

Published as “Simulation and the We-Mode. A Cognitive Account of Plural First Persons”. *Philosophy of the Social Sciences* 45(4-5)

## **Simulation and the We-mode**

A cognitive account of plural first persons

Matteo Bianchin – Università di Milano-Bicocca  
matteo.bianchin@unimib.it

**Abstract:** I argue that a capacity for mindreading conceived along the line of simulation theory provides the cognitive basis for forming we-centric representations of actions and goals. This explains the plural first personal stance displayed by we-intentions in terms of the underlying cognitive processes performed by individual minds, while preserving the idea that they cannot be analyzed in terms of individual intentional states. The implication for social ontology is that this makes sense of the plural subjectivity of joint actions without making group agents require either a corporate body or the unity of consciousness.

**Keywords:** Collective intentionality, mindreading, plural subjects, social ontology

## *1. Introduction*

Recent debates on shared agency often focus on the irreducibility of collective intentionality, yet they hardly make sense of its subjectivity. Searle (1995) suggests that We-intentions need no corporate bearer, as they are mental states of individuals, but he does not tell us how to understand the first person plurals by which they are expressed. A similar problem affects Gilbert's plural subject theory. Plural subjects are constituted by a joint commitment to act "as a body", so that mental states and action are credited to "us" (Gilbert 1984, 2013). Yet it is unclear how they are to be understood, as they neither display a corporate body, nor the unity of consciousness of ordinary subjects of experience and action (Schechter 2013).

The problem here is to account for the specific we-ness supposedly displayed by collective mental states. Although not analyzable in terms of aggregated individual beliefs, desires, intentions and the like, collective mental states are commonly taken to be located in the head of individuals. What marks them off is their being displayed in a way close enough to what Tuomela labeled the we-mode.<sup>1</sup> This has some cost, as a new feature needs to be added to the structure of intentional states – namely the distinction between the I- and the we-mode. Yet the benefits are high, as anything collective will then come at lower ontological rates than one is traditionally inclined to expect. In particular, there is no need for a corporate bearer of collective states of mind. What is lacking, however, is a detailed account of how a sense of collective subjectivity can possibly emerge for we-intentions, we-desires we-beliefs and the like.

In the next section I locate the "we-mode" within the structure of intentional states, which I take to involve a content, a psychological attitude towards that content, and a sense of ownership that goes along with their first personal self-attribution. I argue that the "we-mode" fits neither in the content slot, nor in the attitude slot. What is specific to it is that actions and goals are represented in a we-centric first personal perspective – from a "shared point of view" (Tuomela 2007, Gallotti 2013). Thus, we need to account for how mental states get self-attributed to "us" jointly in the first

person plural, so that a sense of shared ownership arises for mental states that lack a corporate bearer.

In the third and fourth sections I discuss two accounts that seem to cohere with this reading, involving mirroring and joint attention respectively. In the final section, I argue that a capacity for mindreading conceived along the line of simulation theory provides the cognitive basis for forming we-centric representations of actions, enabling individual agents to entertain the relevant intention in the first person plural. More specifically, I argue that the kind of imagination at work in simulative mindreading may be recruited to form the shared first personal perspective under which mental states are self-attributed by participants in a joint action. This explains the plural first personal stance displayed by we-intentions in terms of the underlying cognitive processes performed by individual minds, while preserving the idea that they cannot be analyzed in terms of individual intentional states. The implication for social ontology is that this makes sense of the plural subjectivity of joint actions without making group agents require either a corporate body or the unity of consciousness.

## *2. Locating the we-mode*

The fact that collective intentionality is primitive in the domain of intentionality does not entail that it cannot be explained by other mechanisms located at the cognitive level. To be primitive in a specific domain only entails for a concept that it cannot be defined by other concepts pertaining to the same domain. This does not rule out that phenomena can be accounted in other terms. For instance, reference is likely to be primitive in semantics, but it can well turn out to be accounted in causal, pragmatic, psychological terms. In this vein, we can accept that collective intentionality cannot be reduced to individual *intentionality* without giving up the prospect of explaining it (Gallotti 2012, 5-6). I will argue that we-mode intentionality can be accounted in terms of some mechanism operating in social cognition.

First, we need to locate the we-mode in the structure of intentional states, which I take to involve a content, a psychological attitude towards that content, and a sense of ownership that goes along with their first personal self-attribution. According to this reading, the structure of intentional states will look as follows (Husserl 1913, § 80, Crane 2001, 31):

Subject – attitude – content

Some comments are in order concerning this threefold structure. The distinction between attitude and content is standard in the literature. Different theories of intentionality may diverge in terminology and details, but few reject that a distinction needs to be drawn between the psychological kind of attitude we entertain and the semantic content of that attitude – that is, between believing, desiring, intending and what we believe, desire, or intend to.<sup>2</sup> As for the content slot, my argument will not depend on a specific theory of content – be it Fregean or Millian, internalist or externalist, and so on. The argument is meant to be general in this respect. I do not argue that the we-mode is not a certain kind of content, but that it cannot be located as (a part of) the content in the structure of collective mental states. The same holds for attitudes. I do not argue that the we-mode is not a specific attitude, but that it is not an attitude at all. As for the subject slot, it does not matter whether it is taken as a conceptual or as an empirical point. A growing literature contends that mental states are marked by a specific “for-me-ness” which can be distinguished from both content and attitude (Kriegel 2009; Zahavi 2005, 2014; Lane 2012, see also Searle 1993, 94 ff.; Damasio 199, 168 ff.). My perceiving a tree and my remembering Paris differ both in attitude and content. Still, there is something common to them, namely their being “for me”, which would be different if *you* were having them. The nature of the connection between subjectivity and intentionality is understood in different ways by different authors, but the issue needs not to be adjudicated here.<sup>3</sup> What is relevant is the common

claim that a first personal sense of ownership necessarily goes along with entertaining mental states.

