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On the transformative character of collective intentionality and the uniqueness of the human

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ABSTRACT

Current debates on collective intentionality focus on the cognitive capacities, attitudes, and mental states that enable individuals to take part in joint actions. It is typically assumed that collective intentionality is a capacity which is added to other, pre-existing, capacities of an individual and is exercised in cooperative activities like carrying a table or painting a house together. We call this the additive account because it portrays collective intentionality as a capacity that an individual possesses in addition to her capacity for individual intentionality. We offer an alternative view according to which the primary entity to which collective intentionality has to be ascribed is not the human individual, but a “form of life.” As a feature of a form of life, collective intentionality is something more than the specific capacity exercised by an individual when she cooperates with others. Collective intentionality transforms all the capacities of the bearers of this specific form of life. We thus call our proposal the transformative account of collective intentionality.

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1. Introduction

Collective intentionality pervades the daily interactions of humans in all societies. It is in play whenever we, for example, talk, walk, cook, or work together. In the last couple of decades, analytic philosophers have examined its structure. With few exceptions (see Gilbert, 2013), they have done so in the spirit of methodological individualism, that is, they have tried to analyze collective intentionality by focusing on the minds and actions of the individual agents who participate in joint action.

In this paper, we briefly recapitulate three of the most prominent accounts of the individualistic tradition: the philosophical accounts of Bratman and Searle, and the developmental account of Tomasello. Our goal is not to critique these

particular accounts—such critiques exist aplenty (Gallotti, 2012; Meijers, 2003; Pacherie, 2012; Rödl, 2015; Salice, 2015). Instead, we will focus on the way these accounts have conceived of collective intentionality, namely as something that takes place in the minds of individuals as they engage in joint actions, such as painting a house or taking a walk together. Scholars of collective intentionality have tried to specify the cognitive capacities, attitudes, and mental states each individual must bring to bear for joint action to be possible. For Bratman (2014), the solution to this problem lies in the individual's capacity to plan and coordinate actions with others. For Searle (1990), it lies in a peculiar, irreducible kind of intentional state called “we-intention.” And for Tomasello (2014), it lies in a species-unique capacity for recursive mind-reading and the motivation to share experiences that humans develop toward the end of the first year of life.

The existing debate about collective intentionality can thus be structured around the following three questions:

- (1) Is the capacity for collective intentionality one that can be accounted for by the capacity for individual intentionality? Or is it irreducible to any kind of individual intentionality? Call this the *reductionism/antireductionism* question.
- (2) Is the capacity for collective intentionality human-specific? Or do humans share this capacity with other animals? Call this the *human-uniqueness* question.
- (3) Is the capacity for collective intentionality one that develops phylogenetically and ontogenetically out of more primitive forms of intentionality? Or are we dealing with a capacity for which no developmental account can be given? Call this the *developmental continuity/discontinuity* question.

Bratman, Searle, and Tomasello each give a different pattern of answers to these questions, suggesting that their respective theories share little in common. However, we shall try to show that despite these differences, there is a basic commonality in the way these and similar accounts have approached the problem of collective intentionality. They think of collective intentionality as a specific capacity that is added to other, pre-existing, capacities of the individual and that is exercised whenever the individual engages in cooperative activities such as carrying a table or painting a house with others. Collective intentionality is thought to enlarge the set of intentional capacities that the individual possesses independently of and prior to the capacity for collective intentionality. We call this the *additive account* because it portrays collective intentionality as a capacity that a human individual possesses in addition to her capacity for individual intentionality. The capacity for individual intentionality is untouched, that is, not influenced by collective intentionality. We will show that a number of problems that have arisen in the debate on collective intentionality are rooted in this additive conception.

Against the additive conception of collective intentionality, we will advance the idea that collective intentionality cannot primarily be conceived as a capacity whose subject is an individual like you, me, or Jim. Instead, it must first and foremost be conceived as a capacity whose subject is something general, a “form of life.” The concept of a form of life is that which we bring to bear whenever we describe a class of living beings in terms of its life activities, such as “pigs eat grass” or “humans walk on two legs.” Like any other class of living beings, human individuals are instantiations of their (human) form of life, and their form of life is manifested in their activities. As we will see, the human form of life is distinct from all others in that it only exists because its bearers have a shared understanding of their life form. The primary entity to which the capacity for collective intentionality has to be ascribed is thus not the human individual, but the human form of life. In short, we propose to shift the debate about collective intentionality from the level of the human individual to the level of the human form of life.

The proposal to understand collective intentionality as a feature of a certain form of life has been suggested by a longstanding philosophical tradition that spans from Aristotle to Wittgenstein, to name its two most prominent advocates. As a feature of a form of life, collective intentionality is something more than a specific capacity that an individual actualizes when she cooperates with others—although it entails this capacity as well. According to the Aristotelian-Wittgensteinian tradition, the idea of a specifically human form of life is identical to the idea of a collective form of life.

