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Enkinaesthetic Polyphony: the Underpinning for First-order Linguaging

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ABSTRACT

We contest two claims: (1) that language, understood as the processing of abstract symbolic forms, is an instrument of cognition and rational thought, and (2) that conventional notions of turn-taking, exchange structure, and move analysis, are satisfactory as a basis for theorizing communication between living, feeling agents. We offer an enkinaesthetic theory describing the reciprocal affective neuro-muscular dynamical flows and tensions of co-agential dialogical sense-making relations. This “enkinaesthetic dialogue” is characterised by a preconceptual experientially recursive temporal dynamics forming the deep extended melodies of relationships in time. An understanding of how those relationships work, when we understand and are ourselves understood, when communication falters and conflict arises, will depend on a grasp of our enkinaesthetic intersubjectivity.

1. INTRODUCTION

The feeling and sensing body has gained prominence in discussions of consciousness and experience in recent years¹ and, whilst we are generally sympathetic with a great many ideas expressed in these discussions, they remain predominantly individual-centered and are only minimally interactionist in character. We take issue with this minimal interactionism. (Stuart, 2010b, 2012; Thibault, 2000). The authors who come closest to our own view, moving away, though not entirely, from the individual-centered view, are Gendlin (1992), Hodges (2007), Trevarthen (2012) and Noë (2004, 2009), but even they fall a little shy of the fully-affective relationally-embodied commitment we make in establishing the reciprocal enkinaesthetic dynamical flow that is lived affectively between agents.

The moving, feeling, perceiving body is at the core of lived experience², but the examination of a non-situated individuated sensory-kinaesthetics, with little consideration of the affectively-laden, emotional, interpersonal and interobjective world in which the agent finds itself, will only ever provide a partial account of the experiential whole.

Organic agents move co-agentially and-co-affectively concerting with – though not necessarily in concert with – the movement and action of other agents and other things. They fold into, enfold with, and unfold from the lives of those agents and those things with which they necessarily co-exist,³ for their world is characterised

¹ See, for example, Merleau-Ponty (1962), Damasio (1994, 1999, 2003), Edelman (1992, 2006), Sheets-Johnstone (1999, 2000, 2003), Gallagher (2005), and others too numerous to mention.

² For a vigorous counter-example one might look at Goldman & De Vignemont (2009).

³ This is not to suggest that the particular things and agents with which we co-exist must be that particular set of agents and things; it would be ludicrous to deny the contingency and contingencies of our existence and co-existents. It is simply to assert that we would not exist as we do – both pre-reflectively and reflectively sensitive – without there being a countervailing environment. *Ex hypothesi*, other agents are the necessary obverse of reflective agents.

by its transcendental intersubjectivity (Zahavi, 1997) and its transcendental enkinaesthesia (Stuart, 2010b).

2. ENKINAESTHESIA: THE PRIMACY OF AFFECTIVE BEING-WITH

Let's begin with what we mean by 'enkinaesthesia' and why we emphasise the primacy of affectively interrelated agents over, apparently, autonomous individuals.

'Enkinaesthesia' describes the co-affective feeling of the presence of other(s), agential (human, horse, cat, beetle) and non-agential (cup, bed, apple, paper). In this paper we are concerned specifically with the enkinaesthetic experiential entanglement of human being, but much of what we have to say, about the ways in which we affect and are affected by other organisms and objects, will be true for all organic agents. Enkinaesthetically we are able to understand ourselves within a community and reciprocity of being, where each action, already characterised by its givenness, engenders affect and that affect engenders action, not just within ourselves but within all life. Thus, it is through our enkinaesthetic entanglement that we create intercorporeal resonances with those agents with whom, and those objects with which, we are in reciprocal relations of perpetual community, within the experiential repertoire of the whole.

So, the feeling of being is, by its nature, a feeling of being-with, and the capacity for enkinaesthetic dialogue is an *a priori* nomological condition for agency, for the creation of kinaesthetic melodies and for the generation of a felt anticipatory dynamics (Stuart, 2010b); with other agents this anticipatory dynamics will include the enkinaesthetically anticipated arc of their intentional action. The 'other' can include sensing and experiencing agents and it is their affective intentional reciprocity which co-constitutes the experientially recursive temporal dynamics that characterize the formation and maintenance of the integral enkinaesthetic

structures which unite agents, even when those structures and that experience pulls them apart. This is not as paradoxical as may sound; it is merely to say that even distancing and fragmenting experience demonstrates the perpetual community and reciprocity of affective emotional relations. It is these affective emotional relations – these enkinaesthetic melodies – which emphasize the dialogical nature of the feeling of being as the feeling of being-with or being-among, and these dynamics establish, mediate, and sustain our moral and cultural ties (Stuart, 2010a, 2010b, 2012; Thibault, 2011a, 2011b: pp. 103-113).

An essential aspect of our claim is that these affectively-saturated encounters with others and the bonding which occurs lead to the discovery of thresholds of change in both the agent and the other. These thresholds are immanent within the agent's lived body and are made salient by the body's pre-reflective experience of the micro-temporal or pico-scale bodily-dynamics of one's own and others' kinaesthetic melodies. A threshold becomes known by the culturally variable interaction of those biological and cultural factors that reliably establish the conditions for the recursive entwining of each other's enkinaesthetic melodies; these can be understood as affective technologies of social learning and bonding.⁴ In this way, enkinaesthetic dynamics build and sustain the melodies that bond individuals in the relations of reciprocity and community that shape and direct intentional structures. There is no conscious representation here, but rather a preconceptual, prereflexive givenness and co-presencing of the lived body with other lived bodies. Such reciprocal, dialogically coordinated adjustments to each other's dynamics actualize intentional structures – structures that point beyond themselves to the building of relationships and the coordination of tasks requiring cooperation. As agents' melodies become enfolded with each other in an

⁴ See also Kinsbourne, 2005

interwoven prosodic system of felt movements and intensities, a virtual field of learning emerges in which the culturally and biologically immanent thresholds are lived as the enkinaesthetic dialogue.

As Deleuze (1994: p. 192) points out, this “propels us to those problems which demand the very transformation of our body and our language” (1994: p. 192). Such affect-laden encounters with others are always a becoming-with that is quintessentially proto-modal. Which is to say, they are always implicitly oriented to the evaluation and transformation of the agent’s current experience and feelings, such that social routine and habit give way to what Deleuze called “singular processes of learning” (Deleuze, 1994: p. 25). We might characterize these processes within the enkinaesthetic enfolding of agents’ melodies as the actualization of potentialities or virtual tendencies rather than the mere imitation of others. This capacity to affect and be affected always entails an individuating event – a *hacceity* in the Deleuzian ontology, where the individuation is impersonal and pre-individual – in which ‘one’⁵ actively participates and is immersed, as distinct from the objectifying and detached gaze of one who observes from the sidelines.⁶ Thus the enkinaesthetic milieu extends beyond the individual to encompass the totality of affective, transformative kinetic relations.