We may now ask where the we-mode is to be located in this structure. The we-mode does not seem to be a matter of *content*. Intentional states are primarily something we *entertain*, not something we refer to. Making collective intentionality a matter of content may be a way of reducing it to individual intentionality, explaining joint actions in terms of the agents' respective individual intentions "that we J" and of their being common knowledge among them (Bratman 1999, 121). Yet this has been taken to be circular, as it leaves the first person plural occurring within the that-clause unexplained (Schweikard, Schmid 2013, 18). Also, common knowledge is infinitary, as it amounts to the infinitely iterated mutual knowledge that I know that you know that I know that ... while human cognitive capacity is finite: so it seems we would not act jointly if this required common knowledge (Searle 1995: 24; Campbell 2002, 165-70). Finally, mutual knowledge requires sophisticated cognitive skills that children acquire at a later time than the capacity to act jointly – in particular, the possession of mental concepts and meta-representational capacities (Pacherie 2007, 166; Tomasello, Racockzy 2003, 134, 139).

The we-mode is not a matter of *attitude* either. Individuals can entertain any propositional attitude both in the I- and in the we-mode: they can we-desire, we-believe, we-intend as well as they can I-desire, I-believe, I-intend. So the we-mode cannot be itself an attitude like belief, desire, etc. Rather, the I- and the we-mode seem to be *ways of entertaining* attitudes that divide all intentional states in two classes, namely the I- and the We-mode states, each encompassing all possible attitudes.

Now, if the we-mode is neither a matter of content nor a matter of attitude, what is it a matter of? As we are to locate the we-mode in the structure of intentional states, the only slot still available is the subjectivity slot. Recent literature indeed suggests that shared agency, in particular, displays a distinctive phenomenology (Pacherie 2014, Schmid 2014). What is crucial here is that actions and goals can be represented in a we-centric rather than in an ego-centric perspective, from *a shared point of view*, so that a

plural first person can be taken to be their subject. So the point of distinguishing between the I- and the we-mode seems to concern the sense of *ownership* that goes along with entertaining a mental state. That is, the problem with the we-mode is how mental states can be self-attributed to “us” jointly in the first person plural, rather than distributively to me and/or to you.

The problem is that, according to this reading, collective intentionality seems to require us to undergo a common mental state. If thinking and acting in the we-mode parallels the way in which we think and act in the I-mode, the I- and the We-mode must be similarly located in the structure of intentional states. As a consequence, we should find out that something like a plural first person is undergoing that state: something like a sense that “we think” must be found to go along with our representations very much like the Kantian “I think” in the case of singular first persons. Clearly, however, there is no mental state that *we* own in the same way in which *I* own my states of mind, as no corporate bearer can be said to *really* undergo collective mental states. In fact, we have two criteria for *real* bearers of mentality: a physical and a phenomenological one. It makes good phenomenological sense to take consciousness as a mark of subjectivity, as it makes good physical sense to take embodiment as a requirement for being the subject of mental life. But in neither sense can we consider plural subjects to be *real*, free floating over and above individual bodies and experiences.<sup>4</sup> Collective intentionality seems to require shared *ownership* because it needs to be we-centric rather than ego-centric. But subjectivity *really* comes in the singular. Thus, the we-mode can only be a property of individual agents, a property nonetheless that makes thoughts and actions to be attributed to *us* jointly and to be experienced by each as being *ours*.

To sum up, the we-mode fits neither in the content-slot, nor in the attitude-slot. What is specific to it is that intentions are attributed to “us” rather than to “me”, as they are entertained in the *first person plural*. In other words, acting *together* requires us to take the stance of a plural first person – “we” are the agent. This raises a paradox: collective intentionality seems to be a matter of attributing mental states to *plural first persons*, but there is no physical and/or phenomenological subject to bear them. This

requires us to account for how a sense of shared ownership may arise for mental states that lack a corporate bearer.

My conjecture is that a sense of shared ownership can be generated at the individual level by the cognitive mechanisms subserving the building of a shared point of view. More specifically I will argue that simulation theories of mindreading provide the conceptual tools to account for the capacity to form the we-centric perspective which goes along with entertaining a mental state in the first person plural.

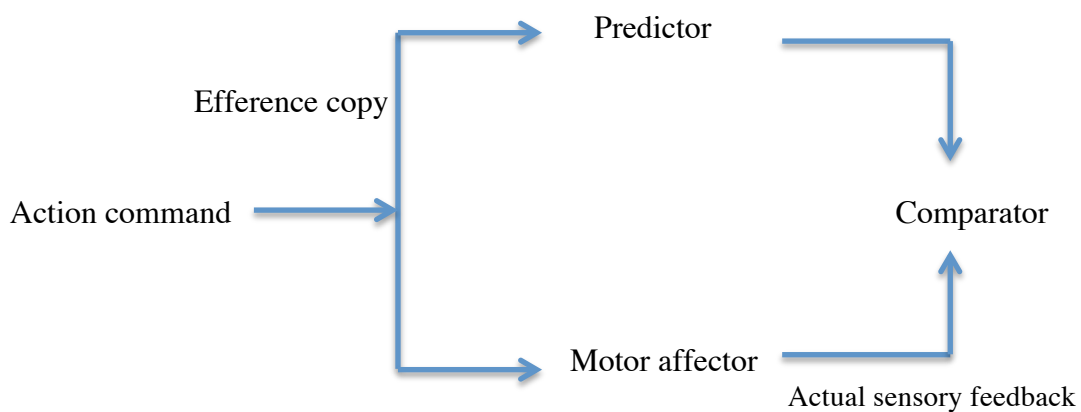
### *3. Mirror neurons*

An account of we-mode intentionality along the lines sketched in the previous section must respect three desiderata: (a) it must preserve the irreducibility of collective intentionality; (b) it must account for the building of the we-mode in terms of non-intentional capacities, (c) it must locate the account at the level of human cognitive capacities.

