

Objects in a Storied World: Materiality, Normativity, Narrativity

Chris Sinha University of Portsmouth

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Abstract

There exists broad agreement that participatory, intersubjective engagements in infancy and early childhood, particularly triadic engagements, pave the way for the folk psychological capacities that emerge in middle childhood. There is little agreement, however, about the extent to which early participatory engagements are cognitively prerequisite to the later capacities; and there remain serious questions about exactly how narrative and other language practices can be shown to bridge the gap between early engagements and later abilities, without presupposing the very abilities that they are supposed to account for. A key issue here is the normativity inherent in requesting, preferring and inferring reasons. I point out that normativity is not a property only of linguistic interactions. Normativity and conventionality are also materially instantiated in the artefactual objects that are most frequently implicated in early triadic engagements. The conventional, canonical functions of artefacts may, however, be overlaid in symbolic play by significations rooted in children's experience of blended actual and virtual worlds. Artefactual objects are amplifiers, as well as objects of consciousness. Interwoven with the symbolic forms of language, they co-constitute a specifically human biocultural niche, within and in virtue of which developing human beings become competent folk psychologists.

1. Introduction

It is a strange, but often unremarked, characteristic of many discussions of human folk psychological capacities and practices that the world in which they are exercised is frequently entirely absent, at least insofar as that world is external to the mental processes of the subjects who are engaged in folk psychological reasoning. One reason for this absence of "the world", in all its tangible materiality and evident sociality, is not hard to find. Folk psychology is the term of art for dealings between people in which the objects dealt in are subjective. These subjective mental objects are beliefs, desires and, in their most developmentally advanced level, conjunctions of beliefs and desires organized in what Hutto (2008: 29) calls "the folk psychological schema": an integrated "belief/desire pair with

interlocking contents” (*ibid.* p. 26). For example, I might attribute the reason for my friend running past me on the station platform without stopping to greet me, or suggesting sharing a cup of coffee, to his desire to catch the next train coupled with his belief that the next train is about to depart.

Folk psychology, then, concerns reasoning to, or about, reasons, and reasons are commonly understood to be mental entities. It is this common understanding that motivates usages such as “mentalizing” and “understanding other minds” as labels for folk psychological capacities. Such usages are not neutral: they betray a central theoretical presupposition, that the explanation of the capacities involved in folk psychological practices must appeal solely to individual mental representational processes and their neurological foundations. This is the fundamental guiding principle of cognitivism. Before I go on to subject the cognitivist view to critique, and suggest an alternative, let me avoid possible misunderstanding by declaring that my anti-cognitivism should not be confused with behaviourist assaults on “mentalism”. I do not challenge the general assumption that reasons are attributes of mind, attributable to individual subjects. My critical take on the dominant cognitivist understanding of mind and folk psychological practice is directed to the deeper theoretical commitments of cognitivist accounts, that lead them to not only background, but effectively erase, both the material world and the social dimension of mind from their story of how developing human beings become practitioners of folk psychology.

Mind, I shall argue, has an often-neglected material aspect *in the world and not just in the brain*, as well as a mental aspect; and while it is individuals that entertain (singly or jointly) propositional attitudes such as beliefs and desires, the intersubjective negotiation and establishment of their shared mental universe depends upon its prior normative structuring in communities of practice. These two key theses of my argument, that can be summed up as (i) the *materiality* of representation (Sinha, 1988) and (ii) the *social* nature of representation (and mind), find both a theoretical and practical intersection in the *artefactual object*.

The adoption of a non-cognitivist, social-material approach to cognition and representation makes it possible to advance an ontogenetic account of the emergence and growth of symbolization that is consistent with, and indeed blends into, Hutto’s sociocultural Narrative Practice Hypothesis of the origins of folk psychology. In brief, I will propose that it is in large part through their guided engagements with artefactual objects that young

children become participants in a normatively structured, storied world. Later, children spontaneously extend this initial ability by imaginatively transforming the status of objects as bearers of meaning within a shared universe of discourse. Children's imaginative sociodramatic play, I will suggest, is a natural laboratory both for the exercise and for the study of the narrative practices that are the enabling matrix for practical, folk psychological reasoning.

2. Materiality, sociality, normativity

The Cartesian dualist split between mind and matter, that which immaterially represents and that which has bodily extension, is commonly discussed in the context of the relation between mind and brain, a context in which Descartes' theories no longer have significant support. Only relatively recently¹ have critical discussions focussed on mind-matter dualism as manifested in the supposed representational relation between *mind and world*. This dualism underlies the ubiquitous, but often unexamined, concept of *mental representation*, in which representation—and its subject—occupy a theoretical space that is over-and-outside that which represented.² Radical mind-world dualism can and does persist even when mind-brain dualism is rejected; nowadays, the Cartesian *res cogitans* is substituted by a fictive blend of logical space and neuroanatomy commonly called “the mind/brain”, in which two mysteries—how can matter represent and in what does representation consist?—are typographically conjoined in the optimistic—but I think futile—belief that we can thereby bootstrap our way to an explanation of both.

The archetype of mind-world dualism is the representational mind as a “mirror of nature” (Rorty, 1979), but varieties of it are discernible everywhere in the landscape of cognitive science. They occupy a spectrum extending from the apotheosis of rules-and-symbols cognitivism (Fodor, 1976; 2008); to embodied-enactivist approaches that reject the notion of mental representation, yet struggle to escape its fatal embrace (Lakoff and Johnson, 1999). According to the standard cognitivist view, Representation is primarily, indeed foundationally, a relationship between mind and reality. Externally embodied representations such as pictures, signs and symbols (including the symbols of natural language) derive or inherit their representational properties from *mental* representations, which may vary in form from analog images, to schemas, to linguaform symbols. Language, and other public representations, represent the world at one remove: by representing mental representations.

