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The role of roles in uniquely human cognition and sociality

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Abstract

To understand themselves as playing a social role, individuals must understand themselves to be contributing to a cooperative endeavor. Psychologically, the form of cooperation required is a specific type that only humans may possess, namely, one in which individuals form a joint or collective agency to pursue a common end. This begins ontogenetically not with the societal level but rather with more local collaboration between individuals. Participating in collaborative endeavors of this type leads young children, cognitively, to think in terms of different perspectives on a joint focus of attention - including ultimately an objective perspective - and to organize their experience in terms of a relational-thematic-narrative dimension. Socially, such participation leads young children to an understanding of self-other equivalence with mutual respect among collaborative partners and, ultimately, to a normative (i.e. moral) stance toward "we" in the community within which one is forming a moral role or identity. The dual-level structure of shared endeavors/realities with individual roles/perspectives is responsible for many aspects of the human species' most distinctive psychology.

KEYWORDS

cooperation, culture, Mead, shared intentionality, social roles

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1 | INTRODUCTION

Like all social animals, humans interact with others of their kind, even forming relationships with them. But, in addition, humans - and perhaps only humans - can enter into various kinds of larger social groups and structures by knowingly playing a role in them. Taking up a role in some larger social enterprise is qualitatively different from interacting with other individuals directly.

Classic sociologists such as Parsons (1949) relied heavily on the notion of social role as central to the structure of human societies. In human societies a person is not only Jane Doe but also a lawyer, a wife, a mother, a daughter, a citizen, and on and on - and she sees herself as such. As Jane Doe takes on each of these roles she is not just herself as an individual, but she is, in a sense, taking part in a play (which is where the word *role* comes from) in which she endeavors to play her part(s) by behaving in appropriate ways (for elaboration of this dramaturgical model see Goffman, 1959; Turner, 1962, 2001). Classic social anthropologists such as Nadel (1957) have noted that all human societies have social roles of one type or another, most especially those associated with families and kinship, but also those associated with various division of labor roles in the society. He refers to *social role* as "the concept needed to bridge the gap between society and individual" (1957, p. 21).

The social psychologist/philosopher Mead (1934) used the concept of role not only to describe the structural aspects of human society, but also to describe how human individuals interact with one another (and form a sense of self) in a society. In playing a role - everything from an interlocutor in a conversation to a professional role - the individual at the same time adopts the role or perspective of others viewing her performance. An interlocutor or cooperator adapts her message or actions for her partner by taking her role or perspective into account. Jane Doe sees herself as a lawyer, friend, citizen, because that is how she simulates others (including a kind of "generalized other") viewing her as she behaves in her role(s). Mead even takes note of young children's role-taking in pretend play in which they behave for others as if they were mothers, doctors, etc., viewing this process as crucial to children's enculturation into a society. Modern theories in the social sciences that follow Mead's lead, especially symbolic interactionism, continue to stress the central role of social roles both at the macro-level of human societies and at the micro-level of face-to-face social interaction (see Joas, 1993, for an historical account with some criticisms).

For individuals to understand themselves as playing social roles – on either the macro or micro level - they must understand themselves as fitting into some larger social group or structure. But what is the nature of this larger social group or structure? The original social theorists of the modern era, Hobbes and Rousseau, imagined a time in the distant past in which humans operated only as individuals, in which case the concept of social group or structure, and so the concept of social role, would have no meaning. But, as we now know, all of humans' nearest primate relatives are highly social, and so it is likely that humans as a species have always been highly social also. This prompts the question: did human sociality involve social structures and roles from the beginning, or did this way of operating emerge only with some later change of social organization – and if so, what was that change? We cannot answer this evolutionary question empirically, but we can answer a closely related question empirically: is there something special about human sociality, as compared with that of other primates, that creates the notion of social structure and social role? If the answer is yes, we may then attempt to identify this extra something, and go on to ask a second, further question: does participating in social interactions structured by social roles, over ontogenetic time, help to create some of the stark differences we observe in the cognitive and social skills and motivations of humans and other primates? In other words: what is the role of social roles in the ontogeny of uniquely human cognition and sociality?

In this paper, I address the first of these questions – the uniqueness question - in the section that follows. I address the second of these questions – the role of roles question - in the following two sections, first for cognition and then for sociality. The overall goal is to ground the sociologists' and social psychologists' concept of social role in more basic processes of human psychological evolution and ontogeny.

2 | EVOLUTIONARY ORIGINS OF SOCIAL ROLES

Humans see roles everywhere. We speak of the role of rivers in the rainforest ecology, the role of credit in the national economy, the role of the queen bee in the life of the hive, and on and on. But rivers and credit and bees do not know that they are playing such a role. This is simply the (functionalist) way that we humans construe the situation. But that is what needs explaining: how do humans come to understand things in terms of larger structures comprising individual roles?

From a psychological perspective, for participants, it would seem clear that the notion of social role only arises in the context of cooperative endeavors. If one person climbs a tree and accidentally knocks down some apples, which another gathers, there are no social roles. Nor are there social roles if each of them is competing to get all the apples before the other does. However, if the two of them are working together to gather apples, they could then felicitously speak of such things as the 'climber' role and the 'gatherer' role in that cooperative endeavor. At the societal level, lawyer is a social role for Jane Doe because she sees herself as playing a role in the judicial system of the society. On the other hand, a thief does not see herself as playing a role in society at all - unless she sees herself as part of a revolutionary movement against capitalists, in which case she might.

In general, the connection of social roles to cooperative activities, including culture as a large-scale cooperative enterprise, is key to understanding their evolutionary origins. In the complexities of modern society there may be some cases that are only partially cooperative, for example, prizefighters playing their cooperative roles in a prizefight by competing with one another (Nungesser, 2016). Nevertheless, the argument here is that in all such cases the social roles involved presuppose a social or cultural super-structure to which the parties subscribe in one way or another – in this case, the cultural institution of a prizefight (as distinct from a fist fight), within which they understand themselves to be operating.