Luria (1973: p. 36) uses the term “kinetic melody” to point out that the formation and transformation of motor skills requires the skilful orchestrating and performing of many “complex movements” that are produced and “performed as a single ‘kinetic melody’: “with the development of motor skills the individual impulses are

⁵ ‘One’ for Deleuze is a “science fiction” derived from the simulation of identity “produced as an ‘optical effect’ by the more profound game of difference and repetition” and the ‘nowhere’ which is the “displaced, modified and always recreated ‘here-and-now’”. [1994: p. xix]

⁶ Under this conception, solipsism is inconceivable. See also Stuart, 2012.

synthesized and combined into integral kinaesthetic structures or kinetic melodies” (Luria, 1973: p. 176; See also Luria, 1973: p. 32).⁷ Luria (1964) speaks of kinaesthetic structures as afference-related, and kinetic melodies as efference-related, but it cannot be overlooked that the kinaesthetic is also an acting and the kinetic has also a felt muscular tonality, so, it is impossible to separate them in the experience of the dialogical lived body. Thus, together they establish the enkinaesthetic dialogically coordinated relational dynamics of what we are calling first-order languaging between agents (Stuart, 2012; Thibault, 2004a, 2011c). Enkinaesthesia is, therefore, intrinsically pre-reflexive and dialogically reciprocal. The kinetic melodies of one agent respond to, engage with, affect, and change the kinaesthetic melodies of other agents, and vice versa.

Luria’s writing on kinaesthetic melodies echoes Merleau-Ponty’s earlier thinking that “internal articulation and as a kinetic melody gifted with a meaning [carries within itself] an immanent intelligibility” (Merleau-Ponty, 1962). In our dialogical context, “internal articulation” refers to the pico-scale dynamics of whole-body inter- and intra-actional attunement and co-ordination. They are ‘articulations’, not just of musculo-skeletal systems, but of affectively-laden tonalities which underpin the formation, strengthening, fracturing, and breaking of social bonds and which, in their enkinaesthetic articulation, have their own emotional salience and intelligibility. This intelligibility is formed within the feelings of anticipation, of the sensed familiarity (which we might once have referred to as 'repetition', but true somato-sensory repetition is impossible) and sensed unfamiliarity (ongoing perpetual ‘change’ or ‘difference’), and most importantly, how these at once draw us back and propel us forward. One might think here of the notion of ‘width’ in the

⁷ See also Stuart, 2006, 2007, 2008, & 2010a, and Sheets-Johnstone, 1990, 1999, 2000, 2003, & 2009, both of whom speak of the formation of nonlinguistic, corporeal concepts and kinaesthetic memories made possible through action and repetition.

“living-present” of Husserl’s phenomenological structure of time consciousness. The “living-present” extends beyond the now of the primal impression, into the retained just-past, and the protended yet-to-come, and, so, our temporal experience spreads out across time, and is not a matter of a single, discrete punctuated event. (Husserl, 1964; see particularly §11.) But this highlights only one significant element of the “always livingly present”; the other element is the processually recursive.

Sensed familiarity has balance; its articulation is smooth, its intelligibility immanent, but it is never still, never quiet, and never discrete. Our living present is always co-livingly enkinaesthetically active; drawing us within ourselves and forward anticipatingly. There is, at one and the same time, a linear (explicit) order, a story we can tell, and an implicit forth-coming, but the coming-forth is only possible because this is a process of feedback into the already-changed and feed-forward into the anticipating; and this is a perpetual process. We might express this as a recursive 'synchrony' of being-into-becoming. In our being is our becoming. Our being - never still, never quiet, never discrete - yields to our becoming which shapes and alters our being which yields to our becoming, and so the processual, recursive nature of our experience continues. We are, so to speak, immersed anticipatingly, recursively, becomingly, livingly, that is, enkinaesthetically, with our world.

In this immersive anticipation we ask non-propositional sensuous questions about how our world will continue to be. We touch the seat to my left, look up to see our partner, or smell the air to catch the scent of dog roses. Our anticipated response may not be the forth-coming we expect, our equilibrium may be disrupted by a sensed unfamiliar with its accompanying kinetic tensions and dis-ease. This dis-

ease with its tensions and tones seeks balance and attunement once more, even though that balance persists only within a transient always-differentiating recursive process. It is this, always-differentiating recursive enkinaesthetic process, which characterizes the emotional prosody of lived co-participatory sense-making. It is a process which defies being subordinated to the laws of classical probability (Kampis, 1991: p. 156) or the abstract formalisms of linguistics. It is a process we characterise as first-order languaging.

3. FIRST-ORDER LANGUAGING AND ENKINAESTHETICS

First-order languaging is, in part, the real-time co-participatory whole-body sense-making (De Jaegher & Di Paolo, 2007) that occurs between agents. First-order languaging is bio-mechanical coordination between agents and between agents and aspects of their worlds. In the case of persons, first-order languaging comes under second-order cultural-historical constraints, including the lexicogrammatical patterns of languages (Cowley, 2008, 2009; Love, 1990, 2004; Thibault, 2008, 2011a, 2011b, 2011c). But that is only in part. Second-order language refers to the formal abstracta (e.g., phonology, lexicogrammar, semantics) on different levels that are typically viewed as ‘language’ by linguists. Crucially, first-order languaging involves synchronized co-agential somato-sensory dynamics on very short, rapid time-scales of the order of fractions of seconds to milliseconds.

Following previous work in this area (Cowley, 1998, 2009; Steffensen, Thibault & Cowley, 2010; Thibault *ibid.*), we shall refer to these very rapid temporal frames of the dynamical properties of communication as pico-scale bodily events. Persons in their co-participatory whole-body sense-making enact, exploit, respond to, and resonate with micro-temporal somato-sensory events in order to engage with others

and to co-construct their worlds. Building on enactivism, we might refer to this as ‘co-enaction’, the experientially-entangled bringing forth of worlds (Stuart, 2012).

First-order languaging is underpinned by enkinaesthetic activity; which is to say, it is dependent on the somato-sensory affective dynamics of agents co-enacting their worlds. We refer to these agents as ‘languaging agents’ who attune to plenivalent patterns in the ebbs and flows of energy of varying intensity and direction within each other’s action. In this way their bodily-dynamics, modulated by an affectively-saturated intentionality (Steinbock, 1999), have the functional capacity to move others – their feelings, emotions, perceptions, cognitions, and actions – in ways shaped also by cultural values, norms and experiential histories.

Patterns of bodily-dynamics are variable and are neither completely regular nor completely predictable. They are grounded in pico-scale bodily events, including vocalizations, facial expressions, gestures, eye gaze, posture, and muscular tensions. These processes have their developmental basis in the co-regulation of affect in the dialogically-coordinated modes of physiobiological regulation and adaptation that characterize mother-infant dyads in primary intersubjectivity (Bråten, 1992, 2007; Cowley et al, 2004; Trevarthen, 1979, 1998), but also *in utero*

(Stuart, 2012).⁸ It is this whole-body inter- and intra-actional adaptation that

Maturana refers to as ‘linguaging’:

To language is to interact structurally. Language takes place in the domain of relations between organisms in the recursion of consensual coordinations of actions, but at the same time language takes place through structural interactions in the domain of the bodyhoods of the linguaging organisms.

As the body changes, linguaging changes; and as linguaging changes the body changes.