This view has a long history. Aristotle wrote³ that “spoken words are the signs of affections of the soul, and written words are the signs of spoken words.” The Aristotelian theory of representation and meaning is expressed in slightly different terms by John Locke⁴: “That then which Words are the Marks of, are the *Ideas* of the Speaker: Nor can anyone apply them, as Marks, immediately to anything else, but the *Ideas*, that he himself hath.” Ferdinand de Saussure, widely viewed as the founder of modern linguistics, repeats, in almost as many words, Locke’s formulation: “The linguistic sign unites, not a thing and a name, but a concept and a sound-image.” (Saussure, 1966: 66).

There are several problems that this view brings in its train, not the least of which is the problem sometimes referred to as Hume’s problem, or the problem of Other Minds. If words stand for, or express, “ideas”, how can I (as speaker) be, in fact, sure that you (as hearer), actually share the same “ideas” of things as I do? How, in other words, can I know that the mental content that I ascribe to you is the mental content that you actually have, even excluding cases of mistaken or false ascriptions? This problem is of particular consequence for folk psychological reasoning, and in general for the ascription to other subjects of propositional attitudes. If, for example, I (correctly) think that my neighbour believes that fairies live at the bottom of his garden, how do I know that whatever it is that my neighbour believes is what I think they believe? To know *that*, I have to be sure that what my neighbour’s mental content is about is *the same* as what my neighbour’s mental content *under my representation* is about.

The Other Minds problem is closely related to, perhaps at some level of abstraction identical to, or the other side of the coin of, the *Grounding Problem*: how do linguistic terms, and the concepts expressed in language, get to fit with the world? A common (and essentially Aristotelian) solution to the Other Minds and Grounding problems, largely shared by both empiricist and rationalist philosophies, is *category realism*: our ideas (categories of the mind) are either reflections of objective reality, or innate. On the nativist account, we all inherit the same categories of mind. The nativist account, in its strongest form, posits a universal Language of Thought (Fodor, 1975) of which natural language categories and corresponding expressions are local translations. On the empiricist account, we all live in the same (objective) world, and have the same experiences of that world, and this means that our concepts of the things that cause these experiences (affections of the soul) are also the same.

Language, for both sides of the empiricist-rationalist debate, is a reflection, or print-out, of these universal categories. A third solution is at least hinted at by Saussure, namely that our concepts are supplied by language itself, as a socially shared sign system. However, not only is it far from clear what Saussure intended in this matter, it also cannot be said that such a “linguistic turn” provides a ready solution, since it brings in its train a commitment to the linguistic relativity of all concepts. In relocating the Grounding Problem from “concepts-and-language” to “language-as-concepts” (Sinha, 1999), linguistic relativism of this deterministic kind also relocates the Other Minds problem from being one applying at the level of individuals to being one applying at the level of linguistic communities. For the strong linguistic relativist, the puzzle is how any two linguistic communities can have sufficient similarity in their concepts as to be able to communicate at all.

The nativist account attributes no role to linguistic communities other than the minimalist one of triggering the locally applicable set of concepts from amongst the innate universal inventory—much as, in nativist approaches to the acquisition of grammar, linguistic input is held to trigger parameter setting (Chomsky, 1981). The empiricist account, dependent as it is, in a simplistic version, on the vagaries of individual experience, is usually supplemented by an acknowledgement of the importance of tuition by the community on the correct meanings of terms and the right categories of things. Although Hutto’s Narrative Practice hypothesis is not a simplistic empiricism, I think it can rightly be said to propose just such an account of how the linguistic experience of the developing child, in a community of discursive practices, can provide the necessary and sufficient conditions for “solving” the Other Minds and Grounding problems.⁵

Hutto’s Narrative Practice Hypothesis thus meshes with a cluster of developmental accounts, that has emerged over the last three decades, that challenge the cognitivist consensus from a position that elevates the importance of community to a position superior to a mere supplement to empiricism, seeing social agreement as the fundamental means by which shared categories of mind are established. These accounts are based upon the grounding of shared linguistic and conceptual categories in *intersubjective engagements* with both world and “other minds”; involving the establishment and growth of joint attention, joint reference and joint action between infants and caretakers (Bruner, 1975; Lock, 1978; Tomasello, 1999; Tomasello *et al.*, 2005; Trevarthen, 1979, 1998). These approaches to the development of the “shared, social mind”, encapsulated in the increasing

frequency of use in a variety of disciplines of the term *intersubjectivity* (Zlatev *et al.*, 2008), are sufficiently well known that it is unnecessary to revisit them in detail here.

That the structure of early infant intersubjectivity, and particularly triadic subject-object-subject engagements in joint action and joint attention, is a key precursor to “Theory of Mind” is now widely accepted, even if its developmentally causal status is disputed. However, even granted a strong interpretation of early intersubjectivity as a developmental prerequisite for, not merely precursor of, folk psychological capacities, the appeal to intersubjective engagement *per se* does not of itself solve another crucial aspect of the “Other Minds” problem: namely, that in order to ascribe some kind of mental content, or intention, to a co-acting or co-communicating other, it would seem necessary to be able to entertain the notion that this other is a minded being—a subject capable of entertaining propositional attitudes, and having reasons for the way they behave.