2.1 | Social roles in great apes and early humans?

Humans' nearest primate relatives, chimpanzees and bonobos, live in complex social groups. From an external (functionalist) perspective it is of course possible to speak of the various roles individuals are playing in the group. But does this notion have any meaning for them? Does it make sense, from their point of view, to say that the dominant male chimpanzee is playing the role of peacemaker in the group?

While we cannot know these things with certainty, the proposal here is that neither chimpanzees nor bonobos (nor any other nonhuman primates) understand themselves to be playing roles in anything. Although many, perhaps most, of their social interactions are competitive (even if bonobos are less aggressive), they also cooperate in some ways, and so the notion of role is at least potentially applicable. As a frequently occurring example, if one chimpanzee begins fighting with another, it often happens that the friends of each of the combatants join into the fray on the side of their friend. It is unlikely that they see themselves as playing roles in this coalition. More likely, each individual is participating for her own individual goal, sometimes helping the other in that context. But they are

basically just fighting side by side, without intentional coordination or division of labor toward a common goal. As another example, when chimpanzee or bonobo pairs are engaged in mutual grooming, we could say from the outside that one is in the groomer role and one is the groomee role. But again this interpretation may be totally our own; they may just be searching for fleas and enjoying being cleaned, respectively. And, for whatever it is worth, both agonistic coalitions and grooming are social interactions that are performed by all kinds of other species of mammals and even birds.

By far the most plausible candidate for an understanding of social roles in nonhuman primates is chimpanzee group hunting. What happens prototypically is that a small party of male chimpanzees spies a red colobus monkey somewhat separated from its group, which they then proceed to surround and capture. Normally, one individual begins the chase and others scramble to the monkey's possible escape routes. Boesch (2005) has claimed that there are roles involved here: the chaser, the blocker, and the ambusher, for instance. Other fieldworkers have not described the hunts in such terms, noting that during the process (which can last anywhere from a few minutes to half an hour) individuals seem to switch from chasing to blocking and to ambushing from minute to minute (Mitani, personal communication). In the end, one individual actually captures the monkey, and he obtains the most and best meat. But because he cannot dominate the carcass on his own, all participants (and many bystanders) usually get some meat (depending on their dominance and the vigor with which they harass the captor; Gilby, 2006). Tomasello, Carpenter, Call, Behne, and Moll (2005) thus propose a "lean" reading of this activity, based on the hypothesis that the participants do not have a joint goal of capturing the monkey together – and thus there are no individual roles toward that end. Instead, each individual is attempting to capture the monkey on its own (since captors get the most meat), and they take into account the behavior, and perhaps intentions, of the other chimpanzees as these affect their chances of capture. In general, it is not clear that the process is fundamentally different from the group hunting of other social mammals, such as lions and wolves and hyenas, either socially or cognitively. Experimental support for this interpretation will be presented below.

The evolutionary hypothesis is that at some point in human evolution, early humans began collaborating with one another in some new ways involving shared goals and individual roles. The cognitive and motivational structuring of such collaborative activities is best described by philosophers of action such as Bratman (2014), Searle (2010), and Gilbert (2014), in terms of human skills and motivations of shared intentionality. The basic idea is that humans are able to form with others a shared agent 'we', which then can have various kinds of we-intentions. In Bratman's formulation, for example, two individuals engage in what he calls a shared cooperative activity when they each have the goal that they do something together and they both know together in common conceptual ground that they have this shared goal. This generates roles, that is, what "we" expect each of "you" and "me" to do in order for us to reach our shared goal. Gilbert (2014) highlights the normative dimension of such roles. When two participants make a joint commitment to cooperate, for example, each pledges to the other that she will play her role faithfully until they have reached their shared goal. If either of them shirks her role they will together, as a shared agent, chastise her – a kind of collaborative self-regulation of the shared agency. This special form of cooperative organization scales up to much larger social structures and institutions such as governments or universities, in which there are cooperative goals and well-defined roles that individuals must play to maintain the institution's cooperative functioning.

Tomasello (2014, 2016) provides a speculative evolutionary account of how humans came to engage with one another in acts of shared intentionality. There were two steps. The first step came

with early humans (i.e., beginning with the genus *Homo* some 2 million years ago to approximately.4 million years ago). Due to a change in their feeding ecology - perhaps due to more intense competition from other species for their normal foods - early humans were forced to collaborate with one another to obtain new kinds of resources not available to their competitors (e.g., large game and also plant resources requiring multiple individuals for harvesting). In these early collaborative activities, early human individuals understood their interdependence - that each needed the other - and this led them to structure their collaborative activities via skills and motivations of *joint intentionality*: the formation of a joint agency to pursue joint goals via individual roles. As partners were collaborating toward a joint goal, they were jointly attending to things relevant to their joint goal – with each retaining her own individual perspective (and monitoring the other's perspective) at the same time. Such joint attention means not only that individuals are attending to the same situation, but each knows that each is also attending to their partner's attention to the relevant situation, etc.: there is recursive perspective-taking. When individuals experienced things in joint attention those experiences entered their common ground as joint experience or knowledge, so that in the future they both knew that they both knew certain things.