(Maturana, 1988: §9.5)

The consensual domain that Maturana writes about has the following essential features: (1) the reciprocal, ‘causal’⁹ nature of body dynamics manifest in the co-synchronization of the dynamical states of the two (or more) agents; and (2) the overlap of the consensual domains of the two agents, which is grounded in co-

⁸ One might think, erroneously, that we’re suggesting a version of Vygotsky’s non-individuated ‘great-we’ consciousness: “the infant’s solipsistic behavior is actually social behavior characteristic of the infant’s “great-we” consciousness” [Vygotsky, 1998: p. 241] because “for the infant, the center of every object situation is another person who changes its significance and sense ... and ... the relation to the object and the relation to the person have not yet been separated in the infant” [ibid. p. 235]. It’s wonderful work, but enkinaesthetic phenomenology is much more than this. We agree, unequivocally, that the givenness of the infant’s own experience is never experienced in isolation from the givenness of the other, but it doesn’t develop at birth and exist as something to be overcome with learning. Experience, pre- and postnatally, is never in isolation, not just from the other as object or agent but from the environmental background as a whole. Experience “begins with the motor enquiry of backgrounded dispositions which develop corporeal capacities like the proprioceptive ‘material me’ (Sherrington, 1906) and the tactile senses through afference and re-fference (feedback) which confirm the sensory effects of moving. So, even *in utero* the infant begins to establish bodily habits and expectations which gradually slide, apparently unnoticed, over a period of approximately eighteen to twenty-four months, into the background, as the post-natal infant’s prelinguistic experience comes to an end. It is this pre-natal experience which makes it possible for the new born to engage in an enkinaesthetic dialogical intimacy so soon after birth [because it] comes already equipped with a repertoire of actions” [Stuart, 2012]. The social and cultural necessity of separating ourselves as ‘individuals’ from agents and things is not an experiential possibility; enkinaesthesia remains a condition of life and the living present.

⁹ Our use of single quotes around ‘causal’ indicates that common notions of causal relations are not adequate for explaining the nature of enkinaesthetic dynamics. There is no simple, unilinear cause-effect relation in these dynamics. The traditional use of ‘causal’ only highlights the paucity of explanation it provides.

affectivity. Gradually this overlap leads to the co-creation of shared feeling states and co-affective interactional stances in such a way that agents, spontaneously and pre-conceptually, co-orient within a group or culture. Enkinaesthetic co-affectivity is, thus, fundamental to the formation of the consensual domain because of its primary orientational function, and necessary for the ontogenesis of the respective agents.

Taking just one from a wealth of possible examples:

Malloch's theory of communicative musicality (Malloch, 1999, Malloch & Trevarthen, 2009) – derived from microanalysis of a proto-conversation between a six-week-old girl and her mother ... – details the expressive parameters that enable the infant, with the support of her mother's affectionate sensibility, to find intersubjective harmony of purpose. They compose a melodic story together by sharing the pulse, quality, and narrative of their expressive sounds and movements. Gratier has applied similar analysis to vocal dialogues between mothers and infants across cultures, with different states of sensitivity or security in intimacy. She shows how, in a thriving relationship, mother and infant discover a 'proto-habitus', or shared world of meanings, as conventions of expression invented in their play (Gratier & Trevarthen, 2007, 2008; Gratier & Apter-Danon, 2009) [Trevarthen, 2012, pp. 30-31].

Responses are considered consensual because the bodily dynamics, and concomitant feelings and interactional stance of an agent, modify and direct the response of the other by co-orienting the other to some aspect of their shared world. This is what we mean by proto-modality: that which entails the taking up of perspectives which are relatable to a proto-self (Damasio, 1999); in other words, a

system of pre-conceptual felt-evaluations through which the agent constrains and regulates their entwined and reciprocal affective neuro-muscular dynamics.

Hodges (2007) and Hodges & Baron (2007) refer to this process as ‘values-realizing’, to characterize the proto-modal co-explorative evaluations that, whilst implicit and pre-conceptual, provide a pragmatic means for expressing the focus of our practical shared concerns.¹⁰

For example, in hearing and feeling our interlocutor as 'angry' we are responding to and evaluating the pico-scale dynamics of their vocal, facial, muscular, orientation, and other bodily-dynamics in ways that are functional in the homeostatic regulation of individuals and communities (Damasio, 2005). What we construe, for instance, as negative feeling ‘states’ are, in actual fact, somatory-sensory emotional dynamics that are associated with actions and values which are potentially or actually harmful to the organism. Inefficient regulatory states (Damasio, 2005: p. 48), lack of coordination, disharmony and discord are associated with negative feeling states. On the other hand, positive feeling states are associated with efficient, life-enhancing processes that maintain the organism and its world in a state of harmony, coordination, and concord.

As previously mentioned enkinaesthetic melodies can be characterized as technologies “for bonding in groups” (Freeman, 1995: p. 134); indeed, it may be the precursor technology to all the other major technological revolutions:

The major technological revolutions in cultural evolution are commonly listed as tool making, agriculture, and manufacturing, each entailing a geometric spurt in population growth. Before them all, perhaps, emerged the

¹⁰ The reciprocal and interleaved experience and feeling of this flow can be understood as analogous in significant ways to our experience of melody and prosody in music and in conversation. See Thibault, 2005: pp. 321-323, for a longer discussion of proto-modality.

technology for bonding in groups, since making tools, fires and shelters required cooperation among brains.

(Freeman, 1995: p. 135)

Given this, it is fair to say that enkinaesthetic melodies create affective trusting bonds. The implicit enkinaesthetic intricacy through which such bonds are formed may have led to the socialization of intentional structures through processes of “repeated unlearning” and the emergence of group identities; after all, the emergence of group identities provides resources for the focusing and modulation of the intentional structures required for cooperation between individuals in groups.

Our own use of the term ‘recursion’ echoes Maturana’s as a means of emphasising the bi-directional dynamics of the coordinations between languaging agents, and, as we have shown, experientially recursion implicates both the historical or retentive dimension and the anticipatory or protentive dimension of the affective action trajectories of dialogically co-ordinated agents (Thibault, 2005). This is true in both the long-term and the short, pico-scale, term of events. The melodies that are grounded in our somato-sensory experience, like all forms of melody (music, speech, dance, and movement) are experienced as a temporally indivisible flow that has distinctive affective qualities; so, the melody feels ‘smooth’, ‘complete’, ‘sad’, ‘joyful’, ‘sombre’, ‘uplifting’, and so on. This modulation of each other's rhythms and responses involves, in the case of each body, an implicit intricacy (Gendlin, 1992):

There is an implicit interactional bodily intricacy that is first – and still with us now. It is not the body of perception that is elaborated by language, rather it is the body of interactional living in its environment. Language elaborates how the body implies its situation and its next behavior. We sense our bodies

not as elaborated perceptions but as the body sense of our situations, the interactional whole-body by which we orient and know what we are doing.

