

HUMAN-SPECIFIC FORMS OF COGNITION  
PRIOR TO JUDGMENTS

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Der Mensch ist nicht ein Tier, das sprechen kann, sondern  
seine Sprache ist die Manifestation einer von der des Tieres  
unterschiedenen Seinsweise.

F.J.J. Buytendijk, 1958, 84

In “Können Tiere Denken?” Reinhard Brandt denies that non-human animals can think. He does so on the grounds that unlike humans, non-human beings do not engage in judgment-making of the form ‘S is P’ or ‘S is not P’. As other philosophers, such as Robert Brandom (1994), Brandt conceives of judgments as the foundation of, or, in his own words, the ‘*conditio sine qua non*’ (2009, 30) of thought. The following syllogism might thus represent his line of argument in drastically abbreviated form: Thinking essentially comes down to judging. Animals do not judge. Ergo, animals do not think.

While I share the view that only humans engage in genuinely propositional thought, I am skeptical as to whether we have thereby captured the critical difference between human conduct or cognition and non-human animal conduct or cognition. Throughout the history of philosophy, many offers have been made as to what kind of an animal the human animal is: *animal rationale*, *zoon logon echon*, the political animal, the tool making and using animal, *animal risibile* et cetera, et cetera. The air separating “us” from “them” seemed to be getting thinner as naturalistic observations and experimental data began to suggest that animals show at least rudimentary skills in the craft and use of tools (Emery & Clayton 2004), imitation (Subiaul 2007), referential communication (Cheney & Seyfarth 1990), deceit of other individuals (Hare, Call, & Tomasello 2006), and even hindsight and foresight by remembering things episodically (Dally, Emery, & Clayton 2006) and planning for future events (Mulcahy & Call 2006).

Some contemporary scholars see this as evidence in support of an assimilationist or continuity position, arguing—in Darwinian fashion—that whatever difference one may find between humans and animals is going to be merely gradual. Others grant similar or identical skills in various areas and possibly in

general “cognitive horsepower”, limiting the critical difference to one particular domain, such as the understanding of social intentions (e.g., Herrmann, Hernandez-Lloreda, Call, Hare, & Tomasello 2010). In his own attempt to identify and secure the last bastion of the uniquely human, Brandt remains within the classic framework of the rational animal but narrows the anthropological difference down to the ability to make judgments and state propositions as true or false.

What I will argue and provide evidence for in this paper, is that reducing uniquely human cognition to the ability to deal with propositions is “over-stingy”, as Ryle (1962/2009, 432) puts it. The scope needs to be widened, as there are a myriad, maybe countless dramatic differences between human and animal cognition beyond and *prior to* judgment formation. Long before children have refined their conceptual capacities to a degree that allows them to explicitly affirm or deny (positive or negative) propositions, their cognition differs drastically in all kinds of ways from that of animals. The ability to string conventional symbols together with the intent to claim that things are thus-and-so probably does not emerge before toddlerhood, and a full apprehension of the predicates “true” and “false” is not in place before school-age (Olson 1999). But even infants manifest various early linguistic, but also quasi- and pre-linguistic performances for which there are no *analogia rationis* in animals either. Judgments are thus only the tip (or some other part) of the iceberg of unique human cognition.

In his brief and roughly sketched evolutionary story of the emergence of thought on p. 48, Brandt sees a developmental milestone in the pointing gesture thanks to its role in opening up a public space. But he does not devote much attention to the ontogeny of this step, although it is here, in the course of individual development, that we can actually observe the distinctiveness of human thought unfold. In this paper, I shall fill this void by identifying and analysing ontogenetic precursors of what according to Brandt characterizes human cognition: judgments and truth-functional negation.

First, I will take a close look at pointing gestures and early verbal productions dubbed “holophrases”, both of which emerge during infancy. These referential acts—which are often used in combination—can be regarded as proto-declaratives (Bates 1976) because the child points out something for us to attend to as a topic. Even though subject and predicate are not yet differentiated, it is here that the stage for predication is set. These precursors of structured propositions are just as peculiar to humans.

Second, I will trace the development of proto-negations such as rejections, refusals, prohibitions, references to disappearances or missing objects (“All gone” in English, “Alle-alle” or “Weg” in German) and lack of success (“Doesn’t work!”, “Doesn’t fit!” in English; “Geht nicht!”, “Passt nicht!” in German). Even though animals reject things and can refuse actions, there are marked qualitative differ-

ences between species. It is here that I will also contradict Brandt's claim that it is impossible to point to absent things. Brandt is clear in that he sees negation as lying beyond what can be achieved by pointing: You can only point to what is—not, to what is not. But as will be shown, young children often point to locations to communicate what is missing or momentarily absent.

