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The Interactive Origin and the Aesthetic Modelling of Image-Schemas and Primary Metaphors

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Abstract According to the theory of conceptual metaphor, image-schemas and primary metaphors are preconceptual structures configured in human cognition, based on sensory-motor environmental activity. Focusing on the way both non-conceptual structures are embedded in early social interaction, we provide empirical evidence for the interactive and intersubjective ontogenesis of image-schemas and primary metaphors. We present the results of a multimodal image-schematic microanalysis of three interactive infant-directed performances (the composition of movement, touch, speech, and vocalization that adults produce for-and-with the infants). The microanalyses show that adults aesthetically highlight the image-schematic structures embedded in the multimodal composition of the performance, and that primary metaphors are also lived as embedded in these inter-enactive experiences. The findings allow corroborating that the psychological domains of cognition and affection are not in rivalry or conflict but rather intertwined in meaningful experiences.

Keywords Image-schemas · Primary metaphors · Early infancy · Infant directed performance · Multimodal interaction

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Introduction

The theory of conceptual metaphor posits certain cognitive structures, called image-schemas, which are located at the foundation of our conceptual abstract domain. Image-schemas are characterized as pre-conceptual structures; they are dynamic and recurrent patterns of our sensory-motor experience (visual, aural, tactile, kinetic) stored in our cognitive system. On the other hand, primary metaphors are experiential states where an overlapping or co-activation of neural patterns will later in development be conceptually differentiated but nevertheless remain bound at the neural level (Lakoff and Johnson 1980-2003, 1999; Johnson 2007). Affective components are included in primary metaphors, and through them, in the cognitive system (Lakoff and Johnson 1999). In this paper, we adopt an interactionist (Gallagher 2001) or second-person (Gomila 2003; Reddy 2008) perspective in order to show the role of adult-infant interactions in the formation of primitive image-schemas and primary metaphors.

Interactions between adults and infants are shaped in very different ways. One frequent mode of early interaction is infant directed performance. Unlike protoconversations -which imply an active infant participation in turn-taking (Bateson 1979)- infant directed performances are vocal, tactile, and kinetic phrases unfolded mainly through the adult's on-line composition. The structure of these performances contains minor unities or motifs -formed by rhythmic patterns, shapes of body movements, and/or vocal melodic contours- that are repeated in varied modes, including changes in intensity, shape and/or dynamics (Stern 1974; Stern et al. 1977; Beebe and Gerstman 1980; Español 2014; Martínez 2014; Español and Shifres 2015; Carretero and Español 2016). Performances are body-to-body phrases of movement and sound with dynamic, affective, multimodal and aesthetic features, formed by the constitutive elements of the temporal arts (Dissanayake 2000; Español and Shifres 2015; Gratier and Apter-Danon 2009; Miall and Dissanayake 2003). In this paper we will focus on these performances in order to highlight the presence of both image-schemas and primary metaphors in their basic structure.

Through identification -by observation and feature description- of image-schemas and primary metaphors embedded in ecological contexts, we aim to provide an account of the first instances where both primitive structures emerge in the infant's life throughout the activity that the adult performs to-and-with the infant.

Image-schemas are preconceptual structures that are instantiated and stored in cognition as a result of the activity of our bodies in the environment. As Lakoff and Johnson (1999) point out, these basic structures form a pre-verbal and non-conscious emergent level of meaning that links our sensory-motor experience to conceptualization and language. Our embodied experience of motion gives rise to inferences that we draw on reality. Among their relevant features, recent research identifies the following ones: (i) their relation to motor programs, (ii) the emergence of dynamic patterns through perceptual and emotional interactions with others, (iii) the direct significance derived from recurrent movements as a result of object manipulation, (iv) their grouping in multimodal Gestalts with a simple internal structure flexible enough to allow transformations in different experiential contexts where they become active, (v) their existence as continuous and analogue unconscious patterns, previous to other concepts, and (vi) a binding function between the concrete-imaginistic domains, and the more abstract-non-imaginistic ones in metaphorical projections (Hampe 2005).

Different groups of image-schemas can be found in the literature; there are those grounding spatial concepts, such as SOURCE-PATH-GOAL, CONTAINER, WHOLE-PART, and CENTER-PERIPHERY; others structuring orientational concepts, i.e. NEAR-FAR, FRONT-BACK, and UP-DOWN. Some image-schemas shape the dynamic concepts of effort in movement: BLOCKAGE, ATTRACTION, COUNTERFORCE and IMPULSE, among others. The SOURCE-PATH-GOAL image-schema structures spatial experiences containing movement trajectories with identifiable departure and arrival points, as well as the path between them. The UP-DOWN image-schema organizes spatial orientational experiences with displacements along the vertical axis.

In the classic canonic analysis of an image-schematic structure of action (Johnson 1987) the following components can be identified: a spatial location that corresponds to the initial state of the action (A); a spatial location that corresponds to the final state of the action (B); and a movement that takes place between A and B, and that may eventually originate a sequence of intermediate actions (pp. 114–115). Thus, for example, in the SOURCE-PATH-GOAL image-schema, understood here as the abstract structure of the recurrent experiences of intended or purposeful movement, we identify: (A) as the initial location of movement; (B) as the movement's final location or arrival point; and a lineal movement trajectory that begins in (A) and finishes in (B). In the VERTICALITY image-schema, consisting on the abstract structure of recurrent experiences of ascending and/or descending movements, we identify: (A) either DOWN or UP initial spatial locations; (B) the final spatial location contrary to the first one; and the upwards and/or downwards movement that links (A) and (B).

The dynamic character of image-schematic structures is their characteristic feature (Gibbs 2005). Image-schemas are dynamic in two senses: they correspond to structures of ongoing activity, and they are flexible. That is, within the limitations of their basic conformation, image-schemas can be modified to capture the specifics of the contexts where they are activated. Image-schemas are best understood as embodied simulations at the time of their occurrence. They emerge from a fully embodied activity that brings a kinesthetic felt-sense of tridimensional depth to human experience (Gibbs 2005, p. 119). From this point of view, image-schemas are psychologically real experiential *Gestalts*, not because they are a part of the mind but because they are stable and meaningful states of embodied experiences.

