Prologue

Bodily motion, emotion and mind science

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1.   Why 'motion' and 'emotion'?

This book emerged as a happy coincidence. Or was it perhaps a matter of unplanned, but non-accidental "distributed cognition"? In retrospect it seems that it was something that was just waiting to happen. Based on our edited volume *The Shared Mind* (Zlatev et al. 2008), Tim Racine, Chris Sinha, Esa Itkonen and myself proposed a theme session with the title "Intersubjectivity and Language" to the 10th International Cognitive Linguistics Conference, held in Krakow, Poland, in July 2007. At the same time, Ad Foolen and Ulrike Lüdtke independently proposed a session on "Language and Emotion". Both proposals were accepted, but we were urged to combine them, and the outcome was the stimulating whole-day workshop "Intersubjectivity and Language: The Interplay of Cognition and Emotion".

The first fruit of this, at first glance coerced, synthesis was the linking of the topics of *intersubjectivity* and *emotion*. While Zlatev et al. (2008: 1, 3) had defined the first of these notions as "the sharing of experiential content (e.g. feelings, perceptions, thoughts, linguistic meanings) among a plurality of subjects" and had stated that such "sharing of experiences is not only, and not primarily, on a cognitive level, but also (and more basically) on the level of affect, perceptual processes and conative (action-oriented) engagements" – *emotion* was not explicitly thematized in that predecessor to the present volume. This was clearly a blind spot in the programmatic attempt to frame the concept of intersubjectivity as an alternative to the cognitivist perspective of "theory of mind", which still dominates large parts of the field of social cognition.

A second, and equally important, insight that emerged from the workshop was the close link between (inter) subjectivity and *bodily motion,* or *movement*. Again, it is not that Zlatev et al. (2008: 3) had neglected the essential role of the body and its various forms of "movements" for the understanding of self and others: "Such sharing and understanding are based on embodied interaction (e.g. empathic perception, imitation, gesture and practical collaboration)." Similarly, various traditions

(all reflected in the present volume) can be seen as converging on this theme: from the phenomenological analyses of Husserl and Merleau-Ponty, the developmental psychology of Piaget, the social interactionism of Mead – to more modern discussions of the "embodied mind" (Varela, Thompson & Rosch 1991) and "mind as motion" (Port & van Gelder 1995).

Still, what arguably remains underexplored is the degree to which movement is intimately linked to "the passions", the "movements of the souls", the emotions, feelings… – or to use a common recent term, *affectivity*. One might reconsider this under-exploration quite surprising, given the close etymological and semantic relations between the terms 'motion' and 'emotion' (Bloem this volume; Zlatev this volume).

On the one hand, affectivity both motivates bodily movement, and is expressed in it. But as William James (1884: 197) already pointed out, the causal relation between affectivity and bodily motion, and thus between "mind" and "body", goes both ways: "Everyone knows how panic is induced by flight, and how giving way to the symptom of grief increases those passions themselves. Each fit of sobbing makes the sorrow more acute, and calls forth another fit stronger still…"

Such an "emotion complex" is public, and affects others, at various levels of awareness. In moving ourselves, we move others; in observing others move – we are moved ourselves. The fundamental importance of this (at first glance) simple observation for our phenomenal experience of the world and of ourselves (i.e. consciousness), our connectedness with and understanding of others (intersubjectivity) and for language is the topic of this book. This can be graphically represented as in Figure 1.
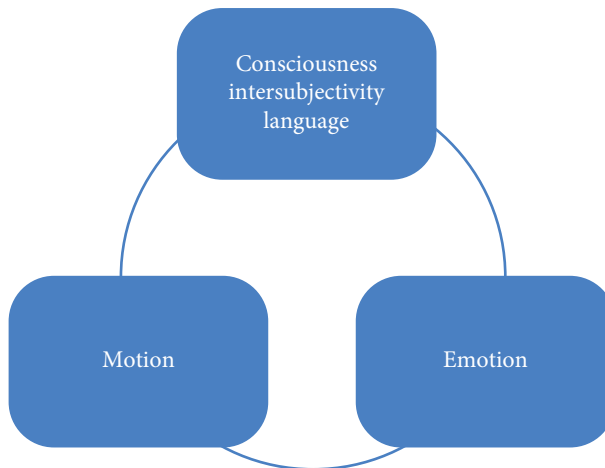

Figure 1. A schematic representation of the relations between the major concepts of the volume

2.   Bringing motion and emotion back together again

It is characteristic that in the "first generation" of cognitive science, labeled "cognitivism" by Varela et al. (1991), emotions, along with the body in general, as well as intersubjectivity (and sociality and culture more generally), were neglected. In the mind-as-computer paradigm, emotions appeared, if at all – as a special cognitive sub-routine that could be added to, or detached from the cognitive system at will.[1] When the central role of emotions for basic cognitive processes such as learning and choosing among alternative actions, was realized, this was still a very *dis*embodied, functionalist view, "defining emotions in terms of their role in the mental economy" (Evans 2001: 146). Even when, after advances in neuroscience, it was recognized that practically every cognitive process was also emotionally "valenced" (as e.g. shown by activations in the limbic system), the centrality of emotional experience, i.e. feelings, was denied in an influential book on the subject:

> Emotions evolved not as conscious feelings, linguistically differentiated or otherwise, but as brain states and bodily responses. The brain states and bodily responses are the fundamental facts of an emotion, and the *conscious feelings are the frills that have added icing to the emotional cake*.
>
> <div align="right">(LeDoux 1996: 302 our emphasis)</div>

In "second generation" cognitive science, involving neuroscience and "embodied" robots rather than just software, such a view is still prevalent:

> … many people seem to regard feelings as the essence of emotion, but this is not the view of most contemporary scientists and philosophers who study emotion. From the viewpoint of modern science, it would be as foolish to deny that a computer can have emotions just because it lacked conscious feelings as to deny that a paralyzed person could have emotions because he could not make the relevant facial expressions. <div align="right">(Evans 2001: 171)</div>

Such general pronouncements on behalf of "contemporary scientists and philosophers", as well as the analogy between the machine and the paralyzed person, should, however, be questioned. With the turn of the millennium, if not earlier, consciousness has been "re-habilitated" as a subject worthy of science, and a growing number of scientists (and not just philosophers) admit that whatever other aspects the English word 'mind' includes (function, behavior, language), if it were divorced from subjectivity, or "first-person" experience, it would be vacuous. The expression 'mindless' indicates

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1.   The super-intelligent android Commander Data in the TV-series *Star Trek, Second Generation* in the late 1980s was in one episode given an "emotion chip", with nearly disastrous consequences.

this fact: we say that something is done mindlessly precisely because it lacks subjectivity.[2] In this respect the work of Damasio (1999, 2003), which has an explicit focus on consciousness as phenomenal awareness, on the complex interrelations between emotions as "brain states and bodily responses", feelings and selfhood needs to be acknowledged.

