

Title	Being one of us. Group identification, joint actions, and collective intentionality
Authors	Salice, Alessandro;Miyazono, Kengo
Publication date	2019-10-28
Original Citation	Salice, A. and Miyazono, K. (2019) 'Being one of us. Group identification, joint actions, and collective intentionality', Philosophical Psychology. doi: 10.1080/09515089.2019.1682132
Type of publication	Article (peer-reviewed)
Link to publisher's version	10.1080/09515089.2019.1682132
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Download date	2025-07-06 23:23:02
Item downloaded from	<a href="https://hdl.handle.net/10468/9283">https://hdl.handle.net/10468/9283</a>



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# **Being one of us: Group identification, joint actions, and collective intentionality**

**Alessandro Salice and Kengo Miyazono**

Alessandro Salice is at Department of Philosophy, University College Cork

Kengo Miyazono is at University of Hiroshima

Correspondence to:

Alessandro Salice

alessandro.salice@ucc.ie

*Within social psychology, group identification refers to a mental process that leads an individual to conceive of herself as a group member. This phenomenon has recently attracted a great deal of attention in the debate about shared agency. In this debate, group identification is appealing to many because it appears to explain important forms of intentionally shared actions in a cognitively unsophisticated way. This paper argues that, unless important issues about group identification are not illuminated, the heuristic function ascribed to this notion for an understanding of shared agency remains dubious at best and unfulfilled at worst. This paper offers such a clarification by distinguishing and describing two different mental processes that constitute group identification: adoption of the group perspective and transformation in self-understanding. It is claimed that the latter process consists in the production of what Ruth Millikan labels “Pushmi-Pullyu representations” and that it is developmentally prior with respect to the ability of adopting the group perspective.*

*Keywords: Group Identification; Shared Agency; Shared Intentions; Pushmi-Pullyu Representations*

## **1. Introduction**

Philosophical arguments (Schweikard & Schmid, 2013) and empirical evidence (Tomasello et al., 2005) support the idea that the capacity to engage in joint actions is a key aspect of human sociality. It is generally agreed in the literature that joint actions can be explained by shared intentions: In order for an action to be shared among several individuals, this action must be triggered, steered, and monitored by an intention that is shared by those individuals (Bratman, 1993, 2014). For instance, two individuals walk together (rather than simply in parallel) if those individuals share the intention of walking together (Gilbert, 1990).

However, it has also been convincingly argued that agents need to exercise complex cognitive abilities in order to share intentions (Tollefsen, 2005; Butterfill, 2012). This observation opens up an explanatory gap, as it puts pressure on the idea that joint actions among creatures who arguably do not yet possess those abilities (e.g., children of 18-24 months of age) can be explained by shared intentions. Recently, Elizabeth Pacherie (2013) has made an important attempt to salvage that idea by developing a cognitively undemanding theory of shared intentions which crucially invokes the socio-psychological concept of group identification (Tajfel & Turner, 1979; Turner, 1982; Brewer & Kramer, 1997).<sup>1</sup> This concept has also been used by Bjorn Petersson (2017) to show that not only joint actions among

young children but all joint actions performed by individuals as full-fledged group members (or in the “we-mode,” see Tuomela, 2007) require group identification.

This paper reviews the conception of group identification that circulates within the philosophical debate on joint action. It claims that it is deficient and replaces it with a different account, which cashes it out in terms of Ruth Millikan’s notion of “Pushmi-Pullyu representations” (hereafter ‘PPR’) (Millikan, 2004, 2005). Our alternative account of group identification dispenses with the notion of shared intentions in explaining minimal joint actions by claiming that, when a subject has group-identified, she has activated a PPR: This representation simultaneously describes the subject as group member and concomitantly motivates her to act as such.

This alternative account of group identification is developed in three steps. In the next section, we discuss Pacherie’s and Petersson’s understanding of group identification, according to which subjects who have group-identified can share intentions which enable the initiation of joint actions. Subjects group-identify when at least two conditions are jointly satisfied: The subject conceives of herself as group member, and she has adopted the group’s perspective, or the *we-perspective*.

In Section 3, we dismiss this view of group identification and its role in explaining joint actions by distinguishing two mutually independent processes. First, we review work in developmental and social psychology which suggests that it is unlikely that children younger than three years of age are able to adopt the group or we-perspective. Second, by discussing the “discursive dilemma” in social choice theory (List & Pettit, 2011), we show that an adult who has adopted the group perspective can contribute to a joint action even without understanding herself as group member. We conclude that if group identification is supposed to explain joint actions of the cognitively less demanding type, then this notion ought to be defined solely in terms of the subject’s self-understanding as group member. But how is that possible?

In Section 4, we provide an answer to this question. We contend that acquiring this specific self-understanding is not a doxastic process: To conceive of oneself as a group member is not to acquire a new belief; rather, it consists in forming a PPR. PPRs are mental states that simultaneously describe the world and direct behavior. Accordingly, when the subject has acquired the particular self-understanding required for a joint action, the corresponding PPR describes the subject as group member and motivates her to act as such. An important consequence of this idea is that joint actions among pre-school-aged children are not fully intentional but, rather, lie on a spectrum “between reason and reflex” (Gendler, 2012). In the conclusion, we elaborate on three further implications that cashing out the notion of self-transformation in terms of PPR has for our understanding of joint actions.

