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Homo Negotiatus: Ontogeny of the Unique Ways Humans Own, Share and Reciprocate

Philippe Rochat[1] and Cláudia Passos Ferreira[2]

Social animals need to share space and resources, whether sexual partners, parents, or food. Sharing is indeed at the core of social life. Humans, however, of all social animals, have distinct ways of sharing. They evolved to become *Homo Negotiatus*; a species that is prone to bargain and to dispute the value of things until some agreement is reached.

In this chapter, we discuss, in the perspective of ontogeny, how children become *Homo Negotiatus*. Our goal is to explore the nature of what makes human ways of sharing unique compared to other animals. For this, we look at how children develop a sense of ownership and a propensity to negotiate with others. This development, we believe, is revealing of the distinct human ways of owning and sharing. Our intuition is that these particular ways of owning and sharing form the fundamental core of what it means to be human. It determines how we grow and how we relate to each other, the origins of our distinct social mind.

There is one main idea driving the chapter. This idea is that ways of sharing and owning are inseparable from particular ways of sensing and knowing the self. They are like two sides of the same coin. From this main idea, we propose a theory postulating that the developmental origins of owning, sharing, and of the sense of self in children are conceptually inseparable. Based on empirical and clinical observations, we speculate and try to specify that owning, sharing and the sense of self develop in parallel. Our goal here is to map the concomitant development of owning, sharing and the self in children.

The chapter is organized as follow. First, we propose and describe different levels of sharing. This distinction articulates the fundamental difference between sharing by coercion and sharing by negotiation that is the trademark evolved by our species. Second, we discuss that to negotiate, as opposed to sharing via brute force and coercion, entails a particular sense of who we are in relation to others. We then present and interpret observations on how infants become *Homo Negotiatus*. Finally, we discuss the parallel emergence of negotiation and theories of mind in children between 3- and 5 years of age.

[1] Department of Psychology, Cognition and Development, Emory University, 318 Psychology Building, 532 Kilgo Circle, Atlanta, GA 30322, USA
[2] Institute of Social Medicine, State University of Rio de Janeiro, Rua São Francisco Xavier, 524, 7° andar, bl. D/E Maracanã, RJ 20550-900, Brazil

In all, here we consider the psychological origins of the human property sense as well as of the particular ways of sharing by negotiation that we view as a major trait that is unique to our species and at the core of human social life.

1. Levels of Social Sharing in Early Ontogeny

All social animals share but they don't do so in the same way. To understand the variety of sharing that pervades social life, it is necessary to distinguish different levels of behavioral organizations that are biological as opposed to psychological in their determination. By biological, we mean behaviors that are automatic and non-intentional. By psychological, we mean behaviors that are intentional and conscious. This distinction is admittedly delicate and elusive but can be made more explicit by considering the levels of behavioral determinants manifested by infants in the course of early development, in particular the first year of life (Rochat 2007).

At birth and during the first 6 weeks of life, infants manifest primarily pre-adapted or "built-in" action systems that allow them to adapt to the circumstances of the environment and to tap into resources they depend on to survive. Neonates and even fetuses during the last trimester of gestation express highly complex sensory-motor organizations. These organizations fulfill basic survival functions such as feeding or the orientation toward particular features in the environment (Reed 1982). For example, at birth infants suck preferentially on certain nipples, they orient to sound and root with mouth open toward tactile stimulations, they are more enticed to track a face with canonical as opposed to scramble features (Morton and Johnson 1991; Rochat 2001; Rochat and Senders 1991). This complex behavioral organization is biologically rather than psychologically determined in the sense that at this level infants are functioning on the basis of pre-determined action systems that are "instinctual" or "obligatory" (pre-reflexive) rather than "contemplative" or "intentional" (see Rochat 2007 for further discussion regarding such distinction). At this level, no representation of goals, nor any expectations regarding what should happen next over time are yet involved.