In this paper, the first requirement is not at stake: the point is to account for collective intentionality provided that – at least for the sake of argument – it cannot be reduced to individual intentionality. The second requirement is respected if collective intentionality is shown to be generated by some individual capacity other than intentionality. The third requirement assumes that individual capacities may either be biological or cognitive. One way out of the paradox sketched above thus amounts to postulate a specific subpersonal biological capacity, which is in fact suggested by Searle (1995, 2010). Another way is making the we-mode to result from the performance of a cognitive capacity. While no biological account has been offered up to now, we shall see that there is good evidence that mindreading can explain collective intentionality.

There are a few accounts meeting these requirements that explicitly take the we-mode to be a matter of we-centric thought and agency. The first capitalizes on empirical findings about the neural basis of mindreading and suggests that it provides the neural

underpinning of we-centered representations. Becchio and Bertone in particular follow Gallese (2001) in taking mirror neurons to yield a resonance mechanism that supports social cognition and in interpreting their activity in terms of the production of an *efference copy* of the motor signal, according to the forward model of action representation. According to the forward model, a copy of the efferent motor signal is generated upon motor preparation and used to anticipate the somatosensory changes expected, against which the changes experienced upon execution are then compared, as in Figure 1.



**Figure 1.** The forward model for motor control

The basic idea is that the mirror neuron matching system uses the same forward model architecture to represent both executed and observed actions (Gallese 2001, 41). This is commonly understood to imply that mirror neurons do not map actions either from the perspective of the executor, or from that of the observer, but in a format that can be referred to both. What is new is the suggestion that joint intentions depend on the same mechanism, as it provides a representation of actions which is informationally



prior to the self-other distinction: the fact that actions are represented in a format that can be attributed both to the executor and the observer has led to conjecture that this is what makes for the intersubjective “we” of a “first person plural” (Hurley 2008, 17-19):

Two agents acting collectively the same action share a we-centric representation of the action in question. The neural representation of the executed action tends to overlap the representation of the observed action: as a result, the performed action can be indifferently ascribed to the self or the other. (Becchio, Bertone 2004, 131)

What is interesting here is the project of explaining the we-mode in terms of a distinctively plural first personal perspective. In fact, mirror neurons are thought to support we-intentions by providing the underlying we-centric representation of actions. The problem, however, is that this is not what mirror neurons seem to do. As a matter of fact, the format in which actions are represented by mirror neurons is *prior* to its attribution to the self or the other. And this is not what is required to account for a we-centric representation of actions. We need actions to be represented as being *ours* rather than indifferently mine or yours – to be attributed to *us* jointly, rather than indifferently attributable either to me or to you. In other words, the representations provided by mirror neurons are allocentric rather than we-centric – they are non-centered rather than we-centered: they convey a view from nowhere rather than an (inter)subjective view.<sup>5</sup>

The point is that the mirror matching system does not explain how intentions and actions get attributed. Moreover, evidence suggests telling apart the mirroring mechanisms and the mechanism responsible for attributing intentions that yield our first personal sense of authorship, thus supporting the self-other discrimination and the self-identification of agents (Jeannerod, Pacherie 2004, 131, 139). Finally, Tomasello (2009) shows that forming a we-intention involves a capacity for role-reversal and that great apes lack this capacity, although they are provided with a capacity for mirroring. If this is true, mirror neurons are not enough to support we-mode intending.

#### *4. Joint attention*

Tomasello's approach is also consonant with taking the we-mode as a matter of we-centric thought and agency. Tomasello maintains that joint attention is both the precursor and the cognitive basis for collective intentionality, understood as a conscious and reflective capacity to share intentions and other mental states. According to this reading, collective intentionality is nothing but a generalized capacity for sharing intentions that builds on joint attention and develops with the maturation of our capacity for social cognition. In fact, evidence suggests that children work in the we-mode soon after their first birthday and in this context joint attention displays a capacity for sharing intentions that is ontogenetically prior to the development of the representational theory of mind which enables children – around the age of four – to attribute propositional attitudes (Tomasello 2009, 67 ff.; Tomasello 2014, 80-81). The latter, indeed, does not add much to the capacity to share intentionality itself. It just rewires it so that it can be decoupled from the context of face-to-face interactions with specific partners, enabling individuals to participate in more abstract and generalized forms of shared intentionality – involving indefinitely many others – which are required to create and understand cultural and institutional realities (Tomasello, Rakoczy 2003: 139). From this point of view, the irreducibility of we-mode intentionality can be traced back to the irreducibility of joint attention to individual intentionality (Rakoczy 2008, 506 ff.; Gallotti 2012, 20).