But especially from the standpoint of the present volume, Damasio's view of emotions/feelings as above all concerned with evaluation of "in-coming" sensations, and the body's state in general, is insufficient. First, it is not active enough and misses the link between emotion and self-motion (see Ellis and Newton this volume). Second, it is not intersubjective enough. A fairly established classification of emotions distinguishes between "basic" (Ekman) or "primary" (Damasio) emotions: joy/pleasure, distress, anger, fear, surprise, distress – and "higher cognitive" or "secondary" emotions such as love, guilt, pride, shame, embarrassment, envy. While the second set are acknowledged to be "social", since they are directed to, or otherwise presuppose relations to others, the "basic" emotions are claimed to be object-directed, automatic (involuntary) and universal, with both (facial) expressions and bodily/brain reactions built in through evolution. But clearly the *expressions* of the basic emotions would be superfluous if not involved in communication, and it is obvious that they play an important role for *empathy*, the capacity for "feeling in" (*Einfühlung*) or sympathy, "feeling with" someone else. In evolutionary terms, basic emotions must have been selected for due to their contribution to survival and reproduction through their "social functions". The neuroscience of empathy, as well as intersubjectivity in general, received a big boost with the introduction of the notion of "mirror neurons" in the early 1990s (Di Pellegrino et al. 1992), especially since the original discovery of neurons in the pre-motor cortex of macaques responding to performed as well as observed actions was extended and generalized to human beings, and to other brain areas, including the amygdala, which was shown to be active in a similar way both when people experience certain emotions, and when they observed others doing so (e.g. Adolphs 2003).

But if at its most basic level, empathy involves processes of "bodily resonance" (Gallagher, this volume), or "the passive or involuntary coupling or pairing of my living body with your living body in perception and action" (Thompson 2007: 392), then it is not just the specialized (facial) expressions manifest in basic emotions, but the perception of bodily movements in general, including postures, hand movements, gaits, involuntary movements like yawns and scratches etc. that become relevant. Indeed, the edited volume *On Being Moved* (Bråten 2007), which like the present book utilized the polysemy of the English verb 'move' (cf. Reddy this volume), made

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2.   I am grateful to Tim Racine for pointing out this observation in English usage.

this generalization, linking the work from developmental psychology by Colwyn Trevarthen, Daniel Stern and others on infant intersubjectivity and the development of a sense of self to "mirror neuron" neuroscience.

Still, this synthesis did not go far enough. For one thing, the debates on the proper interpretation of the empirical evidence concerning "mirror neurons" continues (see Gallagher this volume; Racine et al. this volume). But perhaps more relevantly, as the passive construction in the title of Bråten (2007) implies: the focus is on the "passive and involuntary" aspects of interpersonal emotion, not on the active, "animate" (Sheets-Johnstone this volume) or "enactive" (Ellis & Newton this volume) nature of the mind – where motion, emotion and (inter)subjectivity can be argued to meet most intimately.

Ellis and Newton (this volume) suggest that proponents of the concept of *enaction*, originally defined as "a history of structural coupling that brings forth a world… [t]hrough a network consisting of multiple levels of interconnected, sensorimotor subnetworks" by Varela, Thompson and Rosch (1991: 206) have "emphasized the importance of action as a necessary grounding of consciousness, but without stressing that the difference between action and mere reaction is interconnected with the difference that emotion makes." This is so, in particular with respect to the work of some "enactivists" such as Noë (2004). However, in another recent book, *Mind in Life: Biology, Phenomenology and The Sciences of Mind*, Thompson (2007) has made a commendable effort in performing what the title of the present section states: bringing motion and emotion back together again. Based on a (re-)reading of the classics of phenomenology (above all Husserl, but also Scheler, Merleau-Ponty, Patočka and Stein), lifting up their arguments for the relevance of the "lower" emotional and bodily aspects of consciousness and intersubjectivity, and connecting this to the recent literature on enaction and "neurophenomenology" (e.g. Freeman 2000), Thompson provides a substantial contribution to articulating a coherent and productive program for *a new science of the mind* – one that embraces consciousness, in its various manifestations, unlike the reductionist program(s) of cognitive science mentioned earlier. In Chapter 12, devoted to "valence and emotion", Thompson (2007: 364) writes:

> There is thus a close resemblance between the etymological sense of emotion – an impulse moving outward – and the etymological sense of intentionality – an arrow directed to a target, and by extension the mind's aiming outward or beyond itself toward the world. Both ideas connote movement. This image of movement remains discernable in the abstract, cognitive characterization of intentionality in phenomenology. […] intentionality is no mere static aboutness, but rather it is a dynamic striving for intentional fulfillment. In genetic phenomenology, this intentional striving is traced back to its roots in "original instinctive, drive related preferences" of the lived body (Husserl 2001: 198). Husserl calls this type of intentionality drive-intentionality" (*Triebintentionalität*) [...]. Patočka

> call it "e-motion." This term connotes movement, its instigation by "impersonal affectivity", and the dynamic of "constant attraction and repulsion"
>
> (Patočka 1998: 139)

Thus, the present volume can be seen as a further contribution to the elaboration of such a dynamical, active view of emotion (cf. Lüdtke this volume), along with an affect-laden view of motion – and to explore their significance for consciousness (phenomenal awareness as such), intersubjectivity, and language – as well as the close links between them.

In this respect, it is an instance of an emerging field, which following Evan Thompson can be called *mind science*. As with cognitive science, the perspective is interdisciplinary: the authors of the chapters here included are philosophers, neuroscientists, psychologists, primatologists and linguists who – alone, or in collaboration – "transgress" the boundaries of their respective fields. But while cognitive science, in both "first generation" and "second generation" (cf. Gallese & Lakoff 2005) forms, was and continues to be centered on notions such as "computation", "information-processing" and "symbolic representation", mind science focuses explicitly on what is most intrinsic to the mind: phenomenal experience, consciousness. Unsurprisingly, the influence of phenomenology is acknowledged in most of the contributions in this volume (Sheets-Johnstone; Ellis & Newton; Overgaard; Reddy; Gallagher; Fultner; Racine et al.; Zlatev et al.), though as mentioned, other theoretical traditions are important as well: the work of Habermas (Fultner; Frank and Trevarthen), Wittgenstein (Racine et al.), Mead (Carpendale & Lewis), Piaget (Carpendale & Lewis, Günther & Hennies), among others.

Therefore, the chapters are ordered not in terms of the disciplines represented, but in terms of where the primary relevance of their discussion of (e)motion lies: Consciousness, Intersubjectivity or Language. Of course, a meta-theme of the book, as reflected in the title of the workshop from which it emerged, is the *interrelations* between these three notions, so this division should be taken as approximate. Furthermore, the reader should note that while all authors consider both bodily motion and emotion, and most do so to an equal extent, some place their focus more on one than the other.

In the remainder of this prologue, I briefly summarize the chapters of the volume in relation to the themes of the book, and point out some connections, as well as (possible) disagreements between the authors. I also provide brief comments, with which the reader should feel free to disagree. My intention with this somewhat unorthodox approach for a co-editor is to open up the discussion, rather than to place myself in the position of "objective" referee, which of course would be self-defeating. Summaries from the authors' own viewpoints are provided in the abstracts that precede each chapter, and Colwyn Trevarthen's Epilogue offers a somewhat different, and no less valid perspective on the themes of the chapters, and on the book as a whole. My conviction

is that such "polyphony" is an inherent part of any dialogical (or multi-logical) enterprise, and not in any way as detrimental for the coherence of the book.