By 2 months, however, things change and infants manifest more than such instinctual, obligatory, and biologically pre-determined functioning. Infants become less reactive, less stimulus-bound, and more exploratory in their interaction with objects. In relation to people, 2-month-olds begin to show and construct a sense of *shared experience* in face-to-face interaction. They begin to smile back and show the first clear sign of primary inter-subjectivity (Trevarthen 1979). This can be construed as the psychological birth of the infant (Rochat 2001).

From this point on and in relation to people, infants are not simply functioning and reacting. They are actively engaged in the assimilation and alignment of their own subjective experience with the subjective experience of others. They share experiences that are constructed in interaction, typically face-to-face exchanges, with affectively attuned others and in the context of affective resonance (Hobson 2003; Stern 1985).

Parallel to the emergence of experiences constructed in interaction with others, infants also begin to function differently in relation to physical objects. They begin to explore objects. They assimilate objects to their own actions, learning from the perceptual effects they cause by acting on objects (Rochat 2001, 2007). For example, by 2 months, and not prior, infants begin to explore systematically the auditory consequences of their own sucking behavior as they explore a musical pacifier introduced in their mouth (Rochat and Striano 1999b). Their behavioral functioning is not merely responsive or focused on the here and now of perception. Rather, it becomes oriented toward what should happen next, increasingly driven by particular expectations. Likewise, interpersonal exchanges are also increasingly driven by reciprocity principles and social expectations (Rochat and Striano 1999a).

By 7 months, infants show initiatives in trying to influence interpersonal exchanges, by-passing mere passive responding. They become actors and creators in their social transactions. For example, when an adult, in the midst of ongoing proto-conversation suddenly adopts a still face, from two months of age infants show emotional distress and dismay. However, from 7–9 months of age, facing the same circumstances, infants begin to show initiatives in trying to re-engage the still faced person. They lean forward staring at her, call her, pull her cloth or clap hands, clearly with the aim in mind of having the person snap out of her frozen state to re-instate the playful flow of proto-conversation (Rochat and Striano 1999a; Striano and Rochat 1999, 2000).

By this age, infants will also present objects for shared attention. Infants will openly call for attention and frequently check whether others are attentive to what they do with objects. This is particularly evident in all children by 9 months, their relative propensity to engage in joint attention correlated with the developmental emergence of first words and symbolic functioning by the second year (Bruner 1983; Rochat 2001; Rochat and Callaghan 2005; Tomasello 1995; Tomasello and Farrar 1986).

This major development has been extensively documented. It corresponds to the emergence of secondary inter-subjectivity, namely the emergence of referential communication with others about objects in the environment that occurs by the second half of the first year (Bruner 1983; Trevarthen 1979).

By 9 months (9th month revolution or "miracle" according to Tomasello 1995; 1999) infants begin to engage in bouts of joint attention with others as they engage in the exploration of an object. They bring objects to the attention of others and track others' attention in relation to what they do with objects. This new triangulation between the child, another person, and an object of shared attention breaks away from face-to-face exchanges. It makes these exchanges looser and more flexible. Interestingly, it is also associated with a new sense of exclusivity and *possession* first applied to people, then eventually generalized to objects. We have here the putative origins of a property sense expressed by the young child.

By 8–9 months, as infants begin to manifest triadic engagement in reference to objects (i.e., joint attention but also social referencing), they manifest concomitantly a new weariness when encountering strangers, what is described as the 8th

month's anxiety (Spitz 1965). Infants by this age show first evidence of selective attachment and affective bounding to the primary caretaker(s). They also manifest a new fear of separation that is the counterpart of attachment (Bowlby 1969).

2. First Affective Investment into Objects

From this time on (8–9 months), infants begin to invest much affectivity with particular physical objects. Winnicott (1982) provides a complex analysis of the emergence of what he calls "the transitional object", starting at approximately 9 months of age. With the transitional object, whether a blanket, a doll or any other suck-able, hug-able, and transportable physical object, infants suddenly devote particular closeness and a need to cling to them. It is the new expression of a strong affective investment, an affective projection and the binding of affects into a physical object (affective binding). The young child uses such affective projection, in part, to cope with temporary separation from their mother or any primary caretaker. For Winnicott, by the end of the first year the child finds in such objects of devotion a way to cope with separation anxiety, a comforting external entity that becomes companion of their forays away from the secure base of the mother.