The central feature of joint attention is that it enables the participants in a joint action to represent both the goal and the complementary roles of the agents in a single format from a “bird's eye view” (Tomasello 2009, 68). The capacity to engage in joint attention thus explains the capacity to cooperate because of a “dual-level attentional structure— shared focus of attention at a higher level, differentiated into perspectives at a lower level” (Tomasello 2009, 70). Now in order to make perspectival differences accessible from the point of view of a shared goal, children must be able to make sense

of the self-other equivalence, which involves a capacity for role reversal young children show to possess early by participating in cooperative games with complementary roles and a turn-taking structure (Tomasello Rakoczy 2003, Rakoczy 2008). This is in turn traced back to recursive mind-reading, which enables role reversal. A system of equivalence is thus generated in which agents can reciprocally shift their first personal view by putting themselves in the mental shoes of one another. This enables them to jointly attend a shared goal and derive the complementary individual actions to be undertaken from it. To sum up: cooperation requires that both a joint goal and the roles of participants are represented in a single format. This representation involves a bird eye's view produced by joint attention. The capacity for role-reversal based on recursive mind-reading thus explains the shared intentionality of joint attention and shows *how* only humans are able to form the we-mode intentions that mark off cooperation from strategic group activities. Great apes lack this capacity and therefore they are unable to engage in cooperative activities, and their group activities are better read as resulting from the interplay of strategic behaviors based on a limited capacity for mindreading, which does not support role reversal (Tomasello 2009: 65, 72).

This is a step forward in explaining the irreducible character of we-mode intentionality in terms of a shared perspective enabled by social cognition. If accounting for the we-mode is a matter of accounting for how a shared view is generated, however, Tomasello's account looks underdetermined in two respects. First, it is natural to read it as suggesting that the shared perspective generated by joint attention is "our" view, accounting for the We-ness of joint actions in terms of a we-centric representation of actions and goals. Yet the single format representation of joint goals and individual roles which is relevant to joint intentions is taken to display a third personal, agent neutral view "from nowhere" (Tomasello 2009: 68). It is unclear how this can account for the We-ness of shared intentionality: a third personal "bird's eye view" does not overlap with the "we-centric" view expressed by the first person plural, as it is allocentric and detached in a way that acting together is not. It displays a view from without, not "our" view – which is needed to explain action.

The second problem concerns the role of recursion. The only way to make sense of it is in terms of Corballis's notion of second order recursion. Second order recursion in this context is taken (means) to enable reverse mindreading – putting agents in the position to construct complex meta-representational thoughts like “I know that you know that I know that ...” and so on – *in infinitum* (Corballis 2011, 150). Yet it is hard to see how this can generate a *we*-centric perspective. Since recursion consists in applying a procedure to the results of its own application, recursive mindreading can do no more than iterate mutual knowledge, yielding an endless chain of meta-representations that take increasingly complex mental states as their objects. The intuition behind Tomasello's work is that mindreading can generate the *we*-mode. However, if this is right, mindreading must supply the cognitive resources to close the gap between mutual knowledge and the kind of sharing supposedly required by *we*-intentions, *we*-desires, *we*-beliefs. Recursion, however, cannot do. Talks of recursion seem rather to cover the missing explanatory link between mindreading and the *we*-mode.<sup>6</sup> In the next section I will suggest that simulation theory provides the tools to carry out the task.

### 5. *Simulation and shared intentionality*

I argued that, in accounting for *we*-mode intentionality, the *explanandum* is how a sense of shared ownership may arise for mental states that lack a corporate bearer, and that the mechanism responsible for this must be located at the level of the human capacity for social cognition. In what follows I will try to sketch in some detail how mindreading can generate sharing, that is how to go from knowing one another's minds to sharing intentions and other mental states.<sup>7</sup> The next step is to select a theory of mindreading apt to the task. We need mindreading to be such that it can explain (a) how to generate role-reversal and b) how to go from role reversal to the *we*-mode. My conjecture is that simulation theory is on the right track.

According to simulation theories, in mindreading we “identify” with others in imagination and run our cognitive system off-line to enact their doings in a way that “multiplies the first person” (Gordon 1995a, Hurley 2008). Imagination plays a crucial role in that simulation “involves an imaginative shift in the reference of indexicals”: as we project ourselves onto others, they become the reference “I”, their time and place become the referents of “now” and “here”, and generally we “re-center our egocentric map” to simulate their thoughts, emotions, and motivations to act (Gordon 1995b, 733-34). By displacing ourselves in their mental shoes, we make ourselves think and act as if we were there, so that we understand them and predict their actions by enacting what is in their mind from within, rather than by theorizing from without. The process works in the first person and involves generating a set of mental states which are thought to operate in the others, fed into a reasoning mechanism as an input, and read off the output to be attributed to them (Goldman 2006: 27 ff.).

In the present context, simulation theory looks promising in three respects. First, it exploits first personal resources – one’s own action control system is used as a model of similar systems. Second, it provides us with the role reversal capacity supposedly required for forming a shared view, since shifting egocentric maps enables agents to switch their respective positions. Third, it escapes the infinitary regress affecting mutual knowledge, as it uses what Goldman (2006, 46) labels “enactment imagination”. Imagination can be conceived of either as a propositional attitude taking possible mental states as objects or as a capacity to *enact* possible mental states. In the first case, the imagining state is a second-order state which differs in kind from the imagined one. As I imagine *that* Paolo believes that P, I am not entertaining the imagined belief. In the second case, the imagining state is of the same order and kind of the imagined state. As I e-imagine Paolo believing that P, I am myself enacting the belief that P. This is important to make sense of the difference between role reversal and mutual knowledge. Role reversal does not necessarily involve the propositional mutual knowledge *that* one plays a role in a certain action context. It may just consist in the capacity to take up

another's role in imagination. As the enacted state is of the same order of the target state, there is no room for regress.