Empiricism, in its traditional form, seems to have little to offer to our understanding of how this kind of understanding might emerge, since abstraction and association can only result in, at best, the categorization of behaviours. The mental states (intentional or propositional: Hutto 2008) of which the behaviours are manifestations, and which render the behaviours intersubjectively intelligible, remain “beyond the information given” (Bruner, 1974). How do we get from manifest behaviour to intentions and, ultimately, the ascription of reasons? It would seem that a version of Chomsky’s Argument from the Poverty of the Stimulus must compel us to accept that human understanding of the intentionality of others is innate, either in the form of a Theory of Mind module, or as a capacity for simulation, perhaps based in an evolutionary elaboration of the primate mirror neuron system.

It would be foolish to deny the uniqueness (in complementarity with the phylogenetic continuity) of the human neurocognitive system; or to rule out the likelihood that this uniqueness underpins the equally unique human understanding of, and reasoning about, other minds. It is, however, over-optimistic to assume that biology, unaided, can do all the heavy lifting in explaining the ontogenesis and phylogenesis of human folk psychological capacities and practices. Hutto (2008) makes the case against the adequacy of the encapsulated neurocognitive mechanisms proposed by Theory and Simulation theories with verve; and there is one particular aspect of this case that I wish to take up and expand, namely the centrality of *normativity* in the development of folk psychological capacities.

Currently, most accounts of folk psychological competence regard this as consisting of an encapsulated mechanism operating on representations with the form of propositional attitudes. However, any putative encapsulated mechanism for attributing reasons for other people's actions suffers from an exactly analogous problem to that which would afflict an unconstrained natural language grammar acquisition device; that is that the space of viable hypotheses is, in principle, infinite, and in the absence of "negative evidence" serving to eliminate inappropriate hypotheses, some system of innate constraints must be built into the mechanism.

In the case of the innate Language Acquisition Device postulated by generativist linguistic theories, these constraints are built into Universal Grammar as universally valid principles whose parametric variation is set by input (Chomsky, 1981). Whether or not this theory is correct (and I would be the last to endorse it), it has the advantage of being (at least in principle) testable against data: the theory will be at least plausible if it can be shown empirically that the Principles and Parameters are sufficient to account for both universals and variation in the grammars of the languages of the world.⁶ The same cannot be said for any analogous set of constraints hypothesized to operate in the domain of folk psychology, for the simple reason that the attribution of reasons for actions is extremely variable and contextually dependent. Homing in on a reason for someone's actions is many orders of magnitude more complex, as a problem in pure logical space, than homing in on a grammar.

Consider the example I used earlier, in which a subject attributes a friend running past them on a station platform to the friend's desire to catch the next train coupled with the friend's belief that the next train is about to depart. How could it be possible, given the richly textured and culturally specific background knowledge necessary to entertain this attribution, to view the attribution as simply an exemplification or instantiation of a universal "grammar of reasons", similarly to the way in which an utterance exemplifies a natural language grammar? To make this problem manageable, it would be necessary to establish a universal inventory of types of desires (including, for example, the desire to move to a goal location) and types of beliefs (such as that enabling conditions for satisfying desires are temporally limited). It would be necessary to specify a mechanism by means of which the specific occasion for mobilizing the relevant belief/desire pair serves to trigger the correct "grammatical" reading, into which the constituent items making up the occasion

slot, supplying the necessary information enabling the appropriate folk psychological attribution.

I suggest that such a hyper-theoretical account is both unprovable and superfluous. A more plausible and parsimonious account will appeal to the *normativity* of intersubjectively shared understanding of beliefs and desires, rooted in participation in shared practices regulated by the norms in question. This is the essence of Hutto's Narrative Practice Hypothesis, which he fleshes out by proposing that folk tales are the prototypic shared practice by means of which both the process of attributing reasons, and the norms regulating such attributions, are exemplified for the developing child. In the light of my critical discussion above of the problems afflicting any nativist, encapsulated mechanism account of folk psychological capacities, a further discussion of the nature of norms and normativity is called for.

Norms, though they belong to the realm of the mental, are quintessentially *shared*. There can no more be a private norm than there can be a private language—indeed, Wittgenstein's argument against the possibility of a private language is built around the understanding that language is a normative system (Itkonen, 1978, 2008; Winch, 1958; Wittgenstein, 1953). Norms are intersubjective or *intermental* entities (Vygotsky, 1978). Being shared is not a merely accidental property of the norms that are oriented to by individuals in the process by which behaviour and cognition are regulated. Although norms cannot exist without being known and oriented to by individual participants, the norm (as well as the community that shares the norm) is logically, and indeed ontogenetically, prior to this individual knowledge. Again, although a norm may be proposed by an individual, it is only through its adoption by the community (which may be as minimal as a dyad) that the proposal is lodged *as a norm*; and the same is true for the negotiation of norms (negotiability and conventionality also being fundamental properties of norms). In virtue of this property of the *priority* of the intersubjectivity of normative knowledge over individual internalization of the knowledge, norms are the basic form of the *social fact* and social institution (Durkheim, 1895; Searle, 1995).