(Gendlin, 1992: p. 353)

Although he doesn't use the same terminology, Gendlin is distinguishing between first-order languaging and second-order language; his presentation of his work here, however, concentrates on the individual intra-bodily experience and not on an implicit inter-bodily affective intricacy between agents. We characterize this intricacy as co-ordinating polyphonic enkinaesthetic activity, where 'polyphonic' refers to the plenivalent modulation of agents' co-enactions. Polyphony in this context cannot be created by an isolated, individuated single agent. This is not to deny the internal enkinaesthetics of the agent, it is simply to proclaim the impossibility of a causally-closed system. "[E]xperiencing is inherently an interaction process in a situation with other people and things. What appears is neither internal nor external, neither just private nor just interactional." (Gendlin, 2004, p. 147) Crucially Gendlin (2012) goes further and stresses the identity of the autopoietic organism with its environmental interaction: "An organism is an environmental interaction that continuously regenerates itself." The environment is immanent for the organism in such a way that the organism is immersed anticipatorily, recursively, becomingly, livingly, one might say, enkinaesthetically and co-enactingly with its world.

Thus, in an entirely pre-conceptual way, the enkinaesthetic melodies of one agent must refer, simultaneously, to themselves and to those of others. Enkinaesthetic relations constitute a reflexive domain in which the kinetic melodies of agents' first-order languaging both constitute the domain and have the potential to act on and transform the domain. (We have seen this already fleshed out in the notion of

recursion and will return to it later as ‘structural drift’.) For example, the melody of one agent may become explicitly entwined with that of another agent and give rise to a new kind of attunement that is quite different from their former melodies.

Think of two people coming in to the centre of the floor to dance. Previously they have been talking with friends at the side of the room. In that interaction, their conversation and their feeling bodies have their own emotions, pitches, cadences, kinetics and proprioceptive dynamics. The enkinaesthetic polyphony of that languaging succeeds because it anticipates and adapts as they come together to dance. There are rhythms in the music, and there are kinetic rhythms, tones, and pico-scale bodily events all of which are felt and affective. What we might once have thought of as their ‘individual’¹¹ kinetic melodies can resonate in a pre-reflective attunement, and they can sometimes conflict and fragment. In either case this languaging is not reducible to formal (e.g., verbal or other symbolic) patterns (Thibault, 2011a, 2011b, 2011c). It is something much more heterogeneous than verbal or textual interchange, or what might be referred to as ‘second-order language’ or second-order cultural constructs (Love, 1990, 2004; Thibault, 2008, 2011a, 2011b, 2011c). Languaging in this context is comprised of a heterogeneity of factors – neural, somato-sensory, emotional, social, and cultural – that are distributed across a diversity of timescales. According to Cowley et al.:

Language is distributed. Given radical heterogeneity, it spreads across bodies in time, and space. It is merely constrained by the ‘languages’ which the centralist invokes to explain acts of utterance and interpretations. Thus we prioritize dialogue and how humans behave. What we do is based in biomechanical co-ordination. This is first-order language or languaging. In a

¹¹ ‘Individual’ is in inverted commas because we dwell in an enkinaesthetic co-existence from our experiential beginnings to our experiential end. Thus, we agree that ‘individual’ is a Deleuzian ‘science fiction’.

biocultural world, we hypothesize, languaging enables biological individuals (babies) to self-organize as persons. (<http://www.psy.herts.ac.uk/dlg/>)

This ‘dialogue’ need not be linguistic, though it can be. It will be apparent to the reader that we do not imply textual, linguistic, or discursive activity, only the enkinaesthetic interactivity of agents within the domain of ‘first-order languaging’.

Cowley puts this well when he says:

As living beings, we do not encode/decode but, rather, concert our doings such that our activity becomes entangled with second-order constructs. In similar vein, Wittgenstein [1958] sees that language is inseparable from what we do or our forms of life. Our forms of life give us many kinds of first-order language.

(Cowley, 2009: p. 500).

Thus, linguistic interplay is not ruled out, but our main concern has been with the proto-modal, prelinguistic, and pre-reflective enkinaesthetically generated co-enactions of agents. To bring this out further we now provide a brief consideration of the neglect of the feeling dimension in current accounts of language.

4. THE LANGUAGING OF LIVING AGENTS

Language and emotions have been on the official agenda for some time now in linguistics and discourse analysis (Besnier, 1990; Colombetti, 2009). Nevertheless, researchers in these areas have a tendency to see emotions and affect as second-order semantic constructs of their lexico-grammatical realizations or encodings.¹²

Bodily feelings, the feelings people have, how they move others to feel through

¹² See, for example, Martin and White, 2005; and Thibault, 2005: pp. 288-299, for an alternative explanation.

dialogically coordinated somato-sensory dynamics, and how they too are moved to feel in dialogically coordinated languaging, are all but ignored. This stance contrasts with the fact that people, in languaging, not only hear, see, and smell the other's somato-sensory dynamics, they also feel them at all scalar levels of the organism (Thibault, 2011b: pp. 127-136). The fact that the feeling dimension of languaging has been ignored or suppressed for so long no doubt stems, at least in part, from the Saussurean legacy in twentieth century linguistics. In that tradition and its various historical developments, the biplanar architecture of language has been seen as a coding relationship between two *abstracta* – the acoustic image and the concept, which were conceived by Saussure as mental, not physical, entities that are correlated in the formation of linguistic signs (Saussure, 1910-1911/1993: pp. 285-290).

And yet, languaging is somato-sensory activity: it has a physical and sensorial existence. In much languaging, how people feel or are moved to feel by another's languaging – for example, the soothing, caring words a parent utters to comfort a child – are frequently more salient than what is said. Languaging is part of what it means to be a feeling, animate agent living in relations of community and reciprocity with other agents. In their languaging, agents are immersed in the reciprocal flow of bodily feelings and sensations. The question then is to understand what these bodily feelings are and how they are integrated with other aspects of languaging. Languaging catalyzes flows of bodily feelings between co-acting agents in dialogical communion with one-another, and we need to ask how it is that these flows move and constrain people to feel, think, and act (Thibault, 2011a, 2011b; Verbrugge, 1985); how can someone's utterance activity move someone else to feel increased muscle tension, increased heart rate, or to feel that another's voice is calm and reassuring.

One of the most striking things about this shift in focus is that we can abandon the misleading idea of turn-taking as the basis for the organization of dialogical relations in whole-body sense-making, and this will be done with reference, first of all, to the affective balance achieved through the Husserlian notion of analogizing apprehension:

If we attempt to indicate the peculiar nature of that analogizing apprehension whereby a body within my primordial sphere, being similar to my own animate body, becomes apprehended as likewise an animate organism, we encounter: first, the circumstance that here the primally institutive original is always livingly present, and the primal instituting itself is therefore always going on in a livingly effective manner ...

On more precise analysis we find essentially present here an intentional overreaching, ... a living mutual awakening and an overlaying of each with the objective sense of the other.

(Husserl 1960, §51, 'Fifth Cartesian Meditation', pp.112-113)

In our livingly present intentional overreaching, we embody agential enkinaesthetic co-existence in a way that is more than simply a structural coupling. In our first-order languaging, we live, we experience, the mutual overlaying of the other in us and we in them; routinely we spill over into the experiential life of the other.

(Stuart, 2010b) The individual's implicit intricacy should now be conceived more naturally as an implicit inter-bodily, inter-worldly enkinaesthetic intricacy which is livingly present continuously within agential first-order languaging.