Moreover, Goldman's distinction between low-level and high-level mindreading sheds some light on the capacities involved. Low-level mindreading concerns simple mental states like emotions and motor intentions, it is neither voluntary nor conscious, and it may be based on mirroring – although it is not *constituted* by mirroring (Goldman 2009, 314). High-level mindreading, by contrast, does not even involve mirroring, as it is based on imagination. In fact, it amounts “to ‘re-enact’ or ‘re-create’ a scenario in one's mind that differs from what one currently experiences”, constructing the scenario “as one would experience or undergo it if it were currently happening” (Goldman 2009, 324). As a consequence, it need not be triggered by observed actions, it can be voluntarily and consciously performed, and it can operate both on propositional attitudes and on more simple, non-propositional mental states:

[...] ST contends that E-imagination is often employed for mindreading. To determine whether my wife, seated elsewhere in the room, can see the bird in the birdfeeder, I might visualize how things look from her perspective. Such perspective taking could lead me to mind-read both her visual state and my consequent beliefs about the bird. Analogously, many nonvisual specimens of E-imagining might be utilized for mindreading purposes. In general, E-imagining isn't confined to the production of imagery, visual or otherwise. (Goldman 2006, 153)

A capacity for high-level mindreading driven by enactment imagination can thus be credited both to normal adults, endowed with sophisticated metacognitive skills, and to young children (Goldman 2006, 195 ff.). In this respect, simulation theory is a good candidate to account for the mindreading skills young children employ as they engage in joint attention, and it is consistent with the conjecture that such skills expand as they acquire a representational theory of mind, enabling individuals to attribute propositional attitudes and to develop a more abstract capacity to cooperate, which goes beyond the capacity to interact with particular individuals on particular occasions.<sup>8</sup> According to this picture, what is uniquely human is not mindreading in general, but a sense of “we”

supported by specific mindreading skills involving the capacity to “simulate the perspective of others” (Tomasello 2009: 57, 1999: 75). If we are to account for how mindreading can generate the we-mode, we should thus expect that the cognitive skills simulation theory takes to support mindreading can be recruited to go (a) from mindreading to role reversal and (b) from that to represent actions and goals in a we-centric perspective.

The first step – from mindreading to role reversal – is explained in this context by the fact that simulative mindreading involves a shifting of egocentric maps, which enables agents to switch the respective positions of self and other in imagination. A capacity for role reversal is thus implied in any single performance of simulating others. As for the second step, the present conjecture is that it is enabled by the fact that simulation generates a mental state that is enacted rather than represented. As long as we “identify” with others by shifting our egocentric maps, and proceed to switch the perspective of self and other with respect to an intended object or goal, we handle both perspectives simultaneously. To form a shared perspective, we just need to bring them to overlap in imagination to the effect that they merge in an encompassing view that displays what it would be like for “us” to think a thought or carry out an action *together*. In this case the enacted state will be made to represent both the joint target and the individual perspectives in a we-centric view. According to this reading, the joint goal and the roles of participants in a joint action are not represented in a third personal, agent neutral view. Rather, a simulated intention is self-attributed to “us” in imagination to the effect that each participant is taken to entertain it in the first person plural. This accounts for how a sense of shared *ownership* can go along with thinking and acting together, although the underlying cognitive processes are performed by individual minds. Thus, simulative mindreading provides agents with the tools to build a plural first personal perspective. There is no need for a corporate bearer, as long as individual agents can come to adopt a plural first personal stance by enacting the view of a plural subject. Collective subjectivity is imaginary, enacted.

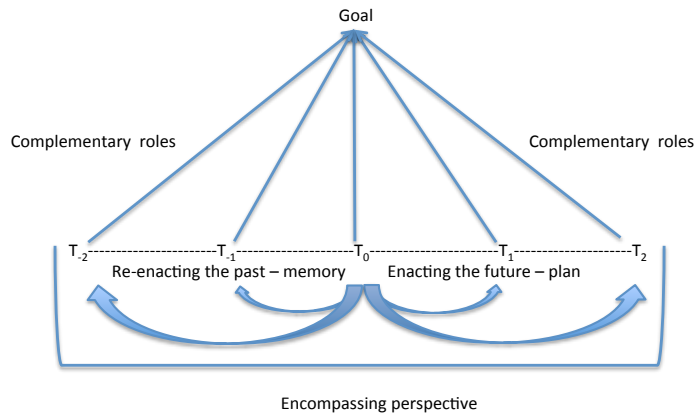
An analogy with memory can help to figure out how mindreading can result in a merging of minds to the effect that a we-centric view is generated. Husserl (1973, 198-99) suggests that mindreading can make interpersonal experiences merge in the same way in which temporally discrete personal experiences merge in memory. In this view, interpersonal we-thoughts and intertemporal memory based I-thoughts display a similar structure. In memory, a diachronic chain of I-thoughts is merged over time as pertaining to *myself*. By mindreading, a synchronic chain of I-thoughts can be merged over persons as pertaining to *ourselves*. The analogy between memory and mindreading can be cashed in Gordon's terms by saying that both involve "an imaginative shift in the reference of indexicals", and it is consistent with a well-known analysis of memory demonstratives: understanding memory demonstratives involves a "temporal decentering" in the original situation, understanding spatial demonstratives requires one to decenter into someone else's egocentric space (Campbell 2002, 180 ff., 184). In fact, prospection, memory and mindreading have been found to be supported by a common mechanism that works both in the intrapersonal and interpersonal case. Bruckner and Carrol, in particular, have argued that thinking about the future, remembering the past, and conceiving the perspective of others are based on a mechanism of imaginary self-projection by which the subject's experience is shifted from the immediate environment to an alternative perspective – one's own past and future, or a stranger's point of view – which is explored by simulating the scenario as it would be experienced by the subject (Bruckner and Carrol 2007, 49). Interestingly, the brain mechanisms at work are different here from the mirror neurons matching system, as they are realized by a neural network located in the frontal and medial temporal lobe, usually involved in action planning and episodic memory. Goldman (2009, 326) suggests that Self-projection may be what supports high-level mindreading, reporting a claim by Gallagher and Friths (2003, 79) to the effect that the medial prefrontal cortex is used to determine another's mental state and "to handle simultaneously" both one's own and the other's perspective.