## 2. Group Identification and Collective Intentionality

In a recent paper, Pacherie defended the following “lite,” that is, cognitively undemanding, theory of shared intentions:

Two persons P1 and P2 share an intention to A if:

- (i) each has a self-conception as a member of the team T, consisting of P1 and P2 (*collective self-framing*);
- (i’) each believes (i) (*group identification expectation*);
- (ii) each reasons that A is the best choice of action for the team (*team reasoning from a group viewpoint*);
- (iii) each therefore intends to do his part of A (*team reasoning from an individual viewpoint*).

According to this theory, an intention is shared among two individuals when, in particular, two conditions are jointly satisfied. First, according to condition (i), the individual must

conceive of herself as a group member. This consists in applying a collective frame or concept to herself. Second, condition (ii) conveys the idea that the individual must be able to frame a given agentive scenario from the group's perspective, which allows her to get a grip on the group's preferences (see Hakli et al., 2010, p. 295 on group preferences).

Pacherie's "lite" theory of shared intentions aims at accommodating two important insights coming from developmental psychology. The first insight is the indication that children, starting from around 18-24 months old, engage in joint agency. The growing body of literature on this topic (Brownell, 2011) includes a series of experiments conducted by Warneken et al. (2006, 2012), which shows that infants intentionally participate in collaborative activities. Interestingly, research has established that from this age onwards, skillful coordination is put in the service of a jointly intentional activity, in which the interactant is considered as a peer and not as a social tool.<sup>2</sup>

The second insight is information about children's cognitive abilities: Research in social cognition indicates that pre-school-aged children have only a limited theory of mind (ToM), which is the ability to attribute beliefs to others. Passing the false belief test at the age of four has generally been considered the first reliable mark of ToM abilities (Wellman et al., 2001; Wimmer & Perner, 1983; Rakoczy, 2015), but this point is currently the object of heated controversy.<sup>3</sup> Regardless of when exactly children acquire a ToM, what represents an unsurmountable challenge for children of that age is forming recursive beliefs—that is, beliefs which range over others' beliefs about one's own beliefs (Carpenter & Liebal, 2012, p. 165). Based on this evidence, Tollefsen (2005) has convincingly shown that theories of shared intentions which put too much emphasis on the agents' mentalizing abilities fail to explain joint actions among children.<sup>4</sup>

Since the agents involved in a joint action that is steered by intentions fulfilling (i) to (iii) need not activate taxing mindreading abilities, Pacherie concludes that her theory "allows shared intentions to be formed by agents who lack sophisticated mentalizing skills" (Pacherie, 2013, p. 1834), for instance, children of a young age.<sup>5</sup> This claim will be resisted in Section 3, where we argue that by demanding (i-ii) to be *jointly* satisfied, this theory is too heavy-duty to explain joint actions among children. This consideration sets the stage for the claim made in Section 4, according to which, if condition (i) is understood as modelling a PPR, then (i) alone can elicit a joint action.

Before evaluating Pacherie's theory, however, it is important to appreciate how the notion of group identification has been applied to explain not only joint actions among infants, but all cases of joint actions performed by individuals as group members. Recently, Petersson (2017) has discussed group identification in relation to the Hi-Lo. The Hi-Lo is a one-shot coordination game, which is regarded as a problem for classical game theory: The players maximize their utilities only if they coordinate; however, there are two ways of coordinating, and one (Hi-Hi) is better than the other (Lo-Lo). Yet, given that the only recommendation game theory can issue is to choose what the player predicts the other player will choose, classical game theory does not seem to be in a position to recommend (Hi-Hi) (see Guala, forthcoming).

One way to solve the problem is the following: If the game is considered *from the perspective of a group* rather than from the perspective of the two individual players, a recommendation for (Hi-Hi) can be justified within game theory. From a single group agent's point of view, it becomes obvious that (Hi-Hi) is the best option to pursue (Bacharach, 2006). Adopting the group's perspective enables the individual player to ask herself the question "What should *we* do?" and, hence, to engage in team reasoning. In line with Pacherie, Petersson claims that subjects adopt the *we*-perspective when "agency transformation" occurs (Petersson 2017, p. 214), and this notion is described in the following terms: "Because such a person is thinking of her self as a part of [team T], her conception of the aspect of herself

which is her agent undergoes a transformation...: she thinks of her agential self...as a component part of T's agency" (Bacharach, 2006, p. 136).

The result of team reasoning is a collective or shared intention, which can be formulated as follows (Gold & Sugden, 2007, p. 110f):

(1) We intend to J.

Importantly, team reasoners ought to be distinguished from team benefactors (see Tuomela, 2013, p. 185ff; Hakli et al., 2010). Whereas the first concept captures a full-fledged group member, the latter concept models an individual who, from a first-person singular perspective, reasons about the well-being of her group and attempts to identify the best strategy to maximize her group's well-being. Team benefactors are unable to ask themselves the question "What should *we* do?" and are thus incapable of forming corresponding intentions to answer that question. Typically, their intentions supporting the group's well-being come in the following form:

(2) I intend that we J.

Note that the *we*-concept is in the *content* of attitude (2), and, thus, it does not open up enough logical space for the attitudes held by the team reasoner—that is, those expressed by (1), which have a *we*-concept in the subject position.

