The Shared Mind

Perspectives on intersubjectivity

Edited by
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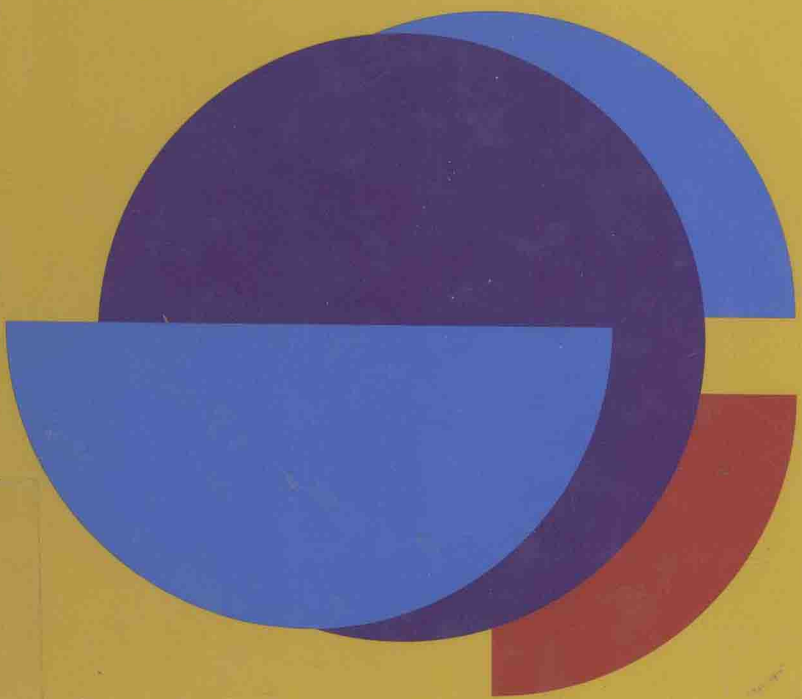

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Foreword

Shared minds and the science of fiction

Why theories will differ

Colwyn Trevarthen

It is a pleasure to respond to these essays on the collective story-making of culture: the experience of reality that human beings create together because they are motivated from birth to experiment with the exchange of fantasies and to find meaning in them. Human consciousness has the special gift of imaginative travel through times and places, and it grows through communication of intentions and interests. Language and the practical tools of our society enrich the products of the game, but its causes are in the movements and preferences of embodied minds, minds that have evolved to act in sympathy and to share history and invention, whatever may turn out to be the topic or task. Our common knowledge and perception of ourselves as knowers of meaningful facts depends upon, and grows from, our innate capacity for intersubjectivity.

We know, of course, how involved we are with one another's intentions, thoughts and feelings, and that much of this intimacy in experience cannot be carried in words. The mental life of others is, as Stein Bråten says, "felt immediately" (Bråten 1998). And yet mind science and its ambitious extension in brain science have, and still mainly do, regard us as single heads processing information, storing it up in memory for reprocessing, and transferring it symbolically. Even when we are granted a body that moves, it is a robot that struggles to know other minds by a hopeless effort of "theorizing" or "simulation". Such unsympathetic entities are science fictions. We need a science of the imaginative fictions persons so easily share.

The authors of this book accept that human life and culture is incomprehensible without intersubjective processes – so, the question mark of the title of the editors' introduction in Chapter 1 must be rhetorical, and ironic. It is added, perhaps, because our experimental psychology has inherited and largely still pays homage to a scholastic philosophy of minds as separate experience-registering systems that act, and think, on what they alone perceive. But in the real sociable world every act we make, every feeling, has as much power to move others as it

has to move our self. With compassion we can see causes of actions in another, even causes that they themselves fail to comprehend or control. All teaching and therapy, indeed all cooperative activities, depend on this sympathetic insight into motive impulses and emotions in human moving. I believe that all the inventions of culture, including the evolving languages that distinguish our different societies, and the arts and technologies that are necessary instruments of communal life and treasures of our history, grow from the ability that every young infant has to enter into the co-creation of a proto-conversational narrative with an entranced parent. Our stories of meaning are built on mimetic skills we have inherited from highly sociable animal ancestors, but we are born with new motives for fictional elaboration of rituals. Even our personality, the "who" we are and the narrative of what we have done and known, grants us the role of one protagonist in a social drama where significant others live as supportive allies or contentious rivals (Trevarthen 1993, 1998a, 1998b). Thus we become companions or aliens in relation to a meaningful world. Shared minds create all we know.