The second step came with modern humans (i.e., beginning with *Homo sapiens sapiens* some 200,000 years ago). Due to increasing group sizes and competition with other groups, humans began organizing themselves into distinctive cultures. In this context, a cultural group may be thought of as one big collaborative activity aimed at group survival, as all individuals in the group were dependent on one another for many necessities, including group defense. To coordinate with others, including in-group strangers, it was necessary to conform to the cultural practices established for just such coordination. Knowledge of these cultural practices was not just in the personal common ground of two individuals who had interacted in the appropriate circumstances previously, as with early humans, but rather such knowledge was in the cultural common ground of the group: each individual knew that all other members of the group knew these things and knew that they knew them as well even if they had never before met. Making such cultural practices formal and explicit in the public space turned them into full-blown cultural institutions, with well-defined roles (from professional roles to the most basic role of simply being a group member in good standing) that must be played for their maintenance. The new cognitive skills and motivations underlying the shift to truly cultural lifeways were thus not between individuals but between the individual and the group – involving a kind of collective agency - and so may be referred to as *collective intentionality.*

The proposal is thus that the notion of social role, as understood by participants in a social or cultural interaction, came into existence in human evolution with the emergence of shared intentionality, as the psychological infrastructure for engaging in especially rich forms of collaborative, even cultural, activities. The notion of social role is thus indissociable, psychologically speaking, from cooperation. The evolutionary precursor to the notion of a societal role, as typically conceived by sociologists and social psychologists, is thus the notion of an individual role in a small-scale collaborative activity; societal roles in larger-scale cultural institutions build on this psychological foundation.

2.2 | Evidence from comparative experiments

Support for this general scenario comes from a number of recent experiments in which young children and great apes (mostly chimpanzees) are given similar opportunities to collaborate. Comparisons of the ways that they engage their partners in these situations is revealing of how they

understand what they are doing. The findings fall into three groups, corresponding to different phases of the collaborative activity: (i) the formation of a shared goal, (ii) the understanding of constitutive roles, and (iii) the way the spoils are divided at the end.

First, it does not seem that chimpanzees form a joint goal, as do human children. In a comparative study, when Warneken, Chen, and Tomasello (2006) engaged 18-month-old human infants in a collaborative activity and then abruptly stopped interacting, the infants turned away from the goal and attempted to reengage the partner toward the goal through communicative attempts, mostly by pointing or beckoning (in a follow-up study, they did this even when the activity was one they knew they could perform successfully on their own; Warneken, Gräfenhain, & Tomasello, 2012). In contrast, chimpanzees in the same situation never once attempted to reengage their partner, even when they needed her for collaborative success; they just kept trying individually to solve the problem. Even more directly, in a recent experiment 3-year-old children commenced a joint task, but then, unexpectedly, one child got access to her reward early. For the partner to benefit as well, this child had to continue to collaborate even though there was no further reward available to her. Nevertheless, most children persisted in participating so that both partners ended up with rewards – and more often than if the partner just asked for help in a similar situation but outside of any collaboration (Hamann, Warneken, & Tomasello, 2012). Again in contrast, when pairs of chimpanzees were tested in this same situation, as soon as the first one got her reward, she abandoned the other and went off on her own to consume it (Greenberg, Hamann, Warneken, & Tomasello, 2010). In addition, young children sometimes make joint commitments to collaborate on a task together (e.g., A: "Let's X."; B: "OK"), which chimpanzees do not have the communicative means to do (Melis, Grocke, Kalbitz, & Tomasello, 2016). In general, children are able to form a joint agency toward a joint goal in ways that chimpanzees are not.

Second, it does not seem that chimpanzees monitor and simulate the other's role in a task in the manner of human children. Thus, Carpenter, Call, and Tomasello (2005) found that 18-month-old infants quite often responded to an adult acting on their body (e.g., tickling their forearm) not by acting on their own body in the same way, but rather by doing the same to her (i.e., tickling **the adult's** arm) in reverse. They also found that after these same infants played one role in a collaboration with a partner, they could quickly switch to the other role; for example, they could go from being the one who held the toy steady while the other placed things on it to the reverse. In contrast, Tomasello and Carpenter (2005) found that chimpanzees did not reverse roles in either of these ways. Further, in a comparative study, Fletcher, Warneken, and Tomasello (2012) presented pairs of 3-year-old children with a game-task requiring two active and complementary roles. In a baseline condition, the target child was asked to play Role B, as we may call it, with no previous experience. In the experimental condition, the target child had previously played, with a different partner, Role A. The finding was that the children who had previously played Role A were subsequently more proficient in Role B than were the children who had never before played Role A (for a somewhat similar finding with adults see Gillespie & Richardson, 2011). In contrast, chimpanzees did not learn anything about Role B from having played the reciprocal role. Finally, Kachel, Svetlova, and Tomasello (2018) found that young children protested, often normatively (using such words as *should* or *must*), when their collaborative partner was not playing her role adequately. In experimental studies in which chimpanzees collaborate, they basically never protest their "partner's" non-cooperative behavior (Tomasello, 2016). In general, chimpanzees are not monitoring and evaluating the role of their "partner" in the manner of human children.

Third, the way that true partners share the spoils at the end of a collaboration is telling of the way they view their relationship. In chimpanzee group hunting, the chimpanzee who actually captures the

monkey will try to steal off with it on his own if he can. In human hunter-gatherer groups, in contrast, bounty is brought back to camp to share around the social group. Experimentally, Hamann, Warneken, Greenberg, and Tomasello (2011) rigged a situation so that collaboration ended up in an unequal distribution of the spoils: one individual got three rewards and the other got only one. In this condition, the vast majority of 3-year-old children who got more shared one with their partner to equalize (which they did not do outside of collaboration). In contrast, when the same experiment was run with chimpanzees, the one who received more almost never shared at all (even when all she had to do was to not block the other from accessing the extra reward). More systematically, Ulber and Tomasello (2017) had pairs of 3- and 4-year-old children and pairs of chimpanzees collaborate (or not) and then the partner got more, or less, or the same as they did. The result was that in the context of collaboration (but not otherwise) the children, but not the chimpanzees, were motivated to correct the inequality, whether it advantaged them or their partner. Relatedly, Melis, Schneider, and Tomasello (2011); Melis, Floedl, and Tomasello (2015) found that young children excluded free riders (as opposed to partners) from the spoils, whereas chimpanzees did not differentiate collaborative "partners" and free riders. In general, chimpanzees are not oriented towards a fair distribution of spoils among collaborative partners in the way that young human children are, perhaps because children see themselves as playing a role, with the partner, to jointly produce the goods. And young children protest against a collaborative partner who does not share the spoils fairly (Warneken, Lohse, Melis, & Tomasello, 2011), whereas, again, apes have never been observed to protest.