Now suppose I am engaged in a lasting project. I am likely to re-enact my past and to project myself in my future on a regular basis to keep track of my goal and

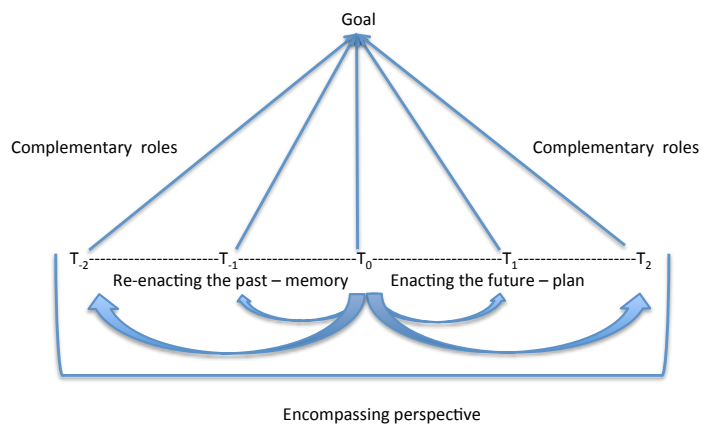


coordinate partial actions. We may dare to say that in a sense I am cooperating with my past and future self to reach a shared goal. The same can be said for interpersonal cooperation: each agent self-projects onto others and simulates their perspective to track a shared goal and coordinate individual actions. My conjecture is that enactment imagination enables agents in both cases to form the encompassing first person view that is needed to represent both the goal and the partial actions in a single format. The whole action is thus explained by the intention attributed to a singular or a plural first person respectively, from which the partial actions or the individuals' complementary roles are derived.

Certainly, in the intrapersonal case there is at least a physical criterion to grant the identity of the subject of experience, which is not found in the interpersonal case. Yet the way we keep track of our own mental life, by decentering through time, sheds some light on how a sense of shared ownership can arise from the intertwining of the perspectives of the Self and the Other. The way we shift the reference of temporal indexicals by self-projecting into our past and future is the same as how we shift the reference of spatial indexicals by self-projecting onto others to enact their intentions. Although there is no real corporate bearer of mentality in the social case, the role of imagination suggests similar results. Enactment imagination is used both in intrapersonal and interpersonal cases to construct an integrated first personal perspective. In the intrapersonal case, memory and prospection enable the agent to conceive of past and future actions as parts of a subjective plan. In the interpersonal case, mindreading enables participants to devise individual actions as parts of an intersubjective cooperation with a joint goal fixed from a plural first personal point of view. Figure 1 sketches how self-projecting into one's own past and future may work in the individual case of action planning (T indicate different times); figure 2 shows how self-projecting onto others may work in the social case of joint action.



**Figure 2.** Subjective tracking goals across time.



**Figure 3.** Intersubjective tracking goals across persons

## 6. Conclusion

In the previous sections, I sketched a cognitive account of collective intentionality which focus on how mental states get self-attributed to “us” jointly in the first person plural, so that a sense of shared ownership arises for mental states that lack a corporate bearer. The implication for social ontology is that this makes sense of the plural subjectivity of joint actions and collective mental states without making group agents and minds require either a corporate body or the unity of consciousness.

According to this account, in fact, thinking and acting in the we-mode is explained by showing how individual agents can frame actions in a we-centric view, endorsing the perspective of the group. This seems to entail that a plural subject be constituted when the participants in a joint action actually engage in the relevant simulation routines, so that a mental state is self-attributed by each to “us” jointly in the first person plural. In a sense, this makes plural subjects imaginary. Still, under this reading, individuals can be really said to act together as a plural subject when they are connected in the concurrent enaction of a we-centric perspective expressed by the first person plural. A joint action indeed is performed when participants entertain a we-intention, we-belief, we-desire as a consequence of engaging in the relevant simulation routines, to the effect that each adopts the related plural first personal stance.

This entails that the *conditions* under which collective intentionality obtains, plural subjects are constituted, and joint actions are carried out, are partly external to the individual agents. In particular, the existence of other agents performing the cognitive processes that support joint thoughts and actions enters in the individuation of these thoughts and actions: there is nothing collective in entertaining we-intentions, we-beliefs, we-desires all alone. The realizing *mechanisms* however are internal. The external condition that *other* participants work in the we-mode as well must be satisfied

with respect to *each* individual, but this is compatible with all the relevant facts being realized by individual minds. Thus, after all, plural subjects supervene on individual facts. There is a sense in which they are imaginary, as they are generated by *enacting* a shared, we-centric view for which there is no *real* corporate bearer. But this is harmless, as long as joint actions are real and a plural subject is really constituted when participants engage in the relevant simulation routines. What binds plural subjects together is not the unity of consciousness, but the concurrent enaction of it.

### **Acknowledgments**

I am grateful for comments on earlier drafts of this paper to Natalie Gold, Francesco Guala, and Federico Laudisa.