If this is true, the emphasis on turn-taking and moves in conversation- and discourse-analytical approaches which view linguistic dialogue as the executing of

rules based on pre-existing procedures, programs or codes (e.g., rules of sequencing), is quite simply wrong-headed. Under that conception, language behaviour is predictable and recoverable / deducible from prior codes or programs. There is no place for the enkinaesthetics of experience, spontaneity, creativity, imagination, anticipation, serendipity, and history. Yet we know that living beings are not like this, they are not reducible to machine-like formal regularities or programs. They feel and live, necessarily co-participating in affective, values-realizing, meaningful flows of activity with other feeling and living bodies. Their entwined somato-sensory dynamics form feeling bonds between persons and between persons and other agents and things.

5. FIRST-ORDER LANGUAGING, EMOTION INDUCERS AND FEELINGS AS EVALUATORS

First-order languaging dynamics are never neutral. Their prosodies are always active, enkinaesthetically dynamic, evaluative and stance-taking, struggling both with the asymmetries of agents' relations as well as with the disruptive forces of their feeling and visceral states. These affective dynamics have the functional capacity to orient agents around values-realizing action and (implicit) evaluation.

Damasio discusses the values-realizing dimension of bodily feelings:

The levers of homeostasis are defined by conditions that conscious and reflective humans can easily describe as states of pain and punishment, at one end of the spectrum, or pleasure and reward at the other. What we label as pain and pleasure is, in effect, the experience of particular configurations of the physiological state characterized by certain chemical parameters of the internal milieu, by the smooth muscle tone of viscera, by behaviors enacted in the musculoskeletal system, and by the distribution of neuromodulators in

neural tissue. States of pain and punishment, if maintained over long periods of time without counteraction, lead to disease and death; states of pleasure and reward lead to health and well-being.

(Damasio, 2005: p. 48)

The pico-scale dynamics of first-order languaging have the potential to prompt or co-enact evaluations as part of the co-agential dynamic, thus, feeling and otherwise perceiving the speaker's voice as 'angry', 'unfriendly', 'sincere', 'caring', and so on. These terms are, of course, no more than lexico-semantic labels or glosses, but they get at an important aspect of the process: agents interpret bodily feelings in qualitatively distinct, value-laden, and value-driven ways. This is not to say that a given linguistic term correlates in any simple or direct way with a particular syndrome of bodily sensations and associated feelings; it does not. However, it does show that these terms provide a means of making emotions and feelings enkinaesthetically salient, and at the same time recognizing that talking about them, using second-order lexico-semantic categories, may also be a way of transforming them.¹³

Modulations in the somato-sensory dynamics of vocalizing and other gestural activities can function as an "inducer of emotion" (Damasio, 1999: p. 68). So, speaking only of the voice: the micro-temporal dynamics of a 'loud' or 'aggressive' voice, for instance, is such an inducer of a bodily feeling and the concomitant emotion. The designation of someone's voice as 'loud', 'angry', 'friendly', 'beckoning', 'caressing', and so on, is a felt, enkinaesthetic pre-reflexive and prenoetic immersive response.

¹³ This is possibly the earliest form of natural hermeneutics.

A number of things happen here: (i) the hearer feels the physical impact of the speaker's voice on her receptor organs – the ear, the skin, and so on. Vocal tract events impact on and affect the whole body, including the inducement of tactile sensations (Gick and Derrick, 2009); (ii) the hearer is plenisentially aware of the speaker's voice as information about an environmental event, namely, the speaker's location and proximity, so things external to the listener in the environment 'out there'; (iii) the hearer's brain – specifically the cortical patterns that are activated in the cerebrum – creates some kind of internal construction or model of the external object of perception (Damasio, 2003: p. 91; Kinsbourne, 2005).

The threefold distinction made here with help from Damasio shows that the prosodic relation between agents is more than the perception of an external environmental event and its characteristics. It is also the direct perception of feeling states about the external objects that occur within the enkinaesthetic milieu of the agent. The capacity to coordinate the affective co-sensitivity within first-order languaging, through the use of vocal and other somato-sensory dynamics, provides a basis for grasping of others' intentions. The language sciences have paid considerable attention to the characteristics of speech events, seen as external objects of attention and perception, but very little has been written about this crucial aspect of the way vocal events are perceived, felt, embodied, evaluated and understood by listeners.

In face-to-face dialogical coordination each person attempts to synchronize their body movements and muscle tensions with the movements and muscle tensions of others. Oscillating neurons (oscillators) are zeroed by external stimuli such as the movement of another person (Hart, 2008: p. 83). In this way, one person's neural and bodily dynamics can become synchronized with another person's during time-

locked dialogical interaction (Hart *ibid.*; Thibault, 2011c). The firing of neural oscillators binds affective input in time in patterns of neural activation. The time-locked patterns of activation of oscillating neurons play a crucial role in the perceptual and motor activities that are central to real-time languaging behaviour. When this occurs, that is, when a resonance pattern is created between two or more individuals in this way, they form a coupled system consisting of emergent neural and somato-sensory dynamics that are truly immersive in character and function.¹⁴

In this coupling, the affectively-laden tonalities of each agent's experience provide a way of organizing a response, where the tonalities act as evaluators (Damasio, 1999, 2003, 2005). So, for example, we feel the speaker's voice to be angry and directed towards us; this interpretative stance is concomitant with the kinaesthetic responses of our body, its tensed muscles, racing heart, intensified rate of breathing, blushing, and so on (Thibault, 2004b: pp. 94-98). But these are also enmeshed and entangled enkinaesthetic languagings, part of an active, dialogically organized social response to the speaker's anger. The dis-ease we feel and concomitant implicit negative evaluation engenders a means of modulating and guiding our responses. These evaluations in general enable us to learn how to modulate and adapt our responses to better understand, anticipate, and cope with what we hear and feel. Naturally, this can lead to more successful dealings with others and more effective ways of tracking and gauging their emotional and intentional orientations. The adaptive nature of such responses fits well with the enactivist account of perception advanced by Noë (2004); the active, enkinaesthetically dynamic, evaluative languaging prosodies of exploring and acting on the world that are mediated by knowledge of sensorimotor contingencies,

¹⁴ Edelman (1987, 1992, 2006) shows that emergent neural patterns of activation arising from recurrent reentrant pathways are the result of the organism's experience and ongoing activity; recurrent reentrant pathways are maintained and strengthened through the repetition of experience.

that is, practical knowledge concerning the changes caused by the agent's perceptual exploration of agents, things and events, and in particular other persons.

So, enkinaesthetically co-active agents constitute a source of perturbation for each other; the internal dynamics of one agent or organism being perturbed by the felt, affective internal dynamics of the other, and vice versa. As Maturana and Varela (1987/1992: p. 180) point out, such perturbations may arise from non-biotic as well as biotic sources. In biotic sources the interactions may acquire, in the course of their ontogeny, a recurrent nature, the necessary consequence of which is an intentionally-modulated structural drift.¹⁵ When this happens, the co-drifting organisms give rise to a new phenomenological domain, which is likely to become particularly complex when there is a nervous system. (1987/1992: pp. 180-181]. Maturana and Varela use the term “third-order coupling” (1987/1992: p. 181) to designate this new phenomenological domain:

In fact, once organisms take part in recurrent interactions, these couplings will occur with definite complexity and stability, but as a natural result of the congruence of their respective ontogenetic drifts.

