Article

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Feeling Joint Ownership of Agency: The Normative Aspect of Agency Transformation

Abstract: Team reasoning is the idea that we can think as a 'we' and this can solve some coordination dilemmas, such as Hi-Lo. However, team reasoning can only solve the dilemmas it is intended to solve if the conditions for team reasoning warrant the belief that others will also perform team reasoning and these conditions cannot render team reasoning otiose. In this paper, I will supplement the theory of team reasoning by explaining how agency transformation also involves a change in the normative attitude. To do this, I will use the theory of affordances, which is the idea that the environment provides ways to interact with it. I will argue that when a person perceives as a group member, she associates herself and the other members with the group's mosaic of affordances. This triggers a feeling of joint ownership of the agency. It is the feeling that it is up to us to deal with the situation, so we feel entitled to demand each other to cooperate. It warrants the belief that others are team-reasoners without rendering team reasoning otiose. This means that the agency transformation (from *I* to *we*) involves a change in the normative attitude.

Keywords: joint agency, joint ownership, social affordance, social norms, team reasoning

1 Introduction

Team reasoning is the idea that we can think as a 'we' and this can solve some coordination dilemmas, such as Hi-Lo (Bacharach 2006). There is a problem with the theory of team reasoning, however, which is that team reasoning can only solve the dilemmas it was meant to solve if each member believes the others are also

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team-reasoners. The challenge is to explain how that can be possible without resorting to conditions that would render team reasoning otiose. For example, communication could explain how one team-reasoner believes the other will also perform team-reasoning. But communication could also enable individual-reasoners to solve the dilemma.

By using James Gibson's theory of affordances (1986), I will be able to supplement Michael Bacharach's theory of team reasoning (2006), by explaining how agency transformation will involve a change in the normative attitude of the members. Affordance is the idea that the environment provides ways to interact with it. A knife might afford 'cutting', but that does not mean there is a demand to use it to cut something. We live in a social world, filled with social norms, which can explain why certain actions are demanded or prohibited. If the person holding the knife is in a restaurant kitchen and dressed as a cook, you will not perceive him as a potential threat, the same way a pedestrian does not fear the cars on the road. Castro and Heras-Escribano (2020) provided a theory that when we perceive another person, we perceive a rule-follower. One could use their theory to explain team reasoning. However, as I will argue, it would render team reasoning otiose. If there is a normative background, then individual reasoning is sufficient to solve the dilemmas.

I will argue that when there are, say, two people sharing an environment, there are two ways for a person to perceive the situation, which leads to two different attitudes. One is to perceive as an individual person, who is dealing with the other person and with the environment. The other is to perceive as a group member, where the group is dealing with the environment. This is important, because, as I will argue, we associate a person with her mosaic of affordances. A mosaic of affordances is all of the affordances related to a person. The detection of a new affordance might not be a simple addition, it can impact the other affordances. So, for example, if you are near a train track, you do not feel associated with the train's movement. However, if you detect a lever that can change the derailed train's course, and save the lives of five at the expense of the life of one person, this can make you feel associated with the train's movement, regardless of whether you pull the lever or not. This means that this feeling is different from what is known as the sense of agency, which is the sense that I am intentionally doing something. I will call it *feeling ownership of the agency*.

If a person shares an environment with another person, she might perceive as an independent, individual agent interacting with the environment. In this case, she will form an individual mosaic of affordances. She will associate herself with her mosaic of affordances, which triggers a feeling of individual ownership of the agency. She feels that what she does is only up to her. She does not associate her mosaic of affordances with the other person. She does not feel the other person is

entitled to have a say in what she does or that she has a say in what the other does. However, if she perceives as a group member, she will perceive the possible interactions between the group and the environment. She will associate herself and the other person with the group's mosaic of affordances. This triggers a feeling of joint ownership of the agency. It is the feeling that dealing with the situation is up to them. What this means is that she will feel they are both accountable for the group's performance, so each answers to the other. She will feel entitled to demand the other person works as a team too, or to rebuke him if he does not, and also that he is also entitled to demand the same of her. Even if she cannot talk to the other person, she still feels he owes her to act as a team, as she feels they owe one another to work as a team. For example, if we are both in a rowing boat and I perceive the environment as a group member, it means that I will detect what the group can do. I will associate both of us to the group's mosaic of affordances. This will trigger me to feel joint ownership of the agency. I will feel that dealing with the environment is up to us. That is, it is up to us to row and get out of the lake. I will feel entitled to demand you to row too or to rebuke you if I discover that you are not rowing, regardless of whether we can talk or not. Therefore, the agency transformation (i.e. from perceiving as an independent individual to perceiving as a group member) will involve a transformation in the normative attitude of the members. This normative layer enables team reasoning to solve the dilemmas without rendering it otiose.

I should point out that team reasoning cannot be applied to all forms of joint agency. This is because not all cases of joint agency will involve collective reasoning, and not all cases will involve a normative aspect. My focus on this paper is only on joint actions that involve both these aspects. I call this form of joint agency *strict cooperation*.

2 Game Theory

Team reasoning, as formulated by Bacharach (2006), is an attempt to solve coordination dilemmas in game theory. First, I will explain what some of these dilemmas are, then how team reasoning can solve them. I will also explain Bacharach's variable frame theory, which is the idea that a person frames her agency either as an individual agency or as part of a group agency. Agency transformation is the process of ceasing to frame as an individual and starting to frame as a group member. Then, I will explain why a team reasoner needs to believe that the others are also team reasoners in order to solve the dilemmas and that the conditions for a person to frame as a team and to believe that others are also team reasoners cannot render team reasoning otiose. These will be the challenges for the theory of team reasoning, which I will attempt to solve.

2.1 Orthodox Game Theory

First, I will explain game theory and two dilemmas that orthodox game theory cannot solve, the Hi-Lo and the Prisoner's dilemma. The Hi-Lo is a situation where two people have to choose between *High* or *Low* and they cannot communicate with each other. If both choose *High*, both will get the best payoff. If both choose *Low*, both will get the second-best payoff. If they choose different options, both will get the worst payoff. The matrix of this game is illustrated in Figure 1:

		Me	
		High	*Low*
You	*High*	4, 4	0, 0
	Low	0, 0	1, 1

Figure 1: Hi-Lo.