Intersubjectivity, then, is an essential property of norms. Reasons, by contrast, although they may appeal to norms, should properly be understood as *primarily* individual mental entities. Although my reason for doing something may be simply because that's what I understood should be done, nonetheless it is the *understanding and following of*, and

orientation to the norm that is the reason for the behaviour, not the norm itself. Norms regulate behaviour, they do not cause it. Reasons may also be shared, when dyads or groups act collectively on the basis of the same reason, but this kind of sharing is *secondary to* and *derived from* the reasons entertained by the individual participants in the collective action.⁷

As I pointed out above, reasons cannot be observed. Reasons can be inferred on the basis of behaviour, but such inferences presuppose a folk psychological competence that (I argued) is unlearnable if viewed as an encapsulated mechanism. Norms, as intermental entities, are also unobservable; they can, however, be learned, on the basis of *participation* and *observation*. There is no mystery about this. Imagine a small child joining, as a complete novice, in a game (say, football) whose rules are known by the other players. The child's observations will enable him or her to imitate the actions of the other players; and as a result of this participation the child will be provided with feedback about whether they are following the rules, and sometimes receive explicit instruction in the rules. Having acquired the rule, the child can both orient to the rule in following it, and use knowledge of the rule to decide whether others are following it. As Itkonen (2008: 291) puts it: "Norms are learned on the basis of observation, but once they are known, they can no longer be just a matter of observation because they are made use of to judge whether an observed (or imagined) action is correct or not." In other words, I cannot observe whether another person knows a norm, I can only observe and decide (on the basis of my own knowledge of the norm in question) whether or not the person is acting in accordance with the norm.

As pointed out above, most accounts of folk psychological competence regard this as consisting of an encapsulated mechanism operating on representations with the form of propositional attitudes. Many of the problems that beset the problem of learning to be a folk psychological practitioner dissolve when we abandon this model, and instead view the child as a novice participant in practices that are normatively regulated, such that ascriptions of reasons for the behaviours of others are in many (prototypic) cases simultaneously judgements of the normative validity and intelligibility of the actions in question—as, for example, "she is running that way because she wants to score a goal". It is this conflation of (individual) reason with (social) normativity that both constrains (without any appeal to implausible representational or computational mechanisms) the space of possible reasons; and affords the child a first, practical grasp of what it means to be a user of folk psychology.

Clearly, this argument is compatible with, if not identical to, the arguments that Hutto (2008) uses to advocate the Narrative Practice Hypothesis, in that Folk Psychological Narratives are the linguistic vehicles and speech genres *par excellence* in which socio-cultural norms and individual reasons are co-articulated in a canonical (normative) format. Engagement with this format, and with the perspectives and predicaments of its protagonists, is a privileged mode of apprenticeship in folk psychology. As I shall now argue, such apprenticeship builds on a long developmental history of engagement with a world imbued with normativity, not just in its interactional and symbolic forms, but also in the material objects that are such a salient part of the cultural ecology of child development.

3. Object, sign and the materiality of (normative) representation

I cited Saussure (1966: 66) above to the effect that “The linguistic sign unites, not a thing and a name, but a concept and a sound-image.” Saussure’s move here, calculated to establish a theoretical object for linguistic science independent of age-old philosophical debates between nominalism and realism, relegated the world of “things” to a place *outside* meaning and meaning-making. “Things” not only do not signify, but they are not even, in any direct way, signified. Semiotic value exists only in the realm of signs, semantic “substance” is immaterial and conceptual, and the material world is only a necessary condition for the organization of that immaterial substance as Signified. For Saussurean structuralism, the material world, in short, does not *have* meaning, it is merely an a-semiotic (or pre-semiotic) *condition for* meaning.

Meaning has had equally short shrift in developmental psychology’s treatment of the role of objects in cognitive development. Objects play a crucial role in Piaget’s account of sensori-motor development (Piaget, 1953), with the achievement of the concept of the permanence of the object occupying centre stage in the transition to representational and symbolic thought. But the object that the infant and young child encounters in Piaget’s world is a curiously abstract thing, lacking semiotic and functional value, any object being substitutable for any other object. Whether it is a cup or a dolly that the infant bangs on a table, a ball or a brick that it searches for under a cover, is quite literally *immaterial* to the theory. In a curious complementarity with Piaget’s abstract epistemic Subject, the object in

Piagetian theory becomes an Object with a capital O, a ground for, but not a vehicle of, meaning and value.

Objects, however, and in particular artefactual objects, are not just abstract Newtonian particles, nor even just topological or mereological structures, existing in a merely physical or logico-mathematical space. Artefactual objects in particular, in order to be categorizable as such, are required to have certain *functional* properties: cups are for containing, tables are for supporting. As Searle (1995: 28) points out: “in order that something be a chair, it has to function as a chair; and hence, it has to be thought of or used as a chair.”

Let us now examine more carefully the social semiotics of material artefacts. In fact, *anything* can be *used* as a chair, provided it naturally or contingently has the affordances, in the sense of Gibson (1979), which permit it to be sat in or on. Such affordances would, for Searle, be part of what he calls the “brute” or “natural” facts, as opposed to institutional or social facts; although in a Gibsonian relational epistemology the affordances have no existence independently of the behavioural repertoire of the organism.

Is there any sense in which something can be said to properly “count as” a chair, in the sense in which Searle (1995) defines “counting as” as proper to institutional facts? The answer is yes: an object *counts as* a chair if it is an artefact *intended and designed* to be used as a chair, having the *canonical function* of a chair. Such designed functions are *canonical* for the category of objects, and to know into which category an artefactual object falls necessitates knowing what its canonical function is (Sinha, 1988).

Canonical function is a normative phenomenon. The physical properties of an artefact are not *merely* physical: they are socially constructed and normatively regulated *cultural affordances* (Sonesson, in press), which make possible the canonical function of the artefact. The canonical functions of artefacts are therefore *social facts*, and the material world of artefactual objects is one of materiality not only in its physical aspect, but also in its social semiotic aspect of normative meaning.⁸ In analogous fashion to the way that a twenty dollar bill signifies its normative identity as a token of monetary exchange value, the artefactual object (such as a cup, a chair, or a computer) signifies its normative canonical function as a token of a category with a particular use value. Not only, then, can objects be *signs* for something else (as when, for example, a pair of scales is a conventional sign representing justice); more frequently, when they are artefacts, as most objects we encounter in our

everyday lives are, objects are also *signifiers* of their proper, socially standard, canonical functions in a context of social practices (Sinha, 1988; Sinha and Rodríguez, 2008).

