

Self-conscious roots of human normativity

Philippe Rochat¹

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Abstract What are the roots of human normativity and when do children begin to behave according to standards and norms? Empirical observations demonstrate that we are born with built-in (implicit and automatic) orientation toward what is predictable and of the same - henceforth what deviates from it -, what is the norm or the standard in the generic sense of the word. However, what develop in humans is self-consciousness, transforming norms from “should” to “ought” and making human normativity profoundly different from any other forms expressed in infancy, other animals, or any smart machines. Self-consciousness is the ability to objectify oneself through the evaluative eyes of others. It sets us apart as a species and is at the roots of human normativity. A developmental blueprint capturing the progressive co-emergence of self-consciousness and normativity in the human child is proposed.

Keywords Human normativity · Self-consciousness · Infancy · Child development

The human state of being normative is unique in nature. It is self-conscious, can be explicit, and it tends to be objectified in shared codes of practices and judgments. This is what we refer here as “human normativity”: practices or judgments that are collectively construed and internalized as either right or wrong, good or bad, true or untrue. But what are the roots of human normativity and when do children begin to behave according to standards and norms?

Here I want to show that at an implicit level, children do behave according to norms from birth and even prior. In the perspective of child development, the question is how norms develop to become explicit and abstract, i.e., *self-conscious* and normative proper.

Empirical observations demonstrate that we are born with built-in orientation toward what is familiar or predictable, therefore toward some experiential “norm” in the generic meaning of the word which stands for “standard, model, or pattern”

✉ Philippe Rochat
psypr@emory.edu

¹ Department of Psychology, Emory University, Atlanta, GA 30322, USA

(Random House Unabridged Dictionary, 2nd Edition). Infants are born with the ability to process what is familiar as opposed to unfamiliar, deviant, or novel. From birth they pick up invariants over changes, a primary information processing and meaning making property of the mind.

This innate orientation toward the normal is far-reaching, yet not unique to humans. It is the common denominator of any learning systems. Standard or norm orientation is indeed the basic pre-requisite of any organisms that adapt and learn, smart machines included. In this article I try to show that human children add in their development is a self-conscious dimension to this generalized standard orientation or *sameness detection* to coin William James (1890, see below).

Based on selected empirical observations, my goal is to demonstrate that self-consciousness, operationally defined as the ability to objectify oneself through the evaluative eyes of others, sets us apart as a species and is at the roots of human normativity. The main idea driving the paper is that self-consciousness might be the basic ingredient that makes human normativity profoundly different from any other forms of norm system expressed by other animals, including the collection of norms and standards of “smart” machines. Norms should not be confounded with normativity that we construe here as shared and explicit ways of representing what ought to be, leading to judgments of right or wrong, good or bad. Accordingly, normativity does pertain to explicit value judgments, in contradistinctions to judgments that are positive, explanatory, or purely descriptive. In this context, norms are necessary but not sufficient ingredients of human normativity. The point of this article is to show that the development of self-consciousness (i.e., having an objectified sense of self, perceived and evaluated by others) is at the roots of normativity proper. I propose that emerging self-consciousness is the added sufficient ingredient that gives norms their normativity status or “ought-ness”. But first, what is a norm?

1 Norm as representation

A norm is a representation and a representation is essentially a process. It is not a thing in itself but a transformation. By analogy, a cloud in the sky is the symptom of an ongoing atmospheric condensation and air mass exchanges, not a thing. The construal of norm as representation (presenting again) captures the transformative process by which information is translated from one system to another, whatever the translation code might be: analog, digital, or symbolic.

The transformative process of representation is pervasive in nature, present at all levels of functioning in living organisms: from the transduction of light energy at the cellular level on the retina giving rise to its sensation, to the mental generation of spatial maps, the emotional expression of mental states, to the macro level of collective habitus or group ways.