According to game theory, the players are rational, in that they can think about what the other is likely to choose, and that each wants to maximize their own individual utility, that is, each wants to get the best payoff they can. The combination *High-High* is clearly the best option for a rational player. However, according to orthodox game theory, the rationality of the players is radically individualistic. Each player thinks in terms of "What should *I* do?" and applies best-reply thinking. This means that choosing *High* is only good when you think that I will choose *High* too. If you think I will choose *Low*, then the best option for you would be *Low* too. Since we cannot communicate with each other, we have equal reasons to think the other will play *High* or *Low*. In other words, choosing *High* is not more rational than choosing *Low*.

Orthodox game theory can only solve this dilemma if there were prior interactions or if there is the chance of future interactions, i.e. if the game is repeated. If you have played the game many times in the past, and people usually chose *High*, then one could say that this choice has a salience or that there is a convention to play *High* (see Lewis 1969; Schelling 1963). However, people could have chosen *Low* instead, and the choice *Low* should not be the rational choice. Future interactions can also solve the dilemma (see Axelrod 1984). If you think there will be future interactions, it becomes rational to play *High*. However, if it is a one-shot game, then the orthodox game theory cannot solve it.

Future interactions can also solve another famous dilemma in game theory, the Prisoner's dilemma (Figure 2). There is a big difference between this dilemma and the Hi-Lo. In the Prisoner's dilemma, the players have a dominant strategy, i.e.

there is one choice that always maximizes their utility function. The players have to choose between *Coop* or *Defect*. The worst scenario is when the other chooses *Defect* and you choose *Coop*. The second-worst scenario is when both choose *Defect*. The third-worst scenario is when both choose *Coop*. And the best scenario is when you choose *Defect* and the other chooses *Coop*. No matter what the other person chooses, *Defect* is always the best reply. This means that both are going to choose *Defect*, that is, the outcome will be *Defect-Defect*, which is worse for both than *Coop-Coop*. If the players think they will have more rounds of this game, but they do not know when it will be the last round, then it becomes rational to play *Coop*.[1] However, if it is a one-shot game, then, according to orthodox game theory, it will always be rational to choose *Defect*.

		Me	
		Coop	*Defect*
You	*Coop*	-4, -4	0, -10
	Defect	-10, 0	-8, -8

Figure 2: Prisoner's dilemma.

2.2 Team Reasoning

In order to improve game theory and solve these dilemmas, Bacharach (1999, 2006) introduced the concept of team reasoning.[2] Orthodox game theory fails to solve these dilemmas because it assumes only individual reasoning, which applies best-reply thinking. In the Prisoner's dilemma, the best reply to whatever the other player chooses is *Defect*; thus generating *Defect-Defect*, which is a bad outcome for both players. In the Hi-Lo, the best reply is *High* if the other player chooses *High*, and *Low* if the other player chooses *Low*; which means that playing *High* is not more rational than playing *Low*. Bacharach argues that this is not the only possible type of reasoning. For him, a player can think as a team. "Roughly, somebody 'team-reasons' if she *works out the best feasible combination of actions for all the*

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1 The players cannot know when it will be the last round. This is because, on the last round, it is rational to play *Defect*, as it maximizes individual utility. If both players know when the last round will be, both will play *Defect* in the last round, which means that the last opportunity to maximize individual utility by playing *Defect* is in the last-but-one round. The cascade effect will make it rational to play *Defect* since the first round.

2 Sugden (1993) also introduced the concept of team reasoning. The focus of this paper will be on Bacharach's account, though, because it involves a strong form of agency transformation.

members of her team, then does her part in it" (Bacharach 2006, p. 121). The player who thinks as a team member will think "What should *we* do?" instead of "What should *I* do?" (Bacharach 2006, p. 141). The "best feasible combination of actions for all members of the team" in the Hi-Lo is *High-High* and *Coop-Coop* in the Prisoner's dilemma. This means that, if a player performs team reasoning, then it is rational to choose *High* or *Coop*; thus solving the dilemmas.

2.3 Variable Frame Theory

For Bacharach, there are two ways to frame a situation: at the individual level or at the group level. This is his *variable frame theory* (Bacharach 2006, pp. 14–23). An agent, at its most basic level, is an entity that can choose between alternatives and has preferences:

> A frame is the set of concepts or predicates an agent uses in thinking about the world. If I see the marks as a circle, a triangle and a cross, my frame includes three shape concepts; if as an omicron, a delta and a xi, three letter concepts. I can also see them as both. But not at the same time. One does not just see, but one sees as (Bacharach 2006, p. 10 – the marks and letters are possible ways to interpret Figure 3 below).

$$O \; \Delta \; X$$

Figure 3: Marks or letters.

For Bacharach, whether a person sees a certain shape as a circle or as an omicron will depend on psychological factors. Bacharach refers to Gestalt and Post-Gestalt psychologists, according to whom, "entification in visual perception is involuntary" (Bacharach 2006, p. 71). Properties such as 'similarity', 'common fate', or 'contiguity', will be essential in how a person will frame the situation, i.e. if she will entify the group as the agent. So, Bacharach refers to factors such as the use of the pronoun 'we', having a 'common fate', and many others; but he does not give an exhaustive list of factors (Bacharach 2006, p. 76). He argues that a Hi-Lo game exhibits harmony, in that the players have a common interest, namely, *High-High*. They have a common fate, as either both get a good payoff, or both get a bad payoff. There is a "common interest which can only be achieved together", and there is strong interdependence, as "they depend upon each other, that is, they perceive that they will do well only if the other does something that does not seem to be assured" (Bacharach 2006, p. 84).

A person cannot rationally choose how to frame the interaction. This would imply a neutral position from which the agent can deliberate; but such deliberation would replicate the dilemma, which would generate infinite regress (see Pacherie 2011, pp. 186–187; see also Gold 2017, p. 224). If I think in terms of '*I*', I will frame the question about how to frame as "How should *I* frame the question?", which would lead to the answer "As 'what should *I* do?'". As Elisabeth Pacherie points out, Bacharach's aim was probably not to say that a person cannot choose her frame, but that it cannot be a matter of rational choice (Pacherie 2011, p. 186).