Let us recapitulate. The notion of group identification has been invoked to explain minimal joint actions and actions performed by full-fledged group members. According to Pacherie and Petersson, agents form shared intentions and thereby act jointly on them when they have group-identified. This happens when at least two conditions are jointly fulfilled: The subject has undergone a peculiar transformation in self-understanding (from now on, we will call this transformation in self-understanding "self-transformation" for short) and has adopted the group perspective. The question we raise in the next section is whether group identification, as this is understood in the debate about shared agency, truly delivers on the explanatory objectives assigned to it.

### 3. Adopting "Our" Perspective and Self-Transformation

In this section, we argue that the notion of group identification utilized in the debate about joint actions blurs the distinction between two mutually independent processes: adoption of the *we*-perspective and transformation in self-understanding (or "self-transformation"). We claim that these processes may run separately from each other and that, in terms of cognitive sophistication, the adoption of the *we*-perspective is more taxing than self-transformation. If our considerations are correct, they indicate three things.<sup>6</sup> First, Pacherie's explanation of joint actions among children in terms of conditions (i) to (iii) is not as "lite" as it is presented to be (see Section 3.1); since it invokes the adoption of the group perspective, it is too heavy-duty to account for such instances of joint actions. Second, acting upon mental states like (1) may or may not be accompanied by transformation in self-understanding; under certain circumstances, the adoption of the group's perspective alone may enable that (see Section 3.2). Third, an alternative theory of group identification is needed (this is the topic of Section 4).

#### 3.1. *Self-Transformation Without the Adoption of Group Perspective*

Let us start with the development of joint actions among young children. Considerations from

developmental psychology may show that self-transformation can occur without the adoption of a group's viewpoint. We begin by acknowledging that one pre-condition of the ability to adopt another individual's perspective is the understanding that there are other perspectives, and, more specifically, that there is something like a group perspective. In a recent paper, Henderson and colleagues (2013) support the claim that 10-month-old children already understand groups' perspectives because they can represent collaborative activities as such (i.e., as activities that pursue a collective goal, or we-goal) without engaging in such activities. However, understanding a perspective does not entail adopting that perspective by considering it as an element to factor in action and deliberation.

When do children start to adopt the we-perspective, then? Behavior that displays the black sheep effect (Abrams et al., 2009) can be considered one reliable indicator of this ability. This effect is most visible in the way in which loyalty or disloyalty to a group is assessed: It is present when likeable (e.g., loyal) behavior of in-group members is praised more than similar behavior by out-group members, and deviant (e.g., disloyal) behavior of in-group members is punished more severely than similar behavior by out-group members. Importantly, the tokens of behavior that are assessed do not differ in their properties. To put this differently, there is nothing that makes these tokens of behavior intrinsically better or worse. This indicates that the assessments of the behavior in question diverge when the perspective of the group is factored in: A loyal action toward a group *G* is assessed as more praiseworthy than loyal actions toward other groups only from *G*'s perspective. Conversely, a deviant action toward *G* is assessed as more blameworthy than deviant actions toward other groups, again, only from *G*'s perspective. Based on this idea, the following can be predicted:

Specifically, children...should favor peers they believe will be evaluated highly by other in-group members rather than out-group members. This is an important point because it requires children to attune their own evaluation of a peer not only to the overall social desirability of that peer's actions but to the differences in evaluations they believe will be made by in-group versus out-group members. (Abrams et al. 2009, p. 225)

The black sheep effect signals that a child has acquired social competence to frame her social environment from the group's perspective: This includes knowledge of what to expect and what is expected of peers in inter-group situations, know-how about group processes such as loyalty, conformity pressure, and groups showing in-group biases. This competence also provides a basis for inferring that members of other groups will favor their own group and that children with better perspective-taking skills expect in-group members to be more likely, but out-group members less likely, to share their own views about the two groups (see Abrams & Rutland, 2008).

Although mature manifestations of the black sheep effect appear when children reach the age of eight (Abrams et al., 2009), precursory forms seem to emerge by the age of three (see Schmidt et al., 2011). By that age, children accomplish what has been called a shift toward a "sociocentric mode of reasoning" (Dunham & Emory, 2014): They begin to appreciate group membership and to display in-group favoritism, which becomes fully manifest only from the age of six.<sup>7</sup> This body of evidence may be taken to indicate that the ability to adopt a group perspective emerges later than the appearance of joint actions at the age of 18-24 months, meaning that the explanation of those actions cannot invoke the adoption of the we-perspective. However, under the assumption that an explanation of joint actions among infants requires group identification, the sense of "group identification" that is at stake here can only be self-transformation, not adoption of the we-perspective. Section 4 corroborates this idea, but for now it suffices to establish a first interim conclusion: Self-transformation can occur without the adoption of the group perspective.

However, note that this conclusion is both conditional and defeasible. It is conditional because it cannot be excluded that the adoption of the group perspective which manifests in

phenomena like the black sheep effect is not the same kind as the perspective-taking that underpins joint actions. However, our line of argument runs on the assumption that we are dealing with one and the same process. It is also defeasible because our suggestion does not exclude the possibility that younger children not only have a basic form of understanding of the group perspective, but that they can also adopt that perspective—even though this psychological process does not manifest itself behaviorally in the black sheep effect and in cognate phenomena before the age of three (for currently unknown reasons).

### 3.2. *Adoption of Group Perspective Without Self-Transformation*

Let us now turn our attention to our converse claim regarding the possibility for an individual to adopt the we-perspective without self-transformation. This possibility may be illustrated by a paradox in social choice theory called the ‘discursive dilemma’. Imagine a political committee that seeks to form a preference on the following propositions (the propositions have been adapted from List & Pettit, 2011, p. 46):

- (a) taxes are increased (proposition ‘P’),
- (b) spending is reduced (proposition ‘Q’), and
- (c) taxes are increased, or spending is reduced (so that there is no budget deficit) (‘P or Q’).