At the origins, transitional objects are an affective means, created by children, that allows them to behave with independence and to explore the world outside the primary sphere of fusion with the mother. Literally, it helps them to make this transition away from the mother's secure sphere. They are also probably the affective roots of the sense of material possession.

Following Winnicott's approach, transitional objects are the primitive objects of possession as some kind of a re-incarnation of the mother. The comfort of the mother is transferred and projected into the object that now functions for the child as a substitute to cope with temporary separation. The child's attachment to the mother is transferred to this particular object that becomes transitional.

Transitional objects are, by definition, objects that have value, particularly high *affective value*. They contrast with any other toys or physical things that the child encounters and plays with by the fact that they are affectively invested. The child becomes attached to them as part of themselves. This prefigures the propriety sense that becomes generalized by the end of the second year when the child starts to claim "mine" far beyond their mother.

The infatuation and obsession associated with transitional objects are, to some extent, commensurate to the emotion and affect the child projects onto them. These objects are endowed with new meanings. From being distinct physical toys with particular affordances, they become objects of comfort, endowed with an affective affordance invented by the child. These objects are physically distinct, like any other objects, but become special because the child endows them with the potential to evoke comfort and satisfaction. These objects now have a particular affective value causing a sense of attachment and ownership. We can speculate that this is the origin of the experience of ownership rights over an object, the very beginning of the property sense "proper". From then on, the

child can develop a capacity to evaluate, to compare the relative value of objects that are more or less invested affectively. Objects are transformed into "fetish" standing for comfort and security. This new affective meaning attached to the object can sometime persist beyond childhood, into adulthood and through the lifespan of the individual.

Possession therefore implies the projection of affects into the object. By virtue of this affective projection, the object is transformed into an emotional investment that transcends the perceptual experience of its physicality. From physical, the object also becomes affective and this is the psychological bedrock, the first tangible sign of a property sense in the child.

3. From Possession to Negotiation

From the expression of possession and exclusivity, the affective investment onto selective objects of attachment by 9 months, follows a developmental step that is unique to the species. This step emerges by the middle of the second year and corresponds to the progressive inclination children manifest in asserting ownership over things. This opens up the possibility to bring them into sharing space.

Probably the most conspicuous manifestation of such development is in the early use of possessives in language acquisition (Tomasello 1998). By 20 months children become linguistically explicit in their claim of ownership over things. When they relentlessly say "Mine!" by 2 years, they not only mean that it is theirs or that it should be given to them. They also mean that "it is nobody's but mine", in other words that "it is not yours . . .". Such expression is an assertion of power by the child over the object, not just for itself, but in relation to others. "Mine!" is a statement associated with the so-called "terrible two's", a period of defiance and self- assertiveness in the young child who tries to overcome separation anxiety, gain independence as well as social control. But this is also the child's entrance into the adult culture of reciprocal exchanges. It is an expression of exclusivity that actually transcends simple possession. It opens up the possibility for gifts and exchanges since such processes presuppose an explicit and public sense of possession to enable its relinquishing. In other words, it creates the possibility of gift or exchange that is a human trademark. This development entails yet another level of sharing, the level that humans evolved as a species and that each normally constituted child develops to enter the reciprocal culture of his or her parents.

In summary, we proposed various levels of sharing developing in the first 18 months of human life. By two months infants by-pass mere pre-determined functioning to assimilate situations in the environment and generate expectations about what should happen next. This is a first, original step toward "owning" perceptual experience and gaining experiential control over objects and people. By nine months, with the new propensity to share attention and become triadic with others in reference to objects in the world, infants develop also a new infatuation and selective attachment to certain objects, including people. This is the first projection of affect that is the foundation of a property sense. The mechanisms of

such projection and the determinants of such development remain under specified and more research is needed. Finally, during the second year, children develop the additional inclination to eventually relinquish what they feel attached to, bringing objects of possession into a space of potential exchange. This, we see as the developmental step that transcends mere possession and marks the child's entrance into the reciprocal culture of his parents. This is when the child becomes *Homo Negotiatus*. Interestingly, this marks also the time when children become less attached and exclusive with a particular object. As Winnicott notes, from approximately 3 years of age, the affective value of the transitional object diffuses and becomes distributed among multiple objects of possession. Affectively invested objects become collective rather than personal and exclusive. They now exist for the child in an interpersonal space of negotiation.