### **References**

- Becchio, Cristina. Bertone, Cesare. 2004. "Wittgenstein running: Neural mechanisms of collective intentionality and we-mode." *Consciousness and Cognition* 13 (1): 123-133.
- Bratman. Michael. 1999. *Faces of Intention*. Cambridge: Cambridge University Press.
- Bruckner, Randy, and Carroll, Daniel. 2007. "Self-projection and the brain." *Trends in Cognitive Sciences* 11 (2): 49-57.
- Campbell, John. 2002. *Reference and Consciousness*. Oxford: Oxford University Press.
- Cassam, Quentin. 2011. *The embodied self*. Oxford: Oxford University Press.

- Corballis, Michael. 2011. *The Recursive Mind. The Origins of Human Language, Thought, and Civilization*. Princeton: Princeton University Press
- Crane. Tim. 2001. *Elements of Mind*. Cambridge: Cambridge University Press.
- Dainton, Barry. 2008. *The phenomenal self*. Oxford: Oxford University Press.
- Damasio. Antonio. 1999. *The Feeling of What Happens. Body and Emotion in the Making of Consciousness*. New York: Hartcourt & Brace,
- Fodor. Jerry. (1981). *Representations. Philosophical Essays on the Foundations of Cognitive Science*. Cambridge (MA): MIT Press.
- Fodor. Jerry. (1985). "Fodor's Guide to Mental Representations." *Mind* 94 (373): 76-100.
- Gallotti. Mattia. 2012. "A Naturalistic Argument for the Irreducibility of Collective Intentionality." *Philosophy of the Social Sciences* 42 (3): 3-30.
- Gallotti. Mattia. 2013. Why Not The First Person Plural in Social Cognition. *Behavioral and Brain Sciences* 36 (4): 422-423
- Gallese, Vittorio. 2001. "The 'Shared Manifolds' Hypothesis." *Journal of Consciousness Studies* 8 (5-7): 33-50.
- Gallagher, Helen and Frith Cristopher. 2003. "Functional imaging of 'theory of mind'." *Trends in Cognitive Sciences* 7 (2): 77-83.

- Gilbert, Margareth. 1989. *On Social Facts*. New York: Routledge.
- Gilbert, Margaret. 2007. *Searle and Collective Intentions*. In *Intentional Acts and Institutional Facts. Essays on Searle's Social Ontology*. Edited by Savas Tzoadzidis. New York: Springer : 31-48
- Gilbert, Margaret. 2013. *Joint Commitment. How We Make the Social World*. Oxford: Oxford University Press.
- Goldman, Alvin .2006. *Simulating Minds*. Oxford: Oxford University Press.
- Goldman, Alvin. 2009. *Mirroring, Mindreading, and Simulation*. In *Mirror Neuron Systems. The Role of Mirroring Processes in Social Cognition*. Edited by Jaime A. Pineda. New York. Springer: 311-330.
- Gonzàles de Prado Salas, Javier, Zamora-Bonilla, Jesus. (2015). "Collective Actors without Collective Minds: An Inferentialist Approach." *Philosophy of the Social Sciences* 45 (1): 3-25.
- Gordon, Robert. 1995a. *Simulation without introspection or inference from me to you*. In: *Folk psychology*, edited by M. Davies and T. Stone. Oxford: Blackwell: 53–67.
- Gordon, Robert. 1995b. "Sympathy, Simulation, and the Impartial Spectator." *Ethics* 105 (4): 727-742.
- Hurley, Susan. 2008. "The shared circuits model (SCM): How control, mirroring, and simulation can enable imitation, deliberation, and mindreading." *Behavioral and Brain Sciences* (31) 1: 1-58.

- Husserl, Edmund. 1901, *Logische Untersuchungen. Zweiter Band: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*. Halle: Niemeyer.
- Husserl, Edmund. 1913. *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie. Erstes Buch: Allgemeine Einführung in die reine Phänomenologie*. Halle: Niemeyer.
- Husserl, Edmund. 1973. *Gemeingeist II*. In *Zur Phänomenologie der Intersubjektivität. Texte aus dem Nachlass. Zweiter Teil: 1921–1928*. Edited by I. Kern. Den Haag. Nijhoff.
- Jeannerod, Marc. Pacherie, Elisabeth. 2004. “Agency, Simulation, and Self-Identification.” *Mind & Language* 19 (2): 113–146.
- Kriegel, Uriah. 2009. *Subjective Consciousness: A Self-Representational Theory*. Oxford: Oxford UP.
- Lane, Timothy. 2012. “Toward an Explanatory Framework for Mental Ownership.” *Phenomenology and the cognitive sciences* 11 (2), 251-286.
- Lane, Timothy. Liang, Caleb (2010), “Mental Ownership and Higher Order Thought: Response to Rosenthal.” *Analysis* 70 (3): 496-501.
- Mackie, David. 1999. “Personal Identity and Dead People.” *Philosophical Studies* 95 (2): 219–242.
- Pacherie, Elisabeth. 2007. “Is collective intentionality really primitive?” In *Mental processes: representing and inferring*. Edited by M. Beaney, C. Penco and M.