From this perspective, norms are linked to the process of representation existing at all levels of description, from the neurological, to the psychological, moral, and societal, each level requiring a different language to account for them. At the low neurological level, the language of mechanical causality applies. The process can be analyzed and accounted for on the basis of highly specific neurochemical factors causing the transduction process underlying any sensory awareness that is the object

of psychophysics. Vision neuroscientists can trace precisely the successive representational transformations in the visual cortex leading to higher levels perception and consciousness that is the object of perception theories. From such causal description, neuroscientists capture the necessary transformative norms of perception. An example of such representational process at a cellular level is captured by neuroscientist Donald O. Hebb in his seminal book on the *Organization of Behavior* (1949): “(...) a repeated stimulation of specific receptors will lead slowly to the formation of an “assembly” of association-area cells which can act briefly as a closed system after stimulation has ceased; this prolongs the time during which the structural changes of learning can occur and constitutes the simplest instance of a representative process (image or idea).” (p. 64; on The First stage of Perception: Growth of the assembly).

At the psychological, socio-cognitive and interpersonal level, causal accounts of norms are much more elusive as they depend on an intricacy of complex interacting factors such as age, individual and group (cultural) differences. As social scientists, the best we can do is to capture the representational patterns that define norms. These patterns are documented in the same way natural scientists document varieties of species, eventually coming up with some accounts as to what might be some of the underlying causes of the observed diversity.

At the macro level, the developmental approach has the distinct advantage of allowing for the description of norms not only for what they are at various ages, but also for how they systematically unfold in ontogeny. The credo behind the developmental approach is that the constitutive elements of what will eventually become human normativity are best captured by focusing on how norms of behavior develop to become self-conscious and normative proper.

As mentioned above, in the literal dictionary sense, norm stands for standard, model or expected pattern. Inversely, and by necessity, it also stands for what is not fitting or what is discrepant relative to such standard, model or expected pattern, whatever such pattern might be. It is therefore inseparable from the process of detecting unexpected anomalies, in other words what is not of the “same”. As we will see next, behavioral research on neonates is primarily based on habituation and dis-habituation experimental paradigms, showing that such detection is basically a built-in or innate feature.

2 Built-in sameness detection system

If there is one thing that we have learned in recent years by studying babies, and there has been a huge wave of interest in studying infants in the past 40 years, it is the fact that from birth (and even prior, see all the recent evidence of fetal learning, e.g., Lecanuet et al. 1988) infants are active in processing invariant information over changes. In their inclination to scrutinize novelty hides a deep look for “sameness”. They avidly look for regularities in the environment and this is the name of the game from the outset: we are born and built in a way that what we are primarily preoccupied with is the detection of what remains the same in the midst of constant changes.

Throughout our lives we try to establish what can be counted on and relied upon, building trust and coherence. This quest is already embodied in the neonate, and that is the built-in focus on what can be expected and trusted in a world that is by definition

constantly changing, associated to a subjective experience that is fundamentally dynamic.

But prior to developing these ideas, it is important to insist that the focus on *sameness* detection that seems to be the core aspect of infant behavior and development, remains a core aspect of the human mind all through the life span. It might even be thought to be at the root of morality in terms of fairness, hence equity and social justice across human cultures (i.e., what is equitable or of the same, as in the case of the golden rule, treating people the way you would like to be treated). As William James wrote over a Century ago: “The mind can always intend, and know when it intends, to think of the Same (...). This sense of sameness is the very keel and backbone of our thinking.” (James 1890, Chap. XII, p. 459).

It is only recently that the possibility of a built-in ability to sense sameness, hence the possibility of an innate sensitivity to norms was considered. The past 40 years of booming infancy research did certainly debunk a great deal of strong-held common assumptions: that babies were born cognitively helpless and passive, their behavior disorganized. Prior to this research, it was not uncommon to construe infants as born blind and oblivious of the world surrounding them, a blank slate in need of fundamental growth and learning, often thought to be born in a vegetative state that kept them alive and tentatively able to receive indispensable care and protection from others. These views have certainly changed but the fact that human children are pretty helpless at birth should certainly not be overlooked, particularly when comparing them to the infants of other species. These ancient views were not that counter intuitive after all.

Compared to other species, humans are indeed born too soon, greatly immature and markedly dependent on others to survive. This is due to the combination of the proportionally larger brains we evolved as a species, together with the narrowing of the female’s birth canal associated with bi-pedal locomotion, a posture uniquely evolved by our species and linked to protracted “external gestation”, namely the fact that we are born much sooner compared to other primate species. We start standing and roaming the world on our own only by 12 months and it takes many, many long childhood years to separate from one’s own original niche and to become autonomous in order to reproduce this cycle of development with new progenies.