Finally, I will suggest that one begins to appreciate the whole panoply of differences in cognition and perception between humans and animals, which reflect distinctive ways of viewing the world or environment and acting in it. In line with the quote from Buytendijk, we might be well-advised to stop looking at humans as animals with language, concepts, judgment or negation, and instead conceive of the ability to use concepts and affirm or deny propositions as manifestations of the human mode of “operating”, or, less mechanistically put, form of life. It might thus be time to give up the quest for the holy grail of the one unique feature of human cognition, and instead try to get a handle on the *different ways* in which members of the various species navigate the social and physical world.

### 1. *Declarative pointing and holophrases*

Years before children explicitly form propositions (S is (not) P), and linguistically express various attitudes towards them (“I believe that” or “I deny that”), they display a range of “objectifying” behaviors by which they invite others to share attention. At around one year, infants begin to point out and show objects (i.e., things, events, situations) to people in their vicinity. Some, but not all instances of pointing are imperatively motivated, i.e., to get the adult to fetch the indicated object for the child or perform some other instrumental action with it.

But infants often make use of this gesture simply to initiate a joint attentional episode. A proto-declarative motivation is particularly evident when, e.g., not a thing, but an *event* is pointed out, when the object is well outside of everyone's potential reach (the plane in the sky) or in the child's possession already (such as an object she holds in the other hand). But even if the referent is at short or mid-distance, thereby making imperatives at least possible, declarative points are easily recognized. As opposed to imperatively motivated gestures, proto-declarative ones tend to be vocally accompanied by one prolonged sound with rising pitch instead of a series of short vocalisations (Tomasello 2008), and by a “sharing look” or smile towards the co-attender (Carpenter, Nagell, & Tomasello 1998) compared to a plaintive expression in the imperative case.

Animals, including the great apes, do not spontaneously show this kind of referential behavior. Human-raised apes can learn to point imperatively in order

to get their cooperative human addressee to provide them with things they desire (Moll & Tomasello 2007), but have not been reliably observed to use the pointing gesture proto-declaratively—neither for conspecifics nor for humans (but see Leavens 2012).

Subject and predicate are undifferentiated in the pointing gesture, it lacks propositional structure and is clearly not declarative in any full sense. In contradistinction to a declarative sentence, a gesture must be produced within the visual field of the addressee and has to be spatially (but not necessarily temporal, as will be shown below) contiguous with the referent. Neither the presence of any recipient nor spatial contiguity with the referent is required for sentences. For these and other reasons, such as the fact that the pointing gesture cannot be right or wrong in the way a sentence can—even though it can be misleading or lack the common ground that needs to be shared by producer and recipient in order for the point to be meaningful—there is no denying of the drastic differences between gestures and assertions.

However, pointing and equivalent ways of establishing joint attention set the stage or provide “the context for the development of explicit predication” (Bruner 1977, 287). More than just highlighting a tempo-spatial position like a flashlight, pointing is a “quintessential act of reference, that is, an act by which one human being singles out an object of contemplation and offers it for another human being to consider” (Bates, O’Connell, & Shore 1987, 161). Through pointing, I identify something for us to attend to. It thus presents us with a topic, an object of predication. When pointed out, a ‘thing’, i.e., something that is fully tangled up in the infants’ individual activities and explorations, is transformed into an object of joint contemplation or attention (Werner & Kaplan 1963). Animals perceive and act on things, and primates as well as some species of bird know how to use material in order to access other, desired out-of-reach things or to bring about certain effects. But only humans perceive and attend to objects qua entities to which they can jointly relate with others in triangulation.

Something similar is achieved when infants and toddlers produce single-word utterances. They may say “Truck”, “Off”, or “There” when, e.g., a lorry is driving by, their parent just took off their shoe, or the family dog comes running into the room. These one-word utterances (as well as combinations of such utterances with simultaneous manual gestures) have been termed holophrases because they capture the entire situation or scene at once, which would usually afford a whole sentence (Nelson 2007). The child does not use the word as a simple label for a particular object or relation, but refers to the whole scene by naming an important element or momentum of it. As in the gesture, subject and predicate are not differentiated. The *deixis* that is achieved manually via the gesture is achieved vocally with the word. As Heal (2005, 39) notes “Words are, ..., an immensely delicate

and useful way of pointing”. But unlike gestural references, verbal expressions construe the situation under one particular conceptual perspective. One-word utterances thus in addition show the advent of the child’s conceptual abilities. One needs to beware not to “adultomorphize” these expressions by elaborating them and putting into the child’s mouth full sentences that more advanced language-users would use: E.g., “A truck is suddenly driving by”, “The shoe just came off my foot” or “Jack, the dog, just entered the room”. But irrespective of which interpretations seem justified and age-appropriate, it is obvious that the child communicates a salient change in the state of the environment that she considers worthy of joint attention.

