particular and unique developmental trajectory that is evident in the inter-individual variability regarding the absolute number of subcategories in establishment, extension and abbreviation (Table 1).

Following this first step of analysis, each subcategory was analyzed in terms of the *quality* of its action components throughout the history of construction. One core characteristic of these exchanges is *novelty*. The introduction of **novelty** is very compelling in the abbreviated dialogues. Novelty emerges as (a) *the transformation and/or expansion of previously used actions*; (b) *inclusion of actions in the previously "tried" dialogical exchanges, but not integrated within the dialogue*; or (c) *new, never-before-used actions*.

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**Table 1. Total variability of subcategories (frequency) during establishment, extension and abbreviation in five dyads – MOB type of dialogue**

Organizational Patterns	Establishment	Extension	Abbreviation
Dyads			
Dyad 2M (Figure 1)	1	6	22
Dyad 1M	1	6	11
Dyad S	9	20	36
Dyad H	7	15	14
Dyad J	4	6	7

*The transformation of and/or expansion of previously used actions<sup>3</sup>*

Let us give the following example of mother-infant dialogues regarding a characteristic game with objects of this age range, a “give-and-take game”. Consider the action of “*tapping the object on the baby’s chair*”. During the period of extension that precedes the abbreviation dialogues in which the dialogical event is expanded and the baby does not yet hold or take the object in his/her hand, this action is previously used by the mother.

EXAMPLE 3 (EXT Transformation & Expansion)

EXTENSION

Dyad J (baby’s age – 17 weeks old)

Duration: 16 seconds

- (1) *Mother taps the high chair (where the baby is sitting) with an object within the baby’s visual field*
- (2) Baby looks at the object

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<sup>3</sup> This way of introducing novelty in the abbreviated dialogues corresponds to a change process referred to by Pantoja (1997) as “bridges” or “bridging frames” (Fogel, Garvey, Hsu & West-Stroming, 2006).

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- (3) Mother repeatedly brings the object close to the baby and immediately moves it away from the baby
- (4) Baby visually tracks the object
- (5) Mother squeezes the object, making it produce noises
- (6) Baby looks away

However, during the abbreviated dialogues, the mother introduces the action of “*tapping the object on the floor*”, particularly “*tapping the object on the floor by holding the baby’s hand*”, making the baby tap the object on the floor with hand-over-hand.

### EXAMPLE 4 (ABB Transformation & Expansion)

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Dyad J (baby’s age – 24 weeks old)

Duration: 11 seconds

- (1) *Mother taps the floor with a toy*
- (2) Baby looks at the toy and reaches for it with his arms
- (3) Mother brings the toy close to the baby
- (4) *Baby holds the toy, but does not take it from his mother’s hand*
- (5) *Mother holds the baby’s hand and makes the baby tap the floor with the toy (hand-over-hand)*
- (6) Mother releases the baby’s hand
- (7) *Baby keeps holding the toy and brings it to his mouth*

In these examples, extracted from the same Dyad J, a dyad capable of abbreviating in a prototypical manner (EXAMPLE 2), we find the mother, who has previously used the action of tapping the baby’s chair during the extension period, expanding and transforming this action during abbreviation to *tapping on the floor* and *holding baby’s hand while performing the action*. *The baby does not take the object from the mother’s hand after the mother has tapped the floor*. It seems that the baby waits a little in order to integrate the new action into the dialogical exchanges. However, this is done in a rather swift (the entire event takes 11 seconds) and smooth

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manner. *After the second novel action – hand-over-hand action – the baby keeps the toy and brings it to his mouth.*

Another example (EXAMPLE 5), now from Dyad S, is the introduction of the action of *bringing the object close and moving it away from the baby (several times) before offering the object to the baby, who then takes it.* For this dyad, the action is introduced in the abbreviated dialogues at 21 weeks of age. Earlier (during establishment and extension periods), when the mother uses the action of *moving the object, she does so by moving the object outside the baby's reach and not placing it close to the baby's reach.*