Assume that the committee members have the following preferences on the matter and that the votes are aggregated following the majority principle:

	Proposition ‘p’	Proposition ‘q’	Proposition ‘p or q’
Individual 1	Preferred	Dispreferred	Preferred
Individual 2	Dispreferred	Preferred	Preferred
Individual 3	Dispreferred	Dispreferred	Dispreferred
Majority	Dispreferred	Dispreferred	Preferred

The matrix above reports that the group prefers that taxes are increased or spending is reduced, although the group is averse to both taxes being increased and spending being reduced. Obviously, this is an inconsistent outcome which puts the group in front of a hard choice or dilemma: should the majority principle be preserved and ‘P or Q’ be preferred, or should consistency between the group’s preferences be preserved and ‘P or Q’ be dispreferred? To be rational, in this case, the group has to disprefer the third proposition, although this is preferred by the majority of the group’s members. Hence, groups that intend to preserve rationality may sometimes end up in a situation in which they hold preferences that the majority of their members do not endorse.<sup>8</sup>

The political committee example concerns the aggregation of preferences as a specific kind of pro-attitude, but Pettit and List show that the discursive dilemma applies to intentional attitudes in general (see List, 2014). It applies not only to doxastic attitudes like beliefs (List & Pettit, 2011), but also to intentions (Schweikard & Pettit, 2006). However, how do members comply with the intention of a group which is not their intention?

The most natural and spontaneous way to achieve closure between the group’s and the individual’s attitudes is for the individual to “identify” with the group (List & Pettit, 2011, p.

191f). Once that perspective is adopted, the individual forms the following attitude:

(1) We intend to *J*.

That is, the group's attitude becomes the individual's own attitude (List & Pettit, 2011, p. 192), and this mental state directly motivates her to act accordingly.<sup>9</sup> Yet, there may also be indirect ways in which the individual's and the group's attitudes can come to closure—ways that do *not* require the adoption of the group perspective, or so List and Pettit argue (List & Pettit, 2011, p. 191). Here, the individual may even have a different attitude, for example,

(3) I do not intend to *J*.

She can hold this attitude while also including (1) in her pool of motivations. This possibility leads some authors to claim that “the human constituents of group agents are typically sites of rational fragmentation” (Rovane, 2017). Here, we sidestep the debate on whether it is rational for the individual members to stick to (and not to revise) attitudes like (3) in this scenario (see Sziget, 2014). What matters to us is the psychological possibility of an individual subject concomitantly entertaining attitudes of forms (1) and (3).

Now, if (1) captures a reason for action, then the attitude at stake must have motivational force. But how can the reason expressed by (1) “win the motivational competition” with (3) (Frankfurt, 1971)? There may be several factors at play here (and the following disjunctions are not meant to be exclusive): (1) may generate obligations with which the individuals comply (see Gilbert, 1997) or (1) may be accompanied by a form of cognitive achievement, for example, “I act in the group's name because, on detecting that a relevant member ought to take a certain action, I recognize that I am that member and thereby form the desire that I perform the action” (List & Pettit, 2011, p. 191). Another possibility is highlighted by Tollefsen:

These reasons become reasons for an individual only after one recognizes that the *group* has reasons to adopt a certain conclusion. Thus, whatever reasons an individual might have to accept a decision that goes against his or her personal opinion on the matter is parasitic on the group's reasons. It is only when individuals recognize that “we” will be adopting a policy or decision that is inconsistent with prior or present commitments that they may come to see themselves as having reasons to accept a conclusion they do not personally endorse. (Tollefsen, 2002, p. 38f)

In this case, (1) wins over (3) because the individual realizes that that attitude is rational—rational, that is, from the group's perspective. Because it is rational for us to *J*, I will contribute to *J*. However, how does the individual gain the insight that (1) is an attitude that is rational from the group's point of view—in contradistinction to her own viewpoint expressed by (3)?

We contend that this is made possible by a process of perspective-taking. To clarify the sense in which we claim that the individual in the scenario portrayed by Tollefsen is acting and reasoning from the group's perspective, it is helpful to describe two different ways in which perspectives can be taken. This distinction is put forward by Peter Goldie, who labels these two forms of perspective-taking as *in-his-shoes perspective-taking* and *empathetic perspective-shifting* (sometimes also called ‘empathy’ *tout court*; see Goldie, 2000). Here is how Goldie introduces this distinction:

If *A* is wondering what *B* will decide in some situation, it will be *in-his-shoes perspective-taking* if *A* imagines himself in that situation, imagines himself deliberating and deciding what to do . . . . In contrast, it will be *empathetic perspective-shifting* if *A* imagines being *B* in that situation, deliberating and deciding what to do. (Goldie, 2011, p. 305)

In this quote, ‘*B*’ refers to an individual, but Goldie's distinction seems applicable to cases in



which it is a group's perspective that is taken by an individual. If transported at the collective level, the in-his-shoes perspective-taking may be contended to be the stance exemplified by group members who are stuck in a discursive dilemma before closure and thus occupy states (1) and (3) concomitantly. In such cases, the individual puts herself in the shoes of the group: she observes the world by confronting herself with the situation in the way that this situation is faced by the group. She then forms the attitudes that are rational from the group's point of view (1), while still maintaining her first-person singular perspective on the matter (3).<sup>10</sup>

In contrast, empathetic perspective-shifting can be associated with the intentional structure that is exemplified by somebody who fully identifies with the group perspective and endorses (1) by acting on it without reservation, that is, without forming (3).