2.4 Agency Transformation

Team reasoning will involve both payoff transformation and agency transformation (Bacharach 2006, p. 90). There is payoff transformation, as the team has its own utility function, i.e. its own preference ranking. The discussion about how to model this utility function is something I will not deal with in this paper. What is important is that the team's utility function incorporates the payoffs of all members. Payoff transformation, however, is not enough to solve the dilemmas. If the players were altruists, then the payoff matrix of the Prisoner's dilemma would change and maybe it would be rational to choose *Coop*; but that would depend on how altruism transforms the payoffs. It could transform it into a Hi-Lo. Altruist players in a Hi-Lo are as lost as non-altruist players. This is because altruist players are still performing individual reasoning, which applies best-reply thinking.

What Bacharach means by agency transformation is not entirely clear, because sadly he passed away before completing his book. My proposal is to extend the notion of agency transformation to involve not only a change in the reasoning but also a change in the normative attitude. The change in the reasoning is that the person will think on a group level and the change in the normative attitude is that the person feels there is a demand to perform team reasoning, which means that the person will hold all group members accountable for the group's performance too. This normative aspect provides the necessary stability for team reasoning to work properly, as I will explain.

2.5 Team Reasoning Requires the Belief that Others are Also Team Reasoners in Order to Solve the Dilemmas

Let me first explain what this change in the reasoning is. In team reasoning, the rationality of the agency of each member is derived from the rationality of the group action. The team-reasoner no longer applies best-reply thinking. He will

identify the best outcome for the group and perform his part of it. Francesco Guala argues that this can be understood as solution thinking:

> At step one, I look at the problem and identify a focal point (the "obvious solution"). Step two replicates the procedure for the other player: she identifies the same focal point because she is just like me. Once the solution has been identified, I can derive my own actions and the actions of the other player by simple means-ends reasoning (step three). Using the same procedure ("she reasons in the same way") finally I predict what she will do and what she believes that I will do (Guala 2018, p. 364).

This means that team reasoning can only solve the Hi-Lo dilemma if both players think that the other will also perform team reasoning. If only one player performs team reasoning, he will not be able to apply solution thinking. For Bacharach, it is possible to frame as a team member and, yet, not be assured whether the other player also frames as a team member. This would be a case of circumspect team reasoning (Bacharach 2006, pp. 130–135).[3] If I am assured that the other person will not perform team reasoning, then it is a case of restricted team reasoning (Bacharach 2006, pp. 127–129). The team is composed of the members of the group that perform team reasoning, but the group can include members who do not perform it. In a restricted team reasoning, for example, if I perform team reasoning, I will try to maximize the group's utility, but I will have to apply best-reply thinking. Using Guala's terms, the belief that both players are team-reasoners is the necessary input belief to get the output belief that I will choose *High* and you will choose *High* (Guala 2018, p. 364). Without that input belief, a team reasoner cannot solve the Hi-Lo or the Prisoner's dilemma.

2.6 The Challenge: The Conditions for Team Reasoning cannot Render Team Reasoning Otiose

This gives rise to a problem for team reasoning, namely, how can a person form a belief that the other player is also going to perform team reasoning. As Abraham Roth argues, if "we have any conclusive evidence for believing that they are [team-reasoners], then we don't need team reasoning" (Roth 2014, p. 294). Roth's worry is accentuated in the case of the Prisoner's dilemma. If I believe that you are a team-reasoner, this might encourage me to play *Defect*, i.e. to double-cross you. Roth's own solution is to say that team reasoning will have to be manifest and not based

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3 For Sugden, for a person to perform team reasoning, there must be a *mutual assurance* that both players are team-reasoners (Sugden 2015, p. 156 and 162). This is the main difference between his account and Bacharach's account of team reasoning.

on evidence: "if the rationality of team reasoning is manifest, then this should be demonstration enough of a non-evidential yet defeasible entitlement or warrant to think that fellow participants are team reasoners" (Roth 2014, p. 294).[4]

The challenge is not only that whatever conditions cause a person to perform team reasoning should also "entitle or warrant" her to think that fellow participants are team reasoners and it must prevent double-crossing. The challenge is also to explain how such conditions do not render team reasoning otiose (Roth 2014, p. 291). For example, communication could explain such a 'warrant' to think that the other will perform team reasoning, but if we can communicate, then we do not need team reasoning to solve the Hi-Lo. Besides, communication might not prevent double-crossing in the Prisoner's dilemma.

3 Affordances

In order to address this challenge, I will use Gibson's notion of affordance (1986) to explain how the agency transformation involves a change in the normative attitude. Affordance is the idea that the environment provides ways to interact with it. Social affordances are about how people perceive each other, that is, about social cognition. Affordances themselves are not normative, they are just possibilities of action, i.e. there is not a demand. Therefore, I will have to explain how there can be a relation between affordances and normativity. First, I will explain how one could explain this relation, and thus explain team reasoning, by using Castro and Heras-Escribano's normative approach to social cognition (2020). Their idea is that when we perceive other people, we perceive rule-followers of social norms. The problem of applying their approach to explain team reasoning is that it would fail Roth's challenge. This is because if there is a normative background, then even individual-reasoners can solve the Hi-Lo dilemma (though not the Prisoner's dilemma), which means that we would not need the theory of team reasoning.

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4 Saying that team reasoning is manifest might seem a bit mysterious. One could understand this 'manifestness' of team reasoning as something akin to a Neo-Anscombian account. According to Anscombe (1963), an intentional action is an action that I know I am doing without having to observe it (i.e. knowledge without observation). The Neo-Anscombian approach to joint agency is to consider that in a collective intentional action, we know what we are doing without having to observe (see Laurence 2011). From the perspective of the team reasoner, he finds himself within the group's frame, and he does not need to give an explanation of why he perceives his agency as part of a group agency. The account I will offer in this paper is different, because instead of using the concept of intentional action, I will use the concept of affordance to understand agency transformation.

3.1 Affordances and Social Affordances

Gibson's idea is that "the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill" (Gibson 1986, p. 127). This means that when you see a glass of water, you do not first identify that it is a transparent solid object containing a transparent liquid, infer that it is a cup of glass containing water, and then infer that you can drink it. First and foremost, you perceive the affordances, in this case, that it is 'drinkable'. When you see a lake, what you perceive is what it affords you. A lake affords 'swimming-in-able', but not 'walk-on-able'. The affordances of the environment give shape to the ways to interact with it. As you explore the environment, you detect new affordances. Another important point is that what is afforded depends on the features of the organism and the features of the environment. If a person does not have the skill or the tools to swim, then a lake does not afford her 'swimming-in-able'. A cave only affords 'shelter' if you can fit in it.