In all, then, empirical evidence from comparative studies supports the proposal that humans from early in ontogeny have species-unique skills and motivations - perhaps as characterized by shared intentionality theory - for cooperating with others on the dual levels of shared goal and individual roles.

3 | IMPLICATIONS FOR HUMAN COGNITION

At around their first birthdays, young children begin interacting with others in collaborative activities organized by the dual-level structure of joint goals/attention, on the one hand, and individual roles/perspectives, on the other. Even something as simple as playing hide-and-seek together with a parent requires the child to conceptualize the world in new ways. First and most basically, it requires them to think in terms of role-based concepts such as 'hider' and 'seeker', which other primates do not do. In combination with linguistic skills, this leads children to conceptualize events thematically in terms of events and their participant roles (e.g., 'eater' and 'thing eaten' in the event of eating) and ultimately to an understanding of full-blown narratives, comprising multiple events and participants interrelated in complex ways over time. Second, the process of interacting and communicating with others in the context of collaboration and joint attention leads children to conceptualize the world in terms of the different perspectives involved, again which other primates do not do. This leads children ultimately to make a distinction between individual perspectives on a situation (appearance, opinion, belief) and the "objective" situation (reality, fact, truth) to which these may or may not correspond. Generic language then enables children to understand propositions – e.g., "Birds lay eggs" - that construe thematically structured events "objectively".

3.1 | Relational-thematic-narrative thinking

Human thinking involves a cognitive dimension not available to other apes. Great apes cognitively represent the world in terms of various perceptual and functional features (see Tomasello & Call,

1997, for a review). These representations are categorical, leading to abstract cognitive representations of things in the world. But relations are different. Apes can engage in some kinds of relational thinking, but only of a limited type. There are several empirical studies showing that apes can tune into things like spatial relations (e.g., Christie, Gentner, Call, & Haun, 2016) and quantitative relations (e.g., Hanus & Call, 2007). But other studies show that human children are especially skillful, tuning into a variety of different types of relations (see, e.g., Gentner, 2003).

One hypothesis to explain the overall pattern of data is that there are actually two basic kinds of relational thinking. One concerns the concrete physical world of space and quantities, in which we may compare various features or magnitudes such as bigger-smaller, brighter-darker, fewer-greater, higher-lower, and even same-different. Nonhuman primates have some skills with these. But what they do not comprehend are functional categories of things defined by their role in some larger activity. Thus, humans are exceptional in creating categories such as pet, husband, pedestrian, referee, customer, guest, tenant, lawyer, and so forth, what Markman and Stillwell (2001) call "role-governed categories". These are relational not in the sense of relating two physical dimensions, but rather in assessing the relation between an entity and some larger event or process in which it plays a role.

The obvious hypothesis is that this second type of relational thinking derives directly from humans' unique understanding of collaborative activities in terms of shared agency and individual roles. Markman and Stillwell (2001) refer to "role-governed concepts" for the role slots (e.g., tracker in a hunt), and "schema-based concepts" for the overall activity itself (e.g., the hunting activity). Together these constitute the thematic conceptualization of experience characteristic of much of human thinking. The proposal is thus that constructing the kinds of dual-level cognitive representations needed to support collaborative activities enables humans to engage in much broader and more flexible relational thinking than other apes. At some point children even put relational material into the slots, for example, a married couple plays a role in a cultural institution.

Linguistic constructions give humans a conventional symbolic format for conceptualizing and representing the thematic dimension of experience. From early in ontogeny, children acquire concrete linguistic constructions that are relationally structured in terms of a predicate term with relatively open slots, for example, *More* ___, ___ *gone, Throw* ___, etc. Linguistic constructions enable linguistic items such as words to be used and reused in a variety of different symbolizations, playing different roles on different occasions; for example, on different occasions an apple may be something to throw or something that is gone or something to have more of. Importantly, this flexibility in how items are used creates the need to explicitly mark the roles being played by different items. If the child articulates the words *man, tiger, eat*, it is important to know who is the agent and who is the patient of the eating activity. Markers used to indicate participant roles (e.g., word order or case markers) are typically acquired by children during the third year of life and may be seen as kind of second-order symbols, as they indicate the role the participant is playing in the larger construction (e.g., agent, patient). A linguistic construction may thus be seen, in a way, as a kind of collaboration of symbols (Croft, 2001). Symbolizing things in this way also creates the possibility of various kinds of metaphorical mappings. Thus, we may use the relational structure of the English ditransitive construction (e.g., 'Agent gives Recipient an Object') but then insert novel items to say such metaphorical things as "The sunrise gave the soldiers hope".