Reading this book we sense the authors are glad to be free of a prison built of ideas that are unaware and unsympathetic of how we really live. They present an antithesis to the computational or representational mind, and seek to define the special human mind, which is not just conscious and rational, but has a unique intersubjective awareness that makes up explanations of a shared and artificial world – a mind that builds cultures with power to change nature. Given the exploratory nature of the topic, inevitably, they come to somewhat different conclusions.

Because several authors make generous reference to my research on communication in infancy, and the theory of Innate Intersubjectivity I was rash enough to propose 30 years ago, I feel I should explain the particular scientific experience that supported the project, and the influence of teachers and colleagues who were ahead of me in the story. I was trained as a student of biology to master ways of observing in detail how plants grow and how animals move in adaptive ways. My undergraduate teachers were plant ecologists, physiologists and ethologists. My PhD research was on the experimental neuropsychology of visual consciousness in monkeys with Roger Sperry, who had proposed in 1952 that perceiving must be understood as information picked up to guide moving – that the science of consciousness or mind in the brain should begin by asking how the brain moves the body in intelligent ways (Sperry 1952). My experiments with split-brain monkeys proved that willing to do something can indeed determine what a brain sees.

I began work with infants in 1967, in collaboration in with Jerome Bruner, who wished to examine infant cognition and learning in a different way from Piaget's experiments on infants' object concepts; Berry Brazelton, who was pioneering more sensitive and responsive paediatric care for newborns and their mothers (Brazelton 1979); and Martin Richards, an ethologist of mammalian

maternal behaviour. Our aim was to observe what came about, rather than experiment with *a priori* hypotheses about infant perception or cognition – to record in as complete detail as possible what could be seen and heard when a mother and infant were communicating, and to compare it with what the baby would do when oriented to an inanimate object. We saw complex conversation-like engagements in which both infant and mother exhibited intuitive competence for sharing their impulses, and we realised that there was no science to explain this. At about the same time two other persons – anthropologist and linguist Mary Catherine Bateson, and developmental psychiatrist Daniel Stern – were discovering the same phenomena and attributing them to innate motivations of an intersubjective kind (Bateson 1979; Stern 1971). We were, without knowing one another, exploring out of the psychological box, free to observe the cleverness in infants and their companions and free to speculate about their significance for human relationships and for cultural learning. All of us were entranced by the infants' rhythmic sympathy with a parent's attempts to communicate, and their joint inventiveness.

Through the 1970s, using film and television to record and patiently micro-analyse, I charted age-related changes in the play and attributed them to innate motives, the development of new sensory and motor competences in the infant, and sensitive intuitive support from the mother (Trevarthen 1974). I took the term 'intersubjectivity' from an inspiring article Joanna Ryan wrote on the development of 'communicative competence' before language (Ryan 1974), and her comparison of the infant's tactics with those Jürgen Habermas had defined as the intersubjective functions or 'dialogic universals' through which conversational exchanges and cooperative meaning-making are regulated in society (Habermas 1970). At the same time Jerome Bruner led a neo-Vygotskian transformation of developmental and educational theory that gave primacy to collaborative learning in meaningful tasks (Bruner 1968, 1990). Children gain the skills and language of their culture, and learn how to manage the material world in cooperative ways, by way of their will to share purposes, interests and objects (Sinha and Rodríguez this volume).

One of my young colleagues, Penelope Hubley, making a careful longitudinal study of mother-infant companionship in the early 1970s, observed changes from proto-conversations of two-month-olds, through play in games, first of the body, then with shared interest in objects, to the remarkable transformation of the infant's motives at 9 months when the baby became a different kind of partner in intent participation (Hubley and Trevarthen 1979). The enjoyment of playful rituals by six-month olds in games with expressive gestures or toys, enjoying at a new ritualised level the teasing meta-communication that Gregory Bateson had identified as the critical element in animal play (Bateson 1955), was replaced by a more serious intent to do "work" with objects that had some potential for

practical use, which others would acknowledge. Guided by a companion's shifting focus of interest, and by exhortations to complete a little project set by movements of intention, the baby became a self-confident partner – a co-worker. At the same age, about 40 weeks after a full term birth, the baby was a self-possessed and self-conscious performer of many new rituals of social expression. The mutual understanding established in previous months and practiced in games was transformed into what Michael Halliday called proto-linguistic "acts of meaning": vocal and gestural signals of things that might be named (Halliday 1975). We called it Secondary Intersubjectivity. The relevance to cultural learning of this trajectory in growth of the infant's mind was clear, as was the primary importance of the "mutual attention" with a familiar companion. Strangers were too uncomprehending to be trusted in such first steps to a conventional world. And sensitive experimental studies by Lynne Murray proved how important contingent and respectful attention and sympathy of feelings was for the infant to build meaning in another's company (Murray and Trevarthen 1985).