### EXAMPLE 5 (EST Transformation & Expansion)

#### ESTABLISHMENT

Dyad S (baby's age – 15 weeks old)

Duration: 11 seconds

- (1) *Mother moves* the object in front of the baby's face
- (2) Baby looks at the object and immediately looks away

### EXAMPLE 6 (EXT Transformation & Expansion)

#### EXTENSION

Dyad S (baby's age – 19 weeks old)

Duration: 27 seconds

- (1) Mother and baby look at an object
- (2) Mother starts to talk while smiling
- (3) Baby keeps looking at the object while moving his arms and legs
- (4) Mother keeps talking and smiling
- (5) Baby keeps looking at the object while moving his arms and legs
- (6) *Mother moves the object far from the baby's reach*
- (7) Baby moves one of his hands toward the object
- (8) *Mother keeps moving the object far from the baby's reach*

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(9) Baby looks away

EXAMPLE 7 (EXT Transformation & Expansion)

ABBREVIATION

Dyad S (baby's age – 21 weeks old)

Duration: 2 seconds

(1) Mother and baby look at the object

(2) *Mother repeatedly brings the object close to the baby and immediately moves it away from the baby*

(3) *Baby takes the object from the mother's hand when the object is in his reach*

*The inclusion of actions in the previously "tried" exchanges but not integrated within the dialogue*

The examples to be described from Dyad J show how the mother's action is integrated within the dialogically abbreviated exchanges. Earlier, since the establishment period and during the extension period, the mother had "tried" the same action, but the baby and the mother do not seem to "include" it in the "give-and-take" game. The examples below show a *mother's offering two objects (or more) to the baby at the same time instead of just one, as is usual in these abbreviated dialogues.*

During establishment (EXAMPLE 8), the baby is 6 weeks of age, and during extension she is 14 weeks (EXAMPLE 9). We can observe that the mother offers two objects to the baby at the same time. However, in the first example, *the baby looks away*, and during extension, *the mother again offers the two objects, but maintains them distant from the baby; the baby tries to touch or catch the object(s), but the mother takes them away.*

EXAMPLE 8 (EST Inclusion)

ESTABLISHMENT

Dyad J (baby's age – 6 weeks old)

Duration: 2 seconds

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- (1) *Mother brings two objects into the baby's visual field, making both objects produce noises*
- (2) *Mother immediately moves the objects away from the baby's visual field*
- (3) *Baby looks in the direction of the objects and immediately looks away*

EXAMPLE 9 (EXT Inclusion)

EXTENSION

Dyad J (baby's age – 14 weeks old)

Duration: 7 seconds

- (1) *Baby tries to crawl on the floor*
- (2) *Mother puts two objects on the floor in front of the baby, but out of his reach*
- (3) *Mother and baby start to vocalize*
- (4) *Mother squeezes one of the objects making it produce noises*
- (5) *Baby tries to crawl towards the objects*
- (6) *Mother takes the objects away*

During abbreviation (EXAMPLE 10), *both mother and baby display a dialogue that includes the offering by the mother of two objects and the baby's immediate action of taking one of the two objects offered.*

EXAMPLE 10 (ABB Inclusion)

EXAMPLE ABBREVIATION

Dyad J (baby's age – 22 weeks old)

Duration: 5 seconds

- (1) *Baby is sitting on the floor*
- (2) *Mother starts to talk and puts several objects on the floor in front of the baby within his reach*

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(3) *Baby reaches for one of the objects and takes it*

This abbreviated “give and take” game occurs three more times successively.

The abbreviated dialogues go further (EXAMPLE 11), *elaborating on the mother's action of offering, and now including the mother's action of shaking many objects and the baby taking one of the objects*. This new aspect changes, to some extent, the dialogue from “offering” by showing the objects to the baby to the action of shaking the objects that leads to *the baby's action adapted to this novelty by immediately taking one of the objects, maintaining the characteristic dialogue of the “give-and-take” game*.