- Vignolo. Cambridge: Cambridge Scholars Press: 153–175.
- Pacherie, Elisabeth. 2014). “How does it feel to act together?” *Phenomenology and the Cognitive Science* 13 (1): 25-48.
- Rakoczy, Hannes. 2008. “Pretence as Individual and Collective Intentionality.” *Mind & Language* 23 (5): 499–517.
- Schechter, Elizabeth. 2013. “The Unity of Consciousness: Subjects and Objectivity.” *Philosophical Studies* 165 (2):671–692.
- Searle, John. 1993. *The Rediscovery of Mind*, Cambridge: Cambridge University Press.
- Searle, John. 1995. *The Construction of Social Reality*. New York: Penguin.
- Searle, John. 2010. *Making the Social World. The Structure of Human Civilization*. Oxford: Oxford University Press.
- Schmid, Hans Bernhard. 2014. “Plural Self-Awarenes” *Phenomenology and the Cognitive Science*, 13 (1): 7-24.
- Schweikard, David and Schmid, Hand Bernard. 2013. Collective intentionality. *The Stanford Encyclopedia of Philosophy*. Edited by Eduard N. Zalta. URL = <http://plato.stanford.edu/archives/sum2013/entries/collective-intentionality>
- Tomasello, Michael. 2008. *Origins of Human Communication*. Cambridge (MA): MIT Press.
- Tomasello, Michael. 2009. *Why We Cooperate?* Cambridge (MA): MIT Press.



Tomasello, Michael. 2014. *A Natural History of Human Thinking*. Cambridge (MA): Harvard University Press.

Tomasello, Michael and Rakoczy Hannes. 2003. "What Makes Human Cognition Unique? From Individual to Shared to Collective Intentionality." *Mind & Language* 18 (2): 121-147.

Tuomela. Raimo. 2006. "Joint Intentionality. We-mode and I-Mode." *Midwest Journal of Philosophy* 30 (1): 35-58.

Tuomela. Raimo. 2007. *The Philosophy of Sociality. The Shared Point of View*. Oxford: Oxford University Press.

Tuomela. Raimo. 2013. *Social Ontology. Collective Intentionality and Group Agents*. Oxford: Oxford University Press.

Zahavi, Dan. 2005. *Subjectivity and Selfhood: Investigating the First-Person Perspective*. Cambridge, (MA): The MIT Press.

Zahavi, Dan. 2014. *Self and Other: Exploring Subjectivity, Empathy and Shame*. Oxford: Oxford University Press.

---

<sup>1</sup> Tuomela recently claimed that his own account of joint actions in terms of we-mode thinking is stronger than Searle's account because it is "conceptually connected to a group through the irreducible features of group reasons, collectivity (viz. satisfaction of the collectivity condition), and collective commitment" (Tuomela 2013: 85). I take Tuomela to maintain that this provides us with a sharper analysis of the issue at stake, but does not conflict with Searle's intuition. Tuomela himself suggests in fact that both Gilbert's and Searle's accounts of we-intentions "can be viewed as a we-mode account" (Tuomela 2006: 50).

<sup>2</sup> Some authors claims that propositional attitudes are monadic functional states, so that intentional verbs express one-place predicates in which psychological attitudes are "fused" with their objects. According to this reading, a sentence like "Mary believes that snow is white" would count as an atomic sentence

---

containing a referring expression (Mary) and a one-place predicate (believes-that-snow-is-white). Sentences attributing propositional attitudes would thus always attribute a different attitude when they attribute different contents. For instance, “Mary believes that snow is white” and “Mary believes that grass is green” would not attribute two states of the same psychological kind (believing), but two different states altogether. A common rejoinder is that one can entertain different attitudes towards the same content and the same attitude towards different contents (Fodor 1981, 79 ff.; cf. Husserl 1901, 411 ff., for a general discussion see also Fodor 1985, 84 ff.)

<sup>3</sup> Husserl, for instance, took the connection between subjectivity and intentionality to devise a transcendental structure of consciousness, so that «mental processes [...] belong to the pure ego as ‘its own’» (Husserl 1913, 160). Zahavi (2005, 194 ff., 2014, 80 ff.) has provided a reading of Husserl’s claim that makes it liable to a psychological interpretation. Kriegel (2009, 10, 23 ff.) seems to read the connection as a matter of conceptual necessity, while Damasio (1999) presents it as an empirical claim, thus as a matter of nomological necessity at best. Finally, Searle (1993) takes intentionality to be biological, but its connection with consciousness to be a conceptual matter. These differences are not relevant to the argument advanced in this paper, however, as it rest only on the general claim that a sense of ownership goes along with the first personal self-attribution of mental states.

<sup>4</sup> Cf. Cassam (2011), Mackie (1999), Dainton, (2008), Schechter (2013).

<sup>5</sup> Hurley (2008: 18) thought “intersubjective” information about the action to be subpersonal: this suggests that the sense in which intersubjectivity is used here does not really convey a “first person plural”; it just hints at the fact that agent-neutral information is shared.

<sup>6</sup> Part of the problem is that in this context Tomasello does not specify which theory of mindreading he has in mind. It is reasonable to exclude theory-theory, as it requires a capacity to attribute propositional attitudes children develop later than joint attention. For the same reason joint attention cannot be constructed along Bratman’s account of joint intentions, as Tomasello sometime seems to suggest (Tomasello 2008: 180-81; Tomasello 2014, 38 ff.).

<sup>7</sup> It should be clear that this problem arises only for intentional realists, as they are committed to understand the intentional states attributed to both individual and collective agents as a specific kind of psychological states. In a recent paper Salas, Zamora-Bonilla (2015) show that the problem evaporates in a pragmatist framework, where attributing an intentional state is understood as attributing a deontic statuses, because collective intentionality only requires in this case that a practice exists according to which entitlements and commitments can be attributed to collectives.

<sup>8</sup> This does not entail that young children do not *have* representations or do not engage in propositional thinking, but only that they do not have the *concept* of representation. This is consistent with the capacity to devise both the joint *target* and the roles of the participants in a joint action in single representational format, from a shared point of view.