Holophrases are not limited to one-word-utterances. Toddlers sometimes utter entire sentences without uniting independent segments in grammatical order in the way Brandt envisages. Instead, the child reproduces unparsed adult expressions that she heard others use in previous instances of the same kind—situations which the child perceives as similar to the one she currently finds herself in. For example, when a 2-year-old hears a car pulling up the driveway, followed by the sound of a door opening, she may exclaim “Mommy’s home!”, echoing a speech act she has heard her father use in prior cases. She may still be unable to separately modify the constituents, and say, for instance, “Mommy is returning” or “My mother is home”. So even though the child applies the sentence appropriately (under the right circumstances), she does not manifest the combinatorial skill of logically connecting discrete units in the manner Brandt thinks is critical. Yet, despite the inflexibility and rigidity of these “frozen phrases” (Tomasello 2003), they do not compare to, for example, the vocalizations one can train a parrot to produce. While parrots typically mimic sound with no referential intent or relation to what is currently going on around them (though note that Irene Pepperberg’s (2002) Grey parrot Alex was able to “report” features of an object he explored with its beak), children spontaneously make use of expressions to draw attention to objects and salient changes in their surroundings that they consider relevant enough to be shared with others. In a process involving both the breaking-down of longer holophrases as well as the synthesis of words to form entire sentences the child gradually learns how to make full-fledged assertions and judgments.

The proto-declarative performances we have looked at clearly show that full-blown judgments do not emerge *ex nihilo* and are probably not the first actualizations of human thought. Many months before children make assertions with subject-predicate distinction, are conscious of the possibility for propositions to be true or false, infants and toddlers place objects in the focus of joint attention, express a desire to share them with other persons, and produce holophrases which, despite their lack of propositional structure, are early imitations

of more mature, yet-to-be developed, competences essential for thinking with propositions.

## 2. *Forms of negation prior to denial*

Negation is just as central to language as it is absent from nature. It is found in all of the human communication systems (Horn 1989), and has been suggested as “the defining characteristic of the human species” (Horn & Kato 2000, 1) by others before Brandt. Denial of propositions is surprisingly difficult for children to master and only marks the final step in a sequence of various “families of meaning” (Pea 1980, 161) of children’s early productions of negatives such as “no” and “not”. Various taxonomies have been proposed, but there is an agreement that children progress from an understanding and use of negatives as expressions for rejections, refusals, and prohibitions to disappearances and unfulfilled expectations (e.g., failures), and finally truth-functional negation or denial.

The first acts of negation or proto-negation are affective and volitional: The child expresses a negative attitude towards an object she is offered or an action she is expected to perform (see Dimroth 2010, for a review). Before they speak, infants push undesired objects out of the way, turn their heads away, and actively protest as a way of demonstrating their unwillingness. At around one year of age, they shake their heads to manifest rejection and refusal. The first verbal negations follow soon thereafter, when infants utter “No!” to reject objects and refuse or prohibit acts. Unlike domestic pets like dogs, that may also reject their food or refuse to show responses they were trained to perform (e.g., when commanded to “sit” or “stay”), human infants express indignation and a sense of being wronged by the one imposing a demand or making a request. They take offense and act as victims. Pouting, crying, stamping one’s feet and folding one’s arms in front of one’s chest, throwing oneself on the floor, and giving a parent “the evil eye” are all communicative ways of expressing that the expectation towards the child is undesired and considered mean or unjust. These reactive attitudes (Strawson, 1962) also convey that the offer or request shall not be repeated. Compared to those of animals, human rejections and refusals are thus communicative and confrontational.

The second kind of proto-negation that surfaces at around 1.5 years of age, are references to disappearances. Disappearance and reappearance are among the first changes that parents and infants thematize in their early conversations, as playful rituals like peekaboo and other hiding games demonstrate. An object’s sudden disappearance causes excitement and thus constitutes a salient change in the environment. Imagine an infant observing the water fountain in a park.

As it turns 5 pm, the fountain is shut off and the water goes down in the basin. The child points to where the fountain was and says “Gone!” In contrast to rejections and refusals, in which the child reacts negatively to the immediate presence of something, she has to hold the object in mind to refer to its disappearance. A stable sense of object permanence is thus a prerequisite for this kind of proto-negation.