Lakoff and Johnson (1999) also include primary metaphors at the foundation of subsequent cognitive meaningful structures. Primary metaphors are basic structures that are not constituted by more metaphors. We are interested in highlighting the kind of primary metaphors originated by an overlapping or coactivation of neural patterns that later in development will be conceptually distinguished but that remain bound at the neuronal level (Lakoff 2008, pp. 26–8, gathering up the ideas of Johnson, Narayanan, and Grady). When Lakoff and Johnson refer to these metaphors they make explicit the possibility of incorporating affective elements into cognition; and many examples they give include actions in contexts of social interaction. Some examples of primary metaphors are MORE IS UP, AFFECTION IS WARM, and INTIMACY IS CLOSENESS.¹ For example, in an early developmental stage,

¹ See Lakoff and Johnson (1999) pp. 50–54 for a list of primary metaphors.

the primary metaphor AFFECTION IS WARM co-activates the subjective-emotional state of affection with the sense of temperature, conflating the state of feeling warm while being held/embraced with affection. This situation is exemplified in a later stage of development by means of metaphoric linguistic expressions such as “I was greeted warmly” (Lakoff and Johnson 1999, p. 50).

As far as we know, systematic observations of the links between primary metaphors and image-schemas in early interactions have not been pursued from this perspective. Moreover, the question regarding the evolutionary origin of image-schemas has always been made from an individualistic point of view on development. It is assumed that image-schemas emerge during the infant’s sensory-motor activity (ascending, descending, standing up, and so on, without paying attention to the role of the caregiver in these experiences) (Johnson 1987; Mandler 2005).

In this work, we adopt an alternative proposal for the genesis of image-schemas and primary metaphors, which is genuinely embodied and dynamic, where attention will be devoted to the dynamic and embodied coupling between infant and adult. We propose that in contexts of body-to-body adult and baby encounters some experiential Gestalts unfold in peculiar and striking ways. Those Gestalts are structured under the form of image-schemas (such as SOURCE-PATH-GOAL and VERTICALITY) so the baby experiences them in the context of social interaction, long before her own independent performance. Likewise, we will show how complex exchanges between adults and babies prepare the ground for the emergence of some primary metaphors.

Materials and Method

We ran a microanalytical study of three interactions during infant directed performances. Microanalysis is prototypical in the study of early adult-infant interactions (Jaffé et al. 2001; Carretero and Español 2016). This method involves a detailed description of filmed interactive behaviors observed frame-by-frame, extracted from longer interaction scenes. Such detailed analysis allows the description of social behavioral modes unnoticeable in naturalistic observation.

The recorded material was observed using Anvil 4.0 -a video-annotation software developed by Michael Kipp (2004). This software concedes (i) manipulating the video’s speed reproduction; and (ii) watching the video and simultaneously annotate each category of analysis on a time line.

The Multimodal Model Analysis

A multimodal model -created by Martínez (2014)- was used to analyze the infant directed performances. It consists of three main components useful to describe the ways in which an image-schematic form is enacted in the adult’s performance: (i) the *sequence of actions of an image-schematic form as performed*; (ii) the *adult-infant expressive sound-linguistic components* through which an image-schematic form is composed and enacted; and (iii) *the type and quality* (shape and effort) *of the movement* involved in the enaction of the image-schematic form. Components ii

and iii have already been analyzed with similar tools in previous studies (Español and Shifres 2015).

The Sequence of Actions of an Image-Schematic Form as Performed

An image-schematic form unfolded in a performance is commonly studied following the classic canonic analysis of the image-schematic structure of actions usually applied in cognitive linguistics (Johnson 1987, 2007; Lakoff and Johnson 1999). Thus, the image-schematic forms' components are identified in the first place, and the sequence of actions involved in the image-schematic enacting is considered afterwards.

The Adult-Infant Expressive Sound-Linguistic Components

Sonic expressive features of multimodal performances that unfold image-schemas are studied using some of the categories that describe expression in music performance, and some of the categories that are employed in voice analysis. The approach combines audiovisual observation and aural analysis of sonic-linguistic features, identification of temporal and dynamic variations -such as crescendi, decrescendi, accelerandi, ritardandi-, and sound articulations such as stacatto or legato; likewise, aspects of adult and infant speeches and/or expressive vocalizations are examined.

The Type and Quality of Movements

Movement features of multimodal performances unfolding image-schemas were analyzed using the “*Effort*” and the “*Shape*” categories of the Laban System of Movement Analysis (Laban 1971; Newlove 2007). *Effort* makes reference to an attitude of fighting or surrendering to space (direct versus flexible), time (sustained versus sudden) and weight (light versus heavy). The combination of these factors results in eight basic types of Effort: (1) *pressing* (direct - sustained - heavy), (2) *gliding* (direct - sustained - light), (3) *punching* (direct - sudden - heavy), (4) *dabbing* (direct - sudden - light), (5) *wringing* (flexible - sustained - heavy), (6) *floating* (flexible - sustained - light), (7) *flicking* (flexible - sudden - light), and (8) *slashing* (flexible - sudden - heavy). Each of the eight basic types of Effort can be performed in a continuum flow: from a free flow (difficult to stop) to a bound flow (easy to stop). The theory highlights that each Effort leads to specific sentiments. *Shape* involves (i) Body: it refers to the parts of the body implied in the movement, and their connections; (ii) Space: it refers to the relation of the body with the surrounding space, the kinesphere being the space limited by the points reached by the extremities without changing body position. The kinesphere defines three possible Body positions in Space: *vertical* (up-down), *horizontal* (left-right) and *sagittal* (front-back); (iii) Form: understood in terms of the basic opening/closing opposition while breathing in the vertical, horizontal, and sagittal planes. Thus, three forms are obtained: rising-descending, spreading-enclosing, and advancing-retiring (Laban 1971; Newlove 2007).

Results

We present the multimodal microanalysis of three adult-infant interactions during infant directed performances. Performance 1 depicts the analysis of an adult-infant dyad interaction occurred in a Western urban setting,² Performance 2 presents the microanalysis of an adult-infant dyad interaction from the Guapi Afro-Colombian community, and Performance 3 describes the microanalysis of an historical performance. In each performance, we present an observational account of the scene, a table of multimodal microanalysis, and the data interpretation concerning image-schematic enactions and primary metaphors.