Of course, a condition for this social semiotic status of material artefacts, as with any semiotic status, is that human subjects are capable of cognitively grasping that status. As Searle says, for a chair to function as a chair, it has to be not only used, but also thought of—or at least recognized—as a chair. When do human infants begin to display such a cognitive grasp, and where does it come from? In a series of experiments Walkerdine and Sinha (1978), Freeman, Lloyd and Sinha (1980), Lloyd, Sinha and Freeman (1981), Freeman, Sinha and Condliffe (1981), and Sinha (1982, 1983) investigated infants' and young children's understanding of object function, using infant search, action imitation and acting-out language comprehension paradigms.

In an age range from 9 months to 3 years and 6 months, we found error patterns which were characterized by “canonicity effects”. Infants at the end of the first year of life were more successful in A-not-B search tasks (otherwise known as object permanence tasks) when the object was hidden in an upright rather than in an inverted cup. It seems that these infants understood that a cup is a “better” container when in an upright orientation than when inverted. Slightly older infants were generally unable to imitate the placement of a small block on the bottom of an inverted cup, preferring to turn the cup back into an upright orientation and place the block inside the cup. In this response strategy, the infants showed that they were “locked” into a normative apprehension of the cup as a canonical container, which over-rode the “brute” affordance of the flat surface of the bottom of the inverted cup. Even after this response strategy disappeared in action imitation tasks, it re-appeared in language comprehension tasks: for example two year olds, when asked to place a block “on” an inverted cup, turned it to the upright position and placed the block inside it.

These experiments can be interpreted as showing that, in the first place, objects are cognitively apprehended by infants, from an early age, in terms of their socially-imposed, normative and canonical function (the object “counts as” a container). In the second place, the emerging conceptualization of spatial relations *between* objects is also derived as much from the canonical functional relations which objects contract with each other as from purely perceptual-geometric information (for a discussion of the functional basis of spatial relational meaning, see Vandeloise 1991).

Where does this understanding, on the part of the infant, of the canonical function of objects come from? This question is important, because of the intimate relationship between the physical properties of the artefact, and its socially “baptized” canonical function. In contrast with, for example, the monetary token (in which the relationship between the material from which the token is made, and its exchange value, has historically become increasingly attenuated, arbitrary and even virtual, as money assumes the mantle of pure informational form), the physical structure of “traditional” artefacts such as cups is not only non-arbitrary, but essential to its fulfilment of its canonical function.

Infants’ motivation to explore the physical world is well known, and it might be hypothesized that their apprehension of object properties in terms of function derives from an untutored, spontaneous sensori-motor engagement with the object as a purely physical entity (for example, the exploration of the cavity of a container giving rise to the dominance of this cavity in the early pre-conceptual representation of the object). There are several sources of evidence that this is not so. First, while there is evidence of understanding of containment as a physical relationship at 6 months (Hespos and Baillargeon 2001), Freeman *et al.* (1980) were unable to detect canonicity effects in search tasks below the age of 9 months. Since Hespos and Baillargeon used a preferential looking task, however, this difference may be a consequence of a motor-involving against a violation-of-expectancies experimental methodology. Second, and more convincingly, when the perceptual-cognitive link between canonical *orientation* and canonical containment *function* of cups was broken, by painting schematic faces either upright or upside down on the cups, the canonicity effect in infant search was abolished (Lloyd *et al.* 1981). This finding reinforces the conclusion that the canonicity effect is dependent upon socially cued expectations about the normative use of the object.

Even more decisive experimental evidence for the role of joint action in establishing canonical object concepts comes from the experimental design used in Freeman, Sinha and Condliiff (1981), where the object was functionally “ambiguous”, consisting of a set of stacking / nesting cubes. The child was invited by the experimenter to play with the entire set of cubes, and the experimenter set up this pre-test game as *either* a nesting *or* a stacking activity. After successfully completing, as joint action, an activity of constructing either a nest of cubes, or a tower of stacked cubes, the experimenter extracted a medium-size cube and a small cube, and conducted either an action imitation task involving the placement of

the smaller cube on top of/ inside/under the larger cube, or an acting-out language comprehension task with instructions to place the smaller cube “in”, “on” or “under” the larger cube. The results were dramatic. After playing a nesting game, the children’s error patterns showed a response bias similar to the “canonicity effect” manifested in the same task using cups. In other words, there was a response preference for placing the small cube inside the larger cube. However, this effect was abolished in the stacking condition, in which there was a tendency to preferentially place the smaller cube *on top of* the larger cube (see also Sinha, 1988).

To conclude this review of experimental evidence, I emphasize that canonical function and orientation, though they are in some sense “intrinsic” to the object as a material entity with determinate structure and affordances for human action, are not *essential* object properties in the same way as object substance. The stacking / nesting cubes experiment showed that the framing of the object in terms of its normatively appropriate function and orientation can be “locally” taught and negotiated. There can also, however, be inter-cultural variation in the canonical orientation and function assigned to classes of objects which may be materially identical between the cultures. For example, in the indigenous agrarian Zapotec culture of Southern Mexico, woven baskets are commonly stacked in what we would regard as “inverted” orientation: that is, with their opening downwards. They are also frequently used in that same orientation as covers for foodstuffs and in childrens’ games of catching chickens. For Zapotec culture, then, the canonical orientation of a basket is less unequivocally cavity-upwards than is the case in “Western” cultures.