4. Coercion versus Negotiation

Here, we would like to emphasize two fundamentally different categories of sharing. Both entail some sense of ownership or at least rudiments of a property sense, but they are ontologically different because of the psychological and interpersonal processes they entail. However, these two categories of sharing rest on radically different principles. They correspond respectively to sharing by *coercion* and sharing by *negotiation*. We discuss them in turn.

Sharing by coercion pervades nature. It corresponds to a transfer via brute force of what one feels owns or could be owned. It obeys the principle of the lion share: the stronger prevails and gets the most, if not all. With coercion, relative strength, power and assertiveness are the resolving factors of conflict of interests on a particular resource.

Although this kind of sharing is determined by a quantifiable and rather predictable variable (i.e., relative physical strength), it can become complex in instances of bluffing, alliances, and the appeasement of conflicts among individuals (see for example de Waal 1989 in relation to chimpanzees). Many animal species show coalition, the projection of strength via threat, even structural changes in physical appearance (sudden and temporary color change, particular postural displays accentuating physical attributes via hair or tail erection for example) to impress others and influence the sharing of resources while reducing the actual occurrence of physical abuse or fight.

In contrast, sharing by negotiation is unique to humans. It corresponds to a consensual transfer of property among individuals by ways of exchange, one giving and the other receiving. In negotiation, the constraint is not brute force as in coercion. The constraint is to reach some kind of mutual agreement. By definition, negotiation does not abide directly to the principle of the lion share, although perceived power might influence the terms of the agreement reached among sharing protagonists. The weak is more inclined to agree than the stronger, an overwhelmed warrior is typically more eager to settle with his victor than the reverse. However, if strength, force, and power play a major role in any conflict resolution, their role is reduced in negotiation, constrained by a different principle which is *reciprocation*.

Reciprocation is more than the simple tit for tat principle, by which if one gives the other gives back. It entails constant evaluation and tracking of what is exchanged. It also entails agreement and a negotiated sense of fairness that becomes explicit in either the acceptance or the refusal of a bid in the exchange process. Note again that although coercion and negotiation rest on opposite principles, there is a fussy zone between them. A negotiation always has a coercive dimension as the particular strength and background of the negotiators always play a role. Negotiation will be conducted differently depending on the relative strength, reputation or acquired power of the protagonists. However, what makes negotiation particular as a process is the fact that the outcome is agreement, an *inter-subjective agreement on values*.

These values are complex because they do not only pertain to the things exchanged but also to the protagonists of the exchange themselves: whether he or she is relatively tough, understanding, assertive, kind, generous, or on the contrary privy and cheap. The exchange is a public revelation of the person, his or her social inclination, status, and personality. It is the main public arena in which we reveal to each other, the main contributor to the building of reputation among peers, which is the primary concern of humans. To be human is indeed to be concerned about reputation (Rochat 2006, 2008 in press).

Coercion and negotiation both entail a sense of ownership. It entails the sense that something either belongs or could belong to the self; that something can be relinquished, lost, or given; received by the self, taken or given to the self. They both entail a particular sense of self. The property sense and the way possession can be transferred, lost or gained, entails at minimum discrimination between self and world, but more specifically a discrimination between self and others.

One cannot own if one doesn't know who she is, or at least make the difference between herself and others. One owns and claims property necessarily in relation to others. However, sharing by coercion or negotiation each entails a fundamentally different sense of the self. Negotiation implies a sense of self that is continuous over time and a perspective that is situated among other perspectives.