Performance 1: Adult-Infant Dyad of a Western Urban Setting

Scene Description

In this performance, an adult and a seven-month-old baby are seated face-to-face. The adult produces, repeats, and varies sound and movement phrases while playing with the baby by moving a pillow UPWARDS (pushing it away from the baby) and DOWNWARDS (approaching the baby). At the same time, she improvises verbal phrases and sings short *cantilenas*. The third repetition of the phrase ends with the adult approaching the pillow as close to the baby's body as possible. The baby smiles and shows facial gestures and movements denoting engagement. The interaction unfolds with permanent eye-contact, only interrupted by the movement of the pillow.

Multimodal Microanalysis

Table 1 presents the multimodal microanalysis of performance 1. It describes (i) the sequence of actions of the image-schematic form performed by the adult and the infant's response (left column); (ii) the expressive vocal component of the adult-infant interaction, and other sounds and expressive facial gestures (middle column); (iii) and the shape and effort of movements performed by both participants during the performance (right column).

Interpretation

In this performance, the UP-DOWN and SOURCE-PATH-GOAL image-schemas are combined in the adult's enaction. The structure of the image-schematic form is organized according to the repetition-variation form (characteristic of infant directed performances). During the introductory preparation (i-ii in Table 1), the enaction of the UP-DOWN image-schema is used by the adult to set the pillow in the UP location; this image-schematic introduction leads to the sound-kinetic actions displayed by the adult when enacting the SOURCE-PATH-GOAL image-schema for the first time (iii to v, in Table 1). Next, the whole image-schematic form (including the preparatory section) is once more fully enacted, with performative variations (vi to x, in Table 1). The performance ends with a final brief section, the 'Coda'; it takes place after the climax has been achieved at

² A preliminar analysis was done in Martínez (2014)

Table 1 Multimodal microanalysis of the enaction of the image-schematic form in performance 1

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
Preparation 1		
ADULT	The adult calls for baby's attention saying to the baby: "Habibi... look!" and using whispered vocal emission at high register.	The adult gently taps the baby's legs with rising-descending form, with dabbing effort (direct - sudden - light).
BABY	The baby -who was looking to one side- looks at the hand of the adult, until it rests on the pillow.	The baby gently rotates his head and trunk, with a gliding effort (direct - sustained - light).
ADULT	(ii) Seated in front of the baby as in (i), the adult performs a movement from DOWN location to UP location, raising the pillow with both arms until the object reaches a location above her head.	The adult raises the pillow with both arms, shaping a raising form with gliding effort (direct - sustained - light).
BABY	The baby raises his head directing to and holding his gaze on the pillow.	The baby gently raises his head with gliding effort (direct - sustained - light) and then opens his mouth with dubbing effort (direct-sudden-light).
Performance of the SOURCE-PATH-GOAL image-schema		
SOURCE		
ADULT	(iii) The adult is seated in front of the baby, holding the pillow with her raised arms above her head at UP location.	The adult sustains her arms raised at up location, remaining frozen for an instant while she says the first part of the verbal phrase: "It is Up here, Habib". The adult head's movement shapes the form advancing-retiring, with punching effort (direct - sudden - strong). The phrase concludes with a small movement, always at the top location- advancing the pillow with gliding effort (direct - sustained - light).
BABY	The baby raises his arms onto the pillow.	The baby gently raises his arms with floating effort (direct-sustained-light).
The baby keeps on smiling and looking to the pillow with expectation.		

Table 1 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
<p>PATH</p> <p>ADULT</p> <p>(iv) The adult moves the pillow from UP location to DOWN location, approaching the pillow to the baby.</p>	<p>While moving the pillow the adult pronounces the verbal phrase: "And it comes to Habibi". The descendant vocal emission encompasses an interval of an octave.</p>	<p>The adult's movement of the pillow from UP location to DOWN location shapes a descending form, with gliding effort (direct - sustained - light).</p>
<p>BABY</p> <p>The baby grasps the pillow and leans on it, establishing a broad contact.</p>		<p>The movement when grasping the pillow is done with an enclosing form and gliding effort (direct-sustained-light).</p>
<p>GOAL</p> <p>ADULT</p> <p>(v) The adult is seated in front of the baby at DOWN location; she approaches the pillow as close as possible to the baby's body who, in turn, moves himself towards the pillow.</p>	<p>The adult stands still for a moment at DOWN location.</p>	
<p>BABY</p> <p>The baby remains in contact with the pillow.</p> <p>Repetition of the SOURCE-PATH-GOAL image-schema with performative variations.</p>		
<p>Preparation 2</p> <p>ADULT</p> <p>(i) The adult is seated close to the baby. She puts a hand on the pillow, pressing it lightly and sinking, while remaining at DOWN location. She wants to reestablish eye-contact with the baby, that had been interrupted due to the previous descent of the pillow. Then, the adult drops her head until adult's and baby's heads are almost in contact.</p>	<p>While with the sunken pillow at DOWN location the adult drops his head, she calls for baby's attention saying: "Shall we do it again?" "Yes?", using whispered high voice.</p>	<p>Both the adult's hand movement while pressing the pillow, and the head's movement that accompanies the emission of the verbal phrase, shape a descending form, with gliding effort (direct - sustained - light).</p>
<p>BABY</p> <p>The baby raises his head, smiles, and puts his head back on the pillow.</p>		<p>The baby drops his head with dubbing effort (direct-sudden-light).</p>

Table 1 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
ADULT	Coordinated with the pillow's movement, the adult says to the baby: "Let's go, eh? Tu- tu- tu-tu". Vocal emission in ascendant contour.	The adult raises the pillow with an initial movement that shapes a retiring form; the movement continues shaping a rising form, with gliding effort (direct - sustained - light).
BABY	The baby opens his mouth, smiling and looking expectantly at the pillow.	The baby's arms movement is realized with gliding effort (direct-sustained-light). The trunk and the head spread up.
Repetition of the SOURCE-PATH-GOAL image-schema with performative variations	SOURCE	The adult remains frozen with the pillow at UP location. While she talks to the baby for the first time she moves the pillow, shaping a rising-descending form, with dabbling effort (direct - sudden - light). After that, she calls for the baby's attention again, moving her trunk and arms always at UP location -coordinated with her singing-, and also moving the pillow in the horizontal plane-from left to right-, with floating effort (flexible - sustained - light).
ADULT	(iii) Holding the pillow at the top, the adult says to the baby "Up here it is" (whispered voice), ["Ahi"]; (Habibi's voice)]. Then, looking at the baby, and synchronizing her voice and head's movement she says: "Up here" (whispered voice). Then, moving the pillow to both sides, she says "Up here" (singing voice) "Here it is this!;" (vocal emission while sort of laughing...). In this passage, while addressing the baby, the vocal production presents changes in timbre and in sound articulation: exclamation and laugh articulation are perceived when "this" is vocalized; singing intonation is performed at high vocal register.	The adult remains frozen with the pillow at UP location. While she talks to the baby for the first time she moves the pillow, shaping a rising-descending form, with dabbling effort (direct - sudden - light). After that, she calls for the baby's attention again, moving her trunk and arms always at UP location -coordinated with her singing-, and also moving the pillow in the horizontal plane-from left to right-, with floating effort (flexible - sustained - light).
BABY	The baby holds the erect position of trunk and head. At the end of the vocal exchanges the baby raises his arms.	The baby raises his arms with gliding effort (direct-sustained-light).
PATH	ADULT (iv) The adult starts the movement of the pillow towards the baby's arms, which are extended upwards (as if wanting to receive the pillow); the pillow's descent from up to down continues approaching the pillow to the baby. While descending the pillow, the adult flex her trunk approaching her head to the baby's head.	Both the descendant movement of the pillow and the flex movement of the trunk shape an advancing-descending form, with gliding effort (direct - sustained - light).