Linguistic constructions always perspectivize a situation in some way. For example, the English passive construction, as in "The window was broken by John", perspectivizes the situation from the point of view of the window - whereas "John broke the window" perspectivizes the situation from the point of view of John. MacWhinney (1977) argues that these different constructions derive from what the communicator chooses as his "starting point" or "perspective" for entering the event

cognitively – which is conventionalized into the grammatical topic or subject. This perspectivizing process is especially complex in narratives. As Bruner (1986, 1990) has argued, the stories of a culture (or other social units such as a family) are a major part of the way it views itself. They are organized on two levels: the level of the events being narrated (e.g., a summer vacation) and the level of the evaluations or commentary of the speaker as she narrates (e.g., "*Sadly*, it then happened that … …"). Navigating these two levels skillfully – which children begin to do in the fourth year of life - creates the possibility of telling the kinds of gripping narratives that provide cultures with their origin stories and much else. Relatedly, many of the most abstract concepts in languages are single lexical items with narrative meanings. Thus, to define *justice,* one would most naturally proceed with a kind of narrative: justice is when someone does X, and then someone else does Y, and then Z happens. Even young children have narratively defined event words like *birthday party, vacation,* and *breakfast* (Nelson, 1995). Symbolizing aspects of the relational, thematic, or narrative organization of human cognition in a single lexical item expands the abstractness and complexity of human concepts immensely (Tomasello, 2014).

Overall, then, we may say that much of human thinking – beginning early in ontogeny - is organized in terms of a relational-thematic-narrative dimension, and this makes possible everything from linguistic constructions, to complex metaphors, to the narratives (and narratively defined concepts) that help to define a culture. The claim is that this form of conceptualization is unique to humans because only they have come to construct over evolutionary and ontogenetic time a dual-level form of social-cognitive organization prototypically comprising shared goals and attention, on the one hand, and individual roles and perspectives, on the other.

3.2 | Perspectival thinking

In line with the proposals of Mead (e.g., 1934), the different individual roles in a collaborative activity imply different perspectives. Just as the notion of role assumes some kind of overarching shared goal toward which both roles aim, the notion of perspective assumes some kind of joint attention on a shared referent on which the different perspectives focus differently, and without which we are just perceiving different things (Moll & Tomasello, 2007).

Crucial to the process is the fact that each partner in a joint attentional activity attempts to simulate the perspective of the other. This means that each partner is entertaining simultaneously two different perspectives on the same shared situation. And simultaneity is crucial. If a chimpanzee sees something one way at one moment and another way at another moment, there is no conflict: she sees a banana, and then from a different angle, she sees the banana again. But when humans are seeing something simultaneously from their own and from a partner's perspective, there is a kind of conflict: what we both know to be the same thing is at the same time seen in two different ways. Davidson (2001) claims that such social "triangulation" is necessary to realize that individuals, including oneself, can be wrong about things, and so that there is an underlying objective reality independent of any specific perspective. Operating with perspectives means that humans - and only humans - have perspectivally organized concepts that enable individuals to understand one and the same "objective" situation simultaneously in very different ways (under different conceptualizations, e.g., dog-animal-pet-pest).

Gillespie (2005, 2006) asks how humans come to be able to take multiple perspectives on the same thing at the same time in this way. His basic answer is that it comes from children actually playing different roles in "the same" interaction over time. They know that it is the same interaction just in the case that it is institutionalized, that is, that it is in the common ground of everyone in the

culture that this kind of game (typically with a conventional name) has certain roles that must be played in certain ways. And thus in the game of hide-and-seek, the child plays each of the roles over time, so that he actually knows both roles and their associated perspectives from direct experience. Gillespie claims further that children can learn about roles that they do not actually play in real life, for example, as teacher, through participation in imaginative play (although it is unclear in this account how imagining oneself in novel roles and perspectives is possible).

This account provides one possible scenario for how children come to take the perspective of others in interactive situations. But playing institutionally defined roles requires some prerequisite abilities, and the claim here is that these come from participation in more small-scale spontaneous collaborations. Thus, as noted above, if 3-year-old children first play role A in an interaction, they are able to become skillful in the complementary role B much more quickly than if they have not played role A previously (whereas this is not true of chimpanzees; Fletcher et al., 2012). Importantly, in this study the interaction in which children were engaging was not institutionalized, but was in fact novel. And so one alternative to Gillespie's proposal is that individuals first establish that they are engaged in "the same" interaction on multiple occasions over time not via institutionally structured interactions, but rather through their skills of shared intentionality: they establish via joint attention that they have the same focus of attention with the same cognitive content.

Imagining the role and perspective of the partner has obvious advantages in collaborative activities in which moment-to-moment adjustments must be made. Even better is actually manipulating the perspective of the partner to facilitate the collaboration. This is accomplished through humans' species-unique skills of cooperative communication, aimed at attention manipulation (aka: reference) beginning with basic skills of pointing and pantomiming (Tomasello, 2008). Human children begin engaging in joint attention coordinated by pointing and pantomiming from soon after their first birthdays. In such interactions, partners are constantly attempting to align their goals and attention. In the prototypical situation with infant and adult, one of the partners initiates things by offering an object to the other, or showing an object to the other, or pointing to some interesting event, or even using a simple piece of language. The communicator has a goal that the recipient attend to what he, the communicator, is already attending to; his (referential) goal is the aligning of their attention in joint attention (Tomasello, 1998, 2008). The recipient, if she accedes, goes from her own individual attention on something to jointly attending with her partner. The interpersonal negotiation thus involves each partner's sequential shifting from individual to joint attention, as either communicator or recipient. Unlike simply imagining what another person is seeing or attending to, with no attention to one's own seeing or attending, negotiating joint attention brings into focus the **relation** between the two.