If one conceives of the capacity for collective intentionality as a feature of a human form of life, it implies that every capacity that a human possesses by way of exhibiting this form of life is shaped by collective intentionality. According to this alternative picture, collective intentionality goes all the way down. As a characteristic of the human form of life, it permeates the human individual’s reasoning and engagement with the world as a whole, not just how she socially interacts with others. Collective intentionality thus leaves its mark on or transforms all intentional capacities that a human individual possesses. We therefore call this the *transformative account* of collective intentionality.

Our position differs significantly from other philosophical positions which also postulate the necessity of social relations for humans to be able to think and reason, such as “social holism” (Pettit, 1996). While both social holism and the transformative account make the point that collective intentionality shapes human cognition, only the transformative account recognizes collective intentionality as a characteristic of the human form of life.

This article is organized into four parts. In the first part, we briefly look at the dialectic in which the contemporary debate about collective intentionality has been cast. This will serve to elucidate that even advocates of opposing camps, such as Bratman and Searle, start from the same individualist premise. In the second part, we summarize Tomasello’s (2014) developmental account, in which he traces the phylogenetic and ontogenetic origins of collective intentionality. We will show

that even though Tomasello clears a path toward the transformative conception we defend, he does not entirely overcome the additive conception of collective intentionality. In the third part, we take Tomasello's insights further and sketch the transformative notion of collective intentionality. Here we will also articulate how our position differs from social holism by bringing out the distinct role that collective intentionality plays in the transformative account. In the fourth and final part, we give preliminary evidence from human cognitive development in support of the transformative account by demonstrating that a child's engagement with the world is shaped by collective intentionality even outside of joint activities with others.

2. Additive conceptions of collective intentionality

A major question that divides opponents in the debate is whether collective intentionality can be analyzed into an assembly of interrelated individual intentions or whether it has to be conceived as an irreducible phenomenon (the reductionism/antireductionism question). Bratman (2014, 2015) aims at a reductive account of shared agency, arguing that no new entities or concepts have to be invoked other than those that adequately describe and explain rational individual action. He thus rejects the introduction of irreducible plural subjects (Gilbert, 2013) or special kinds of mental states (Searle, 1990), and instead strives to analyze shared agency using the same conceptual tools that he uses to analyze individual agency. Bratman assigns the key role in our understanding of shared agency to intentions, which he considers indispensable in any adequate account of rational agency. For him, animals are teleological creatures that strive toward and attain their goals—possibly even shared ones—without forming intentions, because their actions unfold entirely in the here and now. They have no shared intentions because their form of agency does not stretch out into the future, and hence does not afford intentions. Humans, by contrast, are not just teleological but rational creatures with a temporally extended agency that requires them to plan ahead to attain future ends. And since humans are social beings, their lives afford not only cross-temporal but interpersonal planning as well. Human agency thus not only stretches out into the future, demanding the coordination of present-directed with future-directed intentions and the meshing of sub-plans across time; it also stretches out laterally to other agents, affording the coordination of intentions and the meshing of sub-plans across agents.

However, Bratman (2014) maintains that humans come equipped with planning structures and future-directed intentions qua individuals, and hence nothing further is needed for them to engage in whatever activities their living conditions afford, including shared activities with fellow humans. Unlike individual intentions, therefore, shared intentions are not a *sui generis* phenomenon, but a conjunction of individual intentions. In support of his claim that nothing more than a certain assembly of individual intentions (and beliefs) is required for shared

agency, Bratman (1999) lists three conditions, the joint fulfillment of which he regards as sufficient for two agents to share an intention and act together. The first condition states that both agents (X and Y) intend that they J. The second states that they do so partly because of their own, and partly because of the other's intention. The third condition states that the content of the first two conditions is mutually known by the agents.

Bratman's theory is but one of a manifold of positions that all conceive of collective intentionality as a capacity that is added to an individual's set of pre-existing capacities. His account falls in this category in a specific manner, namely in the form of a reductive account. This means that in this particular case, the capacity to form *shared* intentions is added to the capacity to form *individual* intentions, not as an entirely new or different skill but as the specific exercise of this capacity in synchrony with other individuals who exercise their capacity in the same way.