(Maturana and Varela, 1987/1992: p. 181)

As agents' enkinaesthetic melodies co-adapt in first-order languaging, the resonance patterns enable co-participation in each other's experience and sense-making (see also Hart, 2008: pp. 83-84). These experiencing agents cannot then return to their former state prior to their mutual co-affect; that is the nature of an

¹⁵ “[T]he life history of a living system courses as a spontaneous flow of continuous structural changes that follow a path or course in which the living system conserves autopoiesis and adaptation in its domain of existence. I call this process *ontogenic structural drift*. We biologists do not easily see that the conservation of adaptation is an invariant relation that constitutes a condition of existence for living systems (and in fact for all systems), and this is so because we usually treat it as a variable in the evolutionary discourse.” [Maturana, 2002: p. 17]

always-differentiating recursive enkinaesthetic process. Coordinated languaging behaviour biases and shapes attention and perception because it is shaped and directed by value biases intrinsic to its dynamics. Acculturated persons develop, in concert with others, strategic signaling behaviours that enable them to jointly attend to the world in values-realizing and socially coordinated ways. Thus, the pico-scale dynamical patterns of first-order enkinaesthetic languaging affect others and are affected by them in ways that are shaped and guided by implicit (somato-sensory) and explicit (social and cultural) values.

6. LINGUISTICS AND LANGUAGING

Linguists and discourse analysts frequently write about ‘speaking’ and ‘listening’ activities and roles of languaging agents in ‘spoken discourse’. The distinction that Gibson (1979/1986) and Reed (1996: pp. 80-82) make between exploratory and performatory activity is useful here. Exploratory activity is the scanning and making use of environmental information; performatory activity serves to regulate the organism’s own pattern of activity (Reed, 1996: p. 80). But, we would rather say that speakers and listeners engage in experientially synchronous co-exploratory and co-performatory acts during languaging. We accept Gibson’s and Reed’s distinction in principle, but not in practice. Moreover, performance is also always exploration, exploration is always performance. Vocal tract gestures and other movements of speakers are not only performatory activities that regulate one’s own and others’ activity, they are also exploratory activities that elicit responses and provide information about the other and the other’s evaluative orientation. Listening is only one form of active, attentive exploratory activity; as we have seen, an agent’s languaging exploration is enkinaesthetically articulate and affectively co-immersive.

The bodily rhythms of persons and the dynamics of their vocal and related bodily activities may be synchronized, partially or fully, on the pico-scale of fractions of seconds and milliseconds whereby they are synchronized around shared variables such as speech and other body rhythms, pitch, tempo, timing and voice dynamics. Rhythm on different time-scales – neuronal, bodily, interpersonal, societal, natural – is a resource for organizing time and information/meaning on many different scales that are fundamental for the operation of action, perception, cognition, and semiosis in the course of the agent's engagements with its world (Lefèbvre, 1992/2004). As Cowley (1998) has shown in a study of the interpersonal significance of prosodies in Italian conversation, speakers adapt to each other's pitch and rhythm. Speakers synchronize with each other on the pico-scale of their voice and other bodily dynamics; they resonate with each other in always oscillating, always variable and never entirely stable patterns of rhythmic, harmonic, and other forms of convergence. It is through the possibility for such convergence that aspects of each other's feelings and experiences become enfolded into the bodily, neuronal, and affective dynamics of the other.

Analysts such as Condon and Sander (e.g., 1974) have shown in detail the role of micro-temporal processes such as rhythm in the synchronization and coordination of agents-in-interaction. These researchers have demonstrated the emergent, co-constructed and inter-individual properties of the neuromuscular dynamics of agents-in-interaction. What is missing is the further recognition that these and other aspects of pico-scale events are directly involved in sense-making and are, therefore, normative and values-realizing. In committing ourselves to a process ontology, we argue that our approach is better placed to understand and re-present the emergence of preconceptual sense-making and interpretation. If the physical 'medium' of co-articulated vocal tract gestural activity, and so on, really were no

more than the passive embodiment of 'language', then we would have no basis for explaining the causal role of neuromuscular dynamical flows in the construction of sense-making events in the lives of co-enacting agents. Real-time somato-sensory dynamics of agents in always-differentiating recursive enkinaesthetic processes do not passively encode or embody information 'about' something; it is not a passive record of past states (Kampis, 1991: p. 436; Thibault, 2005).

Typically, 'language' has been associated with higher cognitive, semantic and conceptual abilities, and 'body language' has been associated with feeling and expression where it is assumed that the 'ascent' to language is a progression from the one to the other (Thibault, 2008: pp. 301-309). The reciprocal affective neuromuscular dynamical flows and muscle tensions that are felt and enfolded between co-participating agents in exploratory sense-making activity have evolved precisely as a means of coordinating feeling and affect between persons, and no less so than higher-order thinking or reasoning of the kind we associate with conceptual and representational semantics (Bouissac, 2006; Sarles, 1977). The connection between the two perspectives is co-action and co-affect. Abercrombie has, for example, written of the "phonetic empathy" (1967: p. 97) that is reciprocally felt by participants in spoken dialogue. But such empathy hasn't only to do with speech and hearing. Such empathy occurs on the basis of agents' phenomenologically primitive enkinaesthetic entanglement and dispositions to mutual attunement; yes, of course it is to the rhythms of their vocalizing, but it is also to the implicit intricacy of their preconceptual dialogically entangled somato-sensory dynamics.

7. CONCLUSION

First-order languagings have an integral co-immersive affective character, occurring within an always-differentiating recursive process. We have shown how

the enkinaesthetic nature of languaging is reciprocally and plenisentially affective in a complex co-immersive, dialogical way, and have emphasised its recursive nature, without which pre-reflective, preconceptual experience would have no significance for the agent. Without this, the semiotic explosion, in which the child develops the ability to understand pictures, models, and other representational artifacts, could not occur.

The view of language as a code-like input/output machine for processing abstract symbolic forms has been massively biased towards the idea that language is an instrument of cognition and rational thought. We oppose this view: it trivializes the importance of the reciprocal affective neuro-muscular flows and muscle tensions that are felt and enfolded as, co-exploratory and co-performative, enkinaesthetic melodies between co-participating agents in their anticipatingly-living experience. And so, to speak of words, as second-order language, having the power to touch and change a person, and thus to function as biodynamical social engines (Thibault, 2011a: pp. 57-59), makes sense only if there is an already fully-operating biodynamical affective system primed to respond to the evocation of the words and the rise and fall of tensions in the vocal tract, and this, we are claiming, is there *ab initio* in the polyphonic enkinaesthetic dialogue of affectively entangled bodies.