EXAMPLE 11 (ABB Inclusion)

EXAMPLE OF ABBREVIATION

Dyad J (baby's age – 23 weeks old)

Duration: 4 seconds

- (1) Baby is sitting on the floor with several objects in front of him within his reach
- (2) *Mother manipulates some of them*
- (3) *Baby reaches for one of the objects and takes it*

*New, never-before-used actions*

The emergence of completely new actions within the abbreviated dialogues is illustrated by the examples of Dyad J. Let us first describe the prototypical abbreviated dialogues in this dyad (EXAMPLES 12 and 13). The presence of these abbreviations precedes the emergence of new actions. However, these prototypical abbreviations continue to occur in a less frequent manner.

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EXAMPLES 12 (ABB prototypical)

ABBREVIATIONS

Dyad J (baby's age – 16 weeks old)

Duration: 9 seconds

- (1) Mother holds an object in front of the baby and starts to talk
- (2) Baby looks at the object
- (3) Mother squeezes the object making it produce noises
- (4) Baby reaches for the object with his arms and takes it from his mother's hand

EXAMPLE 13 (ABB prototypical)

ABBREVIATIONS

Dyad J (baby's age – 23 weeks old)

Duration: 5 seconds

- (1) Mother brings an object close to the baby
- (2) Baby reaches for the object with his arms and takes it from his mother's hand

Against this background of well-known shared dyadic understanding and knowledge, which is evident in these prototypical abbreviated dialogues, the emergence of new actions in this dyad are undeniable and numerous; mother and baby innovate. The examples that follow (EXAMPLES 14A to 14F) nearly all occurred in a sequence of events involving dialogical exchanges during the same record, corresponding to a single day. All had a short duration, varying from 7 to 12 seconds. These examples are summarized, highlighting the new actions from both partners, as we can observe below.

EXAMPLES 14 (ABB New)

ABBREVIATIONS

Dyad J (baby's age – 23 weeks old)

Duration: 7 – 12 seconds

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### EXAMPLE 14A

*The mother takes the object from the baby's hand and the baby insists on taking the object back until finally doing so*

### EXAMPLE 14B

*The mother responds to the baby by taking an object after the baby has shaken the object*

### EXAMPLE 14C

*The baby, repeating the mother's way of offering, shakes the objects after having taken them*

### EXAMPLE 14D

*The baby's let the objects drop; the mother takes them and the baby takes the objects from the mother's hand once again*

### EXAMPLE 14E

*The mother retains the object and the baby insists on getting it*

### EXAMPLE 14F

*The baby lets the object drop; the mother looks at the object, makes it produce a sound and the baby takes it again*

The most important aspect to be highlighted is the flexibility of the dyad to change, using new actions at the same time that the abbreviated format is maintained in the dialogues. Moreover, the seeds of a reversal give-and-take game, suggesting an inversion of roles between the mother and baby in this game, exhibit an important step regarding the partners' positioning in the dialogue. Particularly, EXAMPLE 14B, *in which the mother takes an object after the baby has shaken the object*; EXAMPLE 14C, *in which the baby repeats mother's action of moving the object*; and, EXAMPLES 14D and 14F, *in which the baby drops the object and the mother takes it, followed by the baby's taking the object again in a swift, smooth and adjusted fashion*, illustrating an inversion of roles between the mother and baby in the give-and-take game.

Examples from dyad 2M again show the introduction of new actions within the abbreviated dialogues. For this dyad, the prototypical abbreviation includes the mother offering the object by throwing it in front of the baby and the baby crawling towards the object (EXAMPLE 15). This is an abbreviated dialogue that is particular and typical for this dyad, as we can observe in the example below. Consequently, the new actions need to be analyzed with regard to the particular way the abbreviated dialogues unfold in the dyad investigated.