During the 1 to 3 year age period, children begin communicating in the medium of a conventional language. Their earliest language is organized mainly at the level of the individual utterance, but by around 2.5 years of age they start to participate in extended conversations in which partners take turns making comments about a mutually understood topic. Conversations in which the topic has been linguistically expressed thus involve joint attention on a new level: "joint attention to mental content", defined as a shared focus on a mental construal of something, about which we express different perspectives or attitudes (O'Madagain & Tomasello, in press). The topic-comment structure of discourse may thus be seen as another instantiation of the dual-level structure of sharedness and individuality: you make an utterance expressing some kind of mental content - "Look at that cat" - and I respond with a comment on the same mutually understood topic: "It's a Siamese". You may then respond with "It's my sister's". We are jointly attending to a topic, the cat, and we are expressing different attitudes and/or perspectives on it. Perhaps of special importance are children's conversations in which the topic is a proposition, that is, some kind of truth-bearing assertion such as "That cat is sick", to which

the reply may be "No, It's not". In such exchanges, there is a linguistically expressed statement of fact and then the expression of some kind of conflicting attitude (or perspective), and both cannot both be right. Resolving the discrepancy requires a new level in the coordination of perspectives: the distinction between subjective perspectives and an objective perspective which they may or may not match, the basic prerequisite for understanding the notion of a false belief (Tomasello, 2018a). It is this kind of triangulation in discourse – different perspectives on shared topics - that is the raw material from which young children come to understand the dual-level reality of an "objective" situation on which there can be different subjective perspectives.

The main point is this: apes and very young human infants only imagine or track the epistemic states of others; they do not understand different perspectives on a common situation. From about their first birthdays, human infants begin to engage with others in joint attention to outside objects in which they relate the two perspectives involved, especially in referential communication. This enables them to "triangulate" on situations by engaging with others in joint attention relating their shared focus to their individual perspectives, scaling up to the joint attention to mental content characteristic of linguistic discourse. It takes much further social and communicative interaction with others before children construct an objective perspective and relate various subjective perspectives to it appropriately.

3.3 | Interim summary

Humphrey (1976) proposed that the selective forces shaping primate cognition, over and above mammalian cognition in general, were mainly social. Further in this direction, Tomasello (2014) proposed that the selective forces shaping human cognition, over and above primate cognition in general, emanated from the need for humans to coordinate and communicate with others in collaborative activities using skills and motivations of shared intentionality. Coordinating and communicating with one another in these ways meant that there were mutually understood social roles and the different perspectives that these involved, and these led humans to new forms of perspectival and objective thinking, the content of which included role-based thematic and narrative concepts. And so, human cognition is distinct from the cognition of other primate species in both its structure – subjective-objective structuring - and its content - relational-thematic-narrative content. The ultimate source for both of these novel dimensions, in the current view, is humans' adaptations for participating in collaborative, and ultimately cultural, activities involving shared goals comprising individual roles and perspectives.

4 | IMPLICATIONS FOR HUMAN SOCIALITY

Dual-level collaboration not only leads children to new ways of conceptualizing and thinking about the world, but it also leads them to new ways of interacting with and relating to others. First, through collaboration with others, children come to see their partner as more or less equivalent to themselves, which great apes do not do. Because we are both necessary for our joint success, and we are both subject to the same standards governing the roles involved, and we censure whichever of us does not cooperate, the result is a mutual respect for one another as equally deserving partners. Second, because children, unlike apes, are concerned with how "we" view "me" as a cooperative partner, they develop a sense of obligation to play their collaborative or cultural role (most basically as a cultural group member) in accordance with the groups' social norms. In short, by judging that they ought to play their role appropriately, they have begun to become normative beings, in the process of creating for themselves a moral identity.

4.1 | Collaborative roles and normative ideals

As noted, from around their first birthdays, young children engage with others in dual-level collaborative activities. For example, a child and mother may roll a ball back and forth or collaborate in the activity of getting the child dressed. In such activities, the two of them arguably have a joint goal of a type that other apes do not, and they each see themselves as playing a role toward that common end (see above). There is some evidence in this direction already for children at one year of age, but things become especially clear at around three years of age when children's collaborative activities begin to take a normative turn (Tomasello, 2018b).

Leading up to this normative turn is children's growing understanding of self-other equivalence: I am just one among other equally necessary and deserving participants in the collaboration. This insight dawns, most basically, as participation in dual-level collaboration, makes clear that: (i) both participants are equal causal forces in producing the mutually intended outcome; (ii) both partners could switch or reverse roles as needed; and (iii) the requirements or standards of performance for each role (so-called "role ideals") are impartial in the sense that they apply to anyone and everyone in that role. By the time they are 3 years of age, children thus come to understand a kind of self-other equivalence in the context of dual-level collaboration to the extent that they now view their partner as a mutually deserving second-personal agent to whom they owe equal respect and fairness (Darwall, 2006; Nagel, 1970). Because great apes do not participate in dual-level collaboration structured by joint intentionality, they do not come to this insight.

Self-other equivalence is the cognitive basis for a sense of fairness: to be fair I must treat myself in the same manner that I treat my partner, no more no less. Surprising evidence that dual-level collaboration is the natural home of a sense of fairness comes from studies (described in more detail above) in which three-year-old children share fairly with their collaborative partners, at the same time that they are being selfish with other children in similar but non-collaborative contexts (Hamann et al., 2011; Ulber, Hamann, & Tomasello, 2015). Great apes in similar circumstances do not discriminate between collaborative partners and others (Greenberg et al., 2010). Apparently, relating to another individual as a collaborative partner with a shared goal - perhaps for the reasons listed in the previous paragraph - leads children to respect their partner as equally deserving of the spoils. Importantly, children will accept pretty much any division of resources as long as they are treated equally with others. Thus they will accept an unequal divisions of resources - even with themselves getting less - if everyone is treated with equal respect, for example, if the resources are divided by drawing straws or rolling dice (so-called procedural justice Grocke, Rossano, & Tomasello, 2015). Self-other equivalence leads to judgments of fairness.