True, as Susswein and Racine (this volume) say, my account of the developments, from Primary Intersubjectivity, through Games of the Person and Games with Objects to Secondary Intersubjectivity, which we continued beyond the first use of words to the Imaginative Play of 2 and 3 year olds, was descriptive. Yes, it was a taxonomy of stages in behaviour, but it was meant to be more than that. It implied and explored a theory, and I sought many kinds of evidence for the "causes" of change, especially causes in the infant's growing mind. I was convinced that the only useful explanation was one that assumed that the fundamental adaptations of body and brain for intersubjectivity were innate, as were the direction and stages of developmental change through the early years, and the learning that was so obviously assisted by the companionship of the parent (Trevarthen 1979, 1989). True to my biological principles, and starting with a theory of how neural systems could generate motives, I looked for explanations in the ontogeny of the brain and body of the child, and for correlations with known age-related changes in brain anatomy and function. It was not difficult to collect evidence that an embryogenetic specification of the motor and sensory functions in somatotopic (body mapping) arrays was essential, as were the theories of experience anticipating motor images of Sperry (1952) and Bernstein (1967). At first we did not have a clue how the intersubjective transfer of these intentional images could be mediated, or what the evident emotional regulations were, but in the last two decades brain science has come some way to closing that gap (cf. Gallese 2005; Pankepp 2005; Barresi and Moore this volume).

One discovery of major significance for any theory of the causal factors or processes of intersubjectivity, whether of humans or animals, is that the rhythmic

timing and modulation of energy in moving is a "code or principle of conduct" that makes motives share-able. A breakthrough in the exploration of human communication before language has come from the demonstration of its special polyrhythmic "musicality" (Trevarthen 1999, 2008). The science of time in the mind or "biochronology" is discovering how impulses regulating the pace and harmony of moving pass from actor to perceiver of action. How, as Ellen Dissnayake claims (Dissnayake 2000), the temporal arts originate in intrinsic dynamic processes, already exquisitely present in a newborn baby, that keep the voluntary and conscious self whole and in well-being, and make them public for sharing in intimacy. Mimesis, which I see as richer already in the neonate than Zlatev (this volume) does (because I am sure that self and other are distinct negotiants in the newborn baby's mind) is the parent of linguistic narrative, as Merlin Donald (2001) proposes, and 'musical semantics' as defined by Ole Kühl sets the stage for reference with symbols (Kühl 2007). I think these are the natural foundations for Itkonen's "normative practices" that keep languages, and other cultural creations, coherent, productive and changing (Itkonen this volume). The story is new and there is plenty of room for different plots, but we have an open prospect and a sense of adventure. The science of the shared mind looks like the best game in town.

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CHAPTER 1

Intersubjectivity

What makes us human?

Jordan Zlatev, Timothy P. Racine, Chris Sinha and Esa Itkonen

1. Introduction

The title of this book, *The Shared Mind*, conforms to a linguistic schema – *"The X Mind"* – that has become common within the interdisciplinary fields of cognitive science and consciousness studies. The current volume thus stands in a line of succession from *The Embodied Mind* (Varela, Thompson and Rosch 1992), *The Discursive Mind* (Harré and Gillet 1994), *The Conscious Mind* (Chalmers 1996), *The Extended Mind* (Clark and Chalmers 1998) and *The Social Mind* (Valsiner and van der Veer 2000). Like some of its predecessors, *The Shared Mind* advances an anti-thesis to the "classical" *Computational* (Jackendoff 1987) or *Representational Mind* (Fodor 1987), with its oft-criticised neglect of the role of the body, phenomenal experience, social interaction and culture.