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EXAMPLE 15 (ABB prototypical)

ABBREVIATION

Dyad 2M (baby's age – 29 weeks old)

Duration: 10 seconds

- (1) Mother and baby are sitting on a bed
- (2) Mother takes a rattle and tosses it on the bed, out of the baby's reach
- (3) Baby looks at the rattle, moves her body forward, gets on her hands and knees on the bed, crawls toward the object, stretches out her arms, takes the rattle and holds it

The novel action illustrated in the following example (EXAMPLE 16) refers to the way the mother offers objects. *She offers the objects to the baby before placing them on the floor in front of the baby and the baby extends her arms towards the objects before they are placed on the floor.*

EXAMPLE 16 (ABB New)

ABBREVIATION

Dyad 2M (baby's age – 28 weeks old)

Duration: 11 seconds

- (1) Baby is sitting on a bed
- (2) Mother walks toward the baby holding three objects
- (3) *Mother bends over towards the baby, bringing the objects into the baby's visual field and says, "Take them!"*
- (4) *Baby looks at the objects and extends her arms toward them*
- (5) Mother drops the objects on the bed near the baby
- (6) *Baby looks at the objects on the bed, extends her arms toward one of them and takes it*

The next example (EXAMPLE 17) shows *the mother's new action of grabbing the objects from baby's hand, followed by tossing them on the baby's bed and the baby*

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*immediately taking one of the objects.* Similar to dyad J, in this example from dyad 2M, the seeds of a reversal give-and-take game appear, suggesting that an inversion of roles between the mother and baby can be highlighted here as well.

EXAMPLE 17 (ABB New)

ABBREVIATION

Dyad 2M (baby's age – 29 weeks old)

Duration: 4 seconds

- (1) *Mother takes the rattle from the baby's hand and tosses it on the bed again*
- (2) *Baby crawls toward the rattle and holds it again*

A word needs to be said regarding the flexibility and innovative character of abbreviated dialogues. I have chosen to use examples that stress novelty, considering the motor actions of both partners. Assuming dialogue is occurring at the level of partners' actions, I have two reasons for this choice: First, these motor actions involving objects unambiguously illustrate the novel inclusion of the external word in dialogue, and second, transformations in dyadic exchanges (such as role inversion) can be demonstrated more visibly. However, other dimensions of abbreviated dialogues could have been used to illustrate the creation of novelty. As examples, I could have referred to the baby's vocalizations and the mother's talking, smiling from both partners, and different cadences of joining together these actions with the novel motor actions. However, it is important to highlight that novelty needs to be included within the abbreviated dialogues for both partners. What I want to stress is that it is at the level of mutual understanding that we can consider novelty inclusion in the dialogue.

*Infant positioning in the abbreviated dialogue*

What can we deduce about differentiation of the infant's positioning in the abbreviated dialogues?

The first aspect to be highlighted is the possibility that the infant is starting to distinguish the intention of the partner to communicate from what is used (what actions) in the abbreviated dialogue. For instance, the mother holds the baby's hand and has the baby tap the floor with the toy (hand-over-hand); the mother then releases it; the baby keeps holding the toy and brings it to his mouth (EXAMPLE 4), or the mother retains the object and the baby insists on getting it (EXAMPLE 14E). These are new actions resulting from either the transformation and expansion of previously used actions (EXAMPLE 4) or the introduction of a completely new action (EXAMPLE 14E). Why

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does the dyad maintain the give-and-take abbreviated dialogue? It seems that the infant and his/her mother understand each other in a way that allows them to “not be surprised” by such novelty introduction. Thus, I am proposing that the dyad, and therefore the infant in his/her partner role, is starting to separate the intention of offering the object by the mother from the specific actions used to communicate. The abbreviated dialogues occur in a swift, smooth and adjusted manner, suggesting that the partners’ mutual understanding and knowledge are well established. This mutuality needs to carry out some degree of separation between the intention of the partner and the actions that communicate such intention in order to accomplish the well-adjusted communicative abbreviated dialogue that includes novelty. It is my contention that the infant is starting to separate his/her own position in the dialogue from that of the partner.