Critics have objected that Bratman-style reductionism presupposes a common understanding of the first person plural that is hidden in the content of the inter-related intentions (I intend that *we* J; e.g., Rödl, 2015). Because this "we" remains unanalyzed in the content, the attempt to reduce shared intentions to individual intentions fails. Bratman's planning theory of collective intentionality can also be questioned on empirical grounds, namely from the perspective of cognitive developmental psychology. By only one year of age, human infants already participate in joint attention and simple acts of cooperation (Carpenter, Nagell, & Tomasello, 1998), but it takes them about another 3 to 4 years before they are able to plan future actions (e.g., Atance, Louw, & Clayton, 2015). Empirically then, the capacities to engage in shared agency on the one hand and to form future-oriented intentions on the other are distinct and develop in a sequence that contradicts Bratman's order of explanation.

The inconsistencies of reductionism have led critics like John Searle (1999) to conceive of collective intentionality as primitive and irreducible, that is, as a capacity that cannot be broken down into an assembly of individual intentions, neither ontologically nor epistemologically (see Gallotti, 2012, for the distinction). Searle's main argument for the irreducibility of collective intentionality is the discrepancy between the content of the intention that is shared by the participants of a cooperative action and the contents of their individual assignments that are derived from this collective intention. His point is that (the contents of) individual intentions simply do not add up to (the content of) the collective intention. Suppose a tennis doubles team decides to line up in Australian formation, in which the server and net player do not, as usual, form a diagonal line across their side of the court, but a nearly straight line front to back. Searle's point is that neither player can have an individual intention to play Australian. Rather, the server's individual intention is to serve past his partner's left shoulder and then move to the ad side, and that of the net player is to cut off the crosscourt return. The content of the collective intention to line up in the Australian formation is thus not reflected in the individual intentions that follow from it. "We-intentions,"

therefore, must be recognized as a separate kind of intentional state that humans possess along with “*I*-intentions”.

Unlike Bratman—and, as we will see, Tomasello—Searle thinks that humans share the capacity for collective intentionality with other animals who *prima facie* engage in cooperative actions, like hunting or nest-building. Hence, he grants that lions, chimpanzees, hyenas, and certain birds have collective intentionality, just as humans do. What separates humans from animals on Searle’s account is thus not the capacity for cooperation or collective intentionality, which he treats as identical. Rather, the difference resides in the fact that humans alone combine their *we*-intentionality with linguistic structures in ways that give rise to status functions with deontic powers, which form the core of uniquely human institutions such as marriage or money (Searle, 1995, 2010; see Ludwig, this volume). In sum, Searle sees collective intentionality as just one of several building blocks that together form the foundation of human civilization. However, unlike in Bratman’s and Tomasello’s accounts, this building block is not distinctly human, but shared by all animals that regularly engage in cooperative action.

2.1. Reductionism and antireductionism as variants of additive theories

Within the dialectic of the debate, there could hardly be a greater difference than that between a reductionist and an antireductionist position. However, this dialectic can only arise or be intelligibly formulated within the additive framework. Both opponents must consider it possible to characterize an individual as the subject of activities that manifest collective intentionality, such as cooperative activities, regardless of the individual’s life form. By contrast, we deny that it is possible to characterize an individual as having the capacity for collective intentionality without taking into consideration that she belongs to a class of individuals that instantiate a form of life that is, *qua* form of life, “collective.” If one grants the idea of a “collective life form” then the question of whether collective intentionality is a reducible or irreducible capacity no longer makes sense. The problem of (ir)reducibility would simply dissolve because collective intentionality would permeate any other vital capacity and would manifest in any activity that a bearer of such a collective form of life exhibits. What is crucial is that reductionists and antireductionists alike take the fundamental entity to which we ascribe the capacity for collective intentionality to be the individual and not the life form that the individual instantiates. The antireductionist only differs from the reductionist in that she claims that collective intentionality cannot be broken down into any of the other capacities to which collective intentionality is added.

It is important to note that despite their different answers to questions (1) and (3) above, neither the reductionist nor the antireductionist is committed to a particular answer to question (2), that is, to a particular stance regarding the human-uniqueness of collective intentionality. A reductionist may hold, as does Bratman, that the capacity for collective intentionality is a feature that is unique to

the human mind. Or he may maintain that humans share this capacity with other animals, such as certain primates and cetaceans. The same options are available to an antireductionist. She may grant, as does Searle, that any animal showing cooperative activities, including chimpanzees and hyenas, shares the capacity for collective intentionality with humans. Or she may maintain, as does Tomasello (see below), that collective intentionality is human-specific.

For additive theorists of both the reductionist and the antireductionist flavor, it is also conceivable that collective intentionality, because it is a capacity of an individual, can be either lost or gained by an individual regardless of the life form she instantiates. Even if one starts with the assumption that only humans possess collective intentionality, nothing on their account rules out the possibility that animals acquire collective intentionality, for example, by way of regularly interacting with humans, as one might think happens in the case of dogs and human-reared apes. Likewise, on their account it must be possible for a human to lose her capacity for collective intentionality without this loss necessarily affecting her other vital operations and capacities; these would simply be left intact. In other words, neither the reductionist nor the antireductionist can attribute to collective intentionality the status of an essential feature of human existence, that is, a feature that has to be taken into consideration in order to fully understand the identity and role of an individual's other capacities (e.g., the capacity to walk or play the piano). On either side of the debate, collective intentionality is simply viewed as one of many capacities that (most) humans have the power to exercise.