As well as these differences between Zapotec and Euro-American cultural practices, the Zapotec language lexicalizes the different spatial relations that are lexically distinguished by English “in” and “under” using a single body-part term, translatable as the English word “stomach”. Young Zapotec children differed from their Danish counterparts not only in their response patterns in language comprehension tasks using baskets, but also in non-linguistic action imitation tasks. The Zapotec children clearly did not regard the relationship of what we consider to be canonical containment, and the orientation that we would regard as “upright”, as being canonical (Sinha and Jensen de Lopez, 2000; Jensen de Lopez, 2003; Jensen de Lopez, Hayashi and Sinha 2005). Hence, variation in normative cultural practice and in linguistic marking of spatial relations can, it seems, have the same effect as variation

in its “locally” negotiated framing (as in the nesting/stacking cubes experiment) by joint action.⁹

The experimental evidence resulting from my and my colleagues’ work supports the view, then, that it is the culturally guided, intersubjective structuration of the child’s participation in joint action, as much as (and indeed more so) than the “brute” affordances of the object “in itself”, that enables the child, in a process of “guided reinvention” (Lock 1980), to appropriate the norms governing object use, and to achieve a cognitive representation of the object in terms of canonical function. This process has a long developmental history, and the episodes of joint action are accompanied and mediated at every stage by the use of communicative signs by the adult participant, as is attested by observations reported in an extensive research programme by Cintia Rodríguez and Christiane Moro (Moro and Rodríguez 2005; Rodríguez and Moro, 1999, 2002, 2008;). Throughout this developmental process, “objects are invested with significance. They become, for the child, material representations and signifiers of the rules, norms, values, rituals, needs and goals of the entire ... matrix within which they are embedded. In short, they become part of a meaningful system of signs” (Sinha, 1988: 204).

The conclusion of this research is clear, and challenges many assumptions of both developmental psychology and the philosophy of cognition. The physical world, in its artefactual presence, is a social-material world. Normative meaning and normative cognition do not pertain to a special domain of “mentalizing”, separate from cognition of the material world; rather, normativity inheres in the materiality of the made, human world. Normativity, as cultural affordance within the ensemble of cultural practices, is made available to the infant as a developing participant in activities grounded in shared meanings and shared objects, long before he or she becomes a practitioner of discursively based folk psychology. Objects, as bearers of canonical function, are at hand to the developing infant as “ready-mades” concretizing conventional and norm-governed intentional action, and canalizing the child’s interpretation of the behaviours of other people in terms of the norms of which they are the bearers. It is through participation in joint actions normatively structured around the use of artefactual objects, not by way of an encapsulated mind-reading device, that the child finds an entry into the intersubjective realm of reasons for actions.

4. Play, props and staging: Objects as signs in narrative play

In this section I highlight the role, also often neglected, of artefactual objects and their complex significations in the child's development from first apprenticeship in reason attribution to mastery of the construction of narrative scenarios and fictive narrative identities. The elaboration of narrative skill and narrative structure from early to middle childhood—that is, at the developmental phase when children first become able to pass false belief tasks—implicates not only story-telling but also socio-dramatic play, one of the forms of play that Piaget (1962) called “symbolic play” (Sinha, 2005; Nicolopolou, 2007).

Characteristic of all symbolic play is pretence: the child pretends that an object is other than what it really is, or that he or she is a different person than he or she really is. Symbolic or pretend play involves the projection of imaginary cognitive and symbolic values onto entities and relationships in the child's immediate environment. The entities may be objects, as for example when a child pretends that a stick is a gun, or animates a doll through making it speak, act or interact. They may be social roles, such as when children play school or play mothers and fathers, adopting roles and perspectives of imagined others. And they may be entire settings, such as when children construct a play house or play in a play corner, allocating roles, functions and identities to both human participants and the things to hand which serve as the props to the staging of the symbolic play.

Symbolic play, like narrative, is thus an instance of “virtual cognition”, in which the imaginary and the real fuse or blend in an experiential arena in which the “mental” and the “physical” are, as it were, dissociated from their customary, conventional or canonical correlations, and re-assembled in a new, blended mental space (Fauconnier and Turner, 2002). Play is also *mimetic*. Mimesis is hypothesized to be fundamentally implicated in the evolution of human capacities for intersubjective engagement (Donald, 1991; Zlatev, 2008). Feldman (2005: 503) has proposed that narrative and play have in common that “they share an important pattern or structure in the way they work as mental instruments, *mimesis*.”

The characteristics of the play space are thus primarily governed by the mimetic and enactive understanding of the player(s) of the mimetic and narrative “play domain”. This knowledge overlays their understanding of the canonical functions of artefacts making up the physical setting. In this respect, symbolic play represents a crucial step in the actualization of the symbolic power of language as a vehicle for the construction of imaginary and counterfactual mental spaces. However, this step is not achieved through a “retreat from” or “replacement of” the actual material world of the setting. Rather, the

actual setting is backgrounded, and then re-integrated into the symbolic play space. This process, in shared symbolic play, often involves social negotiation of the symbolic values to be accorded to the elements of the setting (including, but not only, the human participants). In the microgenetic process of symbolic play, a central role is played by the material world, as a world saturated by socially shared meaning and value.