Humans live in a social environment. Artifacts are designed having in mind the ways people can interact with them. A door with a knob, for example, affords a human who has capable hands a way to interact with it: use the knob to open the door.[5] The other key aspect of the notion of social affordance is that the presence of another person offers new possibilities of agency. As Gibson says, "behavior affords behavior" (Gibson 1986, p. 135). Imagine you see a big rock. It seems heavy and it does not afford you a way to move it. Now, imagine there is someone else near you. The presence of another person affords a way to move the rock. When you perceive that there is another person present, you perceive the presence of another agent, who is also exploring and detecting the environment.

3.2 Normative Approach to Social Cognition

When you detect the presence of another person, this opens possibilities of interaction. If you are playing poker, you will try to read what is in the other player's mind. This gives rise to a widely discussed problem, namely, how a person can have access to the other person's mental states. There are many theories on this topic, and it would go beyond the scope of this paper to talk about them. From the many theories about social cognition, there is one that seems relevant to discuss here. It is Castro and Heras-Escribano's normative approach to social cognition

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5 We also organize an environment to shape what it can afford. For example, whatever a baby sees, even if it is not an object produced by humans, it is placed in the baby's room in a very careful way (Costall 1995, p. 472).

(2020). One could use their approach to explain how team reasoning can be possible. However, as I will argue, it would fail Roth's challenge.

Castro and Heras-Escribano's argument is that we cannot make sense of human behavior without resorting to a normative background. From the moment we are born, we interact with a world of rules. The social environment is not only an environment where there is the presence of other people. It is also, and maybe most importantly, an environment filled with social norms, which are related to certain affordances. Suppose you are on the side-walk and you see a car in the street. You detect a driver, i.e. a person who must follow the traffic norms. So, you are not afraid of the car hitting you, because the social norms constrain this affordance. We make sense of each other's actions by framing them within a normative background (see Castro and Heras-Escribano 2020, p. 83).

They argue that the social structure is a network of nodes and when we perceive another person, we perceive which node she occupies. Based on that, we form expectations about what the other person will do, or what her intentions are (Castro and Heras-Escribano 2020, p. 89). And we hold her accountable for her actions based on the node she occupies in relation to the network (Castro and Heras-Escribano 2020, p. 81). As they argue, "we easily make sense of others' behavior by looking at the social norms shared by a community rather than trying to infer what's going on in a particular person's mind" (Castro and Heras-Escribano 2020, p. 89).[6]

3.3 The Normative Approach Applied to Team Reasoning

Castro and Heras-Escribing's approach (2020) can explain the relation between social affordances and social norms. As such, it seems like a promising way to explain team reasoning. Take the Prisoner's dilemma for example. According to their theory, we do not need to infer or simulate what each other is thinking. We know what node each one occupies, e.g. we are both low-rank members of the same gang. If there is a social norm that gang members should help one another, as they need to promote the gang's business, then that can be enough to explain team reasoning. I know that what is expected of me is to assist the gang, which means that I am expected to work as a team with the other gang member. In other words, there is a warrant to believe that we are both going to perform team reasoning. In

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6 Although Castro and Heras-Escribano do not mention her, their notion of social structure as a network is consistent with Katherine Ritchie's account (2020) of social structures. For the same reason that their account could be applied to team reasoning, but it would fail Roth's challenge (which I will explain in Section 3.4), so it would fail if we applied Ritchie's account to team reasoning as well.

addition, we will be held accountable for our actions according to the node we occupy, which adds a layer of protection against double-crossing. There is a normative background demanding us both to work as a team. If I play *Defect*, I will have contravened the social norms.

This approach can also solve the Hi-Lo dilemma. If social norms related to the nodes we occupy in the social network demand us to work together, then there is a normative pressure for each of us to perform team reasoning. The normative background explains why I will frame as a group and it also explains why I will think you will also frame as a group. Therefore, we will be able to coordinate at *High-High*.

3.4 Normative Background Renders Team Reasoning Otiose

At first glance, it seems the normative approach to social cognition can explain team reasoning. Indeed, it does, but it would render team reasoning otiose. To recap, Roth's challenge is that the conditions for team reasoning should not enable individual reasoning to solve the dilemmas, otherwise team reasoning would not be necessary. As long as it is possible to solve the dilemmas without using team reasoning, then, using Ockham's Razor, we are better off by not using team reasoning at all. This does not mean that such an approach gives a bad account of human behavior. What it means is that it does not work as a definitive argument supporting team reasoning.

Such an approach would render team reasoning otiose because the presence of a normative background enables individual reasoning to solve the dilemmas. First, consider the Hi-Lo dilemma in a case where there is a social norm to work as a team. Because there is such a social norm, I will expect my partner not only to employ team reasoning but also to believe that I will employ team reasoning as well. I might perform individual reasoning and, using best-reply thinking, I can easily infer that he will choose *High*, which means that my best-reply is to choose *High* as well. Maybe neither of us is framing as a team, but both believe the other is and that the other thinks both are team-reasoners, which means that each of us, using individual reasoning and best-reply thinking, will end up choosing *High*. These previous cases do not render team reasoning completely otiose because, although each person is performing individual reasoning, each believes the other is performing team reasoning. So, they are making use of the idea of team reasoning. However, if there is a normative background, then they might not even use the idea of team reasoning at all. It could very well be the case that the social norm is not to employ one type of thinking (e.g. team reasoning) but to choose one specific course of action. For instance, a person with a knife affords a series of

possible interactions, one of them being aggression. However, if such a person is dressed as a cook and she is in a restaurant, then it will not afford aggression. This is because, according to Castro and Heras-Escribano's approach (2020), there are social norms in place, which constrain that affordance. Returning to the Hi-Lo case, social norms can constrain the opportunity of choosing *Low*. This can be enough for an individual reasoner to choose *High*, as he expects the other to choose *High* as well. What I mean is that social norms might just give salience to an option, which is enough for individual reasoning to solve a Hi-Lo. The social norm could also be to play *Low*, which would lead to a sub-optimal solution for the Hi-Lo.