In general, the sense of self that is entailed in the sharing by coercion is temporary, grounded in the immediacy of perception and action. In contrast, the sense of self that is entailed by negotiation is more continuous over time, grounded in memory and the building of long-term reputation. In sharing by negotiation the self gains situation and continuity in relation to others. Also, in the context of negotiation, possession and the claim of ownership have different meaning compared to possession and its claim in the context of coercion. It gives the owner *social power*, the potential to re-enter negotiation, to relinquish what is possessed, the power to barter, eventually even the power to give and show generosity. As shown by early anthropologists like Mauss (1952/1967) or Malinowski (1932), following the pioneer work of Franz Boas on native North American tribes, small scale traditional societies from all over the world are organized around gift systems. In such systems, individuals acquire properties for relinquishing it following particular rituals. By ways of elaborate gifting rituals, individuals build social reputation as well as mutual trust with others that each gift will be reciprocated.

If sharing by coercion or negotiation each entails a fundamentally different sense of the self, it also entails a different construal of others. In sharing by coercion, others are just objects among objects, objects that cling to things. Those endowed with superior force just help themselves whenever they covet something, oblivious of others, helping themselves and always getting the lion share. Essentially, in the coercive process of sharing there is no deep thinking about others and how one relates to other individuals. There are no meta-thoughts, nor any kind of perspective taking involved. What predators experience as agent of the sharing is no more than physical resistance, clinginess, and maybe defiance. But it is a physical exchange, a straightforward causal chain of events made of resistance and overcoming force. No mental state consideration or mind reading is involved. The opposite is true in negotiation.

Sharing by negotiation involves mutual monitoring and mental state consideration. Each protagonist has to track and consider the mental state of the other to decide on the next bid with the ultimate goal to come to an agreement regarding the value of the thing at stake. Emotional expressions are read in reference to desire or beliefs. *Mind reading* is involved, a reading that is mutual, not just surface observation of behavior. Negotiation involves meta-representational abilities that are unique to human, mental reflection leading to propositions such as "he thinks that I think that he feels that we should come to some kind of agreement". It involves the kind of representational self-others reflection that is the mental trait of *Homo Negotiatus*.

So how do children become *Homo Negotiatus*? In the last part of the chapter we account for such development, in particular in relation to change in the early sense of self (self-consciousness) and of others (theories of mind).

5. Becoming Homo Negotiatus and Member of a Self-conscious Species

Negotiation is what happens when we bargain with others, whether ideas, feelings, or objects. Once again, it is the process that captures most exhaustively what human transactions are all about. It is also in this process that human self-consciousness develops, the objectified and conceptual sense of self one has in relation to others, the kind of meta-representation about the self that leads to embarrassment, shame or guilt (Rochat 2008 in press).

By becoming *Homo Negotiatus*, children develop the basic prerequisite of a sense of property as well as self-consciousness. As John Dewey writes: "... the 'Me' cannot exist without the 'Mine'. The self gets solidity and form through an appropriation of things which identifies them with whatever we call myself ... Possession shapes and consolidates the 'I' ..." (Dewey 1922, p. 116).

We argue that human self-consciousness and negotiation are mutual by-products, two expressions of the same development.

In general, what is unique in human transactions is the drive to find agreement with others, to compromise, or not to compromise on all matters, whether affec-

tive, intellectual or material. Humans are constantly trying to come to closure with deals, opening the possibilities of new ones. In this process of negotiation, we form knowledge about others as much as we form knowledge about who we are in relation to others. Self-consciousness as the representation of how others perceive and evaluate oneself is a by-product of this process.

Negotiation is the major probing ground by which we weigh ourselves in relation to others. It is also, ultimately, how we figure how much we weigh in the mind of others, how much relative social proximity and how much recognition we have in the eyes of others. The way people respond to our bargain tells us how important we are to them. Inversely, the way we respond and deal with others tells *them* how important they are to us. The point is that negotiation is a permanent game of reciprocal evaluation between self and others. But how does it come about in development? At what point in development do we become *Homo Negotiatus*?