Self-other equivalence is also the cognitive basis for children's earliest normative judgments. In dual-level collaborative activities, we each want us to achieve our joint goal, and for that purpose we each want each of us to play our individual role appropriately. As children collaborate with others repeatedly there arises a common ground understanding of the ideal way that each role should be played for joint success (Kachel et al., 2018). And of course through some kind of abstraction there may develop some more general ideals or sub-goals that apply to all roles, like exerting effort and not abandoning the collaboration for selfish motives. Obviously, partners know in common ground that if either of them does not perform her role in the ideal way there will be joint failure. And it is successful execution of the roles that matters, not any personal characteristics of those who are playing them: the role ideals are in this way impartial. Recognizing the impartiality of role standards means recognizing that self and other are of equivalent status and importance to the collaborative enterprise. We may thus think of children's common ground understanding of ideal role performance in dual-level collaborative activities as the first, if still delimited, socially shared normative standards.

Often joint intentional activities are structured by a joint commitment (Gilbert, 2014). The key characteristic of joint commitments is the collaborative self-regulation implied: we will together sanction whichever of us does not fulfill her role ideal. The joint commitment thus has from the beginning a legitimate, normative force that acts as a self-regulatory device to keep the joint activity on track in the direction to which we both committed. The source of this normative force is not only the positive force of equality and respect that each partner feels for the other and her fate in the activity, but also the negative force of possible sanctions, deserved sanctions, for reneging. Both partners know together in common ground that that a failure to participate until the end will cause the other harm, will disrespect the value of her goals and concerns, will not be instrumentally rational in the context of our joint goal, and, now, will also trigger the 'we' that holds us both accountable. The joint commitment, a kind of invitation to trust, is thus backed by our implicit agreement that if I do not come through I will join you in punishing me. I will agree with you that I was wrong and deserve your resentment, and I may even acknowledge my role in your suffering, feel guilty, apologize to you, and assure you that it will never happen again. In effect, each of us agrees to join the other in judging whichever of us does not perform her role in the ideal way as normatively defective.

And so, the argument again is that even before young children understand societal roles - of the type focused on by most sociologists and social psychologists - they have come to grasp the notion of a more local social role in a more local collaborative activity. And this notion of social role in an interdependent collaborative activity is crucial to children's coming to have a sense of equality with others, a responsibility to others, and an expectation that others display the same attitudes toward them. The normative standards of moral behavior originate in collaborative activities in which we both have legitimate expectations about our partner's behavior if we are to fulfill our joint goal and/or joint commitment. Collaborative activities with individual roles are thus the natural home of normative attitudes about "what we owe to each other" (Scanlon, 1998). And they scale up quite naturally to societal roles in the cooperative activities of a cultural group.

4.2 | Cultural roles and moral identity

Individuals who survive by cooperating must be concerned with how others view them as cooperators. It has thus come to pass that humans, but not other great apes, worry incessantly about how others in their community are judging them (see Goffman, 1959, and Cooley, 1902, on the important role of self-presentation in human sociality). But, more importantly, as members of that community, they join others in judging themselves and how they are playing their collaborative and cultural roles.

Human children, but not great apes, thus engage in active impression management. In a comparative experiment, Engelmann, Herrmann, and Tomasello (2012); Engelmann, Rapp, Herrmann, and Tomasello (2016) gave 5-year-old human children and chimpanzees the opportunity to either help or steal from another child or chimpanzee. In some cases they did so while they were being watched by a conspecific peer, and in other cases they did so while they were in the room alone. As might be expected, the children helped the other child more, and stole from her less, when they were being watched by a peer than when they were alone. Chimpanzees, in contrast, did not care, one way or the other, that they were being observed. Further along these lines, Rapp, Engelmann, Herrmann, and Tomasello (2019) tested 4- and 5-year-old children and found that they shared resources more generously if they knew that their (and other children's) contributions might later be "advertised". And Herrmann, Engelmann, and Tomasello (2019) found that 5-year-old children would even compete to appear as the most cooperative individual, if they were being observed by a peer who was considering choosing a partner (but not when they were not being observed).

Children's strategic impression management is not moral; it is strategic. However, being able to simulate the judgments that others are making about oneself - seeing oneself from the outside, as it were - is the cognitive foundation for the moral capacity to have a conscience or feel guilty, and for holding oneself accountable to normative standards. And it is on this basis that children form a kind of moral identity in which they hold themselves to the same normative standards to which they hold others. They are thus adopting communal standards to judge everyone alike, themselves included (another consequence of self-other equivalence). To maintain their moral identities - even when they have transgressed - young children engage in various forms of moral discourse.

For many moral philosophers (e.g., Scanlon, 1998), the rational basis of morality lies in the shared justificatory structures of a moral community, since these are grounded in the community's shared ordering of values. In arguing about a moral situation, the individual must always be prepared to justify – to give reasons for - her choices both to others and to herself in ways that anchor her judgments in the community's shared value system. Justifications demonstrate one's continued identification with the group and its value system. For example, if a child has not put away her toys as asked, she might reply that she could not because she needed to help her baby sibling in trouble. This justification is likely to be accepted because we all accept together that helping a baby in need is more important than following cleaning-up instructions. But if the child attempts to justify her negligence by pleading that she was too tired, this is not likely to be accepted because resting is not as important as doing as one is told. Sometimes such justifications and excuses are strategic, simply to extricate oneself from trouble, but many times they are genuine in the sense that the child, as part of the "we" that is her community, judges her own reasons and excuses as either valid or not. She judges her own reasons, just as she judges her own acts, with the internalized judgments of "we", the moral community.

By sometime after age 5, young children have constructed in their collective common ground with their cultural group a hierarchy of values - not adult-like in all ways, of course, but adult-like in many ways - in which they know what kinds of reasons justify deviating from the group's norms. This shared hierarchy of values enables children not only to engage in new forms of moral discourse, but also to feel guilty. Thus, Vaish, Carpenter, and Tomasello (2016) found that when 3-year-old children thought that they had caused harm, they went to extensive efforts to repair it (and much more than if they had broken the toy when it caused no harm to anyone). They felt guilty for causing harm and wanted to make up for the damage done. Importantly, children also displayed their guilt overtly through body postures and verbal apologies (Vaish, Carpenter, & Tomasello, 2011). Such displays may preempt punishment from and this aspect may be seen as strategic, but guilt displays also perform the even more vital function of letting everyone know (including myself) that I now acknowledge publicly that I made a bad judgment, and this wayward action does not represent my true moral identity. I thus show solidarity with those who judge me harshly, and indeed I agree that this negative judgment of my behavior is deserved and legitimate. Feeling guilty thus goes beyond strategic concern for self-reputation; it is a negative judgment, using "our" shared standards, about my previous deviant behavior. Feeling guilty and displaying my guilt is thus an attempt to repair my moral identity.