3. Tomasello's developmental account of collective intentionality

In what follows, we will argue that Tomasello's developmental account of shared intentionality (Tomasello, 2014; Tomasello, Carpenter, Call, Behne, & Moll, 2005) is not to be seen as just another position within the dialectic of the debate between reductionists and antireductionists, but as an attempt to overcome this very dialectic by questioning the additive conception. However, as we will try to show, Tomasello does not entirely break ranks with the received view because he does not seem fully aware of the position toward which he strives or the commitments that such a position entails.

Tomasello's comparative research with human children and great apes has revealed that apes do not point for each other, do not engage in joint attention, and do not reliably engage in cooperation other than occasional activities that afford coordination with a conspecific or human to attain an individual goal (Melis, Hare, & Tomasello, 2006). Apes do not seem motivated to share experiences with others simply for the sake of sharing. Human children, by contrast, naturally show such behaviors toward the end of their first year of life. They point out objects to other persons with no motive other than that the recipient share in the child's attention (Tomasello, Carpenter, & Liszkowski, 2007). They take pleasure in imitating others (Over & Carpenter, 2013) and are predisposed to

participate in whatever activity their affiliates engage in—whether in the form of helping or cooperation (Warneken & Tomasello, 2007). In sum, before they are proficient language-users, “these still fledgling human beings nevertheless operate with some cognitive processes that great apes do not, enabling them to engage with others socially in some ways that apes cannot, for example, via joint attention and cooperative communication” (Tomasello, 2014, p. 2).

From these observations, Tomasello derives two main claims about collective intentionality:

- (a) Collective intentionality is a fundamental capacity of the human mind that emerges early in life.
- (b) Collective intentionality is a capacity that distinguishes humans from non-human animals and thus defines the human species as an animal of a unique kind.

The first claim is liable to two interpretations, and which interpretation is favored will determine how the second claim has to be understood. One way to interpret the first claim is in the spirit of the additive account, according to which we should think of collective intentionality as extending the range of possible actions that a bearer of the relevant capacities can perform. Several passages in Tomasello’s writings suggest that this is how he wants the first claim to be understood. For example, when discussing the relation between individual and collective intentionality in *A Natural History of Human Thinking* (2014), he states that “out of the elements of these sophisticated processes of individual intentionality built for competition ... humans evolved, *in addition*, even more sophisticated processes of joint intentionality ... built for social coordination” (p. 34, emphasis added). The view that Tomasello understands collective intentionality as an added capacity is also supported by the conclusions he draws from his comparative studies. The performance patterns derived from test batteries used to examine physical and social cognition indicate that humans have a distinctive cognitive profile. While their social-cognitive abilities, such as mind-reading and perspective-taking, are outstanding on the evolutionary scale, children seem to be on a par with apes when it comes to anything that involves physical cognition or causal reasoning, such as tool use and instrumental problem-solving. Tomasello and colleagues conclude that, “Humans share many cognitive skills with nonhuman apes, especially for dealing with the physical world, but *in addition* have evolved special skills of social cognition” (Herrmann, Hernández-Lloreda, Call, Hare, & Tomasello, 2010, p. 102, emphasis added).

Tomasello believes that evolution has equipped humans with a special set of social-cognitive skills involving recursive mind-reading (which he considers necessary for joint attention), perspective-taking, and unique modes of social learning such as imitation and learning by instruction. However, he conceives of this skill set of shared intentionality as added to a base of animal capacities which have not further evolved in noteworthy ways since the lineages of pan and homo diverged.

In his own words, “cognitive development in the physical domain is still basically equivalent to that of the common ancestor of humans and chimpanzees some 6 million years ago” (Herrmann, Call, Hernández-Lloreda, Hare, & Tomasello, 2007, p. 1365).

But if we subject the first claim to the additive interpretation, as is suggested by these quotes, then it stands in opposition to the way in which Tomasello wants the second claim about the anthropological difference to be understood. He wants to elevate the capacity for collective intentionality to a position that defines the anthropological difference, and hence defines the human species. However, a capacity that is simply added to a cadre of pre-existing capacities, which remain untouched by this addition, cannot play such a defining role—as we have pointed out in our discussion of antireductionism. In order to play this role, the capacity must be *essentially* related to those other capacities that make up the content of the form of life. To think of this capacity as one that is added to other capacities possessed by a human being is to deny this relation. Thus, to be entitled to both theses (the fundamental character of collective intentionality and its role in defining the uniqueness of human cognition), the first claim has to be interpreted differently.