The transcribed play episode below is reproduced with permission from Smolka, Gões and Pino (1997). It is translated (by these authors) from Portuguese into English, and is a segment from a transcribed observation of spontaneously occurring socio-dramatic play in a Brazilian primary school classroom. To understand the play episode, the reader should know that there is a popular Brazilian theme park called Beto Carrero World. Beto Carrero is the proprietor, but also the eponymous cowboy hero protagonist, of Beto Carrero World. Beto Carrero “himself” sometimes appears in Beto Carrero World, mounted on his white horse and wearing his white cowboy hat and gear. The white hat is both an attribute of the character, and (conventionally enough) a signifier of his being a cowboy and a “good guy”.

The play is staged in the house corner of a primary school classroom, where there are props including a cowboy hat. The participants in the socio-dramatic play episode are three 5-6 year old girls: Alcione, Thaís, Camila. At the beginning of the transcribed segment, Alcione is in the role of Thaís’s daughter, Thaís is in the role of Alcione’s mother, and Camila has no role yet assigned. Suddenly, the cowboy hat falls off a shelf and Alcione picks it up and puts it on. This is the beginning of the transcribed episode.

Transcript (translated from Portuguese by Smolka et al. 1997)

1. Alc: (to Tha.)You were, you were ... Do you want to play with this hat?

(puts hat on Thaís’ head, who takes it off again and puts it aside)

2. Alc: Then give it to me, give it to me, Thaís!

(picks up the hat)

3. Tha: (to Alc.) Honey, mom doesn’t like hats

(Alc. puts the hat on again and looks at Tha.)

4. Tha: You look pretty!

(Alc. laughs. Camila takes the hat from Alc. Tha. is writing)

5. Tha: (to herself and/or the group) Veronica

(writing down the name she has given herself)

6. Tha: (to Alc.) What's your name?

7. Alc: My name is ... mine is Bete, Bete Carrera

8. Cam: (to Tha.) Mine is Bete Carrera too.

9. Tha: (to Cam.) Ahn... it can't be. Then I'm called ... Bete.

10. Alc: (to others) I'm called ... I'm called ...

11. Tha: (to others) I'm called Bete Carrera!

Analytic Gloss of the transcript

In turns 1-4, Alcione and Thaís are engaged in a dialogue whose setting is “house”, and whose universe of discourse is the fictive mother-daughter relationship between them. They are enacting familiar roles, exchanging comments about the hat and their appearance when wearing it. The hat, in this universe of discourse, is a feminine attribute, evaluated according to whether it is comely for the wearer. The hat is exchanged between them. At the end of turn 4, the hat is taken by Camila, who has not yet engaged, and has no role assigned in, this universe of discourse. At this point, Thaís decides it is time to assign names to the characters, starting with herself, in turn 5, in which she claims (in the role of “mother”) the name “Veronica”. In turn 6, she asks Alcione to assign a name to her role as “daughter”.

Turn 7 constitutes a break, involving the introduction of a new dimension in the universe of discourse. Alcione claims the name “Bete Carrera”, suggested by the hat. Notice, now, that “Bete Carrera” is a grammatically regular *feminization* (in Portuguese) of the name “Beto Carrero”. Alcione displays here her knowledge of grammatical gender in her native language, as well as employing this knowledge to signify her gendered identity. The *form*

“Bete Carrera” can properly be viewed as a lexico-grammatical constructional blend, but this form is motivated by a blend at the conceptual level (Fauconnier and Turner, 2002). Alcione does not say (as we might suppose a boy might say) that she is the cowboy Beto Carrero. Rather, she adopts a name signifying a feminine equivalent of that identity in the fictive world of enactment. Whether this involves a transformation of this fictive world to incorporate other aspects of the Beto Carrero World is unclear from the transcript, since possession of the name “Bete Carrera” is immediately contested, first by Camila, who is now in possession of the hat. Camila says in turn 8 that she too is Bete Carrera. Thaís, who has been in charge of name assignment, first tries in turn 9 to prohibit this appropriation by Camila, then changes her mind and appropriates the name Bete Carrera herself. The transcript ends with the girls all claiming competitively to be called (that is, to *be*, in the play world of enactment), Bete Carrera.

As Smolka, Gões and Pino point out in their article analyzing this episode of symbolic play, the cowboy hat, *qua* artefact, remains a hat, and it is never used by the children as anything other than a hat. At the same time, the cowboy hat “became”—or, rather, came to signify—*more than* the canonical rules of object-usage that it embodies *qua* artefact. “Through language, the children created Bete Carrera (Turn 7), the feminine of Beto Carrero ... Language allows for this specific appropriation, for such a construction and transformation; it allows for a ‘performance’ that synthesizes old and new modes and models of acting. Through language, it is possible to become another, to become *homo duplex* ... or, in fact, *multiplex*. In this consists the dramatic character of human experience.” (Smolka, Gões and Pino, 1997: 161).

The hat, in this interaction, is simultaneously situated at two levels of meaning and construal. At the first level, its canonical function is appropriated enactively by the participants (by putting it on and taking it off). Although its canonical function remains unchanged, the significations carried by the hat as a constituent of discourse change over time: it is “differently imagined” at different stages of the play. First, it is imagined by Thaís (Turns 1-4) as being an ornamentation, or fashion accessory. At this first level, the construal of the hat is intersubjectively shared, non-contested and constant: the hat remains “just” a hat. Next, it is “re-imagined” by Alcione (Turn 7) as a *particular cowboy hat*, indexing a specific and imagined *identity* (that of the imaginary Bete Carrera).

As Smolka *et al.* point out, both the new meaning of the hat, and the gendered identity which it signifies, are brought into being *by means of language and discourse*. These meanings are constructed in socially shared cognition: specifically, by the blending of the conceptual space of “Beto Carrero World” into the discourse frame of “playing house”, from which emerges the new “cowboy girl” identity signified by “Bete Carrera”. At this second level, the hat is invested with a “surplus meaning” which goes beyond its construal as an artefact: it comes also to signify the subjective positionings and perspectives of the individual participants within a more comprehensive, discursively constituted frame, which has the form of a *narrative-in-becoming*.