BIBLIOGRAPHY

- Abercrombie, D. (1967). *Elements of general phonetics*. Edinburgh and Chicago: Edinburgh University Press.
- Besnier, N. (1990). Language and affect. *Annual Review of Anthropology*, 19, 419-451.
- Bouissac, P. (2006). The optic, haptic, and acoustic dimensions of gestures: evolutionary significance and methodological implications. Berlin Gesture Center, Interdisziplinäres BGC-Kolloquium Freitag, 10. November 2006; [<http://www.semioticon.com/people/articles/Gesture.htm>]; downloaded 2nd October 2010.
- Bråten, S. (2007). Altercentric infants and adults: On the origins and manifestations of participant perception of others' acts and utterances. In S. Bråten (Ed.), *On being moved: From mirror neurons to empathy* (pp. 111-135). Amsterdam/Philadelphia: John Benjamins.
- Colombetti, G. (2009). What languages does to feelings. *Journal of Consciousness Studies* 16, 9: 4-26.
- Cowley, S. J. (1998). Of timing, turn-taking, and conversations. *Journal of Psycholinguistic Research*, 27(5), 541-571.
- Cowley, S. J. (2008). The codes of language: turtles all the way up?. In M. Barbieri (Ed.), *The codes of life: the rules of macroevolution* (pp. 319-345). Berlin: Springer.

- Cowley, S. J. (2009). Distributed language and dynamics. *Pragmatics and Cognition*, 17(3), 495–508.
- Cowley, S. J., Moodley, S., and Fiori-Cowley, A. (2004). Grounding signs of culture: primary intersubjectivity in social semiosis. *Mind, Culture, and Activity*, 11(2), 109-132.
- Damasio, A.R. (1994). *Descartes' Error: Emotion, reason, and the human brain*. New York: Grosset/Putnam.
- Damasio, A.R. (1999). *The feeling of what happens : Body, emotion and the making of consciousness*. New York: Harcourt Brace.
- Damasio, A.R. (2003). *Looking for Spinoza: Joy, sorrow, and the feeling brain*. London: Harcourt.
- Damasio, A. R. (2005). The neurobiological grounding of human values. In J.-P. Changeux, A. R. Damasio, W. Singer & Y. Christen (Eds.), *Neurobiology of human values* (pp. 47-56). Heidelberg: Springer Verlag.
- De Jaegher, H., & Di Paolo, E. (2007). Participatory sense-making: An enactive approach to social cognition. *Phenomenology and the Cognitive Sciences*, 6, 485-507.
- Deleuze, G. (1994). *Difference and repetition*. New York: Columbia University Press.
- Edelman, G. (1987). *Neural darwinism: The theory of neuronal group selection*. New York: Basic Books.
- Edelman, G. (1992). *Bright air, brilliant fire: On the matter of the mind*. New York: Basic Books.

Edelman, G. (2006). *Second nature: Brain science and human knowledge*. New Haven: Yale University Press.

Freeman, W. J. (1995). *Societies of brains: A study in the neuroscience of love and hate*. Hillsdale, NJ and Hove, UK: Erlbaum.

Gallagher, S. (2005). *How the body shapes the mind*. Oxford: Oxford University Press.

Gendlin, E. T. (1992). The primacy of the body, not the primacy of perception. [Excerpt from pages 343-353, slightly revised], *Man and World*, 25(3-4), 341–353, from http://www.focusing.org/gendlin/docs/gol_2162.html

Gendlin, E.T. (2004). The new phenomenology of carrying forward. *Continental Philosophy Review*, 37(1), 127–151.

Gendlin, E. T. (2012). Implicit precision. In Z. Radman (Ed.), *The background: Knowing without thinking* (pp. 141–166). Houndmills, Basingstoke, UK & New York, USA: Palgrave Macmillan.

Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston: Houghton Mifflin.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.

Gick, B. & Derrick, D. (2009). Aero-tactile integration in speech perception. *Nature*, 462, 26 November, 502-504.

Goldman, A. & De Vignemont, F. (2009). Is social cognition embodied? *Trends in Cognitive Sciences*, 13 (4), 154-159.

Gratier, M. & Apter-Danon, G. (2009). The improvised musicality of belonging: Repetition and variation in mother–infant vocal interaction. In S. Malloch & C. Trevarthen (Eds.), *Communicative musicality: Exploring the basis of human companionship* (pp. 301–27). Oxford: Oxford University Press.

Gratier, M. & Trevarthen, C. (2007). Voice, vitality and meaning: On the shaping of the infant's utterances in willing engagement with culture. Comment on Bertau's "On the notion of voice". *International Journal for Dialogical Science*, 2(1), 169-181.

Gratier, M. & Trevarthen, C. (2008). Musical narrative and motives for culture in mother-infant vocal interaction. *The Journal of Consciousness Studies*, 15(10-11): 122-158.

Hodges, B. H. (2007). Good prospects: ecological and social perspectives on conforming, creating, and caring in conversation. *Language Sciences*, 29(5), 584-604.

Hodges, B. H. & Baron, R. M. (2007). Values as constraints on affordances: Perceiving and acting properly. *Journal for the Theory of Social Behaviour*, 22 (3), 263-294

Hoffmeyer, J. (2008). *Biosemiotics: An examination into the Signs of Life and the Life of Signs.* (J. Hoffmeyer & D. Favareau, Trans.), Scranton and London: University of Scranton Press.

Husserl, E. (1960/1982). *Cartesian meditations.* (D. Cairns, Trans.). Seventh Impression. The Hague: Martinus Nijhoff.

Husserl, E. (1964). *The phenomenology of internal time consciousness.* (J. S. Churchill, Trans.). Bloomington & London: Indiana University Press.

Kampis, G. (1991). *Self-organizing systems in biology and cognitive science: A new framework for dynamics, information and complexity*. Oxford and New York: Pergamon.

Kinsbourne, M. (2005). Imitation as entrainment: brain mechanisms and social consequences. In S. Hurley & N. Chater, (Eds.), *Perspectives on Imitation: From Neuroscience to Social Science. Volume 2: Imitation, human development, and culture* (pp. 163-172). Cambridge, MA and London, England: The MIT Press.

Lefèbvre, H. (2004). *Rhythmanalysis: Space, time and everyday life*. (S. Elden & G. Moore, Trans., with an Introduction by S. Elden). London and New York: Continuum. (Original work published 1992).

Love, N. (1990). The locus of languages in a redefined linguistics. In H. G. Davis & T. J. Taylor (Eds.), *Redefining linguistics* (pp. 53-117). London and New York: Routledge.

Love, N. (2004). Cognition and the language myth. *Language Sciences*, 26, 525-544.

Luria, A.R. (1964) "Factors and Forms of Aphasia", in *Ciba Foundation Symposium - Disorders of Language*, eds A. V. .S. de Reuck and M. O'Connor, J. & A. Churchill Ltd., 104 Gloucester Place, London W1

Luria, A. R. (1973). *The working brain: An introduction to neuropsychology*. (B. Haigh, Trans.). London: Allen Lane.

Malloch, S. (1999). Mother and infants and communicative musicality. In I. Deliège (Ed.), *Rhythms, musical narrative, and the origins of human*

communication (pp. 29-57). *Musicae Scientiae*, Special Issue, 1999-2000, Liège, Belgium: European Society for the Cognitive Sciences of Music.

Malloch, S. & Trevarthen, C. (Eds.) (2009). *Communicative musicality: Exploring the basis of human companionship*. Oxford: Oxford University Press.

Martin, J. R. and White, P. R. R. (2005). *The language of evaluation: Appraisal in English*. Houndmills, Basingstoke, UK & New York, USA: Palgrave Macmillan.