Table 1 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
<p>BABY</p> <p>The baby drops himself on the pillow by tilting his trunk and resting his head on it</p>		<p>The dropping movement has an enclosing down shape. The scrubbing-on-the-pillow movement is performed in the horizontal axis. Both movements are realized with dubbing effort (direct-sudden-light).</p>
<p>GOAL</p> <p>ADULT</p> <p>(v) The adult leaves the pillow at DOWN location, close to the front of the baby, who approaches the object burying his head in the pillow. The adult retires to the center of her kinesphere (seated/vertical body posture), separating her head from the baby's head; then she approaches the baby again.</p>	<p>Once reaching DOWN location the adult pronounces the phrase: "It does come".</p>	<p>After saying "It comes"; the adult separates herself from the baby towards the center of her kinesphere, and then she approaches the baby again with a movement of the trunk shaping the form retiring-advancing, with gliding effort (direct - sustained - light).</p>
<p>Coda</p> <p>ADULT</p> <p>(i) The adult remains seated in front of the baby at DOWN location. Softly she begins to withdraw the pillow while returning to the center of the kinesphere.</p> <p>(ii) The adult moves the pillow switching sides (always at Down position at the floor) and the baby moves his head again in smooth contact with it. In the end, she lines <i>again</i> approaching her head to the baby's and withdraws.</p>	<p>While releasing the pillow from the baby's body, she says to the baby: "It is coming towards Habibi" with singing voice, pianissimo and rallentando vocal emission.</p> <p>While approaching heads: "Uh;" [may be Habibi] / "Uh je je je je;" (Adult's laugh articulation in ascendant-descendant contour).</p>	<p>The movement of withdrawing the pillow is realized in the horizontal plane with the shape retiring. The trunk movement shapes the form rising. Both movements are realized with gliding effort (direct - sustained - light).</p> <p>The adult moves the pillow switching sides to the pillow and moving the object with gliding effort (direct - sustained - light). She flexes her trunk towards the baby, approaching her head to the baby's head (and laughing); then, she withdraws, and her movement shapes a composed advancing-retiring and descending-rising form, with gliding effort (direct - sustained - light).</p>
<p>BABY</p> <p>The baby moves his head again softly, making contact with the pillow.</p>		<p>The scrubbing-on-the-pillow movement is performed in the horizontal axis with dubbing effort (direct-sudden-light).</p>

(i)-(x) correspond to the sequence of actions. Numbering restarts in each part of the structure of the enacted image-schematic form

location GOAL. The structure of the image-schematic form also presents similarities with the very familiar formal structures that we find in musical pieces of Western tradition. In the introductory section, the adult seems to be calling the baby's attention towards the spatial location UP (SOURCE), using the multimodal redundancy involved in the performative actions (ascending movement and verbal signaling). Moreover, the pillow initially moving through the axes DOWN- UP (i-ii), and the following UP- DOWN (iii-v), might be interpreted as a playful action to spotlight the contrast (in this case, to make the baby notice the ascending pattern followed by the descending one) (see also primary metaphors below). Both presentations of the image schematic forms use performative expressive resources; the three components of the SOURCE-PATH-GOAL image-schema are multimodally highlighted by the adult, producing temporal and dynamic variations in the vocal emission, and dynamically varying the quality of movement (shape and effort). Thus, the UP (SOURCE) location is underlined (a) singing at a high vocal register; (b) varying the vocal timbre while repeating verbal phrases that underline the UP location; and (c) shaping the body through the position of trunk, head, and arms holding the pillow at the UP location. The production of continuous upward-backward-expansion-contraction movements on the horizontal plane -that require a sustained effort- account for the ways in which body kinesis expressively emphasizes the SOURCE location of the image-schematic form. As far as PATH is 'traveled' -both in the introductory ascent and in the proper descent- a multimodal composition takes place. It includes (a) sound vocal phrase articulations performed in ascendant (from low-to-high pitch)-descendant (from high-to-low pitch) scaling; together with (b) body shapes composed by head, arms, and trunk movements, rising, and/or going down throughout the vertical-sagittal axes. The frequency sweep in the vocal register varies according to the performance of the image-schematic component: thus, the two-note *cantilena* at the UP location is sung in a constrained, high vocal register, using an interval of third minor, while the ascendant-descendant phrase "tu tu tu tu tu", and the phrase "It comes to Habibi" are respectively uttered, along a wider vocal scope of an octave (from Eb3 to Eb2). The GOAL is the moment of closest proximity between the adult and the baby. After she brings the pillow as close as possible to the baby's body who, in turn, moves towards the pillow, the adult's head and trunk are close to those of the baby's at the DOWN-GOAL location. The emotional climax, backgrounded by soft and slipped adult movements, soft head and pillow contact, and pianissimo (very low) whispered expressive vocal articulations, including laughs, contributes to generate an atmosphere of intimacy.