However, that which closes the gap between the group's and the individual's attitudes, making it possible for in-his-shoes perspective-taking to become empathetic perspective-shifting, cannot be the adoption of the group's perspective, for in both scenarios, the individual is adopting the perspective of the group. Our suggestion is that the difference is made precisely by self-transformation as a distinct process with respect to perspective-taking: It is because the individual subjectively identifies with the group that a gap does not open up between the group attitudes and those of the individual.

Let us take stock. The second section discussed two important classes of joint actions: joint actions among infants and joint actions performed by individuals as group members. Pacherie and Petersson claim that group identification can explain these actions. This claim is sustained by the idea that this process does not require complex mentalizing skills and that it enables the formation of collective intentions via team reasoning.

In this section, we argued for three conclusions. The first conclusion is negative: the claim about the explanatory role of group identification is at best underdetermined, for it collates two distinct processes (self-transformation and adoption of the we-perspective) under the label of 'group identification,' which ought to be kept separated. They ought to be kept separated because they can and do come apart. This relates to our second conclusion, which can be formulated in positive terms as a taxonomy of joint actions. It is important to stress that this taxonomy is not supposed to be exhaustive: it merely captures the kinds of joint actions we have tackled in this paper. The first category encompasses joint actions to which agents contribute as full-fledged group members. Here, self-transformation and the adoption of the we-perspective are indeed jointly required to achieve closure between the group attitudes and those of the individual.<sup>11</sup> The second category includes joint actions to which agents do not contribute as full-fledged group members. The agent's contribution requires only the ability to adopt the we-perspective, not self-transformation (in fact, no closure is achieved here between the group attitudes and those of the individual). Finally, the third category is populated by minimal joint actions, like those among infants (emerging around 18-24 months of age). In Section 3, we question whether these actions are fully intentional, but for the time being we simply intend to establish that, for their explanation, these actions necessitate self-transformation alone. The motivation backing this claim comes from considerations about developmental psychology which indicate (with due caution) that one cannot expect individual contribution to be explained by the adoption of a group perspective, for this develops from the 3<sup>rd</sup> year of age. Our third conclusion amounts to a clear-cut distinction between self-transformation and adoption of the we-perspective. Self-transformation is a necessary element in the explanation of joint actions which are performed by agents as group members; this includes those joint actions to which infants contribute. By contrast, adoption of the we-perspective is a sufficient element in the explanation of these actions, as it only plays a role in joint actions performed by individuals with fully developed mentalizing skills.

The puzzle we now need to solve concerns our refined characterization of group

identification: how does a self-understanding as group member emerge, and how does it contribute to explaining individuals' participation in joint actions?

#### 4. Self-Transformation and Pushmi-Pullyu Representations

It may be helpful to begin this section with some terminological remarks. As noted above, we are using 'self-transformation' as an abbreviation of 'transformation in self-understanding.' Although there are many different understandings an individual could acquire of herself, this paper focuses exclusively on the understanding of being a member of a group (*us*). In line with social psychology, we call this specific understanding a *social self* (Brewer & Kramer, 1997). This section explores what sort of understanding—or more precisely, what sort of representation—the social self is.

We first want to consider whether the social self is a belief or a descriptive representation ('DER'; see Millikan, 2004). This would be a state linguistically expressible as follows:

(4) I am a member of us.

On this understanding, the process of transformation in self-understanding would coincide with the acquisition of the belief expressed by (4). However, the doxastic approach to the social self does not look promising.

Our main reason to deny that the social self is a DER is that, in some cases, an individual could form a belief like (4) without identifying with the group (see Ruble et al., 2004; Bennett & Sani, 2008). More precisely, the mere self-ascription of belonging to a group does not motivate the individual to act as a group member. This should not come as a surprise, for DERs in and of themselves are not directly linked to action. If the social self were a DER, then it would be accompanied by a conative attitude to impel the individual of who held a belief to action (Davidson, 2001). But what could that conative attitude be? The best candidates are either (1) "we intend to J" or (2) "I intend that we J." Yet, we have seen in the previous sections that these two intentions are not apt to play such a motivating role. (2) does not motivate one to act as group member or as team reasoner but, rather, as team benefactor, whereas (1) requires the capacity to adopt the group's perspective, which is a complex ability that develops from the age of three. Additionally, if the line of thought developed in Section 2 is correct, it suggests that the social self alone can trigger action (e.g., in young children).

All of this motivates our contention that the social self is not a thought, a belief, or any other kind of DER. Our suggestion is that the social self belongs to a specific class of representations—a class which Millikan calls Pushmi-Pullyu Representations (PPRs) (Millikan, 2004, 2005). Roughly, PPRs are representational states that are evolutionarily and structurally primitive. Moreover, they are intrinsically motivating without being combined with a conative state (or a "directive" state, according to Millikan's terminology).