The infant’s differentiation of his/her positioning in the abbreviated dialogue is more clear-cut or “active” in the case of completely new actions (EXAMPLES 12 to 17), particularly the infant's introduction of new actions to the dialogue. One example is the infant insistently trying to get the object from the mother’s hand even when the mother is retaining it (EXAMPLE 14E). In the context of transformation and/or expansion of previously used actions (EXAMPLES 3 to 7) and the context of the inclusion of actions in previously attempted exchanges but which are not yet integrated within the dialogue (EXAMPLES 8 to 11), the infant innovates through his/her “acceptance” of the mother’s new actions, continuing the dialogue as a more “passive” demonstration of his positioning. Moreover, it is also in the first condition – the infant’s introduction of completely new actions – that the mother more clearly exhibits that she “understands” the infant’s capacity to innovate and, therefore, the infant’s differentiation in the dialogical partner’s positioning.

This discussion leads us to the second aspect, which focuses on the analysis of the mother’s innovation within the abbreviated dialogues. The mother innovates because the infant is demonstrating that he/she is taking on his/her position role in the dialogue. Let us elaborate on this point. The history of the dyad allows the mother to “trust” the abbreviated format as a secure ground for introducing novelty. What does this secure ground mean? I propose that it means some degree of abstraction of dyadic functioning in which the mother “knows” that the infant “understands” her action of offering; the infant responds by taking the object in a swift, smooth and adjusted manner, thereby abbreviating the dialogue. This is well illustrated in EXAMPLE 14A, which shows the mother taking the toy from the baby’s hand (giving it back later on) and in EXAMPLE 14B, which shows the mother taking the object that the infant was touching and manipulating. These two illustrations suggest an initiation of an inverted game in which the roles of the partners change by the infant offering and mother taking the object. We can observe the process of partners’ simultaneously differentiating their positioning. Both the infant and mother demonstrate this through their actions. In other

words, as the infant starts demonstrating a distinction between the intention of the partner to communicate from the content communicated, the mother starts elaborating the seeds of a reversed give-and-take game; the infant can now be the one that offers and the mother the one that takes the object. I am proposing that both the mother and infant's innovation *vis-à-vis* their partners initiates a dynamic that exhibits their positioning differentiation. Moreover, this dynamic is characteristic of abbreviated dialogues, as abbreviation requires a mutual and relational "understanding" of the "internalized" role of the partners in dialogue made clear through their actions.

Let us elaborate on the nature of this "understanding". This third point of focus deals with the nature of the possible predictability of each action within the sequence of actions that comprises the abbreviated dialogues. This refers to the predictability of the exact sequence of actions used in each abbreviated dialogue. I am proposing that abbreviation allows a decrease in this predictability. The basis for this reasoning is the freedom from a type of learning that characterizes the extension period. I argue that the type of learning during the extension period can be characterized by a contingent learning based on a point-by-point contingency of actions. In extension, the dyad has a necessity to put each action in sequence, almost one-by-one, in order to get the infant's attention and interest, and thereby achieve learning. Abbreviation suggests or shows that this type of learning is changing towards a new one characterized by the infant's capacity to learn a totality regarding their relationship, no longer a point-by-point type of learning. This new capacity allows the infant to function in a new space, new reality or new dimension more detached from the immediate space of actions. A totality is abstracted and reconstructed from the immediate and contingent space of actions. Moreover, this reconstruction exhibits a greater flexibility, allowing the swift, smooth and adjusted integration of new actions within the abbreviated dialogue. The place or space in which the partners function is what I have called a "virtual space or reality", which allows the partners' to maintain the abbreviated format and change it through the introduction of new actions within the dialogue. In this way, abbreviation allows the emergence of self-positioning in a "virtual space" of functioning.