If we take a closer look, we will be able to identify two primary metaphors activated in this multimodal performance: (i) PURPOSES ARE DESIRED OBJECTS and (ii) INTIMACY IS PROXIMITY. The primary metaphor (i) is linked to the experience of grasping a desired object, and the concomitant satisfaction of possessing the physical object (Lakoff and Johnson 1999, p. 53). The way in which this primary metaphor is activated in the analyzed scene is as follows: the initial moving of the object on the DOWN-UP direction -in which the adult prompts the baby's attention to the SOURCE by lifting the pillow high up and signaling to the object's location singing the *cantilena* described- seems to fulfill the purpose of calling for attention and increasing the baby's expectation for the pillow's return. That is to say, by prompting the arousal, attention turns into expectation for. By moving the pillow towards the baby and simultaneously saying

“And it comes to you”, the adult arouses a sense of purpose in the infant at the PATH, and a sense of fulfillment at the GOAL location. When the pillow arrives to its destination making contact with the infant, it activates the primary experience of physical contact as well as the pleasure of possessing the desired object. In sum, the analysis of the primary metaphor (i) shows that, during the performance, the adult’s enacting of image-schematic forms, communicates, invites and encourages the baby -in a multiplicity of expressive ways- to observe and participate (Bråten 2007). Regarding the primary metaphor (ii) it relates to the primary experience of being physically close to the people with whom we have an intimate relationship. In the climax, when the adult approaches her head to the baby’s making contact with the pillow; both domains (proximity and intimacy) are co-activated, merging the experience of intimacy with that of feeling physically close with affection (Lakoff and Johnson 1999, p. 50). The conflation of the components intimacy-closeness-contact displays an appropriate affective context for the activation of this primary metaphor in experience.

“Forms of vitality” is an expression proposed by Stern (2010) to capture the way in which the human mind deals with dynamic experiences, crucial to interpersonal encounters and the temporal arts. A form of vitality is a Gestalt, a spontaneous integration emerging from holistic experiences of movement and its “daughters” – time, force, space and directionality/intentionality. Forms of vitality can be grasped from our own experience and can be directly observed in the behavior of others. They concern the “how”, the way in which things are done. According to Stern, early social play is a frame where forms of vitality become evident. Playing with movements and the sensations they bring are amid the earliest entertainments adults offer to their babies. Sounds, facial expressions, and movements are all resources used to hold the baby’s attention, generating expectation, driving him to arousal levels impossible to be achieved in solitude. Early social play occurring in the first months involves playing with forms of vitality (see also Español et al. 2014). The performance described can be understood as a play with the forms of vitality, a particular kind of early social play where vitality forms (expressed in the adult’s movements and sounds) light up its structuring schemas and primary metaphors. The baby enters and participates in this dynamic, complex and mysterious flow: he stares, opens his mouth and smiles at Preparation; he lightly lifts his arms, vocalizes and smiles at SOURCE (up location); he softly moves his head, extending contact with the pillow at GOAL (down location).

Performance 2: Adult-Infant Dyad Belonging to the Guapi Afro-Colombian Community

Scene Description

In this performance, the father is seated holding his five-month-old daughter on his legs. The baby is squatting on the father’s legs looking into his eyes. She has a rattle in the right hand. The father improvises a performance by taking the baby up and putting it back on his legs. He accompanies his movement with an aspired, whispered vocalization. The whole action is repeated three times with variations. In the third repetition, the father changes the arriving place: he sets the baby on his legs and, vocalizing, brings his face to the baby’s belly. The closeness of the bodies together with the sonority, timbre and tone of the father’s vocalizations take the instance to the

climax. During the whole scene, the baby engages with smiles, gestures, movement and frequent eye contact.

Multimodal Microanalysis

Table 2 presents the multimodal microanalysis of performance 2. It describes (i) the sequence of actions of the adult's image-schematic form (left column); (ii) the interaction's expressive vocal component, sounds, and expressive facial gestures (middle column); and (iii) the shape and effort of the adult's and the infant's movements during the performance (right column).

Interpretation

Differently from the previous performance, here the father's action is directly performed on the baby's body. He moves her trunk continuously in the air along the vertical axis unfolding the UP-DOWN image-schema. As in the previous performance, the resulting form is organized according to the repetition-variation principle; the form consists on the enaction of a first UP-DOWN sound-kinetic unit, and the following enaction of two successive repetitions with small variations. The variations take place between the presentation and the first and second repetitions; in each boundary, an action is added: the adult opens his mouth and eyes exaggeratedly, and vocalizes an aspired sound. It assembles a priming situation that creates expectation for the forthcoming UP-DOWN repetition of the moving form. A similar action, performed between the first and the second repetition of the image-schematic form, is made with increasing expressive content (even more exaggerated opening of the mouth and a louder, guttural sound) contributing to the climax's elaboration and preparation. In the end, the climax is reached through a change in the baby's body position (leaning back on his father's legs) and a closer contact of the father's mouth over the baby's chest. Changes in the father's sonority, timbre, and vocalization tone, underline the climactic moment.

The contrasting movements experienced by the baby enable the organization of their personal and interpersonal worlds. They undergo synchronic and other kind of movements which differ from the experience of seeing movement (when they receive only visual information). They are also aware of the contrast between moving and being moved: the sense of volition and proprioception that accompanies self-produced movements is strikingly different from the feeling of proprioception without volition happening when one is being moved. Under this condition, the baby's sense of agency or authorship is also dissimilar (Español 2014, 2017). In this performance, the baby has the predominant experience of being moved. This prolonged experience, her body being lifted by her father, together with the perceptual disposition that being moved favors, may have been the corporal and psychological support that allowed her to be the agent of a small and precocious movement: shaking the rattle twice at the DOWN location. The movement resembles a request to her father to move and slightly shake her (making the rattle sound as an effect of her whole body moving), to which the father immediately responds gladly.