Regarding the Prisoner's dilemma, for an individual reasoner, even if there is a social norm to perform team reasoning or to choose *Coop*, for himself it is better to choose *Defect*. No amount of information or assurance about what the other will choose will change his best strategy. This means that the normative background can only solve the dilemma (in a one-shot case) if it changes the matrix. For instance, choosing *Defect* is a deviation from the norm, and we will be held accountable for such a choice. If there is an impact on future interactions, then it is not really a one-shot interaction, and individual reasoning can explain why it would be rational to choose *Coop*. If there is immediate punishment, then this punishment should be incorporated into the payoffs of the game matrix. If choosing *Defect* is always worse, because of such punishment, then it is no longer a Prisoner's dilemma.

3.5 Social Identities Would Also Render Team Reasoning Otiose

Normative background can give a lot of information, and all that extra information can enable individual reasoning to solve the Hi-Lo dilemma. For the same reason, using theories of shared value or social identities to explain team reasoning would not be a good strategy. Castro and Heras-Escribano's normative approach to social cognition is similar to Marcus Hedahl and Bryce Huebner's account of how shared values can explain cooperation (Hedahl and Huebner 2018).

Hedahl and Huebner's idea is that shared values can generate demand and entitlement to demand. People have social identities and, if we share a social identity, then we can expect and demand each other to behave according to the values we share (Hedahl and Huebner 2018, p. 245). For example, if we are both fishers from the same village, then we share that social identity. To share a social identity means to share a pack of values, such as praising fishing as noble labor and protecting the lake where we fish. If there is a factory nearby polluting the river and I know you are also a fisher, then I, as a fellow fisher, will expect you to uphold

the same values and to act accordingly. If you do not, then I will hold you accountable based on that social identity. As you can notice, this is very similar to Castro and Heras-Escribano's idea that we form expectations about what people will do and we hold them accountable for their actions based on the normative background (Castro and Heras-Escribano 2020, p. 81).

Hedahl and Huebner's account would also render team reasoning otiose. Sharing a social identity can make one choice salient, enabling individual reasoning to solve a Hi-Lo dilemma (or to solve it sub-optimally by making option *Low* salient). In fact, the fisherman might not even engage in best-reply thinking. He might just act unthinkingly in accordance with his social identity and values. Moreover, social identities can be good explanations of behavior that is not a joint action. A father shares a social identity with his child and he will demand his child to act in certain ways, such as not wearing certain clothes. This is the case even if the child does not live with his father and the child makes his own choices about what to wear. The child wearing clothes, arguably, is not a joint action between the father and the child. Theories of social identities are important to explain certain behaviors, but they would not be the most appropriate way to explain team reasoning.

3.6 Normativity and Affordances

None of the authors I have presented tried to apply their accounts to team reasoning. I explained why their accounts would fail to explain team reasoning, for two reasons. First, they are good accounts of social behavior and are potential candidates to explain team reasoning. Second, team reasoning can explain how cooperation is rational even in a one-shot game of Hi-Lo or Prisoner's dilemma. If these other accounts cannot successfully explain team reasoning, then it means that certain kinds of cooperation are beyond their scope. What this means is that there is more to strict cooperation than these theories are able to explain.

The main argument I am making in this paper is that agency transformation (from individual-reasoner to team-reasoner) will also involve a normative transformation. I have argued that we can use the notion of affordance to analyze human behavior. What I will now argue is that this notion of affordance can help us to explain the normative aspect of the agency transformation.

I should highlight here that, according to Manuel Heras-Escribano and Manuel de Pinedo, it would be wrong to say that an affordance is normative, since affordance is just an opportunity of action, not a norm (Heras-Escribano and Pinedo 2016, p. 581). As they argue, some affordances can be related to social

norms (Heras-Escribano and Pinedo 2016, p. 587). But affordances, by themselves, are not normative (Heras-Escribano 2019, p. 110).

Some people argue that affordances are normative, such as Chemero (2009). However, he argues that all affordances are normative (Chemero 2009, p. 145). What Chemero means by 'normative' is not the same as what I mean in this paper. What he means is that affordances are related to abilities. Roughly, his argument is that you can fail to perform some ability, so you can fail at taking advantage of a certain affordance. What I mean by normativity is not something related to abilities. Rather, it is about a demand to act in a way or constraints not to act in a certain way. Perceiving that something is 'walk-on-able' does not mean there is a demand to walk on it. You might fail to walk on it, but this does not mean there is a normativity involved there. What I think is that some affordances are related to a feeling of a normative demand and constrain.[7]

If affordances themselves cannot be normative, and if the normative background is insufficient to explain team reasoning, this means that I have a double challenge here. I have to explain how the affordances of an interaction can involve a normative aspect, which supports team reasoning without rendering it otiose, and without referring to social norms.

4 Feeling Joint Ownership of Agency

My argument is that agency transformation can be understood as the person perceiving as a group member, the group interacting with the environment. First, I will explain that a person perceives many affordances, i.e. the many possibilities of interaction with the environment. This forms her mosaic of affordances. Then, I will explain that when a person perceives as a group member, the person perceives the many possibilities of interaction between the group and the environment. This forms a collective mosaic of affordances. I will explain that we act and judge our performance according to not one specific affordance, but according to the mosaic of affordances. We make an association between a person and a performance. I will argue that a person feels an association with her performance according to her mosaic of affordances, which I will call feeling ownership of the action. My argument is that perceiving as a group member means that you will contrast your agency with the group's mosaic of affordances. This triggers the feeling of joint ownership of the agency, which is the feeling that we are accountable for one another concerning the group's performance. It is the feeling that it is up to us, as a

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7 Heras-Escribano has explained at length the problems with Chemero's account (see Heras-Escribano 2019).

group, to deal with the situation. This feeling adds a normative layer that enables team reasoning to solve the dilemmas, without rendering it otiose.

4.1 Perceiving the Environment and Other People

As the person detects the affordances of the environment, she perceives many ways to interact with it. This creates a mosaic of affordances, which is her profile of possible actions. This does not mean that she will act in one way or another, but as she detects new affordances, this can change her behavior, because it changes the perspective that she has of the actions she can take. For instance, if a person sees a source of food, this provides 'satisfying-hunger-able'. The food is on the other side of the river, which means that the person will get wet. She can also choose not to cross the river. So, the situation actually affords a composition of eating and getting wet, and a composition of not crossing and not eating. Getting wet might not be in the person's interest. If the person also detects a towel near the food, this will afford 'getting-dry', so now it is a good choice to cross the river to get the food. Perceiving a new affordance can impact the mosaic of affordances.