3.   Part I: Consciousness

'Consciousness' is a proverbially difficult concept, but as with the near-synonym 'mind', it's most central aspect is that of *subjectivity*, or *sentience*: the experience of 'being' – something more basic than being a 'self', which in phenomenological parlance is something *constituted* through experience, in interaction with things and with others: subjectivity and inter-subjectivity are, as already pointed out, closely related.

Sheets-Johnstone is a prominent "mind scientist" in the sense given in the previous section, combining phenomenology, evolutionary theory and empirical research on the theme of this book in the influential monograph *The Primacy of Movement* (1999). Her text in the present volume, summarizing previous work and going beyond it, is perhaps the most radical one. This makes it, along with the author's contributions to the field, appropriate to serve as a beginning to the part devoted to consciousness. Sheets-Johnstone finds even notions such as *enaction* and *embodiment* to be "band-aids", meant to mend the gaps left by dualistic conceptions rather than genuine solutions. Instead she defends, conceptually and empirically, a fundamentally non-dualistic notion, *animation*, boldly stating from the onset that "we are essentially and fundamentally animate beings. In more specifically dynamic terms, we are animate forms who are alive to and in the world, and who, in being alive to and in the world make sense of it. We do so most fundamentally through movement." On the basis of evidence from evolutionary theory and ethology (with multiple references to Darwin), developmental psychology, dance, and experiments with hypnosis she furthermore argues for a "dynamic congruency of emotion and movement" – in both (external) expression and (internal) generation processes.

One may, however, ask whether some of Sheets-Johnstone's claims are not somewhat *too* radical and her critiques towards alternatives – too sharp. For example, one kind of "received ignorance" that is rejected in the chapter – the dictionary definition of motion as "change of position" – is rather interpreted by Zlatev, Blomberg and Magnusson (in Part III), as a different, but equally valid perspective on motion: a third-person, observational one. Furthermore, by rejecting *any* "evolutionary discontinuities" Sheets-Johnstone implies degrees of consciousness and emotion in even the simplest organisms, such as motile bacteria (cf. Thompson 2007:161), thereby *equating* mind and (animate) life.

In comparison, **Ellis and Newton's** theoretical proposal, summarizing their recent book (Ellis & Newton 2010), is considerably more cautious. In fact, the authors explicitly guard against what they view as a number of related "pitfalls" in the

current literature on motion, emotion and consciousness. One such is to regard self-movement as *sufficient* for consciousness, which would imply consciousness not only for amoebas, but for certain self-organizing systems such as traffic-patterns. Another is not to distinguish between movements as externally induced *reactions* and *self-initiated actions*. Emotion, in the sense of motivational processes, they argue, is essential for this distinction, and this in turn implies a more active role of emotion for consciousness than that expressed by Damasio (see Section 2). Finally, Ellis and Newton argue that even the combination of movement and emotion inherent in actions is not *necessary* for consciousness, or else a completely paralyzed person would not be fully conscious, which is clearly not the case. Based on a combination of empirical evidence and a notion of "subliminal" action-imagery, the authors instead state their thesis "that possible actions must be *imagined* by the subject (usually implicitly) in order for that subject to have intentional consciousness of objects." Hence, they come to a notion of *enactive representations* subserving (visual) consciousness, unlike "enactivists [who] all too often eschew any role for representations of the environment, and therefore reject action imagery as opposed to overt action in providing a grounding for the understanding of objects."

Ellis and Newton thus present a cogent argument for the necessary linking of emotion, (imaginary) movement and consciousness. What one might wish to know more about, though, is the phenomenological status of the central concept of (unconscious) "action imagery". It is clearly not the same as the Husserl-based analysis of imagery discussed by Thompson (2007: 209): "Visualizing is rather the activity of mentally representing an object or scene by way of mentally enacting or entertaining a possible perceptual experience of that object or scene". Rather, it seems to be similar to the phenomenological notion of *protention*, the forward-looking, aspect of time-consciousness, discussed in the following chapter.

Overgaard's chapter is in several respects complementary to that of Ellis and Newton – and interestingly, reaches conclusions that are in part similar, and in part different. I would suggest that the difference has to do with the fact that Overgaard (implicitly) decides to treat "the problem of perceptual presence" as being independent of emotion/motivation. This problem is a central one for an account of perceptual, and more specifically visual, consciousness: when we observe (opaque) three-dimensional objects, we observe them from one side only: we see what is sometimes called *profiles*, which may even be in part occluded by other objects. So how is it that we can see three-dimensional objects, rather than just disconnected profiles (or parts)? As Overgaard summarizes in his exceptionally clear phenomenological exposition (even for readers unfamiliar with the literature): "The proposal is marvellously simple. According to both Husserl and the enactive account, the basis of the availability of absent profiles is found in what Husserl calls our "kinaesthetic capacity" and Noë refers to as "sensorimotor skills" (Noë 2004: 63). It is, in other words, because we are able to *move* and

thereby change our perspective on things that we have a perceptual sense of the co-presence of absent profiles."

The "enactive account" of perception is thus that it is based on self-movement. Furthermore, Overgaard explains that this does not imply *actual* self-movement, but that "a subject has some (implicit) understanding of how visual appearances *would* change *if* such-and-such kinaesthetic capacities were exercised". Thus at least for Husserl, if not for Nöe, this would not imply falling in one of the "pitfalls" discussed by Ellis and Newton – the claim that perceptual consciousness is based on actual movement. Nevertheless, Overgaard shows that there is ambiguity in interpreting the enactive thesis: that the condition of perceiving external objects is (a) "having an implicit understanding of oneself as potentially moving or being moved…" or (b) "having had experience of *active* self-movement…" Overgaard defends (a) from philosophical critiques, both outside and inside phenomenology – but concludes that (b) is too strong. This is so since even experience of *passive* movement, of being moved around in a wheel-chair as it were, would be sufficient to grant a hypothetical creature the implicit understanding necessary for linking certain movements with certain perceptual changes: "When one such creature is moved, say in a linear fashion, it will surely form implicit expectations (what Husserl calls "protentions") as to what is coming next."

This conclusion seems to be in opposition to that of Ellis and Newton – at least with respect to visual consciousness. Overgaard's argumentation is (as mentioned) meticulous, and indeed, from a purely philosophical (phenomenological) basis, where the goal is to make experience "fully intelligible" it seems as though the strong version of the "enactive account" does not stand up to closer scrutiny. But while the experience of the "passively moved" creatures envisioned by Overgaard is closer to our experience (and thus more *imaginable*, and thus "intelligible") than that of the completely immovable "Weather Watchers" (rejected as counterexamples to (a) on that ground), it is also importantly different. As the author states toward the end: "To be sure, the visual experiences of such creatures would generally be marred by ambiguities. It would be only very occasionally that such ambiguities were resolved for them, and when this happened it would be nothing but a pure stroke of luck. Here we may catch a first glimpse of the enormous difference between their life-world and ours." So, even if the argument holds, in principle, it should not be taken as carrying over to actual living creatures, and to human beings in particular – which is what Ellis and Newton's proposal concerns. On a final point: Overgaard's treatment of protention seems somewhat too passive and lacking in emotion. In contrast, Thompson (2007: 362) writes that "the protentional "not yet" is always suffused with affect and conditioned by the emotional disposition (motivation, appraisal, affective tone, and action tendency) accompanying the flow." If this is necessarily (or essentially) so, or only for "empirical creatures" like ourselves, is open for discussion.