Negotiation in ontogeny finds its roots in the first reciprocal exchanges between infant and caretaker starting in the middle of the second month after term birth. This is indexed by the emergence of socially elicited smiling in proto-conversation with others (so-called primary intersubjectivity). In this new face-to-face communicative context, the child engages in a give and take of affects that implies a turn taking format that is the pragmatic or communicative pre-requisite format of negotiation. In bartering and in proto-conversation alike, one makes a bid and the other takes it or turns it down. The mother smiles, and the child can respond by either a smile or by a frown, he can look toward or look away. There is fundamentally an alternation of bids among the protagonists in the exchange. Furthermore, there is continuity in the exchange as it unfolds, in the same way that there is continuity in bartering and negotiation. A history unfolds, as prior bids determine future bids.

In the affective proto-conversation that emerges unambiguously by 2 months, not prior, we find the primal form of mutual exchange. It is from this alternating and reciprocal frame that infants develop to become *Homo Negotiatus*. The difficult question is then, how and what happens next?

Infants are born *from* and are immersed in *Homo Negotiatus* culture, but they are not born *Homo Negotiatus*. The alternating and reciprocal frame of proto-conversation is encouraged and provided by attuned and responding caretakers (Stern 1985). However, this is not sufficient. To become *Homo Negotiatus*, infants need to develop on their own initiative, pushed by a force that comes from them. We proposed elsewhere (Rochat 2001) that this bootstrapping force in human development might originate from a basic dilemma, a constitutive tension between the propensity to explore and roam about the environment and the urge to maintain proximity with others.

By 9 months, infants are channeled to resolve this basic dilemma by including others in their roaming and exploration of the environment. Infants by this age work hard at incorporating the attention and gaze of others in their foray. They do all they can to captivate others and include their gaze in their exploration. They begin to solicit social attention onto themselves and onto what they are

trying to achieve. This is a crucial step in the development of negotiation and a source of budding self-consciousness.

In their attempt at resolving their basic dilemma, infants are eventually *constrained* or channeled to objectify themselves in the gaze of others. They are constrained toward self-objectification as they have to make themselves noticed and to present themselves to others as object of attention and intention. This is indeed the beginning of self-objectification, hence of self-consciousness. Note that this triadic objectification of the self could not occur if others, in particular adults, were not themselves attuned to the attention and intention of the child. Self-objectification can only develop in a *community* of already intentional and self-conscious individuals. Comparative research shows that non-human animals, even close primate relatives do not engage in joint attention and intentional exchanges such as deictic pointing, at least to the levels humans do (Tomasello and Call 1997). This is obviously a pre-requisite condition for the child to become *Homo Negotiatus*.

In this fundamental process of social-attention-getting in order to resolve the constitutive tension between proximity seeking and exploration, infants discover the *social power* that is attached to objects of possession. With the intermediary of objects, infants learn to control the attention of others, capturing this attention toward themselves, the experiential warrant of their social proximity and intimacy.

Children discover that objects are the means by which they can control their sense of social inclusion and recognition, the means by which they ultimately can fulfill their basic affiliation need. They discover that by owning, they can bring what they own in a space of exchange and negotiation. In exchange and negotiation, infants gain further control of others' attention. They also gain further leverage in promoting themselves and gauging their own social worth.

There is clearly a deep incentive to own and claim property as it allows the child to negotiate and accessorily to gain social leverage and control of their own situation in relation to others. By two, children understand explicitly the social power and leverage attached to property, and this is the long-term outcome of early reciprocal exchanges emerging by 2 months. The motivational background of this development is, in general, the basic need to affiliate and maintain proximity with others.

In human development, negotiation is the main process by which we co-construct what we are as persons. This process develops early but gets a new life by the second birthday when children become explicit in *claiming property*. They discover social power in bringing their claim of ownership into negotiation space. Interestingly, it is also at this age that they begin to manifest an explicit *conceptual awareness* regarding who they are, an objectified sense of self as "me" when for example they identify themselves in the mirror (Lewis and Brooks-Gunn 1979; Rochat 2003).

By this age (2–3 years), children also begin to *identify* themselves with others. They are able to consider themselves as differentiated, yet similar to others as in the case of their expression of empathy that is more than simple emotional

contagion (Decety and Jackson 2006; Eisenberg 1989; Zahn-Waxler et al. 1992;). All these capacities coalesce by the end of the second year, a time when the child begins to claim property and becomes *Homo Negotiatus* proper. They all correspond to the constitutive elements of negotiation, the basic process by which the self is co-constructed in relation to others.