A person can also perceive the presence of another person. This can also impact what is afforded to each one. Let us consider a case where there is only one person. She sees a big rock. This does not afford her 'move-it-able', as the rock is too heavy. Now, let us introduce one more person sharing the environment. They can see each other, and because they share the environment in fairly equal positions, they are aware that both can perceive the environment and the big rock. Because there is one more person, who together can move the rock, the situation now affords 'move-it-able'. The presence of another person changed the affordances.

My suggestion is that, when there is another person in the environment, there are two possible ways they can perceive the situation. One is to perceive as an independent individual dealing with another independent individual and the environment. Each with their own individual mosaic of affordances. The other way is to perceive as a group member, the group dealing with the environment. The group has possible ways to interact with the environment, i.e. a collective mosaic of affordances. What I have just done is to translate Bacharach's variable frame theory into the language of affordances. It is the difference between perceiving yourself as an individual agent or as part of a group agent. Framing as a team, however, does not enable team reasoning to solve the dilemmas, not if the members do not believe that they are both team-reasoners. This means that just perceiving as a group member is not enough.

Before I proceed, I should point out that team reasoning is not something afforded. The environment affords possibilities of interaction. If a person perceives as an independent individual, she will think about what she should do, according to her individual mosaic of affordances. That is, she will frame as an individual and, thus, perform individual reasoning. If a person perceives as a group member, with its collective mosaic of affordances, she will perform team reasoning. Certain features of the environment induce a person to frame as a group member, but that is not the same as saying that the environment *affords* team reasoning. If that was the case, then it would be up to the person to decide whether or not to perform team reasoning, which would replicate the dilemma (see Section 2.3).

4.2 Affordances and Feeling Ownership of the Agency

The existence of a specific affordance does not mean the person will take advantage of it. However, what a person does is based on the affordances. A new possibility of interacting with the environment will impact the other ways to interact with the environment. A lake affords 'swimming-able', but it also affords 'getting-wet'. If there is a towel, this affords 'getting-dry', which means that the option of 'swimming' becomes more attractive. What a person does is based not on one specific affordance, but on the whole mosaic of affordances.

We usually associate a performance with an agent. When we see a car, we associate the movement of the car with the driver. If the car hits a pedestrian, we blame the driver. If the car managed to avoid a collision, we praise the driver. We make judgments of accountability based on this association between an agent and a performance. I have argued that what a person does depends on the mosaic of affordances. This means that we hold a person accountable for her actions based on her mosaic of affordances. If the car hit the pedestrian, but it had no other choice, this would relieve the accountability of the driver. He is still the author of what happened, but his mosaic of affordances did not include a different course of action.

My suggestion is that this association between the agent and the performance can be understood as a feeling of ownership of the agency. When a person perceives the environment, she forms a mosaic of affordance. This triggers a feeling of being associated with what you perform based on the mosaic of affordances. If you are behind the wheel of a car, this triggers a feeling that the performance of the car movement belongs to you. By belonging I mean it is *your* agency. To an extent, you feel you own what happens to the car.

Consider the trolley dilemma. There is a train without brakes, and on the train track, there are five people who will be hit by the train. You are next to a lever, and

if you pull it, it will redirect the train to another track, where there is only one person. Let us first consider a scenario where there is no lever. You would not feel connected to what happens to the train. My suggestion is that the presence of the lever adds an affordance that impacts the mosaic of affordances. You could decide not to pull the lever and not change the train's course. However, in this case, you would feel connected to what happens to the train. The presence of the lever, regardless of whether you end up pulling it or not, triggers in you a feeling of being associated with the train's movement. She feels it is up to her to pull or not to pull the lever. The composition of affordances triggers the person to feel ownership of certain performances.

4.3 Why 'Ownership' of Agency?

One could argue that I should not use the term 'ownership' as applying to agency because agency is not something that can be owned, like a product can be owned.[8] If you own a ball, you can do all sorts of things with it, including selling it to me. The moment I buy your ball, it becomes mine and I can take it far away from you. One could argue that you cannot do that to agency. I can sell my labor to you, e.g. you can hire me to paint a house, but it is still me who has to undergo the experience of painting. You cannot take my agency away from me.[9] What you can do is to take the product of my agency away from me. This is true, but I am not arguing that agency should be understood as an object. Ownership of an agency is not the same as ownership of an object. I use the term 'ownership' because it refers to the notion of belonging. My argument is that there is a feeling of association between a person and what she performs, an association of belonging.

When we say that 'this house belongs to me', what we mean is a relation of possession of a property. We also say that 'I belong to my people', but what this means is not that my community possesses me like a property. What we mean is a connection between me and my community. When I say that a person feels she owns the agency, what I mean is that she feels that agency belongs to her, where "belong" is not understood as a relation of property possession or of social identity. What I mean by "feeling ownership of the agency" is an association between a person and a performance, where she feels a certain performance is *up to her*.

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8 It might sound strange to use the term 'ownership' in relation to agency, however, many philosophers have said similar things. John Locke said that a person is the proprietor of her actions (see Locke 1988, §27 and §44). In Kant's philosophy, acts can be transferred through agreement. Arthur Ripstein, a Kantian, says that "through our agreement, I do not acquire an external thing, but your deed" (Ripstein 2009, p. 69).

9 Thanks to an anonymous referee for pressing me to clarify this point.

4.4 Feeling Ownership of the Agency

Another reason I use the term 'ownership of the agency' is because I need to distinguish this feeling from what is known as the *sense of agency* and the *sense of ownership*, which are also associations between an agent and a performance. Shaun Gallagher defines the sense of agency as "the sense that I am the one who is causing or generating an action" (Gallagher 2000, p. 15). If I intentionally move my arm, I sense that I am the agent causing it. If someone applies an electric stimulation to my brain, which makes my arm to move, I do not sense that I was the agent who caused it, but it was my body that moved. This is what Gallagher calls a sense of ownership, "the sense that I am the one who is undergoing an experience" (Gallagher 2000, p. 15). It is about ownership of the body, which means that a better label for it would be 'sense of ownership of the body'.