Shanker's chapter "Emotion-regulation through the ages" elegantly weaves together the two, at first glance very different, temporal dimensions implied in the title: the historical and the developmental. The Illiad, and particularly the character of Achilles, has been used by Plato as an illustration of how disastrous unregulated emotions can be. But as Shanker points out, the reasons behind this breakdown are not to be found in "destiny" (corresponding to our present popular conception of being determined by our "genes"), but lie in the interaction of our biological uniqueness ("temperament") and educational experiences. The "modern Achilles" is to be found in the many children in the Western world who are given one or another diagnosis such as ADHD, related to a deficit in emotion-regulation or "self-control" – in Sweden popularly called *bokstavsbaren*, 'the letters chidlren'. And while an often fruitless debate between accounts in terms of "nature" (biology) and "nurture" (social interaction) rages, the number of "letters children" and their problems, steadily increase. In other words, the issue at stake is the interaction between biology and experience in the formation of a "subjective emotional world." As Shanker states: "Emotion-regulation affords – and indeed, has afforded from the very moment that Western thinkers started thinking about the mind-body problem – a critical area in which to explore this issue."

In criticism to the historical metaphor of emotions as "wild horses" that need to be "reined in" by Reason, which has dominated Western thinking up to the present, Shanker emphasizes the indispensable *positive* role of emotions for the formation of the triangle Self-Other-World. According to the author, few have grasped the significance of the fact that Achilles is finally brought back to sanity not by a "herculean act of rational self-control", but by a strong positive emotion of compassion. Perhaps, our current predicament would be different "…if it were recognized that emotions are not simply an aspect of the mind that need to be controlled, or worse still, suppressed: that cultivating a child's positive and prosocial emotions is as important an aspect of emotion-regulation as learning how to control her negative ones", as the author implores.

More specifically, Shanker summarizes the four-stage model of "emotional transformation" over the first years of life put forward by himself and Stanley Greenspan in *The First Idea* (Greenspan & Shanker 2004). Being based on increased differentiation from more global states on the basis of physical and social interaction, this model is reminiscent of that of Piaget. But unlike in the latter, affect/emotion is given a pivotal role, and the "schemas" formed are sensory-affect-response, i.e. "affect" serves as a mediator. Furthermore, positive emotions are those that drive development, while negative ones are (mostly) regressive ("If the experience is unpleasant, primitive neural systems trigger an automatic response to avoid the experience"). After a number of such "transformations", based on interactions with sensitive caregivers, the child

becomes increasingly active and purposeful, beginning "in affective interactions to form high-level cognitive, communicative and social skills".

Shanker thus clearly represents one of the central themes of the volume: the primacy of emotions, not opposed to, but in consort with cognition. Concerning the second theme, the link between self-motion and emotion, however, it seems that the Shanker-Greenspan infant is somewhat passive: what he/she learns in the first months of life are basically "associations": between sensory stimulation and emotional reactions.

In comparison, **Reddy** views infants in more active terms, implying rather diversified conscious lives more or less from birth. As the title of the chapter, "Moving others matters", suggests, Reddy focuses on how 'moving' (in the most general sense: "with your being, your actions, your thoughts") other persons is essential for the constitution of the self: "it matters because it shows us to have been known by others". As she states toward the end of the chapter, this is not the only source for self-consciousness: movement in the world and moving things is (at least) as important, but "the feel of another consciousness engaging with you" gives rise to *mutuality*. Distortions of such mutuality result in psychopathology, or in behavior that at least seems to resemble it: cruelty with animals or war prisoners.

Without implying a developmental progression, Reddy reviews a diverse sample of evidence (behavioural, neural, experiential) on infants' "engaging, expecting, exploring" others: still-face, neonatal imitation, imitation recognition, 'clowning', showing off, teasing and others. Her argumentation is often directed against explanations in terms of "contingency learning" or other forms of non-experiential mechanisms. On her account, what is essential is rather the "emotional responsiveness" of another subject, serving as the anticipated outcome of one's acts.

In emphasizing "the response of the other" and mutuality, Reddy's chapter bridges over to the central topic of the next section: intersubjectvity. The reader may also discern a certain view, approaching consensus among the authors represented in the volume: a view of development as piecemeal and gradual. Reddy makes it clear that she is skeptical of "stages" in the development of (inter)subjectivity. By emphasizing early onset and continuity the implication is that the basic interpersonal aspects of our consciousness, and the 'social emotions' related to these, run very deep. The case for this is indeed persuasive. Still, the evidence reviewed, here and in the chapters in Part II shows multiple differences between infants at different ages, not to mention children with autism and the phenomenological reports of therapists, and one naturally inquires how novel aspects of consciousness emerge. A second point worth remarking on is that Reddy's use of the verb 'move' is in a sense highly metaphorical (extended), not only from the (literal) physical motion to emotion, but to any kind of action with respect to another subject, with the goal, explicit or not, to elicit a response.

4.   Part II: Intersubjectivity

In the opening chapter of this part, **Gallagher** provides a welcome historical perspective on the recurrent question: "How are we able to understand other people – their intentions, their behaviors, their mental processes?" Much terminological (and translational) confusion is shown to be in the way, but Gallagher opts for the term *empathy*, albeit as a Wittgensteinian "family resemblance" concept. Two current debates on the nature of empathy are reviewed. In neuroscience, this concerns the role of "mirror neurons" (or more generally, self-other matching neural circuits). For Gallese, one of the discoverers of mirror neurons, these circuits are (more or less) sufficient for empathy: "I submit that the neural matching mechanism… is crucial to establish an empathetic link between different individuals." (Gallese 2001: 44). For Decety, and others, "something more" is necessary for fully understanding the other, especially when the perspectives of self and other differ.

The second debate is on what more precisely this "something more" can consist of: a theory-theory (TT) of mind, a simulation-theory (ST) of mind, or Gallagher's own proposal: an interaction theory (IT). The standard type of evidence in favor of TT have been results from "false-belief" tasks, but in the author's interpretation, these may tell us when children develop a concept of belief, but not much about the implicit kind of understanding involved in empathy. The problem for ST, which is currently usually combined with "mirror neuron neuroscience", is the notion of *simulation* itself – while there may be corresponding neural patterns involving actions and emotions in the primary experiencer and the observer, it is not clear what would provide the "as if", pretense character of these for the observer. The argument is that "the mirror neuron data suggests that rather than simulation, mirror neuron activation is part of the neuronal processes that underlie a form of intersubjective enactive *perception*", and Gallagher links this to the notion of *primary intersubjectivity* of Trevarthen. "Secondary intersubjectivity" involving objects and "contexts of shared attention" is seen as a natural developmental out-growth of this process, rather than a separate stage.