The premature human birth leads to a state of protracted dependence during approximately one fifth of our life. This remarkable dependence shapes our psychology from the outset. It is a simple, straightforward fact, yet probably the major determinant of what makes us psychologically unique in the animal kingdom.

What the new wave of infancy research shows, is not that infants are born much more mature than previously thought, but that infants are born much better equipped to tap into and exploit the prolonged state of dependence they are born in. As Bruner (1972) wrote years ago, there are “uses of immaturity” by the young child. Numerous research tapping into preferential looking, sucking, visual familiarization, violation of expectations, and other clever habituation and dis-habituation paradigms show that infants from birth, and even during the trimester of pregnancy are remarkably quick to learn.

The most solid and reliable finding is indeed that healthy young infants get easily bored and are particularly inclined to seek novel information. From birth on, infants expect particular outcomes to occur based on passed experiences and show a natural inclination to build up on new expectations. By 2 months, infants already display an

implicit attunement to the conditional probability that one particular event will be followed by another. They are shown, for example, to discriminate among strings of speech sounds they hear successively (Saffran et al. 1996), or the frequency of lights flashing at different locations in the environment (Haith et al. 1988).

Infants show all this remarkable learning ability while not having to worry about being fed, getting enough cuddling, or living in wet diapers. Their protests are typically heard while able to explore and encounter the world around in playful ways. Childhood is indeed, for the most part, a prolonged immaturity that translates into a prolonged, socially secured and assisted opportunity for a free license to learn and to explore, to fantasize and to realize these fantasies in the unbridled works of children's imagination. But children's free license to explore and to play is not just free and self-organized, it is highly constrained by early core representations of objects, self and others, as well as innate propensities to imitate and mirror the mental states of those interacting with the self (see Rochat 2001).

3 From detecting to creating norms of "sameness" in development

Between birth and 2 months remarkable changes occur, particularly in the social domain. By 6 weeks, infants universally begin to respond to faces with smiles that are not just automatic or linked to feeding or satiety, but that are socially elicited, taking place in face-to-face exchanges and active emotional co-regulation. This is what is generally recognized as unmistakable demonstration of primary inter-subjectivity or first sign of an infant's active sense of "shared experience" with others. These face-to-face exchanges are, in the broad sense, aimed at co-regulating feelings and at creating mutual affective attunement, a *sameness of feelings* with others in a mutually affective proto-dialog and emotional entrainment that has been extensively documented in the past 30 years.

This mutual affective entrainment is typically geared toward the maintenance and co-regulation of a shared "happy", often exuberant, state that is first initiated by the adult but is also increasingly initiated by the infant, particularly from approximately 7 months (Striano and Rochat 1999; Rochat 2001). It should be noted that such co-regulation around a shared state does not require the context of face-to-face exchanges particularly nurtured in Western industrial cultures. It also occurs via different sensory channels when babies are tied to the back of an adult, days in and days out, or being carried on the hips of older siblings.

In general, once again, but transferred into the realm of social exchanges and inter-subjectivity with a focus on shared feelings, the name of the social game is to mutually monitor *sameness* in mutual as well as reciprocal affects and emotional expressions, including the timing of such expression that specifies mutuality: whether, for example, the mother is more or less responsive to changes in the emotional expression of the infant, and vice-versa, whether the infant is more or less responsive to the mother.

We now know that by 2 months infants become very much attuned to reciprocal exchanges in terms of timing and relative mutuality of emotional responses. They show reliable negative responses when its expectation is violated as in the case of the "still-face situation" (Tronick et al. 1978a). Early on, infants detect and overtly react to the violation of reciprocation and norms of mutual expectation, They react to the fact that

others are not timely responding with *equivalent* emotional responses. What developmental research shows is that possibly from 2 months, and certainly by 7 months, infants create and promote similarities, hence “sameness” in feelings. Beyond the contemplative sameness detection already evident circa birth, by 2 months infants show new signs of an active propensity to create equivalent experiences with others.