At the same time, the present volume advances a position (or rather, a set of related positions) that has not been sufficiently explored by its predecessors. Non-human animals also have an "embodied mind", and there are no good reasons to deny that at least birds and mammals also have a "conscious mind" (Edelman 1992). However, although other species may have varying degrees of awareness, they do not seem be fully aware of the subjectivity of others. And whereas human beings go on to engage in discursive practices and rely on material and symbolic culture, both of which have powerful formative effects on the human mind, something more ontogenetically and phylogenetically basic seems required to be able to benefit from these central aspects of human social life. This foundation seems to be provided by a uniquely human capacity for *intersubjectivity*.

In the simplest terms, intersubjectivity is understood by the authors represented in this book as *the sharing of experiential content (e.g., feelings, perceptions, thoughts, and linguistic meanings) among a plurality of subjects.* Although some non-human species manifest some aspects of the capacity or capacities that make up intersubjectivity, they appear to lack others. On the other hand, no human being is entirely devoid of the human intersubjective potential – even though they

may be delayed or challenged in the expression of some of its manifestations, such as is the case for people with autism.[1] These considerations underlie our bold contentions that the human mind is quintessentially a shared mind and that intersubjectivity is at the heart of what makes us human.

2. Intersubjectivity vs. "Theory of mind"

The hitherto dominant approach in psychology, cognitive science and philosophy has been to analyze what has come to be known as social cognition in terms of a "theory of mind" (or "mentalizing") that purportedly solves the philosophical and developmental problem of "other minds". Consider, for example, the title of a recent volume with an apparently similar theme to the present one: *Other minds: How humans bridge the divide between self and others* (Malle and Hodges 2005). Despite the important empirical findings and hypotheses generated by the Theory of Mind (ToM) approach, it is our contention that its framing of the research question has significantly obscured rather than clarified what needs to be explained. The basic assumptions of the ToM approach can be formulated as follows:

- There is a primary separation between the self and (the minds of) others.
- The individual must bridge this separation either by some form of "theory" or "simulation" of the other's mind, a process that is more or less fallible.
- The main "bodily" structures that are directly relevant for the process are those innate or acquired "modules" engaged in the inferential or simulation processes.
- Cognition develops essentially "from the inside out", with innate or acquired cognitive skills being eventually transferred or projected onto others for the purpose of explaining and predicting their behaviour.

From such a point of departure, it is unsurprising that there appears to be not only a divide, but a veritable gulf between self and others, one that is so wide that it is doubtful whether it could ever truly be bridged. Such a pessimistic assessment of the human condition is hard to justify – how, if it were so, would young children be able to coordinate their basic activities with others, and eventually acquire a shared public language? How could we account for such universal forms of human experience as mutual affection and sympathy? In contrast to the four claims

1. In stating this we are aware that profound and multiple intellectual impairments may raise empirical questions about this claim, but we make it as a generalization with a fundamental theoretical status. We also stress that, even given cases of empirical doubt, our claim does not imply that such individuals should be thought of as not having the status of human beings.

listed above, the contributors to the present volume broadly agree on the following propositions:

- Human beings are primordially connected in their subjectivity, rather than functioning as monads who need to "infer" that others are also endowed with experiences and mentalities that are similar to their own.
- The sharing of experiences is not only, not even primarily, on a cognitive level, but also (and more basically) on the level of affect, perceptual processes and conative (action-oriented) engagements.
- Such sharing and understanding is based on embodied interaction (e.g., empathic perception, imitation, gesture and practical collaboration).
- Crucial cognitive capacities are initially social and interactional and are only later understand in private or representational terms.

The main precursors and originators of these views in the last century were Husserl, Vygotsky and Wittgenstein. Husserl, the founder of phenomenology, has only recently been properly understood in the Anglo-Saxon world to be concerned not with the nature of *private* experience, but with structures of experience which give us a *common life-world*, serving as the pre-condition of any objectivity (Zahavi 2003; Moran 2005). Furthermore, he was the first modern thinker to emphasize the role of the *body* for the emotional tone and the perceptual richness of the life-world, and for our transparent relations with others (cf. Gallagher 2005). For example, he stated:

> I do not first constitute my things and my world solipsistically, then grasp by empathy the other 'I' which too grasps itself solipsistically as constituting its world, and then and only then, the constituted unity of both are to be identified; my self unity (*Sinneinheit*) exists because of the facts that the foreign multiplicity is not different from mine, it is *eo ipso* the same…"
>
> (*Husserliana* 14: 10, translated and quoted by Moran 2005: 225)