#### *The ritualized nature of abbreviations*

Abbreviation as a historical construction between partners functions as the basis for anchoring both novelty introduction and the maintenance of the dialogue. Novelty inclusion in the abbreviated dialogues requires two conditions, maintenance and change. In other words, the abbreviated format is maintained, but the content of the negotiated message can change. My argument proposes that the "virtual space" in which the emergent self starts distinguishing his/her dialogical positioning functions as a relationship between the actual partners' emergent positions – including the infant and the mother – and the constructed history, which takes on a kind of ritualization. This ritualization corresponds to the format of the abbreviated dialogues. The format is updated at every turn in each partner's positioning through their actions *vis-à-vis* each

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other, composing the communicated content that innovates. Under these conditions, we have a dialogue that blends a three-part composition: the history as the ritualized format of the abbreviated dialogues and each partner's positioning contained in the current message of the dialogues.

It is important to stress that symbolic functioning not only requires a differentiation of the partners' positions, but also the emergence, participation and integration of the social and cultural nature of symbols (Marková, 2003; Valsiner, 2006). I propose that this participation and integration are also a concomitant achievement. I am suggesting that the participation of the socially and culturally constructed nature of the symbolic world starts in early infancy through this dyadic history. At least one way of exhibiting this participation is by assuming the ritualized format of abbreviated dialogues. My aim is to determine the dynamic that gives birth to the differentiation of the infant's positioning in the dialogue and to also stress that this dynamic gives birth to a triadic structure of dialogue functioning along the lines of Marková's thinking (2003). This means that the abbreviated dialogues include each partner's contribution and the history of the dyad that assumes the ritualized format of these dialogues. This ritualization corresponds to the third partner in the dialogue. Dialogue requires maintenance and change. Maintenance is achieved through the ritualized abbreviated format. Change corresponds to each partner's contribution, including the introduction of novelty within the abbreviated format. The coordination between the maintenance and change of the abbreviated dialogues shows the interplay between both partners' updated contributions (as far as they occupy different positions in the dialogue) and the constructed history of their dyadic exchanges. It is through this process that the infant starts authoring his/her biography.

### **Conclusion**

Abbreviated dialogues exhibit the first germs of functioning in a space or reality -- a "virtual reality" -- that is different from the one occurring before, during the extension period. In this new space, the infant starts differentiating his/her positioning in the dialogue with regard to his/her mother. The infant and his/her mother have constructed a shared knowledge that allows differentiating the mother's intention from the specific actions that achieve the communicated content. In this context, novel actions can be included in the dialogue. Being able to abbreviate the dialogue means acquiring a functioning space that allows the maintenance and change of the dialogue. Being able to abbreviate also means that individual participation as partners in the dialogue begins to be revealed. The quality of this historically constructed simultaneity of individual abbreviated knowledge suggests an organized totality of possibilities. In other words, the increase in variability and novelty within a maintained, organized, smooth and well-adjusted dialogue indicates the emergence of a different space for the infant's functioning, in which the infant's positioning is a concomitant and necessary achievement. Using an analogy with Vygotsky's notion of internal or inner speech, I

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suggest that the infant's functioning in abbreviated dialogues reveals an "inner abbreviation", the differentiated side of the simultaneity of the dialogues.

Abbreviation can be considered a bridge that relates the development of an ecological self and the emergence of a self that requires a functioning space that exhibits the seeds of semiotic functioning. The ecological self constructs a sense of self based on the co-regulation and coordination of actions within the earlier dialogues. This earlier self does not yet require the quality of the functioning exhibited in abbreviation. Emerging from these earlier senses of self, a new type of dialogical exchange is demonstrated in abbreviation. This new exchange assumed by the dialogue demonstrates the concomitant achievement of a "virtual space" and the first steps in the process of the infant's position differentiation.

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