What is intriguing is that this propensity becomes what is often identified as the central piece of cognitive and symbolic development, in particular language development. This central piece is the emergence by 9 months of so-called *secondary intersubjectivity* with the active sharing of attention in reference to objects in the environment (i.e., joint attention; see Tomasello 1999). Once again here, this important development rests on the new active sense and monitoring by the child of equivalence (thus “sameness”) in the focus of visual attention between self and others. The name of this active game remains essentially the same starting 2 months of age.

The sense of sameness is the broad concept used here to capture the natural inclination already expressed at birth to bridge experiences and draw analogies between things that are intrinsically distinct, between physical objects, but also between self and others starting 2 months. The sense of sameness does not only pertain to linking physical objects, self, and people because they phenomenally look alike or share the same qualities. It pertains also to spatial-temporal relations among things and probabilistic co-occurrences of events: that something entering one end of a tunnel typically tends to re-appear some time later from the other end, or that if I smile and coo toward someone, I expect this person to somehow respond in comparable ways.

As mentioned previously, research demonstrates that these latter aspects (contingency and conditional probability detection) are expressed very early on. They are other expressions of infants’ propensity to sense a link between things as belonging to a same set, a same “chunk”, or category of experiences.

It appears to be all part of the propensity to sense “sameness” or equivalence (i.e., same-value or same meaning). It is part of the analogous sense that is at the origins of concepts, symbols and other representational signs that *stand* for something that exists in the world as separate entities: my own reflection in the mirror that I recognize and identify as the same as my embodied self. But what’s more in human ontogeny and what is unique to our species, I would argue, is the fact that around 2 years of age children start explicitly to recognize and identify themselves not just in mirrors but through the evaluative eyes of others (i.e., self-consciousness). We now turn to this major developmental transition that is arguably at the roots of human normativity. It is self-consciousness or the developing human ability to objectified oneself through the evaluative eyes of others that transforms norms into normativity proper, what gives norms their sufficient normativity status or “ought-ness” - as discussed in the introduction. Next, we turn to the specificity and developmental emergence of self-consciousness as putative roots of human normativity.

4 Self-blame and human self-consciousness

In his book on *the expression of the emotions in man and animals*, Darwin (1872/1965) is struck by the unique and selective human crimsoning of the face, a region of the body

that is most conspicuous to others. He writes: “Blushing is the most peculiar and the most human of all expressions”, (p. 309)”.

Observing blushing in his son from approximately 3 years of age, and not prior, Darwin highlights the mental states that seem to induce human blushing: “It is not the simple act of reflecting on our own appearance, but the thinking what others think of us, which excites a blush. In absolute solitude the most sensitive person would be quite indifferent about his appearance. We feel blame or disapprobation more acutely than approbation; and consequently depreciatory remarks or ridicule, whether of our appearance or conduct, causes us to blush much more readily than does praise.” (p. 325). These observations capture something fundamental and distinctive about humans, a unique motivation behind their social cognition: the exacerbated quest for approbation and affiliation with others, the unmatched fear of being rejected by others, a unique human trait presumably associated to the prolonged immaturity and extended dependence of the human child “born too soon” (see Rochat 2009).

Mirror self-recognition, in particular the passing of the mirror mark test remains for many researchers the litmus test of an animal or the child’s capacity to represent the embodied self as it relates to the mirror reflection. In development, children typically pass the mirror mark test at around 21 months, at least in Western cultures (Broesch et al. 2011). Now, what is arguably unique to our species is the fact that when children begin to recognize themselves in the mirror, passing the mirror mark test, they do so not coldly, but with peculiar expressions of self-conscious emotions as noted by Darwin in his own child: they act out or display unmistakable embarrassment while touching and trying to remove the mark on their face discovered in their own specular image. The accompanying expression of blushing, hiding or clowning express what Darwin sees as a unique human trait: the potential for shame. Behind the child’s passing of the mirror mark test, there is a primary force of social conformity and what amounts to a uniquely human self-consciousness that, I would argue, is at the roots human normativity that goes beyond the mere detection of standards (e.g., discovery of an unfamiliar mark on the face), but of standards that include self-assessment in relation to others (e.g., sense of ridicule in discovering the mark on the face).