Maturana, H. R. (1988). *Ontology of observing: The biological foundations of self-consciousness and the physical domain of existence*. Texts in Cybernetic Theory, American Society for Cybernetics, URL: <http://www.inteco.cl/biology/ontology/ooo-c9.htm> accessed 8th April 2012

Maturana, H. R. and Varela, F. (1992). *The tree of knowledge: The biological basis of human understanding*. Boston: Shambhala. (Original work published 1987).

Maturana, H. R. (2002). Autopoiesis, structural coupling and cognition. *Cybernetics & Human Knowing*. 9 (3-4), 5-34.

Merleau-Ponty, M. (1962). *Phenomenology of perception* (C. Smith, Trans.). New York: The Humanities Press. London: Routledge and Kegan Paul.

Noë, A. (2004). *Action in perception*. Cambridge, MA: The MIT Press

Noë, A. (2009). *Out of our heads, Why you are not your brain, and other lessons from the biology of consciousness*. New York: Hill and Wang, a division of Farrar, Strauss & Giroux.

Reed, E. S. 1996. *Encountering the world: Toward an ecological psychology*. New York and London: Oxford University Press.

- Sarles, H. (1977). *After metaphysics: Towards a grammar of interaction and discourse*. Lisse: Peter de Ridder Press.
- Saussure, Ferdinand de 1993. Eisuke Komatsu (Ed.), *Cours de Linguistique Générale: Premier et troisième cours d'après les notes de Reidlinger et Constantin*. Collection Recherches Université Gakushuin n° 24. Tokyo: Université Gakushuin.
- Sheets-Johnstone, M. (1990). *The roots of thinking*. Philadelphia: Temple University Press.
- Sheets-Johnstone, M. (1999). *The primacy of movement*. Amsterdam/Philadelphia: John Benjamins.
- Sheets-Johnstone, M. (2000). Kinetic tactile-kinesthetic bodies: ontogenetical foundations of apprenticeship learning. *Human Studies*, 23, 343–370.
- Sheets-Johnstone, M. (2003). Kinesthetic memory. *Theoria et Historia Scientiarum*, 7, 69–92.
- Sheets-Johnstone, M. (2009). *The corporeal turn: An interdisciplinary reader*. Exeter, UK: Imprint Academic.
- Steffensen, S. V., Thibault, P. J. and Cowley, S. J. (2010). Living in the social meshwork: the case of health interaction. In S. J. Cowley, J. C. Major, S. V. Steffensen & A. Dinis (Eds.), *Signifying Bodies: Biosemiosis, interaction and health* (pp. 207-244). Braga: The Faculty of Philosophy of Braga Portuguese Catholic University.
- Steinbock, A. J. (1999). Saturated intentionality. In D. Welton (Ed.), *The body: Classic and contemporary readings* (pp. 178-199). London: Blackwell.

- Stern, D. (1985). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.
- Stuart, S. A. J. (2006). Extended body, extended mind: the self as prosthesis. In *Screen Consciousness: Mind, Cinema and World*, Amsterdam, New York: Rodopi.
- Stuart, S. A. J. (2007). Machine consciousness: cognitive and kinaesthetic imagination. *Journal of Consciousness Studies*, Imprint Academic, 14 (7), 141–53.
- Stuart, S. A. J. (2008). From agency to apperception: through kinaesthesia to cognition and creation. *Journal of Ethics and Information Technology*, 10, 255–264.
- Stuart, S. A. J. (2009). The mindsized mashup: mind isn't supersized after all. *Analysis*, 70(1), 174–183.
- Stuart, S. A. J. (2010a). Conscious machines: memory, melody and imagination. *Phenomenology and the Cognitive Sciences*, 14, Vol. 9(1), 37–51.
- Stuart, S. A. J. (2010b). Enkinaesthesia, biosemiotics, and the ethiosphere, . In S. J. Cowley, J. C. Major, S. V. Steffensen & A. Dinis (Eds.), *Signifying Bodies: Biosemiosis, interaction and health* (pp. 305-330). Braga: The Faculty of Philosophy of Braga Portuguese Catholic University. ISBN 978-972-697-191-7.
- Stuart, S. A. J. (2012). Enkinaesthesia: the essential sensuous background for co-agency. In Z. Radman (Ed.), *The background: Knowing without thinking* (pp. 167-186). Houndmills, Basingstoke, UK & New York, USA: Palgrave Macmillan.
- Thibault, P. J. (2000). The dialogical integration of the brain in social semiosis: Edelman and the case for downward causation. *Mind, Culture, and Activity* 7(4), 291-311.

Thibault, P. (2004a). Agency, individuation, and meaning-making: reflections on an episode of bonobo-human interaction. In G. Williams and A. Lukin (Eds.), *Language development: Functional perspectives on evolution and ontogenesis* (pp. 112-136). London and New York: Continuum.

Thibault, P. J. (2004b). *Brain, mind and the signifying body: An ecosocial semiotic theory*. (Foreword by M. A. K. Halliday). London and New York: Continuum.

Thibault, P. J. (2005). What kind of minded being has language: anticipatory dynamics, arguability, and agency in a normatively and recursively self-transforming learning system, Part 1. *Linguistics and the Human Sciences*, 1(2), 261–335.

Thibault, P. J. (2008). Face-to-face communication and body language. In G. Antos & E. Ventola (Eds.), *Handbooks of Applied Linguistics (HAL) Linguistics for Problem-Solving: Perspectives on Communication Competence, Language and Communication Problems, and Practical Solutions. Volume 2: Interpersonal Communication* (pp. 285-330). Berlin. Mouton.

Thibault P. J. (2011a). *Languaging behaviour as catalytic process: steps towards a theory of living language (Part I)*. *The Public Journal of Semiotics* Volume III, No. 2, 2-79.

Thibault P. J. (2011b). *Languaging behaviour as catalytic process: steps towards a theory of living language (Part II)*. *The Public Journal of Semiotics* Volume III, No. 2, 80-151.

Thibault, P. J. (2011c). First-order languaging dynamics and second-order language: the distributed language view. *Ecological Psychology*, 23(3), 210-245.

URL: <http://dx.doi.org/10.1080/10407413.2011.591274>.

- Thompson, E. (2001). Empathy and consciousness. *Journal of Consciousness Studies*, 8 (5-7), 1-32.
- Trevarthen, C. (1998). The concept and foundations of infant intersubjectivity. In S. Bråten (Ed.), *Intersubjective communication and emotion in early ontogeny* (pp. 15-46). Cambridge: Cambridge University Press.
- Trevarthen, C. (2012). Embodied human intersubjectivity: Imaginative agency, to share meaning, *Journal of Cognitive Semiotics*, IV(1), 6-56.
- Verbrugge, R. R. (1985). Language and event perception: Steps toward a synthesis. In W. H. Warren Jr. & R. E. Shaw (Eds.), *Persistence and change* (pp. 157–194). Hillsdale, NJ: Erlbaum.
- Vygotsky, L.S. (1998). *The collected works of L.S. Vygotsky, vol. 5* (R.W. Rieber, Ed.). New York: Plenum Press.
- Wittgenstein, L. W. (1958). *Philosophical Investigations. (2nd Ed.)*. Oxford: Basil Blackwell.
- Zahavi, D. (1997). Horizontal intentionality and transcendental intersubjectivity. *Tijdschrift voor Filosofie*, 59 (2), 304–321.