PPRs are structurally and evolutionarily more primitive than DERs:

PPRs are more primitive than either purely directive or purely descriptive representations ... The ability to store away information for which one has no immediate use (pure description), and to represent goals one does not yet know how to act on (pure direction), is surely more advanced than the ability to use simple kinds of [PPRs]."  
(Millikan, 2005, p. 175)

DERs are "combinatoric" in causing behavior in the sense that they need to be combined with conative representations such as desires or intentions. PPRs are not: "purely descriptive

representations must be combined with directive representations through a process of practical inference in order to be used by the cognitive systems ... The employment of PPRs is a much simpler affair” (Millikan, 2005, p. 167). PPRs are not combinatoric because, unlike DERs, which simply represent facts, they represent facts and direct behavior at the same time. “[PPRs] are signs that are undifferentiated between representing facts and directing activities appropriate to those facts. They represent facts and give directions or represent goals, both at once” (Millikan, 2004, p. 157).

One of Millikan’s examples is the waggle dance of honey bees. Honey bees in the same colony do the dance to share information about the direction and distance to important locations, such as the flowers yielding nectar and pollen. The dance is a PPR, according to Millikan: it does the job of representing the location of flowers as well as the job of directing the behavior of flying to their location. More generally, most of the representations in non-human animals are PPRs.<sup>12</sup> PPRs can be found in human cognitive and behavioral processes as well. Examples include perceptions of affordance (Millikan, 2005), representations of social norms and roles (Millikan, 2005), agential experiences (Bayne, 2010), moral judgments (Tenenbaum, 2006), intuitions (Chudnoff, 2013), emotions (Bayne & Fernandez, 2008), and so on.

Note that we are not committed to all the details of Millikan’s theory of mental representations. In particular, we do not presuppose her influential (but controversial) account of mental content (Millikan, 1989, 2005). Our only assumption is that PPR is a real category of mental representation that plays a variety of roles in human and non-human cognitive and behavioral processes.

PPRs have some attractive features in the context of accounting for self-transformation. First, PPRs are more primitive than DERs, which means that, unlike the doxastic account of self-transformation, the PPR account does not require complicated cognitive and behavioral machinery. Second, PPRs are not combinatoric in causing behavior, which means that, unlike the doxastic account of self-transformation, the PPR account nicely explains the fact that self-transformation is intrinsically motivating.<sup>13</sup>

To return to our example, the waggle dance is triggered in the presence of relevant cues (e.g., flowers), and it initiates the relevant behavioral processes (e.g., another bee’s flying to the flowers). We suggest that the process of group identification has a parallel structure. Social psychologists have already identified several “group cues” (Pacherie, 2013, p. 1832) that are able to trigger group identification. In his survey of the literature, Bacharach mentions properties such as belonging to the same social category, having common interests, sharing a common fate, facing a competing group, employing we-language, and so on (Bacharach, 2006, p. 76), which, once they acquire salience for an individual, may cause group identification.

Social psychology has shown the relevance of all these group cues for explaining group identification in adults, but it is debatable whether they are equally important in the case of children, given that encoding those properties may require advanced cognitive abilities. Exploring this issue would exceed the scope of this paper, but we want to suggest that a further kind of cue, which may be particularly relevant from the developmental point of view, is derived from partaking in episodes of joint attention. Joint attention is a much-debated phenomenon, but there seems to be a consensus on following points: first, children can engage in joint attention by 12 months of age (Carpenter & Liebal, 2012). Second, joint attention is not reducible to parallel episodes of attention, but it involves something else: mutual awareness (Eilan, 2005), openness (Campbell, 2012), or some kind of communication (Carpenter & Liebal, 2012). Third, and most importantly, joint attention not only enables some forms of joint action (Seemann, 2007), but it is also related to proclivity for joint action

to such an extent that some authors think that joint attention has an intrinsically practical dimension (see Hobson & Hobson, 2011). In fact, Tollefsen (2005) argues that joint attention is part and parcel of what it means to share an intention (in face-to-face interactions) and others even claim that joint attention is already a basic form of joint action (Fiebich & Gallagher, 2012).

We think that all these features make joint attention a particularly effective factor in triggering self-transformation. In fact, there is only a small step from (a) being aware of something together with another individual to (b) being aware of belonging to a group (as ephemeral as one wishes), with the other individual partaking in the same episode of joint-attention: this group would be formed by the co-attenders. Furthermore, this last cue is already operative at a very young age, and, finally, the established link between joint attention and joint action strongly indicates that sharing an episode of joint attention can produce the motivation (the PPR, that is) to pursue a joint action.

Imagine two children in a kindergarten jointly attending to a toy that no other child is playing with. It is possible to think of this episode of joint attention as constituting a group cue to the effect that, when it has acquired salience, it signals to each individual child that she belongs to the same (minimal) group that the other child belongs to. Following our hypothesis, the individuals' cognitive systems will thereby be activated and produce a social self. This PPR, to paraphrase Millikan, means "you are a member of us; act as such." In other words, the system initiates rudimentary patterns of pro-social behavior that are in service of cooperation, in the sense that they initiate, support, and facilitate joint activity. (Returning to the example, one child may initiate the action by grasping the toy and offering it to the other child.) Given that the individual understands herself as a group member, she is lead to conceive of the goal of another individual—who she frames as an in-group member—as the group's goal or, rather, as "our" goal. Therefore, she will coordinate, provide help, and stick to the goal. Additionally, the other child perceives the action as an invitation to join a game and begins to coordinate accordingly. At the same time, and again on the basis of that particular self-understanding, her goal will be conceived of as "our" goal—she will expect help, and she will expect others to stick to the goal. If one of the children disengages, the other might solicit her to re-engage.<sup>14</sup>