In a recent research, we compared the behavior of 2–4 year-old children in the classic mirror mark test when they were either the only one with a mark on their face or in a situation where the experimenter and all the adults surrounding the child during test also wore the same mark (yellow “Post-It” sticker) on their forehead. We found that significantly more children passed the mirror mark test by touching and removing the mark when they were the only one with a mark during test. When everybody around them were also marked, children showed significantly more hesitation in touching and removing the mark on their forehead, often putting it back on their forehead in an apparent attempt at conforming with the social norm established in the testing room. These observations clearly indicate that there is more than cognition involved in the child’s mirror self-experience, but also a sensitivity and awareness of evaluative others as well as the conformity to perceived social norms, what is allowed or promoted by the culture, and what is not. They demonstrate the role of socio-affective factors in the development of mirror self-experience. In other words, when the child begins to manifest explicit recognition of self in mirrors, it is rarely for itself, in a solipsistic way, but in relation to others, working on self-presentation, arranging and correcting its

public appearance (see Rochat et al. 2012; Rochat and Zahavi 2011). This is a central trademark of mirror self-experience and its social use in humans.

Self-consciousness (i.e., the projection and identification of self as seen by others) as the putative roots of human normativity is particularly evident in the moral domain, as children become increasingly explicit and abiding, as well as enforcing of what is right and what is wrong. Between the age of 3 and 5, children develop an unmistakable ethical stance. This novel stance is a clear index of the transition from norms to normativity, a transition inseparable and probably driven, I would argue, by emerging self-consciousness. I illustrate this transition next by which the norm of sameness is not only detected but also proactively claimed and created by children in interaction with others.

5 Self-consciousness and ethical norms of fairness

In the moral domain, the creation and tracking of “sameness” (i.e., equivalence) in social exchanges is at the core of what is special about human normativity and at its roots there is self-consciousness, its necessary condition. Without both the ability and the propensity to objectify and value oneself in the public eyes, the ethical judgments and feelings children manifest by 5 years would not exist.

When young children are asked to share resources, more often than not, they do so reluctantly. This seems to be a universal trend, yet exaggerated in some cultures as compared to others (Rochat 2009). In general, 3 year-olds tend to self-maximize and hoard ‘goodies’ significantly more than 5 year-olds do when asked to split.

Research suggests that what develops is a general aversion to “inequality”, hence an increasing aversion for the lack of “sameness” in resource distribution. Between 3 and 8 years of age, children prefer equal over unequal distribution of desirable goods (e.g., candies) when asked to split between themselves and somebody else, even if the unequal distribution would favor them (Fehr et al. 2008). In the same vein, other research confirm such a trend when children are not recipients of the distribution, preferring equal as opposed to unequal distribution of goodies among third party protagonists (Olson and Spelke 2008).

Interestingly, both Fehr and Olson studies demonstrate that from 3 years of age, children show signs of “parochialism” in their distribution of justice. All things being equal, children tend to favor protagonists they perceive as “in-group” members, therefore those they perceive as belonging to the same group as theirs, those being of the “same” kind. Note in passing the shared etymology of the word “kind” capturing something that makes another thing more or less comparable, and the word “kindness” that captures a positive, pro-social disposition toward others. The value of parochialism is well rooted in semantics.

Research shows that the early development of distributive justice as the expression of an emerging ethical stance is linked to growing inequality aversion: the increasing tendency toward the detection and application of a “sameness” principle in resource distribution. The application of the sameness principle (i.e., equality and equivalence) is also compounded with the other sense of sameness expressed in the child’s growing sense of affiliation with others that are of the *same kind*, the in-group members. The sense of “sameness” is at the core of what amounts to a universal norm of equity in

distributive justice that develops from 5 years of age, but also at the core of social affiliation and ultimately also, parochialism and social prejudices.

Parallel to the expression of inequality aversion, children manifest an increase care for their own reputation, capable of white lies, self-deprecation as well as inflated self-evaluation in relation to others (Stipek et al. 1992; Talwar and Lee 2002; Talwar et al. 2007; Xu et al. 2010). Interestingly, such reputation and self-management related behaviors are significantly less evident in older autistic children with diminished social motivation (Chevallier et al. 2012).