Tomasello himself provides support for this alternative, non-additive, interpretation of the first claim. In his introductory chapter to *Natural History of Human Thinking*, he claims that the cooperative way of life which has evolved in humans “changed everything” (p. 5). Unfortunately, he does not argue for this claim, but he reiterates it near the end of the book:

We should also be clear that the new forms of social cognition that this account proposes are not just modularized theory of mind skills. Rather, such things as perspectival representations, recursive inferences, and social self-monitoring evolved so that individuals could now understand the world in new ways by putting their heads together with others in acts of shared intentionality. Doing this requires more than just some specific cognitive skill aimed at some specific content domain, because coordinating actions and intentional states with others toward outside referents requires new ways of operating across the board. Skills and motivations for shared intentionality thus changed not just the way that humans think about others but also the way they conceptualize and think about the entire world, and their own place in it, in collaboration with others. (pp. 143–144)

Passages like these indicate that Tomasello sees the possibility of dismissing the additive account and conceiving of collective intentionality as something that shapes human cognition all the way down. But he does not argue for this point, and so his statements remain mere gestures toward the need for an alternative way of conceptualizing collective intentionality. In sum, it seems that Tomasello fluctuates between the traditional way of viewing collective intentionality as a special feature that is “tacked on” to other existing capacities on the one hand and a new way of thinking about collective intentionality as something that “changes everything” on the other.

4. Toward a transformative account of collective intentionality

4.1. Philosophical basis

In what follows, we will sketch an alternative perspective on collective intentionality that we see foreshadowed in Tomasello's theory. According to the additive account, the relation between the capacity for collective intentionality and its subject is conceived in the same way as the relation between, say, the capacity to play the piano and its subject. By acquiring the capacity for collective intentionality, the subject in question extends the range of actions she is able to perform, just like acquiring the capacity to play the piano extends the range of possible actions one can perform. Certainly no one would deny that collective intentionality plays a more crucial role in the lives of those who possess it than does the capacity to play the piano. But acknowledging the importance of collective intentionality does not detract from the fact that it is viewed as something that enlarges the set or range of things one can do.

Philosophers standing in the Aristotelian-Wittgensteinian tradition argue that this conception of collective intentionality misunderstands the logical status of collective intentionality. What defines this tradition is the idea that collective intentionality cannot be conceived as a capacity that gets added to a set of prior capacities because its presence must be recognized as a condition for the very intelligibility of these (seemingly more basic and independent) capacities. Advocates of the transformative account (Boyle, 2016; Kern, 2017a; McDowell, 1996) endorse a distinctive interpretation of this tradition. In what follows, we will first outline our preferred understanding of the transformative account by explicating how it sets itself apart from the additive account. Second, we will contrast the transformative account with social holism in order to elaborate on the specific manner in which the transformative account takes on and further develops the Aristotelian-Wittgensteinian legacy.

The defining feature of the additive account is the assumption that it is possible to characterize a living individual as engaging in activities that manifest collective intentionality regardless of whether this individual instantiates a collective form of life. From this perspective, the question of whether an individual can engage in activities that manifest collective intentionality is considered neutral with respect to the question of what kind of life form this individual instantiates. By contrast, the transformative account takes the main lesson from Wittgenstein's (1953/2010) *Philosophical Investigations* to be that we have to invoke humans' collective form of life to adequately understand any given human activity, be it eating or calculating, walking, or talking. Generally speaking, humans act in ways that are guided by an understanding of what they do. This entails, among other things, that humans know what it means to do what they do correctly or incorrectly. For example, when a human walks or talks, her walking or talking is guided by an understanding of what it means to walk or talk, including an understanding of how it is done correctly. Wittgenstein expresses this by saying that human activities

have the character of “following a rule.” He argues that to understand how such rule-following is possible, we must conceive of humans as exhibiting a distinct form of life, namely a form of life whose activities take the form of “practices” (1953/2010, § 202). Practices can be understood as activities that would not exist if they were not guided by a shared understanding of those who perform them. Hence, only humans have practices.

Wittgenstein uses the term practice not with the goal of singling out a specific set of activities or capacities, such as the capacity to speak or cooperate with others. Rather, the term denotes a feature of a form of life that characterizes the distinctive way in which an individual’s capacities and her form of life are related to each other. We can distinguish two ways in which an individual’s capacities and the form of life she exhibits can be related. One way in which they can be related is such that the form of life is manifested in the capacities of its bearers without it being necessary that the bearers share an understanding of their form of life. Non-human animals represent such a form of life, which we may therefore call a “non-self-conscious” form of life. The second way in which an individual’s capacities and her form of life can be related is such that the form of life is manifested in the individual’s activities in virtue of the bearers’ shared understanding of their form of life. We may call this a “self-conscious” form of life, or, in Wittgenstein’s terminology, a form of life that is actualized in practices.