Concerning the primary metaphors identified when observing this scene, the first one is AFFECTION IS WARMTH; it consists on the primary experience of feeling warm by the lovely physical proximity of the other person's body; this primary metaphor takes

Table 2 Multimodal microanalysis of the enactment of the image-schematic form in performance 2

Sequence of actions	Expressive facial-vocal components	Shape and Effort of movement
Preparation 1 at DOWN location		
ADULT	(i) The adult is seated facing the baby who, in turn, is squatting on his legs. He holds the baby firmly with his hands around her waist and ribs.	
BABY	The baby is squatting on the father's legs looking into his eyes. She has a rattle in the right hand.	
Performance of the UP-DOWN image-schema		
From DOWN to UP		
ADULT	(ii) Holding the baby, the adult raises her upwards with a rolling motion (from DOWN location to UP location). While he raises her up, he leans back, holding eye contact with the baby's face.	The adult moves the baby upwards with both arms, shaping a raising form with gliding effort (direct - sustained - light).
BABY		
When lifted, she takes the rattle with both hands and brings it to her mouth.	The movement of the baby is realized with gliding effort (direct -sustained- light).	
At UP		
ADULT	(iii) The adult keeps on making eye contact with the baby. Holding her at UP location, he shakes her trunk continuously, hanging her body upside down in the air, remaining always at UP location.	The adult holds the baby with her arms at the top, shaking her by the trunk in a mild mode. The movement shapes a horizontal- sustained-on-the-top form with punching effort (direct - sudden - light).
BABY		
The whole body of the baby is moved by the shaking of the father and as an effect of this movement the rattle moves and sounds accordingly.	As an effect of the movement of the baby's body the rattle moves and sounds	The baby's movement on-the-top has a punching effort (direct - sudden - light).
From UP to DOWN		
ADULT	(iv) Always holding the baby, the adult moves her down from UP to DOWN location with a rolling motion, until her legs squat on his legs.	The adult's movement of the baby from UP location to DOWN location shapes a descending form, with gliding effort (direct - sustained - light).

Table 2 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and Effort of movement
<p>BABY The baby is moved downwards until she squats on his father's legs. At DOWN location, the adult leans back the baby slightly, and at the same time he bends approaching his face to hers, in order not to lose eye contact.</p>		<p>The baby's downward movement is with gliding effort (direct - light - up).</p>
<p>At DOWN location BABY (i) Looking at her father, the baby shakes the rattle twice.</p>	<p>The rattle sounds twice.</p>	<p>The rattle's shaking is with dabbling effort (direct-sudden-light).</p>
<p>ADULT The adult opens his mouth and his eyes widely and steadily looking fixedly to the baby.</p>	<p>The adult vocalizes a long, aspirated, high pitch sound.</p>	<p>The mouth's movement is realized with gliding effort (sustained-direct-light).</p>
<p>First Repetition of the UP-DOWN image-schema with performative variations From DOWN to UP ADULT (ii) Always holding the baby firmly with his arms, the adult raises her upwards with a rolling motion (from DOWN location to UP location). While he raises her up, he leans back, keeping eye contact to her.</p>	<p>Synchronizing with the baby's raising movement, the adult adjoins to the aspirated previous sound the vocalization of the repeated syllables "da da da da da da da" with an aspirated, whispered voice.</p>	<p>The adult moves the baby upwards with both arms, shaping a raising form with gliding effort (direct - sustained - light).</p>
<p>BABY The entire body of the baby is moved; the baby is in a horizontal position and held up by the father.</p>		
<p>At UP ADULT (iii) The adult continues looking to the baby, holding her UP there; he shakes her trunk continuously, her body hanging upside down in the air, remaining at UP location.</p>	<p>Synchronizing with the baby's shaking movement, the adult continues vocalizing the syllables "da da da da da da da" with an aspirated, whispered voice.</p>	<p>The adult holds the baby with her arms on the top, and mildly shakes her trunk while he vocalizes the syllables "da da da da da da da". The movement shapes a horizontal- sustained-on-the-top form with punching effort (direct - sudden - light).</p>
<p>BABY The whole body of the baby is moved by the shaking of the father and as a result of this movement the rattle moves. Then the baby carries the rattle to her mouth.</p>	<p>As an effect of the movement of the body of the baby the rattle moves and sounds.</p>	<p>The baby's movement on-the-top has a punching effort (direct - sudden - light).</p>

Table 2 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and Effort of movement
<p>From UP to DOWN ADULT</p>	<p>(iv) Always holding the baby, the adult moves her down (from UP to DOWN location), with a rolling motion, until her body and bent legs reach the seated position on his legs.</p>	<p>The adult's movement of the baby from UP location to DOWN location shapes a descending form, with gliding effort (direct - sustained - light).</p>
<p>BABY</p>	<p>The baby is moved downwards until she squats on his father's legs. At DOWN location, the adult leans back the baby slightly, and at the same time he bends approaching his face to hers, in order not to lose eye contact.</p>	<p>The downwards movement is realized with gliding effort (direct - sustained - light).</p>
<p>At DOWN location ADULT</p>	<p>(i) The adult remains at DOWN location making continuous eye contact with the baby, and holding her seated on his legs, with her legs bent and her trunk slightly leaned back.</p>	<p>The adult opens his mouth a lot, and remaining in that expression he looks fixedly to his baby.</p>
<p>BABY</p>	<p>The baby takes the rattle out of his mouth and moves it twice.</p>	<p>The rattle's movement is realized with floating effort (flexible-sustained-light).</p>
<p>Second Repetition of the UP-DOWN image-schema with performative variations</p>	<p>From DOWN to UP ADULT</p> <p>(ii) Holding the baby with his arms and leaning himself back for a while, the adult then moves the baby upwards with a rolling motion (from DOWN location to UP location). While he raises her, he leans back, holding his gaze face to face to the baby's.</p>	<p>The adult moves the baby upwards with both arms, shaping a raising form with gliding effort (direct - sustained - light).</p>
<p>BABY</p>	<p>The baby's movement is identical to the one in the previous repetition.</p>	

Table 2 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and Effort of movement
<p>At UP ADULT</p> <p>(iii) Remaining at UP location, the adult keeps holding and continuously shaking the baby's body. Her body is hanging upside down in the air, remaining at UP location.</p>	<p>Synchronizing with the baby's shaking movement, the adult vocalizes the syllables "da da da da da da da" with an aspirated, whispered voice.</p>	<p>The adult holds the baby with her arms on the top, and mildly shakes her trunk while he vocalizes the syllables "da da da da da da da". The movement shapes a horizontal-sustained-on-the-top form with punching effort (direct - sudden - light).</p>
<p>BABY</p> <p>The baby's movement is identical to the one in the previous repetition.</p>		
<p>From UP to DOWN ADULT</p> <p>(iv) Always holding the baby, the adult moves her down (from UP to DOWN location), with a rolling motion, until her body and bent legs reach the seated position on his legs. Just before reaching DOWN location, the adult bends, approaching his face to hers.</p>	<p>Just before reaching DOWN location, the adult bends, approaching his face to the baby's and vocalizing a loud, high pitched, shouted, guttural sound.</p>	<p>The adult's movement of the baby from UP location to DOWN location shapes a descending form, with gliding effort (direct - sustained - light).</p>
<p>Coda ADULT</p> <p>(i) The adult remains with the baby at DOWN location. Holding the baby with his hands, he leans her back, laying her back on his legs; at the same time, he bends towards the baby until his face contacts the baby's chest. In the end, he returns the baby to the seated position.</p>	<p>Once the adult's face contacts the baby chest, the adult goes on vocalizing a stream of loud, high pitched, shouted, guttural sounds. When he finishes the vocalization and after returning the baby to the seated position, he laughs with pleasure.</p>	<p>The adult leans the baby back with an initial movement that shapes a retiring form in the sagittal axis, with gliding effort (direct - sustained - light). When the adult returns the baby back to the seated position the movement shapes an advancing form in the sagittal axis with gliding effort (direct - sustained - light).</p>
<p>BABY</p> <p>The baby is allowed to fall backwards. Her head hanging, and her arms open in an attitude of reception or delivery.</p>		<p>The baby's movement is realized with a gliding effort (direct-sustained-light).</p>