Between 3 and 7 years of age, children tend to be increasingly more equitable when sharing valuables in a situation where the result of their split is public as opposed to anonymous (Robbins & Rochat, unpublished data). Ubiquitous among these children is the growth of a care for reputation, the public projection of moral identity that is a hallmark of the species and a pillar of humanity (i.e., of being literally “humane”).

Signs of an emerging ethical stance whereby children begin to behave according to normative ethical principles are evident by 5 years. It parallels the growing care for the own reputation, what would amount to the other side of the same normative coin, a coin that presumably is unique to our species and pertain to the construction of a moral identity. As the empirical observations presented below show, between 3 and 5 years, the child becomes principled, increasingly willing to sacrifice some of his own possessions to punish and make a statement of principle in the context of an unjust situation. This, arguably, is a human trademark that is rooted in self-consciousness. The child becomes explicitly sensitive to what is normatively right or wrong. She is willing to engage in so-called costly punishment or costly “sacrifice” for no other apparent reasons than to enact, hence to objectify a moral self-identity.

In a research (Robbins and Rochat 2011), we studied 3 to 5-year-olds splitting three ways a collection of nine valuable coins between themselves and two puppets animated by an adult experimenter. In four successive rounds, each protagonist (child and the 2 puppets) split the coins in turn. In each round, the same puppet (generous) started splitting generously, giving one coin for itself, four for the other puppet and 4 for the child. Then it was the turn of the other puppet (stingy) splitting stingily, giving seven for itself, one for the other puppet and one for the child. Then it was child’s turn to split three ways between themselves and the dolls.

After the four successive splitting rounds, and all the accumulated coins visible in front of the protagonists, the child was asked if the result was “fair?” which obviously wasn’t, the stingy doll typically ending with markedly more coins for itself. After discussing the child’s response and reaction to the inequitable situation, the adult experimenter offered the child to give one of his accumulated coins so he or she could take five coins out of the pile of one of the doll (generous or stingy). In other words, we probed the child to see whether she would be willing to sacrifice one of her coins to penalize one of the other two protagonists (stingy or generous doll). We tested children’s inclination to engage in costly punishment.

The results are clear. First of all, as a function of the four rounds, 5 year-olds become increasingly inequitable in their distribution between the two dolls. As children come to grasp the stingy and generous characters of the dolls, they tend to increasingly favor the generous doll compared to the stingy doll when it is their turn to distribute. In

comparison, younger 3-year-olds do not, invariably self-maximizing and giving equally less to either doll. Hence 5 year-olds, but not 3-year-olds, clearly show sensitivity and discrimination of the distinct stingy and generous characters of the dolls. They behave ethically in their distribution, favoring one doll over another in an attempt to rectify what they perceive inequitable. In other words, they show signs of inequity aversion, the tendency toward *egalitarianism* that appears to grow markedly beyond 5 years.

The costly punishment test performed after the four round distribution is even more specifically telling of the growing ethical stance children take in sharing between 3 and 5 years of age. When 3 year-olds accept to sacrifice one of their coins to punish one of two dolls, they do so essentially because they enjoy the game and want to continue playing. It is a surface expression of “ludic” inertia because, choosing randomly which of the two dolls to punish, either the stingy or generous doll. In contrast, by 5 years, children end up orienting their costly punishment 90 % of the time toward the stingy doll. Therefore, by 5 years costly punishment is selective of the doll’s stingy character. Sharing behavior is guided by ethical norms and principles of fairness. By 5 years, children begin to behave according to principles, ready to sacrifice their own resources to implement these principles and be recognized by others as possessing and guided by such principles. The child is now forging a moral identity adopting a normative perspective in a principled normative moral space, to coin philosopher Taylor (1989).

6 Developmental blueprint of self-consciousness and human normativity

To conclude, I would like to outline a developmental blueprint that summarizes key transitions, leading the child toward self-consciousness and the internalizing of normative principles as two inseparable, co-dependent features that are at the roots of human normativity giving norms their ought-ness status. This transition is particularly evident in the moral domain but can be generalized to other domains of cognition. This blueprint spans child development between birth and 5 years in what I see as 6 major phases qualified by particular layers of competency that would grow like onion layers - progressively accumulating over developmental time (for more details on the onion metaphor, see Rochat 2009, Chapter 3 & 4). I review each of these layers chronologically.