Oliveira (1998: 110), reporting another study of children’s interactions and the development of gender concepts and gendered identity, adopts a Vygotskian perspective (Vygotsky, 1978, 1986; Wertsch 1985) in arguing that the development of social interactions is best understood as “a dynamic process of expanding or constructing shared semiotically organized fields of conduct.” This characterization applies also to the “Bete Carrera” episode discussed above. In the course of the developmental process, roles, identities and conventions are contested and re-negotiated, against the background of *relatively* stable, socially shared, narratively organized norms. What I have tried to emphasize is that the semiotic bearers of these norms are not *only* linguistic: they are to be found also in the material setting.

5. Conclusions

The brief analysis I offer of the episode of socio-dramatic play in the foregoing section is highly condensed, and does not elaborate on the cognitive processes that permit children to appropriate, elaborate and transform the semiotic potential that is to hand in the setting (see Sinha, 2005, for a fuller account). However, I hope that it serves to highlight the differences between the approach that I am advocating, and standard cognitivist accounts of the development of “mind-reading”. In such cognitivist accounts, narratives and other semiotic vehicles are viewed as the inputs and outputs of a Theory of Mind module whose operations are indifferent to the particular meanings that they convey.

I have stressed, on the contrary, that narratives and play exemplify the normative network of meanings by which we make sense of other people’s actions, agency and identities. They are given life, created and re-created by children’s *participation* in meaning-

making as imaginative activity. To be sure, this participation requires a high degree of cognitive sophistication: in the mimetic enactment of narrative episodes; in entertaining and coordinating different perspectives; in projecting and blending mental spaces; and in using the semiotic resources supplied by language and by material artefacts. We are far from a full understanding of the cognitive developmental processes involved. Still, I would submit that the ultimate explanation for the development of folk psychological reasoning will call upon such non-domain specific, semiotically grounded processes, rather than upon modular mechanisms dedicated to understanding “Other Minds”.

The theoretical splitting of human cognitive processes into separate mechanisms for understanding the physical world and the social, intersubjective world is a specific manifestation of the more general prevalent dualism of mental vs material that I discussed in Section 2. It stems from the same source as the failure to recognize the social and semiotic status of artefactual objects, the *meaningfulness of materiality*.

Artefacts, like language and other semiotic vehicles, function to extend the horizons of the landscape of consciousness. Artefacts are “ready-mades” for the elaboration of the child’s developing understanding of the workings of both world and mind; they are *amplifiers*, not merely *objects* of consciousness. Artefacts are interwoven with the symbolic forms of language, co-constituting the specifically human biocultural niche (Sinha, 2009), and inter-articulating actual and virtual in what the semiotician Yuri Lotman (1990) called the “semiosphere”. It is within this niche, and as a function of their appropriation of its semiotic and socio-cultural affordances, that developing human beings become competent folk psychologists.

The emphasis I have placed on the material and semiotic context of the developmental process should not be understood as downplaying children’s own agency in this process. Piaget rightly emphasized the centrality of action, including imitative action, in cognitive development, but his genetic epistemology defined and theorized the cognitive operations of a transpersonal epistemic subject. Agency, however, is an attribute neither of subpersonal cognitive modules nor of transpersonal cognitive operations. The development of folk psychological abilities, in short, is not a “process without a subject”, but a process in which subjectivity is co-emergent with cognitive and linguistic competences. Becoming a “folk psychologist” involves, to be sure, learning *what it is* to be a person; but this is itself part of the process of *becoming* a person, in a meaning-bearing world.

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¹ At least in cognitive science, although as Göran Sonesson (pc) has pointed out, it is exactly this that was at stake in Brentano's and Husserl's understanding of intentionality.

² This is the philosophical picture that was the starting point for Wittgenstein's *Tractatus Logico-Philosophicus* (1961 [1922]).

³ W.D. Ross (ed.) *The Works of Aristotle*, Vol. 1, transl. E.M. Edghill, Oxford, Clarendon Press, 1928, 16a.

⁴ *An Essay concerning Human Understanding* (1690), Book III, Ch. 2, section 2.

⁵ Of course the Grounding and Other Minds problems are not empirical problems encountered by the child; rather they are theoretical problems encountered by explanatory accounts. The assumption that the Other Minds problem is an *empirical* one is, I would suggest, one of the fundamental errors of Theory of Mind Theories.

⁶ In practice, because the Principles and Parameters are always subject to revision the theory is effectively insulated against empirical test.

⁷ An interesting issue, that I do not have space to pursue in detail, is that of shared systems of beliefs or ideologies. Ideologies are social, normative facts inasmuch as they serve as the objects (or mediators) of beliefs. Ideologies, then, are not themselves reasons for actions, but ground the reasons for actions, and when we say someone acted out of ideological reasons, we mean that the person's actions are comprehensible on the basis of reasons motivated and grounded by ideological beliefs. Ideologies supply reasons.

⁸ Expressed in an older philosophical lexicon, canonicity of object function is a normative phenomenon existing at the interface between "Erste Natur" and "Zweite Natur".

⁹ This crosscultural difference in children's response patterns may be directly due to crosslinguistic differences, although the early age at which it manifests itself tells against such a Whorfian interpretation. It may alternatively be due to non-linguistic cultural practices. More likely it is due to a combination of non-linguistic practices entrenched in crosslinguistic differences.

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