Nevertheless, Gallagher maintains that there is also a more qualitative transition in the development of empathy: this happens around the age of two, and is manifested in pro-social behaviors like consolation, in mirror self-recognition, autobiographical memory and in language. Gallagher follows proposals of J. Bruner, K. Nelson and D. Hutto in attempting to explain the "something more" aspect of empathy as a matter of *narrative competence*.

Concerning the recurrent issue of stages/levels of other-understanding, we may note that, consolation and self-recognition are present at least in the great apes, and in their often quoted article in the topic, Preston and de Waal (2002) distinguish between a simpler process of perception-action matching and a higher

level of "cognitive" empathy, quite independently of language and narrative. Hence, narrative-based understanding of others would seem to correspond (at least) to a *third*, rather than to a second level of intersubjective perception (cf. the distinction between secondary and tertiary intersubjectivity made by Bråten and Trevarthen (2007). Gallagher also does not make it explicit to what extent narratives are based on *language*; this seems to be assumed by e.g. Hutto (2008), but narrative is conceivably a more general skill that emerges around the end of the second year of life. Finally, while Gallagher writes of "empathy", the deeply emotional aspect of understanding others is not particularly emphasized in his presentation.

Fultner pays considerably more attention to affective interaction. Somewhat surprisingly, she departs from the pragmatic philosophy of Habermas, and criticizes phenomenology for bringing in "the Other" relatively late into the picture. For Habermas linguistic meaning is fundamentally social: language is essentially *communicative action*, which on its part is embedded in *the lifeworld*, at the same time as it constitutes it. The three poles of the lifeworld (a concept that Habermas appropriated from Husserl) consist of background knowledge concerning (a) the (physical) world, (b) the other and (c) the self. In relation to each of these, in any act of communication a speaker makes three kinds of "validity claims": (a′) to truth, (b′) to appropriateness/normative rightness and (c′) to sincerity.

Fultner finds, however, this model to display a strong "cognitive bias": "[Habermas] conceives the lifeworld in overly epistemic terms and pays insufficient attention to the structures of personality and society". Without stating this explicitly, her further efforts to remedy this show that this cognitive bias is clearly related to a *linguistic* bias: what the Habermasian lifeworld lacks are precisely embodiment and affect. Relying on the work of Tomasello, Fultner emphasizes pre-linguistic aspects of intersubjectivity such as joint attention. More importantly, and of higher relevance for the present volume, she turns to Bråten's notions of "altero-centric participation" and "e-motional memory" present according to Bråten more or less from the beginning of life. An indisputably early form of attachment, illustrating the reciprocal nature of primary intersubjectivity, is that which results from the universal practice of nursing a baby. Through this, Fultner illustrates clearly what she means by a *claim to attachment*, a fourth kind of validity claim, complementing Habermas's rationalist (and language-centered) conception of the lifeworld. (Reddy's analysis, summarized above, could analogously be seen as a "claim to attention"). In a sense, the argumentation re-validates the phenomenological emphasis on the body, perhaps most clearly represented by Merleau-Ponty, quoted in the final sections of the chapter. Thus, Fultner turns full circle to phenomenology and combines diverse philosophical reasoning and empirical justification in a productive synthetic manner, illustrating nicely the point that "understanding intersubjectivity requires a multi-pronged and multi-disciplinary approach such as the one fostered in this volume".

In their contribution, **Racine, Wereha and Leavens** ask "To what extent are non-human primates intersubjective and why?" For answering this double question they consider comparative evidence from social neuroscience ("mirror neurons", once more) and behavioural evidence related to (secondary) intersubjectivity, and above all pointing. They argue for overwhelming similarities rather than differences between human beings and apes, and above all against any (non-Darwinian) discontinuity, particularly with respect to intersubjectivity. In the final pages the authors conclude that "the inner life of a great ape is not radically different from our own".

This is a minority position in the field, as the authors remind us. But they argue for it cogently, on the basis of three composite arguments, all related to bodily motion and emotion. The first is the Wittgensteinian conception that "understanding is not an experience", but is rather something manifest in behaviour, i.e. goal-directed bodily movement. The second is that one cannot compare the intersubjective skills of children and great apes without considering their "rearing histories", where two important differences in the latter are singled out. First, children become self-mobile later than apes in ontogeny. While in natural conditions apes can "simply retrieve a desired object … infants learn that they must manipulate the attention of their caregivers in order to retrieve objects". This gives rise to what is known as "imperative pointing", and there is indeed evidence that when captive apes face a "problem space" similar to that of human infants, they spontaneously develop the skill. More controversial is "declarative pointing", in which children point to objects for the sake of others, or for the sake of establishing joint reference to something interesting. While no apes who have not been trained in language (and the referential pointing skills related to it) display this, Racine et al. argue that we cannot conclude from this that children have an innate motivation to collaborate or a more developed understanding of others (as e.g. is done by e.g. Tomasello et al. 2005), since the learning histories of the groups are radically different: children have abundant emotionally rewarding feedback from caregivers in performing such behaviors, while captive apes do not. Finally, the authors bring up currently influential arguments for interaction between evolution and development (many of which are summarized by Thompson (2007, Chapter 7)), which favor multi-factor causality rather than genetic determinism and too much emphasis on adaptations, and they suggest that such arguments square in well with the previous two: that understanding as manifest in behaviour, and that differences between children and apes are due to "nurture" rather than "nature", to put it simply.

Since I have introduced the practice of adding comments for the other chapters, I should also in this case, when one of the authors is a co-editor, note that the reader may have some reservations. One concerns the Wittgensteinian analysis: even if understanding and intentions are not a matter of "private" mental states, they do involve, irreducibly, subjective experience – especially from the phenomenological perspective, referred to in this introductory chapter, as well as in most of the other

chapters in this volume. But even accepting that "to speak about mental capacities *is* to speak about behavioral capacities and forms of life", one cannot help but notice major differences in the intersubjective "forms of life" of human and ape infants, even prior to the development of language. Some of these are reasonably due to motoric and contextual differences, but is it not likely that during the 6 million years of evolution since our species split there has been at least some adaptations in our evolutionary history (related to bipedalism, larger groups, brain size, prolonged childhood etc – all favoring higher dependence on sociality), expressed in infants, caregivers or perhaps both? This would be consistent with "evo-devo", but also with the conjecture put forward in the introduction to *The Shared Mind*, that human beings are the quintessentially "intersubjective species".

Carpendale and Lewis review some of the same evidence as Racine et al. and Reddy, and have a similar, though not completely identical theoretical perspective. Interestingly, they attempt to reconcile Piaget, often taken (mistakenly, I believe) as a cognitivist, and G. H. Mead, a canonical representative of the view that mentality originates in social interaction: "Mental processes are fragments of the complex conduct of the individual in and on his environment", as quoted by the authors. The synthesis is approximately as follows: body (motion) and emotions are "necessary for setting up forms of interaction and routines in which communication can emerge", but it is the latter through which intersubjectivity, meaning and self-consciousness are constituted. Relevant for human forms of interaction are factors such as infant immaturity, initial short-sightedness, and emotional reactivity. Piagetian "schemes" usually concern interaction with the physical environment, but Carpendale and Lewis treat patterns of social interaction, linked with emotional experience, as "personal or affective schemas". From initially dyadic, such schemas gradually start involving aspects of the environment, thereby becoming triadic. The ability to take the perspective of the other is also described as a gradual achievement.