6. Theories of Mind in Development

If negotiation is a privileged probing ground of what we are in relation to others, it is also a privileged source of knowledge about others, namely the construal of what is on the mind of others, in relation to the self but also in relation to the world at large. Negotiation is a privileged source of so-called "theories of mind" (also called, probably more appropriately, "folk" or "people" psychology). This psychology revolves around the understanding of the thoughts, emotions, beliefs, desires and intentions that underlie other people's actions.

In the heart of negotiation, there is the constant conjecturing and factoring of what is on the mind of others in order to predict and figure their behavior, but also their decisions and valuations in the process. It is also by this constant conjecturing that we probe how others relate to us, always trying to figure our place in the mind of others. In general, in negotiation, one conjectures others not only for what they are as psychological entities endowed with beliefs and wants, but also for what they reflect of one's self-worth.

Much research documents how children come to construe others as having beliefs that can be either the same or on the contrary different from their own; that someone might have a false belief about something the child knows is not true. In the developmental and comparative literature, the ability to construe the false belief of others is considered as the acid test for the existence of theories of mind (Wellman 2002; Wimmer and Perner 1983).

Typically, developmental studies show that it is only by 5 years that the child can figure that someone else has a false belief about the state of thing in the world, beliefs that are different from their own. By 3–4 years, the majority of children do not. At such young age, children have a hard time decoupling and inhibiting their own belief when considering others'. They generalize and assimilate from their own, egocentric perspective.

In a recent study, we confirmed that this developmental transition has a universal character (Callaghan et al. 2005). We found remarkable developmental synchrony between 3 and 5 years in children growing up in 5 highly contrasted cultural contexts: Canada, Samoa, Thailand, India, and Peru. In all cultures, 80% of 3 year-olds failed the classic false belief task as 80% of 5-year-olds passed it. This is a clearly unified developmental trend.

So, between 3 and 5 years, children develop a sophisticated understanding of what is on the mind of others, construing the representations held by others that guide their behavior and determine their world's view: what they hold as being either true or false, desirable or undesirable, realistic or unrealistic. One can

assume that when children begin to construe others in this way, going beyond the surface information of their behavior and infer mental states, they also have more sophisticated ways of construing themselves as sentient individuals.

Interestingly, by 3 years children begin to manifest self-conscious emotions, including shame, guilt, pride, or empathy (Kagan 1984; Lewis 1992). This development appears to pre-figure the development of theories of mind applied to others, although both entail sophistication in meta-representation. In a sense, self-conscious (secondary) emotions such as shame or empathy do express meta-representational abilities but that appear first applied in relation to the self. Theories of mind research, in particular the false belief test, suggests that within a few months of developmental time, these meta-representational abilities are generalized to the construal of others. If that is the case, the question is what makes this development possible?

It is likely that theories of mind are actually a spin off of the insatiable drive children have to come to agreement and closure with surrounding others, constantly engaging in emotional trading and bargaining, for better or for worse. Children are constrained to conjugate with others, share resources but also primarily obtain from others in order to survive. This affective as well as material game is set from the outset but changes dramatically in the course of early development.

From the high social dependence of the newborns endowed with pre-adapted action systems (e.g., feeding, orienting systems), infants develop to become more autonomous, yet still highly dependent of their social surrounding. This dependence changes rapidly in forms. Starting at 2 months, we have seen that the format of negotiation begin to be the main engine of children's developing sense of autonomy in relation to others, in other words, the developing sense of themselves as an independent, sentient agent in their social world. Again, negotiation is an emergent property of social exchanges that in humans are based on principles of reciprocity, aside from potentially being also selfish and coercive.