Birth Infants are equipped and prepared to tap into relevant resources in the environment via pre-adapted action systems that are more than simple “autonomic” reflexes. For example, from birth infants orient preferably to face-like displays (Morton and Johnson 1991), to particular tastes and smells (Marlier et al. 1998), are particularly sensitive to eye-contact oriented toward them as opposed to avoidant gazes (Farroni et al. 2006, 2007). In relation to the self-awareness, newborns are not in a state of confusion with the world, they differentiate between self-produced stimulation and stimulations that are of external (non-self) origins. They display an implicit sense of the embodied self (Rochat 2011b).

Two months By the second month, infants open up to the world in marked ways. They appear to adopt a new contemplative stance in their exploration of things and events

(Rochat 2001). In relation to people, they open up in reciprocal exchanges or primary inter-subjectivity during face-to-face interactions, starting to manifest socially elicited smiling. They develop social expectations, reacting with negative affects and avoidant responses to sudden, unpredicted still faces of a social partner, establishing first standards of social exchanges (Tronick et al. 1978b). In relation to self-awareness, research shows that they start to manifest an unmistakable implicit sense of being, not just differentiated entities among other entities in the world, but also agentive and situated in the environment, substantial and occupying space in it (Rochat 2009).

Nine months By 7–9 months, infants begin to show clear social preferences and exclusivity toward specific people, typically primary caretakers they recognize. They display stranger anxiety and become remarkably astute at detecting their own mother, based for example on invariant motoric signatures (ways of moving) or idiosyncratic levels contingent exchanges in face-to-face interactions (Bigelow and Rochat 2006). They develop standards and preference of interpersonal exchanges. By 9 months infants also become referential, engaging in joint attention with others, proto-conversing about objects and events in the world, capable of secondary inter-subjectivity (self-other-object triangulation), which is for the infant a novel mean to probe others' attunement and attention toward the self. Via the triangulation of secondary inter-subjectivity, infants can probe the extent to which others meet the standards of social exchanges established from primordial interactions with the mother and other system of schemes, i.e., "habitus" (Lizardo 2013) acquired from exchanges with primary caretakers.

14 months From around 14 months infants manifest a new, explicit propensity to project onto and identify with others. They manifest first clear signs of explicit self-objectification in the social mirror that are others. For example, infants newly detect and prefer to interact with others that imitate them as opposed to just being contingent interactive partners (e.g., see Agnetta and Rochat 2004).

21 months By 21 months, children typically pass the mirror mark test, identifying themselves in the mirror. As discussed above, they also do so in reference to social norms or represented standards of appearance. Interestingly, it is also at the same age that children become explicit about possession, starting to claim "that's mine!" (i.e., "not yours"), a further step toward self-objectification via projection and identification with external objects. Likewise, it is also a further step toward the establishment of moral norms surrounding the central issue of who should own what and why? (Rochat 2011a; 2014/in press).

60 months From approximately 60 months (5 years), children start to reason and infer accurately about the mental states of others. They predict accurately, for example, what they know or don't know, believe or do not believe. This is evidenced by the abundance of research documenting the emergence of explicit theories of mind, in particular false belief understanding across cultures by 5 years of age (see Callaghan et al. 2005). As described above, children also take an ethical stance, abiding, questioning and enforcing standards of fairness, caring about their own reputation and the moral identity they project to the public eye.

7 CONCLUSION

To conclude, this developmental progression illustrates the inseparability of normativity and self-consciousness in human ontogeny. It is self-consciousness that transforms norms into normativity, giving them their ought-ness status. If we share with other animals the built-in propensity to detect standards or norms of “sameness”, self-consciousness as the ability to objectify oneself in the evaluative eyes of others is a major human trademark. It accompanies and probably also determines human normativity. In this article, I tried to show that self-consciousness gives norms their new normative (principled) status of what *ought to be*, above and beyond the detection of what *should be* norms expressed from birth, as well as across the animal kingdom.

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