With respect to the nature/nurture issue, discussed in relation to the chapter by Racine et al. in the earlier chapter, the authors also emphasize the role of the environment, acknowledging the influence of a "Pan/Homo culture" in forming more human-like intersubjective skills in non-human primates. However, they consider that "a second group of neurological facts may be required for a species to fully profit from such forms of interaction to take them to another level." Thus, a "history of interaction" seems to be necessary but not sufficient for this higher level of intersubjectivity, itself a precondition for language. The distinction is made in terms of Mead's notion of *conversation of gestures*, which are automatic and not intentionally communicative, and *significant gestures* in which there is anticipation on how the other will respond. Or in terms of the title: from reaching to requesting. But what about the third level: "reflecting and thinking"? Carpendale and Lewis suggest, but do not argue for it explicitly, that this would require language. If so, they would need to part theoretical company

with Piaget (as well as with phenomenology), who rather viewed *mental imagery*, emerging from interactions and above all imitation, as a precondition for learning linguistic signs (Piaget 1962; Zlatev 2007). Unfortunately, the authors do not state clearly what they mean by "thinking" and "reflecting" in order to decide on where they stand on this theoretically important crossroads.

The extensive chapter by **Frank and Trevarthen** constitutes a good example of the kind of "multi-pronged approach" to intersubjectivity endorsed by Fultner. Inititially, the authors provide a comprehensive review of research on infant intersubjectivity, from Trevarthen's now classic writings in the late 1970s, to recent behavioral and neuro-scientific studies concerning "rhythmic prospective control". Emotion and movement are tightly interwoven: development is guided by "innate impulses to move as coherent intentional and conscious selves in emotional engagement with the sensitive responses to the intentions of other persons". It is emphasized that the infant's responses are not "simple reactions to stimulation", but, as argued also by Reddy, intended to provoke further engagement in others. The transition to secondary intersubjectivity around 9 months is described as the formation of a triangle (between subject, object and other) of "emotional appraisals".

In the second section, Frank and Trevarthen extend child-caregiver intersubjectivity to relations within society, by adopting Bourdieu's notion of *habitus* and Habermas's distinction between *lifeworld* and *system*. While the first two concepts are closely related to intersubjectivity, covering notions such as "life-styles", "embodied attitude" and providing a "sense of belonging", *system* institutionalizes these into rigid forms, with the risk of empting them of spontaneity and intimacy. Further, the authors deal with Lotman's notion of *semiosphere* connecting it to Halliday's functional perspective on language. Here too, they see at the core of the phenomena "the mastery of meanings by interpersonal symbiosis, regulated by feelings of affection", rather than (institutional) rules and norms. Finally, they consider different cases in which, for different (exogenous and endogenous) reasons, the development of intersubjectivity falters: for immigrant mothers disconnected from a community, for mothers diagnosed with borderline personality disorder, and for persons with autism. The most common methods of intervention, Frank and Trevarthen argue, do not get at the heart of the problem, since they aim to constrain the environment, or to provide "system"-like, institutional solutions, rather than emotional engagement.

The chapter is a highly original synthesis of perspectives, making a strong case for the centrality of intersubjectivity in human consciousness, interaction and society. It contains a wealth of ideas and references that I cannot hope to summarize here. However, one thing that is not explained is the manner in which the human potential for intersubjectivty is "innate", and, indeed, whether it is uniquely human. In the first section, the authors write: "Animal intentions evolve and grow, from the start, with potentialities for intersubjective social collaboration, making their intelligence

communal." On another point, when Frank and Trevarthen turn to societal factors in later sections, "rules and norms" tend to be portrayed only in negative terms (on analogy with Habermas's "system"), without making a distinction between intuitive (implicit) and explicit norms. The two are commonly conflated by opponents, but can (and arguably, should) be distinguished (Coseriu 2000; Itkonen 2003; Zlatev in press).

Lüdtke focuses on the role of emotionally-valenced intersubjectivity in *language* development, and thus serves as a bridge to the chapters in Part III. Beginning with a brief review of the classical theories of language acquisition, she finds that neither those which emphasize individual cognition (in nativist and non-nativist varieties), nor those which focus on interpersonal relations pay proper dues to "the importance of emotions in language or in prelinguistic and linguistic development". Rather, Lüdtke finds inspiration and suggestive ideas for a truly intersubjective theory of development in the work of Kristeva, with its emphasis on notions such as "desire", and "body-based materiality". A further source is the even less-known for the general reader model of emotional regulation of Simonov. A third pillar is semiotics, above all in the Peircian tradition (since unlike Saussure, Peirce was deeply concerned with "feelings"). On this basis, the author proposes an original sign concept, and the outlines of a model of semiotic development, implying "decreasing semiogenetic impact of relational emotions during language acquisition": from the "iconic mode", through the "indexical mode" to the "symbolic mode". Along psychoanalytical (Kristeva and Stern) and Peircian conceptions, such a development, however, does not discard earlier stages/modes, but rather incorporates them.

Turning to more empirical research, Lüdtke, finds support in the neuroscience of emotion (Damasio, Panskepp), mirror-neuron research, and above all, in Trevarthen's theory of "innate intersubjectivity as psychophysiological anticipation of an emotionally responding other", discussed also in the chapter by Frank and Trevarthen and the Epilogue. Based on this concept of intersubjectivity and the earlier theoretical proposals, development is divided in four stages: (1) prenatal *primordial intersubjectivity*, in which "the foetus appears to have the capacity and motivation to 'communicate' with the mother actively by means of body movements that can stimulate her and with growing proprioceptive awareness by self-touching and posture changes that may engage with the actions and feelings of her body", (2) *primary intersubjectivity* (in the first year of life), (3) *secondary intersubjectivity* (the "toddler" years) – both relatively familiar notions, but now interpreted semiogenetically – and (4) *tertiary intersubjectivity* (in primary school children) "which requires the construction of complete linguistic enunciations constituted to describe a shared abstract object of reference". As the author explains, the novelty of the model is that it sees the roots of both semiosis and intersubjectivity in prenatal development, and does not posit that the "symbolic order" of language removes emotionality, but rather "subdues" it. Finally, the author

presents the outlines of a form of therapy consistent with the model, Relational Language Therapy, which seeks to explain and treat certain disorders which though not linguistic per se affect it negatively by focusing on the transitions between the innate "virtual other" to a "significant other", and (supposedly) to a "generalized other" with full symbolic competence.

As a truly synthetic approach, the Lüdtke's model has the advantage of bringing together concepts which are usually kept separate by disciplinary borders. At the same time, as with any synthesis, it may be questioned from the proponents of these different "components". Peircian semiotics is notoriously full of conflicting interpretations, so the author's linking of the classical triad of icon/index/symbol to corresponding (decreasing) levels of relational emotions will probably raise objections among some semioticians. From a developmental psychology perspective "primordial intersubjectivity" may similarly be hard to accept. Nevertheless, such unusually early development is a more palatable interpretation of "innate intersubjectvity" than what is usually understood by the term "innate": genetically specified. Finally, the validity of the approach can be defended through its attested value in therapy. And as suggested in the final section, "paradigm shifts" can make what was unthinkable yesterday and difficult to accept today into "revolutionary science" tomorrow.