(i)-(x) correspond to the sequence of actions. Numbering restarts in each part of the structure of the enacted image-schematic form

place at the climax, during eye-contact and body's closest proximity in which the father continuously kisses the baby's chest; she senses the warmth of the father's face in contact with her own body (Lakoff and Johnson 1999, p.50). The second primary metaphor coactivated at that moment is AFFECTION IS SMOOTHNESS, given that the baby feels the smooth contact of the father's lips while he is kissing her with love (Lakoff and Johnson 1999, p.50). The third and last coactivated primary metaphor at that very moment is INTIMACY IS PROXIMITY. It consists on the primary experience of being physically close to the people with whom we intimate, in this case the father-infant proximity at the climactic moment (Lakoff and Johnson 1999, p.50). With this analysis we assume that this moment's emotional strength is a by-product of the conflation of the three primary metaphors.

Performance 3: Historical Performance. Adult-Infant Dyad of a Western Urban Setting

Scene Description

In this performance, the mother is standing in front of her five-month-old son, and the infant is lying on his back on a table. The mother makes contact with the baby by sliding her hands down the baby's body describing a different path with each repetition: from the head to the trunk to both legs ending at baby's feet; from the shoulders to the arms ending at both hands. While the embodied enaction takes place, the adult simultaneously vocalizes the phrase "stingueshen, stingueshen, stingueshen, stingueshen" (which has no linguistic meaning in Spanish). The scene unfolds with almost permanent eye-contact. The baby smiles and shows facial gestures and movements denoting engagement. The performance is repeated six times along the observed developmental period (from the 2nd to the 9th month) This kind of repetitive performance is called historical performance (Carretero 2016). This performance was first described in previous articles of infant directed performances.

Multimodal Microanalysis

Table 3 presents the multimodal microanalysis of performance 3. It describes: (i) the adult sequence of actions of the image-schematic form performed by the adult (left column); (ii) the expressive vocal component of the adult-infant interaction, and other sounds and expressive facial gestures (middle column); and (iii) the shape and effort of the adult's and the infant's movements during performance (right column).

Interpretation

The enaction of the PATH image-schema takes place in a performative context that prompts a strong proprioceptive baby involvement. The enaction's multimodal characteristic features consist on the embodied attunement between the adult's corporal action over the baby's body and the adult's vocal emission of the word "stingueshen" in ostinato-stream style. The high degree of contact provided by the adult's hand movement over the baby's body shapes the expressive quality of this performance. The beginning and the end of the PATH image-schema are underlined by the adult's different

Table 3 Multimodal microanalysis of the enaction of the image-schematic form in performance 3

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
Preparation 1		
ADULT	While bending in front of the baby, the adult cheers him saying: "Let's play stinguishen, shall we?"	The movement of the mother when separating the arms of the baby is dabbing (direct-sudden-light).
BABY	The baby vocalizes "ah".	The rotation movement of the head has a gliding effort (direct-light-weight).
Performance of the PATH image-schema		
ADULT	In synchrony with the embodied enaction, the adult vocalizes the phrase: "stinguishen, stinguishen, stinguishen". At the end of the embodied per course she finishes with the vocal articulation of "aahhhjiji", that is produced with a strong and aspired voice accompanied by the grand opening of her mouth. The baby looks at her mother and smiles in the end.	The adult hands contact the baby chest, and move continuously all over the baby's body on the vertical path from the shoulder to the feet, shaping a descending form, with gliding effort (direct - sustained - light).
BABY		The final smile of the baby is synchronized with the final vocal articulation of the mother.
Preparation 2		
(i) The mother bends, making continuous eye-contact with the baby, and invites him to continue playing.	While bending in front of the baby the adult cheers him saying: "Let's play stinguishen again?"	
First Repetition of the PATH image-schema with performative variations		
ADULT	In synchrony with the embodied enaction the adult vocalizes the phrase: "Stinguishen, stinguishen, stinguishen ... aahhhjiji", and immediately adding "Stretch, stretch, stretch ... aahhhjiji". The last vocal end is more aspired, higher in pitch, and with even bigger opening mouth. The baby laughs during the path and in the end.	The adult hands contact the baby chest, and then move continuously all over the baby's body on the vertical path from the shoulder to the feet, shaping a descending form, with gliding effort (direct- sustained - light). During the "stretch phrase" the movement becomes slower, with more pressure along the path over the baby legs; the final pressure on the feet is realized with flicking (flexible - sudden - light) effort.

Table 3 (continued)

Sequence of actions	Expressive facial-vocal components	Shape and effort of movement
BABY	<p>At the beginning of the enactive performance the baby begins warbling loudly and moving his legs and arms. Then, while the mother slides her arms, he twists his trunk, raises his legs, moves his head to both sides, and stretches his whole body.</p>	<p>The movements of the legs have punching effort (direct-sudden-heavy). The stretch of the body is like pressing (direct and sustained). The movement of the hands when taking the breast is gliding (direct-light-light).</p>
Coda	<p>The baby puts his hands to his mouth. The mother takes the baby's hands and leans toward the baby.</p>	<p>Broad sagittal movement of advance. Lightweight (sustained-direct-glide).</p>

(i)-(x) correspond to the sequence of actions. Numbering restarts in each part of the structure of the enacted image-schematic form

actions: at the beginning of the gliding movement, the mother invites the baby to play in every repetition of the image schematic form, originating the infant's emotional engagement; in the baby's response, arousal and pleasure get noticed in an increasing dynamic curve that goes from smiles and guttural warbles to louder laughs. The end of the PATH image-schema is also highlighted by different sound-kinetic adult actions: from the "aaahjjjj" at the first ending, the socks's taking off, to the synchronous "aahhhjjjj" vocal emission and the adult fingers pressuring the baby's feet while sliding her hands through the baby's toes.