To be sure, this behavioral repertoire is rudimentary and only allows for simple forms of joint actions such as simple forms of helping behavior or actions with complementary roles (e.g., pulling opposite ends of a tube to retrieve stickers that are hidden inside, placing a ball into a tube and catching it from the other side; see Warneken & Tomasello, 2006, 2007). Further mental capacities need to be in place to enable more articulated forms of joint action, like epistemic or temporally extended joint action which targets complex goals. Thus, strictly speaking, the term 'intentional action' might not be ideal for describing the minimal forms of joint action that we are interested in. The term often refers to full-fledged actions that are caused by beliefs, desires, and intentions, but our PPR account suggests that minimal forms of joint action are not of that kind. At the same time, however, we would like to stress that although they are not as sophisticated as full-fledged actions, they are also not as simple as purely physical movements like reflexes. They seem to belong to the large intermediate category of actions that lie "between reason and reflex" (Gendler, 2012). What turns a jointly sub-intentional action into a jointly intentional action? The conjecture is that one of the crucial elements is the adoption of the we-perspective. By adopting that perspective, the subject is in a position to form beliefs about a group, its preferences, and its ethos, which the subject is motivated to foster by her social self.

Let us now briefly review the main points of this section. We began from the idea that self-transformation alone can explain *simple* joint actions (like those among infants). This hypothesis is supported by considerations about the emergence of joint actions among

children and the ontogenesis of the ability to adopt the we-perspective. In this section, we rejected a doxastic account of self-transformation and defended a Millikan-inspired account according to which the social self is a PPR. On this basis, we have argued, in contrast to Pacherie, that PPR can bypass shared intentions in causing minimal joint actions like those young children engage in. Finally, one can also establish that the social self's crucial role is preserved even in *complex* interactions: as we have seen, while reviewing Petersson's work in Section 1 and in the discussion on the discursive dilemma in Section 2, engaging in collective action as a full-fledged group member requires, in addition to complex cognitive abilities, a perspicuous self-understanding to achieve closure between attitudes in the I- and we-form. This self-understanding, we can now infer, comes under the guise of a PPR.<sup>15</sup>

#### 4. Conclusion

We conclude by highlighting three implications of our discussion for an understanding of collective intentionality.

First, joint actions that run solely on PPRs do not necessitate complex forms of mentalizing. This is not to say, however, that simpler forms of social understanding do not play a role. In fact, some of the cues that trigger the production of PPR may well involve understanding the states of other individuals. More specifically, if, as we have suggested, joint attention is one of the preconditions of group identification and if social understanding is required for partaking in episodes of joint attention, then this understanding must be an enabling factor in the process that leads to joint actions (see Zahavi & RoCHAT, 2015; Zahavi, 2015).

Second, PPRs are representations which can easily spread and propagate in the following sense: Millikan highlights that the PPR-consuming system (i.e., the system that uses PPRs for some purposes) does not have to be restricted to the PPR-producing system (i.e., the system that generates PPRs in response to some inputs) (Millikan, 2004, 2005). This may explain why cooperative behavior is “contagious”—that is, why the expectation that the other group identifies (modelled by condition (i') in Pacherie's theory) is fulfilled more often than not. Behaving as a group member induces similar behavior in others.

Our third and last implication concerns the question of whether group identification is under an agent's rational control. Views on this point diverge in the literature: while authors like Bacharach (2006) and Petersson (2017) contend that group identification is not under an agent's control, others argue that, at least in certain circumstances, this may be the case (see Tuomela, 2013, p. 195). Our theory allows for a more fine-grained hypothesis: the adoption of a group perspective as a specific mentalizing activity is under an agent's control. In contrast, PPRs are brute psychological facts: group identification in the sense of self-transformation is not under an agent's direct rational control.<sup>16</sup> It is not up to an agent whether or when the sense of belongingness that is key to subjective group membership is elicited.

#### Notes

<sup>1</sup> The socio-psychological characterization of group or social identification may serve as a preliminary or working definition of this concept. On this understanding, ‘group identification’ refers to “the process whereby an individual internalizes some form of social categorization so that it becomes a component of the self-concept, whether

long-lasting or ephemeral” (Turner, 1982, p. 18). Integral to this definition is the idea that, when this specific transformation in self-understanding occurs—that is, when the subject acquires a social self (Brewer & Kramer, 1997)—a subjective form of group membership is established: “we are concerned here with group membership as a psychological and not a formal-institutional state, with the subjective sense of togetherness, we-ness, or belongingness” (Turner, 1982, p. 16).

2 This hypothesis is supported by the observation that children of 21-27 months of age encourage their partners to reengage when they disengage from joint activities. Importantly, the solicitation occurs equally often regardless of whether the goal of the activity, for its achievement, requires the causal contribution of the partner or not (in the latter case, the child would be able to reach the goal by herself). The observation is taken to show that the child understands the activity as a cooperative endeavor and the interactant as an intentional partner (Warneken et al., 2012; AUTHOR).

3 Other ToM tests (i.e., so-called “indirect” tests; see Low & Perner, 2012) predate the emergence of these abilities. For instance, Rubio-Fernández and Geurts (2013) show that children of two and a half years of age have already acquired a ToM.