5.   Part III: Language

Foolen's chapter provides a comprehensive review of current research on the relationship between language and emotions. As he points out, linguistics (and even more: philosophy of language, I may add) has traditionally underestimated the affective dimension of language, focusing on the "denotational" or "propositional" one. Even with the advent of cognitive linguistics (Lakoff 1987; Langacker 1987), with its emphasis on *embodiment* and a view of "cognition… as being grounded in motion and action" this was not really rectified. To the extent that emotion has been systematically considered in cognitive linguistics, it has been as "conceptualized" emotion, reflected above all in metaphorical expressions (Kövecses 1990). Foolen accepts that in one respect "cognition serves as intermediate between language and emotion". However, he points out that emotions are also reflected in the lexicon and grammar more or less directly, "resulting in expressive (also called emotive or affective) language", as in interjections and other emotion-laden words, in morphology (some uses of diminutives), and in exclamative sentence types and other expressive constructions. As most of the authors in Part III, Foolen addresses the question of why we often speak of emotions "figuratively". He questions the standard explanation offered by Conceptual Metaphor Theory (Lakoff & Johnson 1980, 1999): that emotions are "abstract" while physical phenomena are "concrete", and the latter are used metaphorically or metonymically

for understanding the first in terms of the latter – that is, for the sake of cognition. His proposal is rather that the motivation for figurative expressions of emotion is itself expressive: images related to explosions or dropping hearts are likely to evoke emotions in the addressee. The predominant form of figurative "emotion language" is suggested to be metonymical: in expressions such as *my heart sank in my shoes* "the physiological effect stands metonymically for the emotional cause". We should note, however, that such a proposal is controversial, even for the authors in this volume. Racine et al. (this volume) would presumably regard such separation between physiology and emotion to be reflective of a dualistic conception of the mind. Weigand (see below) similarly rejects the literal vs. figurative distinction with respect to mental terms. Zlatev et al. on the other hand, consider both metonymical (contiguity-based) and metaphorical (similarity-based) relations between the "physical" and the "emotional", while taking a phenomenological take on both: it is a matter of relations between different *experiential* and not ontological domains.

Foolen concludes by addressing the acquisition and evolution of language, where emotion is increasingly considered to be of paramount importance, as reflected in the chapters by Frank and Trevarthen and Lüdtke in Part II. He lists a number of example fields where insights in emotive language use can have important practical implications.

Günther & Hennies take up one such "real world" phenomenon, and offer what in the present context may be taken as a case study for the importance of emotionally-laden bodily communication: the problems that deaf and hard-of-hearing children face when their parents are instructed to avoid "gestures or signs" and to solely focus on spoken language. Based on a review of recent studies, the authors show that even when such children have been provided with cochlear implants, a large proportion display delayed language acquisition, in both the spoken and written modalities. Even more, such "communication problems lead to equally severe emotional consequences", and "it is not the *diagnosis shock* of hearing parents alone which leads to the social and emotional difficulties in a deaf child's upbringing, but rather the way intervention programs deal with these initial emotions."

To support their argument for the importance of bodily interaction in languages acquisition, even in the case of hearing children, Günther and Hennies refer to Piaget's developmental model, according to which at the end of the sensorimotor period in the second year of life, sign use emerges through gestures and action imitation. As pointed out in the discussion of Carpendale and Lewis (this volume), however, Piaget did not attribute any special importance to emotion in this process. Without addressing this lack explicitly, the authors complement it, stating that "pre-linguistic gestures are part of the natural development towards language, especially since they cannot be conceptualized without addressing the emotional binding between mother and child". The conclusions are consistent with those made by Lüdtke and Foolen in earlier

chapters, namely that by unwittingly compromising the emotional dimension latent in spontaneous gestural and linguistic communication between parents and hearing impaired children, purely "oralist" intervention programs affect negatively both the children's process of language acquisition and their emotional and social development. The implications for the need of interventions based on a multimodal and emotion-laden conception of linguistic communication are clear. While the chapter may not be the most profound one in the volume in terms of "theory", it is perhaps the clearest in terms of practical applications.

Weigand's contribution can be seen as an argument for re-thinking the notion of language along the line suggested by E. O. Wilson's (1999) proposal for a "consilience" between the natural sciences, the social sciences and the humanities, with implications going beyond language and concerning human nature as such: "The 'New Science' starts from the natural object, living beings, and tries to describe their behaviour and actions by means of goal-directed observation." The author considers some recent attempts in this direction: the "selfish gene" doctrine of Dawkins (2006), the naturalized semiotics of Deacon (1997), and "the shared mind" approaches of Trevarthen and Zlatev et al. (2008) emphasizing intersubjectivity, but finds them lacking. Her alternative proposal is that human beings are fundamentally "*social individuals* who act in their own interests but inevitably have to take account of social concerns. In this sense, it is not the dialogic mind but dialogic interaction that characterizes human beings as the *dialogic species*".

Weigand presents some of the basic tenets of her specific theory, the Mixed Game Model, and focuses on how it implies a close "interaction of body, emotion, mind, and language". She emphasizes that notions such as (shared) meaning and understanding are insufficient to account for human interaction: they are always partial and context-bound, and somehow underdetermined. The essence of interaction is rather "reacting, in general by accepting or objecting, i.e. basically evaluating the speaker's position."

On Weigand's account, traditional linguistics, with notions such as "competence" and "performance" are inadequate and "reductionist", since they distort that object of study: "we have to change our traditional view of language and speaking. There is *no separate object 'language'*, only the ability to speak which is an integrated part of human competence-in-performance". Similarly, "the *notion of text* must be questioned", she argues, "as a consequence of the intrinsic interaction of language, emotion and body". What is central is rather "linguistic action", and linguistics is not capable of analyzing this alone, without the help of the biological and social sciences. Indeed, in the abstract, she describes her general perspective as that of socio-biology.

More specifically related to the topic of motion and emotion (in language), Weigand argues that to treat expressions such as German *gerührt sein* ('to be moved') as "figurative or metaphorical" would be "an artificial manoeuvre which contradicts

language use. Traditional views … separate the field of perception from cognition and explain diachronic change by a change from concrete perception to figurative cognition or from body to mind. They are based on methodological hypotheses which 'damage' the natural object."

To the extent that theories, linguistic or otherwise, construct strict boundaries between what Weigand calls the "components" of holistic phenomena, and worse: neglect vital aspects, they are indeed open to criticism such as that of the author. However, the reader may have doubts on whether E. O. Wilson's take on "consilience" is indeed the right path, or even fully consistent with the author's purposes. In his final book, Gould (2003) criticizes Wilson for misappropriating a concept used by the English philosopher of science William Whewell in 1840. For example, when Wilson (1999: 221) writes: "The central idea of the consilience world view is that all tangible phenomena, from the birth of the stars to the workings of social institutions, are based on material processes that are ultimately reducible however long and tortuous the sequences, to the laws of physics", it is clear that what Wilson has in mind is clear and simple *reductionism*. I return to this at the end of this Prologue.