These performances also show that there is some room for at least proto-negation in pointing. The child points to where the fountain no longer is. At around the same time, infants point to places from which objects that are typically located there are missing. For instance, an infant might point to the empty cookie jar to indicate the absence of cookies—maybe exclaiming “allgone” as she points. In contrast to the fountain example, the child did not witness anything disappear. It is thus not the change from presence to absence that captures the child’s attention but the missing object as such. At any rate, in both cases the referent is not the locus to which the child points (the empty sky or cookie jar) but the object that disappeared or is absent from it. There is at least one further type of situation in which children point to what is not there. Let us take another look at the example cited above with the child’s mother returning home. In anticipation of her mother appearing there in a few moments, the child may already point to the door as she hears the car pulling up the driveway. Here also, the referent is not the door, but the expected near future event of her mother coming in.

We have thus identified three different kinds of scenarios in which children point to absent objects: a) disappearance, in which children point to something that is no longer present, b) typical location: the child points to something that is usually located at the indicated place but currently absent, and c) anticipated future events. Pace Brandt, I therefore disagree that pointing leaves no room for negation whatsoever. It is possible to point to things and events that are currently absent, as long as the gesture is spatially contiguous with an object’s past, typical, or future location.

Also in the second year of life, infants begin to verbalize failures. For example, a 15-month-old might attempt to push a wooden block through a hole made for a different geometrical shape, thus resulting in a failed attempt. The infant then raises her arms to her shoulders, with the palms of her hands facing up and outward, exclaiming with a tone of (feigned) disappointment: “Doesn’t-fit!” These combinations of gestures and verbalizations are produced when, despite all efforts, an intention remains unfulfilled and a problem unsolved. Just as early utterances like “Mommy’s-home” are frozen phrases instead of full-blown positive assertions, utterances like “Doesn’t-fit” or “Doesn’t-work” are not full-blown negative assertions either, but unparsed negative expressions.

At around 2 years, children use negative particles when they disagree with what has been said. For example, when a person says “This is an apple!” while pointing at a car, children will protest and exclaim “No!” (Pea 1980). Elliptical negations like these show that the child rejects her interlocutor’s misuse of language. (They will do the same when presented with simple yes-no-questions that afford a negative answer: “Is this an apple?” “No.”) These early forms of denial are thus expressions of a negative attitude towards preceding statements, but they do not yet allow for truth-functional negation. In fact, it has been demonstrated that children below the age of 6 years make wrong judgments when they are asked to evaluate the truth of negative propositions (Olson 1999). For instance, when presented with a picture showing a man wearing a hat, 5-year-olds judge the sentence “The man has no hat” to be true (or correct, or ok). When shown a picture of a cat, they judge the sentence “This is not a dog” as false (incorrect, or not ok). It seems that rather than assessing the truth or falsity of the proposition, these younger children express their disagreement or agreement with the speaker (“YES, the man DOES wear a hat” and “NO, it’s NOT a dog”) or their approval or disapproval of the positive predication (the hat-wearing or dog-being). In any event, the findings suggest that truth evaluations of statements are a fairly late achievement in conceptual-linguistic development.

### 3. *Concluding remarks*

What I hope to have shown is that many other behaviors that ontogenetically precede full-fledged assertions and their negations are just as specific to humans as these manifestations of mature thought. Not only judgments and denials are absent in the animal kingdom, but so are proto-declarative gestures and holophrases, as well as refusals, rejections or prohibitions that are brought forth with indignation and protest. Dogs do not affirm or deny propositions, but they also do not shake their heads and pout at their owner when he puts them on the leash.

The multitude of differences suggests that it might be time to terminate the anthropological quest for the one missing link between animals and humans, as elegant as such a “solution” might appear. Importantly, the reason why I believe one should stop trying to extract the *differentia specifica* is not the same as the assimilationist’s who sees human and animal cognition as lying on a continuum. Instead, my goal was to point out drastic differences that one finds from the very beginning of ontogeny, with the implication that comparative psychology and philosophical anthropology ought to focus on the unique ways in which humans deal with and think about objects in the social as well as the physical domain.



In psychology, it was Vygotsky who showed how a child, because she is human, does not develop her perceptual and attentional capacities in direct continuation of those found in apes because her dawning conceptual understanding simply alters everything else along with it. In philosophy, Herder (1772/1966) had claimed something similar when he noted that “Der Unterschied ist *nicht in Stufen oder Zugabe von Kräften*, sondern in einer *ganz verschiedenartigen Richtung und Auswicklung aller Kräfte*” (26f.). These insights should inform the approach with which philosophical anthropology compares humans with animals today.

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