4 Accounts which include a common knowledge condition concur that mindreading abilities are required for shared intentions (see Bratman, 1993; Gilbert, 1997; Miller, 2001; Tuomela, 2007, among others). However, it is debated whether the notion of common knowledge should be understood in a deflationary or non-deflationary sense and whether this condition is required at all. For instance, Blomberg (2016) denies that shared intentions require common knowledge (see also Ludwig, 2016).  
5 Butterfill (2012) has explored another option to accommodate those two insights from developmental psychology: rather than invoking the notion of shared intentions to explain minimal joint actions, Butterfill develops a theory of these actions based on shared goals (where a goal is not the content of an intention but the outcome to which the action is directed). Our argument aligns with Butterfill’s theory insofar as we dismiss the notion of shared intention to explain minimal joint action, but it diverges from it insofar as we assign that explanatory role to PPRs.

6 These consequences are all premised on an internalistic understanding of group identification according to which group identification is an intra-mental process. Externalists about group identification need not subscribe to that idea, and hence, their position remains untouched by our arguments. For internalist versus externalist approaches in the philosophy of social sciences, see Ross (2014, p. 236ff.).

7 Recent research has suggested that forms of in-group favoritism may even be antecedent. For instance, Kinzler and colleagues (2011) have found that pre-schoolers, when learning new information, trust speakers with native accents more than speakers with different accents. Similarly, Buttelmann and colleagues (2013) have shown that, from the age of 14 months, children imitate those speaking in their native language (in-group members) more faithfully than those speaking a foreign language (out-group members). However, the jury is still out on whether these findings illustrate genuine understanding of group membership (Buttelmann et al., 2013, p. 427).

8 List and Pettit (2011) rely on this point to show that mentality and thus, for example, moral responsibility can be assigned to groups. This is a controversial point (for criticisms, see Makela & Miller, 2005; Sziget, 2013). We will remain entirely neutral on whether groups can have intentional attitudes or bear moral responsibility, as nothing in what follows hinges on this idea. Nevertheless, we will continue to use

locutions that attribute mentality (especially intentions) to groups for the sake of linguistic simplicity.

9 “We ... achieve an alignment between what the group’s attitudes require of us and our own preferences and then act without further reflection whenever our response is required. The alignment may be achieved ... through explicitly adopting the group’s viewpoint—that is, adopting the group’s attitudes as our own” (List & Pettit, 2011, p. 192).

10 It is unlikely that the recognition of the rationality of (1) will be sufficient to motivate action—for (1) to be effective, it must go together with some of the other normative or cognitive factors mentioned above, possibly including a concern for the group. We will not explore this issue further; here we are merely concerned with how an individual comes to an understanding that (1) is a rational attitude from another agent’s point of view.

11 One could conjecture that this class of actions at least partly overlaps with the class of so-called “group actions” (see List & Pettit, 2011). Since we want to remain neutral on whether psychological or agentive predicates can be genuinely applied to groups, we will not explore this conjecture further.

12 Millikan (2004) goes on to argue that all representational states in non-human animals are PPRs. This claim is controversial because it rules out the possibility of non-human animals with DERs such as beliefs. We do not necessarily endorse this part of her theory.

13 These features are shared by what Tamar Gendler calls “aliefs” (Gendler, 2008, 2012). Aliefs are said to be more primitive than beliefs: “as a class, aliefs are states that we share with non-human animals; they are developmentally and conceptually antecedent to other cognitive attitudes that the creature may go on to develop” (Gendler, 2008, p. 641). They are also not combinatoric: “[alief] is molar: it has, I have suggested, a characteristic *R–A–B* structure, whereby a particular representation (*R*) comes typically to be associated with a characteristic valence or evaluation or affective state (*A*) and with the activation of a behavioral repertoire (*B*)” (Gendler, 2012, p. 800). We speculate that the characteristics of aliefs are so similar to those of PPRs that “aliefs” and “PPRs” are best viewed as different labels for the same states. However, the label “PPR” would be less problematic than the label “alief” from a theoretical point of view. For the theoretical problems about Gendler’s characterization of aliefs, see, for example, Bayne and Hattiangadi (2013) and Currie and Ichino (2012).

14 The social self is only one motivating factor to engage in a joint action, but there can be other factors that counteract or block the motivational force of the social self, meaning that even when a social self is activated, the individual may not pursue all goals that she perceives as being “ours” (for instance, if the goal is morally blameworthy).

15 Self-transformation and its role in motivating joint actions is described as if it were a finite process which, once in motion, made people operate in a completely different mode. Obviously, however, any step of this process will be influenced by circumstantial factors, which we are not in a position to determine in this paper.

16 This is not supposed to exclude the possibility for the individual to deliberately create situations that increase the likelihood of group identification. Accordingly, there is a sense in which group identification could be under the indirect control of the individual—at least to a certain extent.

## Acknowledgements

This paper has a long pre-history. We sincerely thank Olle Blomberg who, back in 2013, first formulated the hypothesis that group identification might be related to the notion of Pushmi-Pullyu representations, thereby delivering the inspiration for this paper. Prolonged discussions with Olle on these topics substantially helped us shape the arguments of this paper. Our gratitude also goes to Danny Forde, Francesco Guala, Raul Hakli, John Michael, Don Ross, Glenda Satne, Deb Tollefsen, and Dan Zahavi, who read and commented on previous versions of this article. We presented this paper on too many occasions to be listed here and we are very grateful for the relevant feedback we received during all these events. Work on this paper has been facilitated by a Network Grant of the Suntory Foundation (2017), to which we express our gratitude. Finally, we would like to thank two referees for their important comments that helped us improve our paper.

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