Bloem's chapter, like that of Gűnther & Hennies, presents another specific "case study", this time using the methods of historical linguistics. The topic is one of central relevance for the volume: what is the origin of the English term "emotion", which so many of the authors of the volume seek to define? It is well-known that it derives from Old French, and earlier from Latin, but Bloem shows on the basis of both qualitative and quantitative analysis of texts from Old French and texts from the XVII century that initially the terms *mouvoir* and *émouvoir* were used more or less synonymously, referring either to physical motion, or to the "movements of the soul", the latter under the influence of the "humoural theory" dating back to Ancient Greece. This changed during the XVII century, and from them on "*mouvoir* is almost exclusively used as a verb of movement whereas *émouvoir* has become a real psychological verb. The evolution of the verb *émouvoir* can be considered a delitteralisation process". The author argues that the influence of the dualistic philosophy of Descartes played a key role in this process – while *mouvement de l'âme* was earlier taken to be a literal characterization of the movements of the "four humours" according to the classical theory, it became eventually seen as a metaphorical expression, since emotions were to be seen as part of the mental part of our being. Hence, the expression with the prefix *e(s)-* (with somewhat unclear etymology, and not necessarily as interpreted by Thompson in the quotation in Section 2 as an "impulse moving outward") became reserved for the mental counterpart to (psycho)physical movement.

Concerning the controversial issue of nature of metaphor, in general and with respect to the "motion-emotion" metaphors discussed by Zlatev et al. in the following chapter, Bloem takes an intermediary stance: "the impact of supposedly universal and ahistorical metaphors needs to be put in a cultural perspective", an important

corrective to universalist models such as Conceptual Metaphor Theory (CMT). It is thus important not to misinterpret the author's argument as a purely "linguistic constructivist" account, or even worse, as one putting the blame on "Descartes the Dualist" for more or less inventing the sphere of the mental, a claim commonly encountered in social constructivist circles.

Zlatev, Blomberg and Magnusson, as already pointed out, regard *motion* and *emotion* as closely related, but separate experiential domains, and thus analyse expressions such as *my heart dropped* as "motion-emotion metaphors". My co-authors and I distinguish three possible answers to the question why such expressions are cross-linguistically common, if not universal. According to the first, stemming from theories such as CMT, the "mappings" between the domains are determined by pre-linguistic, bodily experience. The anti-thesis, "social constructivist" answer would be that linguistic and cultural practices determine such metaphors. The (dialectical) synthesis, which we endorse, is "consciousness-language interactionism": non-linguistic experience channeled through language-and-culture specific conventions (similar to the proposal of Bloem, mentioned above). We offer empirical support for this thesis by analyzing "115 motion-emotion metaphors in English, Swedish, Bulgarian and Thai", showing both overlap and differences, the latter correlating with the distance between the languages/cultures.

The study and its conclusions are suggestive of the potential of the "emotion turn" in mind science, witnessed by the present volume, but also actualize a number of unresolved issues. As many of the other chapters, we appeal to phenomenology, and in particular to its "founding father" Husserl for an analysis of motion/movement. However, in contrast to Sheets-Johnstone (this volume), as already mentioned, we come to the conclusion that motion can be experienced both "internally" as qualitative movement, and "externally" as change-of-location – and argue that languages reflect this difference in the much discussed semantic categories Manner-of-motion and Path-of-motion (Talmy 2000). Also, similar to Foolen, but unlike Weigand, for our analysis of the expressions in question as metaphorical (and metonymical) to hold, it is important that motion and emotion are at some level distinct. Our proposal is that "in historical time some speakers could creatively use expressions referring to such analogous or contiguous (motion) events in the "external world" in order to describe their "inner worlds", and hearers could understand them, due to the motivated nature of the expressions." However, Bloem's historical analysis, summarized above, seems rather to suggest the reverse tendency: with *mouvoir* and *émouvoir* being initially conflated, and only subsequently distinguished, in part due to patterns of language use under the (partial) influence of Descartes. Thus, our analysis is likely to be regarded as "dualistic" by those who, in the manner of Sheets-Johnstone, argue that movement and affect are so to say, intermixed, from the start.

6.   Conclusions

Given his important contributions to the topics of this volume – above all on the relationships between intersubjectivity and movement in human development – the editors of this volume found it appropriate to conclude with an epilogue by Colwyn Trevarthen. After having read the final drafts of all the chapters, and a preliminary version of this Prologue, Trevarthen reflects on historical predecessors to the general approach represented here, his own contribution to the field, and offers comments on the chapters, in a way that is quite independent from the summaries provided in the previous three sections. This adds considerably to what at the end of Section 2 was referred to as "the polyphony" of the book. There is an inevitable difference in focus and perspective in the interpretations offered in this Prologue, the authors' own summaries in the abstracts, and Trevarthen's final comments. To hide these differences would be to engage in "manufacturing consent", or to take too literally the notion of intersubjectivity as a "shared mind", where individual minds and voices are coerced into an anonymous collectivity. While it should be up to the reader to make the final pronouncement in this, I believe that the different voices in this volume complement rather than contradict one another, at least on most issues. To the extent that there are disagreements – including on the definitions of the fundamental notions of "consciousness", "intersubjectivity", "language", "emotion" and "motion" – this reflects the fact that these are all *huge* notions, with traditions, literatures and in some cases whole disciplines dedicated to them. What all of the authors clearly agree on is that *for these concepts to be comprehensively understood, they need to be interrelated*, as reflected in Figure 1.

I wish to conclude by expressing my hope that the volume may contribute not only to the already prevalent "emotion turn" in cognitive science, but to the establishment of a *mind science*. As stated in Section 2, this can be envisioned as the non-reductive study of the (human) mind, taking account of the richness of experience, uniting its bodily and social aspects in a methodologically pluralistic enterprise: uniting the first-person ("subjective") perspective of phenomenology, the second-person ("intersubjective") perspective of (empathetic) observation involved in e.g. interaction studies, and the third-person ("objective") perspective of the natural sciences. For it to validate itself as a truly new paradigm, it would need to contribute to resolving persistent "anomalies" inherited from the past. Such anomalies are most clearly reflected in dichotomies like "individual-social", "conscious-unconscious", "mental-physical", "reason-emotion", "literal-metaphorical" etc. Previous attempts to resolve these have typically sought to *reduce* one or more of the poles in these dichotomies to the other, typically the more "subjective" to the more "objective" side of the opposition, in the manner of E. O. Wilson's (misguided) interpretation of "consilience". The challenge is

exactly *not* to strive at such a reduction, but to acknowledge the existence of these divisions, not as polar opposites but rather as sides standing in dynamic inter-dependence, as in the well-known yin-yang diagram. This would be a science, in the broad sense of the word, which would indeed live up to the original meaning of 'consilience', and – in Stephen Jay Gould's terms – provide a major step to "mending the gap between [natural] science and the humanities".

Acknowledgements

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