And so, as soon as children begin evaluating themselves from the point of view of "we" in the community, they may be said to have a sense of self. When those evaluations begin to be moral, it is appropriate to talk about a moral self or moral identity. According to moral identity theorists, the proximate psychological mechanisms responsible for human moral action involve, essentially, moral judgments made by a moral self (with the representative authority of the moral community) that endures over time and that evaluates the self impartially in the same way that it evaluates others (Blasi, 1984; Hardy & Carlo, 2005; Tomasello, 2016). The standards used for evaluation are shared

in the community and concern how individuals are playing their roles, including the most basic role of simply being a member of the cultural and moral community.

4.3 | Interim summary

Human individuals are interdependent with others; they must cooperate to survive. This changes the nature of their social relations (i.e., from those of other apes) fundamentally. In coming to collaborate with others in a shared agency toward common ends, human children come to respect other individuals as equally deserving partners. Moreover, judging and being judged normatively for cooperativeness requires a shared hierarchy of values among group members as to how individuals should play their roles, including their most basic role as a member of the group. This judging process leads individuals to view themselves normatively from the point of view of "we" in the group, and so to form a moral identity.

5 | CONCLUSION

I have performed here a kind of bait and switch. I promised an analysis of the role of roles in human psychology, but ended up focusing on cooperation and shared intentionality more generally. But that is the point. There can be no notion of roles - again, from the participant's point of view - without the context of a larger cooperative enterprise. And it cannot be just any form of cooperation, but it must be of a type that contains some kind of shared agency in which there is a sense that "we" are acting together toward some joint end, each making a distinct contribution. The empirical evidence suggests that (i) the forms of cooperation practiced by other animals are not sufficient for such a sense, and (ii) the earliest social contexts within which children display such a sense are not pre-existing societal or institutional structures but rather spontaneous collaborative interactions with other individuals.

I have provided no evidence here that playing local roles in spontaneous collaboration with individuals is a necessary prerequisite for playing larger-scale societal roles, either in human evolution/history or in human ontogeny. But there is fairly good evidence that early humans engaged in various forms of collaboration before the emergence of culture and its institutional structures (see Tomasello, 2014), and also that children before three years of age collaborate with a notion of collaborative roles but do not understand culture and institutional structures at all (see Tomasello, 2019, Chapter 11). It is thus possible that the dual-level manner of thinking about social structures simply manifests in whatever forms of social interaction children are engaging in, and they do not engage meaningfully with cultural and institutional structures until after three years of age.

Our main focus has been on the psychological effects of structuring one's social interactions – of whatever type – in this dual-level manner with the shared goals and attention of a shared agent and its constitutive individual roles and perspectives. Cognitively, although it is quite natural for us to speak about the chimpanzees' perspective on the situation, this is from our external point of view. The chimpanzee does not conceptualize herself as taking one perspective among many possible ones; that is a human way of thinking. And, as we have argued here, it results from participating in collaborative activities structured by joint attention, which creates the possibility of individual perspectives on a common focus. Scaled up, we get to the kind of perspectiveless perspective (from any possible perspective) that constitutes what we humans call "objectivity". And, again, it may seem like chimpanzees participate in thematically structured events, which they do from our perspective, but they do not, as far as we can tell, conceptualize those events analytically in terms of events and the roles that participants play in them. Conceptualizing experience in terms of a relational-thematic-narrative dimension is a unique feature of human cognition emanating from dual-level social interactions.

Socially, it is easier for us to imagine that chimpanzees are not relating to others normatively or morally. But the claim here is that it goes even deeper than this. They do not even see others as equivalent to themselves, as other beings in the universe equally as deserving as themselves, with whom they share a kind of mutual respect. Humans in general, and human children in particular, do not always practice this way of thinking - their selfish motives often intrude - but they at least have the possibility of viewing themselves as only one cog in a social wheel, and so of treating others with equal respect and fairness. And in many ways the starkest social difference between chimpanzees and humans is that humans, even young children, are constantly worried about how others are judging them. As they join with others in these self-judgments, they become normative: "we" are viewing all individuals, including myself, from the objective perspective of "we" in the group and our shared values. Attempting to manage this process leads children to moral judgments, justifications, and excuses, as well as to feelings of guilt, all in the service of maintaining a sense of their own cooperative and moral identity.

The objective and normative world that human beings inhabit - seemingly so independent of their own perspectives and values – thus derives, in the current analysis, not from some objective-normative supernatural being, as the medievals would have it, or from some objective-normative reality existing independent of humans and all other beings, as the naïve realists would have it. But, rather, the human objective-normative world derives from the way that human individuals across evolutionary and developmental time construct a kind of externalized explanation for the varying and even conflicting social perspectives and values that they experience in their social roles in their cultural worlds.

ENDNOTE

[1] In this context, it may be that some things we call roles in modern society only marginally fit the category, or do so only from a functionalist perspective. One example might be gender roles as a common understanding of the "normal" way that members of each gender act. Some individuals may see themselves as supporting the existing structure of society by conforming to these roles, but others may not see it in that way at all. Here we do not consider such definitionally marginal cases (i.e., it may be more felicitous to talk not of gender roles but of gender stereotypes or prototypes).

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