7. Conclusion: Negotiation and Theories of Mind[1]

Negotiation is essentially a conversation that with development is increasingly initiated by the child in the form of bargaining. The child acts to push against and explore the limits of the "*No*" as René Spitz claimed years ago. The toddler runs away toward cliffs, cars, and treacherous places, probing how they will be run after by presumably pressing adults to be picked up and saved. They explore the limits at which others will intervene by either helping or hindering their action. In other words, they act to probe their social world, but more importantly,

[1]This last concluding section as well as the ideas of the preceding two are taken from a book by Rochat (2008 in press), "*Others in Mind—Fear of rejection and the social origins of self-consciousness*".

to probe their situation in this world: how much people care about them and how much intimacy they are capable of generating and controlling in others. This is the main game most evident by the second year but already budding by the second month. It is a game that never leaves us as grown ups.

It is interesting to note that the Latin root of the noun negotiation or the verb to negotiate comes from a contraction of *neg* meaning "not" and *otium* meaning "leisure". Thus, negotiation has the original meaning of the antithesis of leisure, in other words, of time free from the demands of work. This original meaning of the term is rather counterintuitive as we spend most of our time, whether at work or in leisure, questing for agreement and closure with others. This is an endless game that pervades all of our lives. It is as part of this quest that interpersonal values are established, the values of actions and gestures that specify the degree of our affiliation and intimacy with others. Theories of mind take their roots in this process, not the reverse.

Interpersonal needs (intimacy and affiliation) have precedence over the development of theories of mind. These needs determine theories of mind and this is particularly evident when considering the development of active sharing. This development constrains children to construe the mental states of others, to figure their desires, their beliefs and value systems. Children develop such capacity as a necessary requirement for negotiation and active sharing. In fact, children develop theories of mind in the context of learning the rules of constant negotiation and active sharing with others. By engaging in negotiation, children learn as much about themselves, in particular their affective situation in relation to others, as they learn about the mental states of others. The negotiating process channels the child toward the construal of others' mental states, not the reverse.

We collected some data in 3 and 5 year-old children, before and after they succeed in the false belief task, on their ability to negotiate. We observe that children at 3 years of age, not passing the false belief task, show little flexibility and reciprocity understanding in negotiating a barter deal with an adult experimenter.

In our little experiment, the child was given a large collection of small stickers that he could take home if he wished. The Experimenter gave himself a smaller collection of stickers that were much bigger in size and brighter. Both child and experimenter agreed that the experimenter's stickers were much nicer. The Experimenter then asked the child if he or she wanted a sticker of her nicer collection. All children agreed of course and then the Experimenter asked: "what would you give me for one of my sticker?"

Children were invited to barter stickers from their collection. Following the child's offer and according to the experimental procedure, the Experimenter systematically refused any first or second barter deal, eventually accepting it by the third. We were interested to see the extent to which children tended to modify their bid to barter following the refusal by the experimenter. In other words we were interested in the relative flexibility of the child in the negotiation process. What we found is that by 3 years, when children still failed to construe false belief, they also fail to appropriately modify their bartering offering to

somehow revive the negotiation with the Experimenter. Typically, 3-year-olds repeatedly offered the sticker that was turned down by the experimenter, demonstrating rigidity or fixedness in their response. In contrast, by 5 years of age, when the large majority of children pass the false belief test, children do demonstrate much more flexibility and appropriate negotiation adjustment by increasing their offer following the Experimenter refusal.

Our observations clearly indicate that the development of negotiation skills parallels, even probably causes the development of theories of mind as measured by the false belief task. Although we don't have supporting data yet, my hunch is that negotiation, as a trademark of the human environment to which children must adapt, forms the facilitating context in which theories of mind come to life.

Negotiation as a reciprocal social adjustment process does call for some construal of others' mental state. Children grow to become *Homo Negotiatus*, and the rest follows, including theories of mind (Rochat 2005). Negotiation precedes and constrains progress in the construal of what others have on their mind, particularly the construal of what they represent about us, the representation of *who we are*. It is the core process by which children can become reciprocating members of a culture that rests on the inter-subjective sense of values, on the agreement and constant bargaining regarding the values of things, whether physical objects, ideas, or affects.

In conclusion, we hope to have made the case that negotiation is at the core of what makes the variety of human cultures human, as opposed to non-human. This is what children develop to acquire the human social mind necessary for their enculturation.

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