Other scholars such as Merleau-Ponty (1962), Scheler (1954) and Schutz (1966) continued this tradition and developed complementary accounts of intersubjectivity (cf. Zahavi 2001) whose common theme is that the basic forms of understanding others are not inferential, but rather *direct* (cf. the chapter by Gallagher and Hutto). Scheler stresses the implications of this for accounts of perception in a way that is reminiscent of J. J. Gibson's (1979) ecological psychology:

> For we certainly believe ourselves to be directly acquainted with another person's joy in his laughter, with his sorrow and pain in tears, with his shame in blushing, with his entreaty in his outstretched hands … And with the tenor of his thoughts in the sound of his words. If anyone tells me that this is not "perception", for it

> cannot be so, in view of the fact that a perception is simply a "complex of physical sensations" ... I would beg him to turn aside from such questionable theories and address himself to the phenomenological facts.
>
> (Scheler 1954, cited in Gallagher 2005: 228)

Compare Scheler also to the later Wittgenstein (1980: §570), who similarly attempted to dispel the myth of the isolated subject:

> "We *see* emotion." – As opposed to what? – We do not see facial contortions and *make the inference* that he is feeling joy, grief, boredom. We describe a face immediately as sad, radiant, bored, even when we are unable to give any other description of the features.

Through enigmatic aphorisms such as "Nothing is hidden" and "Understanding is not a mental phenomenon", Wittgenstein highlighted the essential dependence of thinking on *public* criteria, and concentrating on the linguistic aspect of this issue, he rendered the notion of a "private language" self-contradictory (cf. the chapter by Itkonen). Wittgenstein also drew attention to the fact that body, mind and behaviour are different aspects of the unity that we call persons. Thus, although such aspects of persons are non-identical and we therefore cannot reduce one to the other, Wittgenstein argued that they are necessarily and, hence conceptually, related and that we typically talk about one via the other.

Vygotsky was a more multi-faceted thinker, creatively combining philosophy, psychology, literature, primatology and education. From a broadly Marxist perspective (though he was accused of "idealism" by the guardians of Soviet ideological orthodoxy), he famously asserted the general principle of the primacy of social interaction in the development of what he considered to be the specifically human "higher mental functions", such as memory, reasoning and language:

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals.
>
> (Vygotsky 1978: 57)

Like Wittgenstein, the crucial social semiotic mediational "tool" for Vygotsky was language, but he also considered the role of other semiotic resources such as artifacts and gestures (cf. the chapters by Rodríguez and Moro; Sinha and Rodríguez) in the child's cultural development.

3. Perspectives

Although there is a good deal of coherence between the positions of the phenomenologists, Wittgenstein and Vygotsky (as well as those of other classic theorists who feature in the discussions in the following chapters, such as Durkheim, Mead and Bateson) with respect to what they *reject* – that is, the notion of a monadic, individual mind, ultimately incapable of reaching out beyond its confines to the world and others – there are important differences between the positions that they advocate. In a similar vein, while all the authors represented here agree on the crucial role of intersubjectivity in human communication and consciousness of self and other, they offer (as the subtitle of this volume suggests) different answers to questions such as the following:

- What is or are the precise sense or senses of the term "intersubjectivity", at what level of organization does it exist, and how does it relate to other notions of the shared mind such as "common knowledge" (cf. the chapters by Itkonen and Sinha and Rodríguez).
- More specifically, should we understand the term "intersubjectivity" as pertaining primarily to a mental or inter-mental capacity, or to the actual instances of participatory practice that both depend upon, and are instrumental in developing, this human capacity? Are these merely different aspects or emphases, or do they constitute fundamentally different perspectives (cf. the chapter by Susswein & Racine)?
- To what extent is there a species-specific, biological basis for the human capacity for intersubjectivity *per se*, and to what extent is it the consequence of social, ecological and cultural factors (cf. the chapters by Leavens, Hopkins and Bard, Rodríguez and Moro and Sinha and Rodríguez)?
- To what extent is human intersubjectivity brought about by language, and what might be the prerequisite conditions for developing or evolving a capacity for language (cf. the chapters by Gallagher and Hutto, Hutto and Zlatev)?
- Does intersubjectivity involve an irreducibly mental aspect that is accessible to consciousness, or is this an (over-) attribution based on manifest behaviour (cf. the chapters by Brinck and Leavens, Hopkins and Bard)?
- What aspects of human intersubjectivity (e.g., the mutual understanding between two subjects that they are attending to the same object) might play a *causal* role in guiding action and which are definitional rather than causal (cf. the chapter by Susswein and Racine)?