According to the Wittgensteinian account, then, the idea of collective intentionality is built into the notion of a certain form of life. For a form of life that involves “practices” can only exist if its bearers manifest collective intentionality by way of sharing an understanding of their form of life. By referring to this form of life as a *collective* form of life, we stress that collective intentionality is not just one of many capacities that its bearers happen to acquire in their ontology. Rather, it is a capacity which characterizes the manner in which mature bearers of such a form of life possess and actualize any of their capacities.

Such a transformative understanding of collective intentionality has profound implications for how we think about the capacities of living beings. We can now think of these capacities as falling into two disjunctive categories. They *either* belong to a being that manifests a form of life constituted by collective intentionality, *or* they belong to a being that does not exhibit such a form of life. Accordingly, the meaning of concepts which designate capacities of living beings, such as thinking, reasoning, knowing, believing, perceiving, or acting, as well as eating, walking, etc., is determined by whether the being bears a form of life that is constituted by collective intentionality or not (Boyle, 2016; Kern, 2017b; McDowell, 2011).

Unlike the additive account, the transformative account of collective intentionality thus denies the possibility of characterizing an individual as a subject of this or that capacity independently of the question of whether this being has a collective form of life. It argues that the idea of characterizing individuals by their capacities irrespective of their life form is flawed (Thompson, 2008). This critique of the additive conception can be traced back to Aristotle. By defining

the human being as *zoon politikon*, Aristotle (trans. Aristotle, 1932, p. 9) stated that a human being cannot be conceived as an animal plus the capacity for collective intentionality. Rather, collective intentionality defines the specific manner in which humans are animals, which differs from the manner in which non-human animals are animals. Aristotle thus considered it a mistake to assume that there is a single conception of what it is to be a living being, because he recognized that collective intentionality defines its own distinct form of life.

The transformative account thus undermines the dialectic of the current debate about collective intentionality, because it entails that collective intentionality enters into the determination of every capacity of an individual that bears a “collective form of life.” Such individuals actualize their capacities through a shared understanding of their common form of life. This allows us to understand why and in what sense the capacity for collective intentionality, as it is possessed by an individual, is irreducible to other capacities. It is irreducible because it characterizes the specific manner in which the human individual relates to her form of life and manifests it in her activities. However, the fact that it is irreducible does not mean, as it does for the traditional antireductionist, that no account of it can be given by reference to other capacities. Because collective intentionality determines the manner in which even “non-social” capacities such as perceiving and desiring are possessed and actualized, an account of these capacities, qua human capacities, would likewise contribute to our understanding of collective intentionality.

What follows from this is that for an individual that bears a collective form of life, perceiving and desiring are capacities whose actualization she herself understands to be grounded in capacities that she shares with others. For example, when I perceive a cup of tea in front of me, my perception is an act that I understand to be grounded in a capacity for perception that we understand ourselves to share and in which it could not thus be grounded if we did not share this understanding of ourselves (see Gallotti & Frith, 2013 for ideas on how the “we-mode” structures our thoughts and perceptions even outside of any joint activities). Or equally, when I desire to eat a piece of cake, my desire to eat cake is something that I understand to be grounded in a capacity that we understand ourselves to share.

4.2. Transformativism vs. social holism

Broadly speaking, the Aristotelian-Wittgensteinian tradition emphasizes the social nature and origin of human thinking. As mentioned above, our transformative account takes a unique standpoint within this tradition by focusing its critique on the additive conception. To bring the distinctness of this position to light, we will now contrast it with social holism.

Social holism, as Pettit (1996, 1998) defines it, is the view that people depend non-causally on interactions with other people for having the capacity to think, because the ability to identify the properties and other entities in the course of thinking “depend on socially shared dispositions and responses” (Pettit, 1998,

p. 169). The main argument rests on the assumption that it is impossible to understand an individual's capacity to think and reason without presupposing that this individual is one of many with whom she shares "dispositions of signification" (p. 182). These shared dispositions are necessary criteria for the presence or absence of properties that individuals need to be able to register in the course of thinking. Without such shared responses and dispositions, it would be impossible for fallible creatures like humans "to launch themselves individually on the enterprise of thought" (p. 182). In other words, the role or function of these shared dispositions and response patterns is to provide the criteria without which the idea of a being capable of thinking and reasoning simply makes no sense. Importantly, this implies that the shared dispositions are not themselves capacities for thinking, but something more basic that undergirds humans' abilities for thought and reason.