The primary metaphor identified in this historical performance is STATES ARE LOCATIONS, consisting on experiencing a state that correlates with a location. In this case locations are placed in the baby's body. The initial preparation state that emerges as a result of the invitation follows the proprioceptive state that unfolds during contact enaction, leading to a different final state reached when the toes strengthen -anchored in the sound-kinetic quality of the adult's enaction- at the climax.

The interaction seems to fit quite well in those described by Stern (1985) as facilitators and consolidators of the infant's core self, an initial mode of self-awareness (set between the 2nd and 7th month) that allows the baby to establish clear physical and sensory distinctions between his and the other's self. In this performance, the adult repeatedly touches the baby's body inducing him to perceive it and get involved with it. The baby not only "receives" the adult's enacted contact but also actively participates: he smiles and shows facial gestures in sign of engagement; while the mother touches the legs, he stretches them showing postural and tonic involvement. The experience of agency and the forms of vitality perceived when he stretches in tension, accompanying the mother's sliding hands over his body, facilitate and consolidate his core self. In addition, the baby stretches out his body and vocalizes with joy during the PATH image-schema: image -schema and infant's core self are intermingled.

To sum up, the analysis shows a mother-infant co-construction, during enaction, of the PATH image-schema, in which the mother primes the baby's engagement, and encourages the development of the infant's core self. In the SOURCE-PATH-GOAL image-schema, the SOURCE and GOAL components are distinguished in the performance by the type of adult-infant participation, the kind of vocalization, and the quality of *effort* in the mother's movement.

Discussion

The theory of conceptual metaphor postulates image schemas as basic structures emerging from the infant's coupling with the physical world. The three microanalyses presented show how image-schemas organize adult performances, and are presumably frequently experienced in early adult-infant interactions. Therefore, we propose that image schemas arise not only from the infant's coupling with the physical world but also with their social world. Moreover, some of the most basic primary metaphors that underline the affective components of experience are sometimes embedded at the core of such intersubjective adult-infant encounters. Hence, primary metaphors add an affective dimension to the construction of

meaning in adult-infant interactions; in this way, image-schemas emerge accompanied by, and embedded with, all the traces of affective sociality.

In the three microanalyses carried out we found that:

- a) The performance of the image-schematic form follows the principle of repetition-variation;
- b) The primary metaphors are embedded in the specifics of the image-schematic form. The affective dimension activated during the image-schematic unfolding, contributes to highlight the image-schematic structure as it is performed by the adult. For example, at the climax (performance 1, 2 and 3) or at the end (performance 1 and 2).
- c) The components of the image-schematic structures are aesthetically underlined using expressive resources and multimodal redundancy. The simultaneous and/or synchronous production of temporal and dynamic variations in the vocal emissions, and the changes in the quality (shape and effort) of the movement match the spatial components of the image-schema. For example, we identified multimodal redundancy (i) at the UP (SOURCE) location, that is underlined by singing and/or vocalizations produced at a high vocal register (performance 1); (ii) along the PATH, underlined by the ascendant and/or descendant body movements and the simultaneous vocalization using ascendant/descendant contours (performance 1); (iii) at the climax of the image-schematic form, prepared by the exaggeration through repetitions in the shape and effort of movement of trunk, head, and arms, and by simultaneous expressive modifications of the vocal timbre, contributing to create a growing expectation towards the climax (performance 2); and (iv) at the end of the PATH (GOAL), that is highlighted by sound-kinetic actions such as the synchronized production of vocal interjections, and the contact embodied actions on the baby's body (performance 3).

Our observations provide empirical evidence to the hypothesis of an interactive and intersubjective ontogenesis of image-schemas and primary metaphors. Image-schemas are early lived in inter-enactive embodied experiences. The embodied experience linked to both, the VERTICALITY and the SOURCE-PATH-GOAL image-schemas, shape specific features in the infant's social cognition, as long as they are experienced in enactive contexts of early interaction. Those embodied features are shaped in the context of seeing the image-schema unfolded in the adult's movement, or from proprioceptively sensing the image-schema in her own body, despite not yet being accompanied by the intended self-propelled movement that will characterize the later action of standing up, or of crawling a path from a source on to a goal. Image schemas are very frequently experienced when we sense our own body being fully held in the arms of another person, or when our body is laying on the floor.

The development of such diverse image schemas will acquire different profiles, depending on the general state of our organism while involving in activities with others; they will continue to be present, at least for some time, invigorating and supporting the shaping of image-schemas in the progress of motor development. Therefore, long before the image-schema VERTICALITY is autonomously experienced, and the body is erected on the reduced surface of the feet, VERTICALITY was already experienced by the

infant thanks to some other's lovely touch over her body, or by feeling the verticality while being held in the arms of the adult. The slow process of bipedestation will allow image-schemas to become enriched with the functioning and continuous transformation of embodied experiences acquired by the infant. We suggest that image-schemas are experiential Gestalts that emerge from the meaningful and stable states of inter-enactive embodied experiences. In that sense, they seem to be psychologically present throughout the enactive interaction.

Studies in infant directed performance suggest that the expressive ways of music performance, an essential part of intuitive parenting, open a door for the infants' understanding, enjoyment and contemplation of the Arts in her culture (Español and Shifres 2015). In the same way, infant directed performances might be opening the way to Gestaltic experiences of image-schemas in inter-enactive contexts that will feed posterior individual experiences.

Finally, the analysis of the sensorial, motor and affective experiential richness that is present in the interactive contexts of early infancy, allows us to properly understand certain aspects of the emergence of human conceptual capacities. The observation of these contexts exposes the ways in which human cognition develops by means of social interaction and affective engagement. In the three microanalyses performed, the fact that cognition (reason) and affects (passions or emotions) are not two separate psychological domains in competition and conflict, but are instead intertwined with attunement, to form our conceptual scheme, and to provide meaning to experience, has been verified. Characterizing the embodied structures that emerge in the socio-cultural environments during early infancy contributes to a better understanding of the embodied, affective, and imaginative basis of human cognition.

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