Let us return to the trolley example. In the first scenario, there is no lever. You could not possibly feel a sense of agency. Neither would you feel a feeling of ownership of the agency. In the second scenario, there is a lever. If you pull the lever, then you will have a sense of agency. However, if you do not pull the lever, then, arguably, you will not have a sense of agency. You will not undergo the experience of pulling it. Nonetheless, because there is a lever, my argument is that it will make you feel ownership of the agency. It is the feeling that you had a part in it, that what happened was partially up to you, regardless of having taken some action or not.

The feeling of ownership of the agency is a bit broader than the sense of agency. The sense of agency applies only to the experience of acting. This means that there is a sense of agency of stopping the car, and there is a sense of agency of accelerating the car. These are different experiences, different actions with different intentions. The feeling of ownership of the agency is based on the mosaic of affordances. When you are behind the wheel, you feel you own the car's movement, whether by stopping it or by accelerating it.

4.5 Perceiving as a Group Member Leads to Feeling Joint Ownership of the Agency

When a person perceives the other as an independent, isolated agent, she will perceive her own individual affordances and she might form a notion of what the other person perceives. In this case, she will have her own mosaic of affordances and the other person will have theirs. So, she associates her agency with her mosaic of affordances. This triggers a feeling of individual ownership of the

agency. She does not associate herself with the other person's mosaic of afford-ance, which means that she does not feel she is entitled to have a say in what the other person does. Likewise, she does not associate the other person with her mosaic of affordances, which means that she does not feel the other is entitled to have a say on what she will do. Absent social norms or shared values, there is no room for her to feel entitled to demand anything from the other.

When a person perceives as a group member, she frames her agency as part of the interaction between the group and the environment; the group with its own collective mosaic of affordances. She perceives the possibilities of interaction as the group's possibilities; this is what I mean by a collective mosaic of affordances. So, she will associate her agency and the other person's agency with the group's mosaic of affordances. This triggers a feeling of joint ownership of the agency. She feels that the possible interactions with the environment are up to *them*. She associates both of them with the group's performance. She will frame the actions of the other person as contributions to the group's performance. Because of this, she feels each is entitled to demand the other to behave accordingly. She feels that what the other person does is up to her, and vice-versa. This means that the agency transformation, i.e. perceiving myself as part of a group agent, triggers a feeling of normative unity.

4.6 Feeling Joint Ownership of the Agency Does Not Render Team Reasoning Otiose

My argument is that perceiving as a group member triggers a feeling of joint ownership of the agency, which enables team reasoning to solve the dilemmas. Let us consider a one-shot Prisoner's dilemma, without communication or social norms. Consider that the players perceive each other as independent individuals. Each person has their own possible choices, which is contrasted to their own individual mosaics of affordances. This means that each person answers only for her own agency. Technically, on a first level, the situation affords you 'play *Coop*' or 'play *Defect*', but what will end up happening depends on the other player as well. Behavior affords behavior. The absence of any way to form and enforce a pact means that the mosaic of affordances offers you a way to defend yourself from getting suckered (i.e. by playing *Defect*). You perceive a grim scenario, where conflict is inevitable. No matter what you choose, you do not feel entitled to rebuke the other person.

Now consider the same game, but that the players perceive each other as composing one group. Each person has their own choice, like before, but they perceive a different mosaic of affordances. Each one's agency will be contrasted

with the collective mosaic of affordances. This triggers a feeling of joint ownership of the agency. What this means is that each person perceives the situation as up to them to deal with. They both feel they answer to one another. Each feels entitled to demand each other to act as a group. This feeling of normative unity warrants the belief that other is also going to perform team reasoning. And this unlocks *Coop-Coop*.

The same will happen to the case of Hi-Lo. Perceiving as a group member enables coordination at *High-High*, because it triggers a feeling of joint ownership of the agency. This does not render team reasoning otiose. If a person perceives as a group member and associates herself with the collective mosaic of affordances, this will trigger the person to feel joint ownership of the agency. It will trigger this feeling because, as I have argued, we normally make an association between a person and her agency based on her composition of affordances. In this case, she will associate every member's agency with the collective mosaic of affordances. This means that even without a previous agreement or social norms, I feel entitled not only to expect the others to cooperate but also to demand them to cooperate and to rebuke them in case they do not. Because I feel there is a normative relation between us, this gives the necessary stability for a team-reasoner to solve a Hi-Lo or a Prisoner's dilemma.

Communication and agreements might assist a person to perceive as a group member, but these are not necessary conditions. Think of a rowing boat for four people in the middle of a storm. If there are four people on it, this is enough for a person to perceive as a group member. The rowing boat is like a car with four drivers behind four wheels. A person might perceive this as a case where it is up to the four rowers, as a group, to deal with the situation. In this case, each one's action will be contrasted with the collective mosaic of affordances, which triggers a feeling of joint ownership of rowing the boat. If one of them does not contribute to the rowing activity, the others will feel entitled to rebuke him, even if there was no previous agreement.

There can be many factors that promote perceiving as a group member and feeling joint ownership of the agency. Think of football fans. If you are supporting your team in a football stadium, there is this feeling of jointly owning the team's performance. It is not uncommon for players to say that the supporters 'pushed the team', that it gave them that bit of extra strength to keep playing. Quiet supporters, in the stadium, can be criticized for not doing their part. A quiet crowd will not 'push the team'. There is a feeling that the supporters jointly own the team's performance. When the team wins, they share part of that experience. The point is not whether the supporters really had a causal connection with the team's performance, but that they feel that they are jointly accountable for the team's

performance. It would go beyond the scope of this paper to analyze the possible factors that promote or undermine the feeling of joint ownership of the agency.[10]

Feeling joint ownership of the agency does not exclude restricted team reasoning. According to my argument, when a person undergoes agency transformation, this triggers feeling joint ownership of the agency. No extra information or conditions are necessary in order to trigger such a feeling. If you perceive as a group member, then you do not need extra information in order to form an expectation that others will cooperate. It is the other way around. You would need extra information in order *not to* form such an expectation. And even if this happens, you are still going to feel entitled to rebuke them. Lack of trust leads to restricted team reasoning, but that does not mean the normative aspect is gone.[11]

5 Conclusion

There is a problem with the theory of team reasoning. Team reasoning can only solve the dilemmas it is intended to solve if the conditions for team reasoning warrant the belief that others will also perform team reasoning and these conditions cannot render team reasoning otiose. For example, if there are social norms or previous agreements, then individual-reasoners can solve the dilemma. In this paper, I have attempted to approach Bacharach's variable frame theory using the theory of affordances. Affordance is the idea that the environment provides ways to interact with it.