Social holism explicitly subscribes to individualism (see Pettit, 1996). Thus, the holist's understanding of the social nature of the capacity for thinking is based on a claim about the social dependency of an *individually* conceived capacity for thought. When an individual engages in thinking, she exercises a capacity without her necessarily being aware that she shares this capacity with other members of her kind. The fact that she shares this capacity with other members need not figure in her consciousness. In fact, not only does the act of thinking not have to be grounded in the individual's consciousness of the shared nature of her capacity, but the thinker also need not be aware of the shared dispositions of signification that underlie her capacity to think: "the disposition or inclination in question need not come into the consciousness of the subjects" (1996, p. 176).

For the holist to intelligibly formulate the problem that she believes to have solved, she must assume that it is possible to identify an individual as a bearer of the "property of being able to think" (Pettit, 1998, p. 172), while disregarding the question of whether this bearer manifests a collective form of life. In this respect, the social holist is like any other additive theorist. This results from the assumption that the fundamental entity is the individual and her properties or capacities. From this assumption it follows that the difference between someone who has the capacity to think and someone who lacks this capacity lies in the "range of things that the subject is capable of doing" (Pettit, 1996, p. 6). The social holist is thus an additive theorist in that he conceives of collective intentionality as a property that can be ascribed to individuals independently of the question of whether they instantiate a collective form of life. It is precisely the assumption of this independence that our transformative account rejects. Humans instantiate a form of life that is unique in that it only exists through its bearers' shared understanding of their life form and, hence, through the shared character of their capacity for thought.

Importantly, the transformative view does not deny that collective intentionality is a capacity that individuals possess. On the contrary, it posits that such a capacity *must* exist. For if there were no individuals who possessed the capacity for collective intentionality, then there would be no collective form of life and hence no collective intentionality in the first place. Rather, the thesis is that our

understanding of what it means for an individual to have a capacity for collective intentionality presupposes an understanding of a collective life form as the ground (of the intelligibility) of such an individual capacity.

5. Support for the transformative account from cognitive development research

We believe that research in cognitive development offers rich sources of support for the transformative account. We regard as support of this account any indication that the manner in which children acquire and manifest their capacities—whether they are capacities that are typically deemed skills of collective intentionality or not—has the character of collective intentionality. One of the most obvious manifestations of collective intentionality is found in the way in which children come to adopt new capacities or come to perfect those they already possess in more or less rudimentary form. Developmental and comparative research suggests that the mode of acquisition with which human infants and children adopt their capacities is species-unique. To be sure, many non-human animals acquire important information about their environment by observing the behavior of other agents and incorporating it into their own actions (Tomasello, 1996). Social learning is by no means unique to humans but has been identified in a vast number of animals, even outside of the mammalian order (see Huber, 2012 for an overview). However, only humans relate to those from whom they learn in a way that manifests a collective form of life. When imitating others or learning from their demonstrations, human children do so with a consciousness of themselves as learners who depend on the other as a teacher or as someone who is more competent than they are. They understand their own capacity as being shared with and guided by the example of others.

In her studies of children's help-seeking, Nelson-LeGall (1981, 1985) observed that children often seek help not with the goal of getting others to solve problems for them, but of improving their own mastery of the problem (so-called "instrumental problem-solving," 1981, p. 224). When presented with a challenging task, preschool children often address others to receive hints and guidance. How deeply ingrained their tendency to approach others for guidance is recently became obvious in one of our studies on problem-solving in 4- to 5-year-olds (Moll, [submitted](#)). Despite having repeatedly asked the children to operate by themselves, many of them nonetheless kept turning to the adult for advice or feedback about how to approach the task. Thus, the concept of learning governs or is at least present in the child's behavior whenever she performs an activity, regardless of whether the task is to be completed individually or with the active contribution of another.

Unlike what we know from social learning in animals, human children do not learn from others by incorporating useful behaviors or behavioral effects that they observe in others by happenstance. Rather, learning from others' demonstrations, instructions, or feedback is *expected*, both by the one who teaches and by the child

herself (Csibra & Gergely, 2006 make this point in their “natural pedagogy”). The child recognizes that the other, who is more advanced, provides a superior example of what she herself is trying to accomplish. The child does not stumble upon others’ knowledge; she searches for it. She is aware of her own capacity and need to learn from others, that is, of her ability to be part of an interpersonal activity that essentially involves a partner who demonstrates how things are done. In the human case, then, learning is infused with collective intentionality because what each of us does is shaped by our common understanding of what we are doing together: Namely, that you provide me with a model of an action that I regard as a paradigm for what I myself am doing. The upshot is that social learning takes a unique form in humans, a form that is defined by children’s awareness of themselves as learners who rely on shared knowledge. Thus, the “self-conscious” (in the sense of “consciously collective”) form of life is already manifest in the beginning of human ontogeny.

