

# Shared Agency and Motor Representation

butterfills@ceu.hu /  
s.butterfill@warwick.ac.uk

## 1. Question

*Shared Agency.* Sisters exercise shared agency when they cycle to school together; in contrast, strangers who happen to be cycling the same route are exercising parallel but merely individual agency.<sup>4</sup>

When members of a flash mob in the Central Cafe respond to a pre-arranged cue by noisily opening their newspapers, they exercise shared agency. But when others happen to noisily open their newspapers in response to the same cue, they do not.<sup>7</sup>

A *joint action* is an exercise of shared agency (in contrast to an *individual action*).

What is the relation between a purposive joint action and the goal or goals to which it is directed?

## 2. The Standard View

‘the key property of joint action lies in its internal component [...] in the participants’ having a “collective” or “shared” intention.’<sup>1</sup>

For you and I to have a shared intention that we J it is sufficient that: ‘(1)(a) I intend that we J and (b) you intend that we J; (2) I intend that we J in accordance with and because of la, lb, and meshing subplans of la and lb; you intend that we J in accordance with and because of la, lb, and meshing subplans of la and lb; (3) 1 and 2 are common knowledge between us.’<sup>3</sup>

‘each agent does not just intend that the group perform the [...] joint action. Rather, each agent intends as well that the group perform this joint action in accordance with subplans (of the intentions in favor of the joint action) that mesh’<sup>2</sup>

## 3. Thesis

In some cases it is not a shared intention but a special structure of motor representation, a ‘shared motor representation’, in virtue of which a joint action is related to its goal.

## 4. Shared Motor Representation

A *goal* is an outcome to which actions are, or might be, directed. (Contrast a *goal-state*, an intention or other state of an agent linking an action to a goal to which it is directed.)

An outcome is a *distributive goal* of two or more actions just if (a) each action is individually directed to this outcome; and (b) it is possible that: all actions succeed relative to this

outcome.

An outcome is a *collective goal* of two or more actions just if (a) this outcome is a distributive goal of the actions; (b) the actions are coordinated; and (c) coordination of this type would normally facilitate occurrences of outcomes of this type

A representation or plan is *agent-neutral* if its content does not specify any particular agent or agents; a planning process is agent-neutral if it involves only agent-neutral representations.

Events  $D_1, \dots, D_n$  *ground*  $E$ , if:  $D_1, \dots, D_n$  and  $E$  occur;  $D_1, \dots, D_n$  are each (perhaps improper) parts of  $E$ ; and every event that is a proper part of  $E$  but does not overlap  $D_1, \dots, D_n$  is caused by some or all of  $D_1, \dots, D_n$ .

For an individual to be *among the agents of an event* is for there to be actions  $a_1, \dots, a_n$  which ground this event where the individual is an agent of some (one or more) of these actions.

We have a *shared motor representation* of an outcome just if

- a) we each have a motor representation of this outcome;
- b) we are each disposed to inhibit some but not all of the planning or actions resulting from (a);
- c) we each expect that if the outcome occurs, we will all be among the agents of its occurrence; and

d) the truth of (a) and (b) depends on the truth of (c).

## 5. Evidence that Shared Motor Representation Exists

In joint action, motor planning can occur for another's actions,<sup>5</sup> and can inform planning for one's own actions.<sup>11</sup>

In joint action, it is sometimes necessary to inhibit planning or performing another's action.<sup>8</sup> Whether this is necessary depends on one's beliefs about co-actors' agency.<sup>9</sup>

In some joint actions, the agents have a single representation of the whole action (not only separate representations of each agent's part).<sup>10</sup>

## 6. The Interface Problem

Two outcomes, A and B, *match* in a particular context just if, in that context, either the occurrence of A would normally constitute or cause, at least partially, the occurrence of B or vice versa.

A shared motor representation is in *harmony* with a shared intention if they concern matching outcomes.

Some joint actions involve both shared intention and shared motor representation.

How is non-accidental harmony between shared intentions and shared motor representations?

Proposal: 'motor imagery could play a crucial role in bridging the gap'<sup>6</sup>

## References

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