Simply put, my argument is that agency transformation (from *I* to *we*) will involve a change in the normative attitude, which is that they will feel joint ownership of the agency. My argument is that when a person perceives herself as an independent individual in comparison to the other person (i.e. she frames as an '*I*'), she will have her mosaic of affordances, which triggers in her a feeling of individual

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10 Michael Tomasello did some experiments with toddlers which suggest that around the age of three they undergo a normative turn, and it is also the age when they can form a concept of 'we' (Tomasello 2019, pp. 202, 220 and 238). They start to understand entitlements and demands around that age (see also Goulding and Friedman 2018; Schmidt, Rakoczy, and Tomasello 2013). The idea that a robust notion of 'we' involves a normative attitude corroborates the account I am presenting in this paper.

11 What I mean by feeling joint ownership of the agency is very similar to Gilbert's (2014) theory of joint commitment. The problem with applying Gilbert's theory to team reasoning is that, first, forming a joint commitment is a rational choice, and framing as a team cannot be a rational choice. Second, the existence of a joint commitment would render team reasoning otiose, as joint commitment requires common knowledge of each members' expression of readiness, no matter how tacit they can be (see Gilbert 2014, p. 29; Tollefsen 2015, pp. 44–45).

ownership of agency (as she will not consider her agency as part of a group agency). We hold a person accountable for her agency by contrasting what she did with her mosaic of affordances. The mosaic of affordances is all the affordances related to a person. When a person perceives as a group member, she perceives as a group interacting with the environment. This means that the group will have its own collective mosaic of affordances. By associating herself with the collective mosaic of affordances (which is what she perceives, as she perceives as a group member), this will trigger in her a feeling of joint ownership of the agency. It is the feeling that a certain situation is up to us to deal with, so we feel we are entitled to hold one another accountable for the group's performance. For example, if we are in a rowing boat with four people, we will associate the rowing activity with the four of us. We will feel that it is up to us to row, so we feel entitled to demand one another to row. This normative aspect warrants the belief that the other will perform team reasoning. It is possible to achieve this feeling without having prior or future interactions and without the existence of previous agreements or social norms. This means we are able to explain team reasoning without rendering it otiose.

References

Anscombe, E. 1963. *Intention*, 2nd ed. Oxford: Blackwell.

Axelrod, R. 1984. *The Evolution of Cooperation*. New York: Basic Books.

Bacharach, M. 1999. "Interactive Team Reasoning: A Contribution to the Theory of Co-operation." *Research in Economics* 53: 117–47.

Bacharach, M. 2006. *Beyond Individual Choice: Team and Frames in Game Theory*. Princeton, New Jersey: Princeton University Press.

Castro, V. F., and M. Heras-Escribano. 2020. "Social Cognition: A Normative Approach." *Acta Analytica: Philosophy and Psychology* 35 (1): 75–100.

Chemero, A. 2009. *Radical Embodied Cognitive Science*. Cambridge: The MIT Press.

Costall, A. 1995. "Socializing Affordances." *Theory & Psychology* 5 (4): 467–81.

Gallagher, S. 2000. "Philosophical Conceptions of the Self: Implications for Cognitive Science." *Trends in Cognitive Sciences* 4: 14–21.

Gibson, J. 1986. *The Ecological Approach to Visual Perception*. New Jersey: Lawrence Erlbaum Associates.

Gilbert, M. 2014. *Joint Commitment: How We Make the Social World*. New York: Oxford University Press.

Gold, N. 2017. "Team Reasoning: Controversies and Open Research Questions." In *The Routledge Handbook of Collective Intentionality*, 1st ed., edited by M. Jankovic, and K. Ludwig, 221–32. London: Routledge.

Goulding, B. W., and O. Friedman. 2018. "The Development of Territory-Based Inferences of Ownership." *Cognition* 177: 142–9.

Guala, F. 2018. "Coordination, Team Reasoning, and Solution Thinking." *Revue d'Économie Politique* 138 (3): 255–372.

Hedahl, M., and B. Huebner. 2018. "Sharing Values." *The Southern Journal of Philosophy* 56 (2): 240–72.

Heras-Escribano, M. 2019. *The Philosophy of Affordances*. Cham: Palgrave Macmillan.

Heras-Escribano, M., and M. Pinedo. 2016. "Are Affordances Normative?" *Phenomenology and the Cognitive Sciences* 15 (4): 565–89.

Laurence, B. 2011. "An Anscombian Approach to Collective Action." In *Essays on Anscombe's*, edited by A. Ford, J. Hornsby, and F. Stoutland, 270–94. London, England: Harvard University Press.

Lewis, D. 1969. *Convention: A Philosophical Study*. Cambridge (Mass.): Harvard University Press.

Locke, J. 1988. *Two Treatises of Government*, Student ed., edited by P. Laslett. Cambridge: Cambridge University Press.

Pacherie, E. 2011. "Framing Joint Action." *Review of Philosophy and Psychology* 2 (2): 173–92.

Ripstein, A. 2009. *Force and Freedom : Kant's Legal and Political Philosophy*. Cambridge, Mass: Harvard University Press.

Ritchie, K. 2020. "Social Structures and the Ontology of Social Groups." *Philosophy and Phenomenological Research* 100 (2): 402–24.

Roth, A. 2014. "Team Reasoning and Shared Intention." In *Institutions, Emotions, and Group Agents: Contributions to Social Ontology*, Vol. 2, edited by A. Konzelmann Ziv, and H. B. Schmid, 279–95. Dordrecht: Springer Netherlands.

Schelling, T. 1963. *The Strategy of Conflict*. London: O.U.P.

Schmidt, M., H. Rakoczy, and M. Tomasello. 2013. "Young Children Understand and Defend the Entitlements of Others." *Journal of Experimental Child Psychology* 116: 930–44.

Sugden, R. 1993. "Thinking as a Team: Towards an Explanation of Nonselfish Behavior." *Social Philosophy & Policy* 10 (1): 69–89.

Sugden, R. 2015. "Team Reasoning and Intentional Cooperation for Mutual Benefit." *Journal of Social Ontology* 1 (1): 143–66.

Tollefsen, D. 2015. *Groups as Agents*. Cambridge: Polity.

Tomasello, M. 2019. *Becoming Human: A Theory of Ontogeny*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.