One might not find it surprising that humans have to socially engage with others in order to acquire their cognitive capacities. Pettit (1998, p. 173) thinks that it “cannot plausibly be questioned” that the acquisition of rationality requires social interaction. For more convincing support of the transformative account, one might thus ask for empirical confirmation not just of the fundamental role that collective intentionality plays during the phase of acquisition of capacities, but of its presence and persistence beyond this phase, such as when a child already possesses a capacity but continues to exercise it in a way that manifests her collective form of life. We believe that two observations reveal that this is the case. The first observation is that many forms of behavior which are usually deemed social or social-cognitive are actualized by children during their solitary or individual engagement with the world. The second observation is that experimental procedures in comparative psychology need to be profoundly changed in order to “fit” the collective form of life whenever human children are tested.

Regarding the first observation, examples of such behaviors are the use of pointing gestures, speech, and dramatic play. All of these activities are social phenomena par excellence, in that they are considered communicative or cooperative: deictic gestures and speech are meant for a recipient, and dramatic play typically involves at least two children, each assuming a different social or personal role in pretense. Yet, young children also exhibit these behaviors in the absence of others. Infants sometimes point in order to direct or “channel” their own attention to objects (Carpendale & Carpendale, 2010). Vygotsky (1978) famously demonstrated that preschoolers use self-addressed speech to guide and structure their individual play or their attempts to individually solve a problem. Children have also been shown to engage in solitary acts of pretend or socio-dramatic play (Rubin & Coplan, 1998), such as when they play “house” on their own by alternating between the roles of different family members. This “spill-over” of behaviors that are classically deemed social into children’s solitary engagement with the world cannot easily be reconciled with a view of collective intentionality as a specialized capacity

that exclusively sub-serves cooperative activities, as the additive account claims. It is much more consistent with the transformative account, which sees collective intentionality as operative beyond actual social encounters.

The second observation focuses on the major adaptations and adjustments that are necessary in comparative psychology whenever a cognitive test that was originally designed for non-human animals is administered to human children or vice versa. If the capacities that animals and humans share were indeed identical, then minor adaptations, such as those to the different morphologies or anatomies, would be sufficient to achieve comparable tests. But this does not reflect actual research practices. More extensive changes have to be made to render a test feasible with animals or humans, respectively—even when basic skills of individual intentionality are measured, such as problem solving or tool use. One of the major differences is that any test for animals needs to be designed around an instinct to guarantee that the animal is motivated. Consequently, most tests share the following basic structure: An object that the animal instinctually desires (e.g., a grape) is enclosed in some sort of apparatus or contraption. What is measured is whether the animal manages to uncover the mechanism or series of mechanisms that renders the object accessible. How different this is when a human child is tested! First of all, the child has no instincts that automatically lead to the goal formation of extracting or otherwise accessing the object. Instead, the experimenter must define the situation for the child and formulate the task objective for her (“Try to get the object out!”). This often needs to be followed by an articulation of rules to which the child has to conform in order for an outcome she produces to count as a successful completion of the task. Such instructions are as necessary for children as they would be ineffectual if given to apes. A similar point is made by Roepstorff and Frith (2004, p. 193), who stress that the sharing of “scripts” and “interpretive frames” between an experimenter and human subjects create a mutual understanding that casts doubt on the comparability of the test results with those obtained in animal studies, where this kind of mutual understanding is absent. We would go further and argue that the child’s motivation to extract the object differs in origin and kind from the animal’s motivation to do the same. The animal has an intrinsic desire for the object itself, whereas the child has a desire for the object insofar it symbolizes success at the task. Like a trophy, possession of the object testifies that its owner has proven her competence by way of having displayed it in a setting that was deliberately designed to measure such competence. If the child fails at the task and gets frustrated, her agitation does not stem from the lack of access to the object per se (as it would for an animal), but from having failed to display a capacity that the child knows to be valued by the community of which she considers herself a part. For the animal, the test is an opportunity to get a piece of food. For the child, the test is a “task” in the true sense of the word—an opportunity to measure and display her capacities that she understands to be shared and evaluated by others.

By pinpointing these key differences in how cognitive tests are typically presented to children in contrast to animals, we hope to have shown that collective intentionality is operative in humans even in test situations that by no means serve to assess joint action or cooperation, but capacities that would be subsumed under individual intentionality. In conclusion, we have gathered observations from comparative and cognitive developmental psychology to support our argument that collective intentionality is not just a specific capacity that humans possess and recruit whenever a social situation calls for its exercise. We propose to understand collective intentionality as a concept that refers to the collective form of life which humans manifest throughout their engagement with the world—including the exercise of capacities that involve neither future planning, we-intentions, or recursive mind-reading.

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