

Shared Agency and Motor Representation

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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.⁴

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.⁷

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.’¹

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.’³

‘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’²

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,⁵ and can inform planning for one's own actions.¹¹

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

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

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'⁶

References

- [1] Alonso, F. M. (2009). Shared intention, reliance, and interpersonal obligations. *Ethics*, 119(3), 444–475.
- [2] Bratman, M. (1992). Shared cooperative activity. *The Philosophical Review*, 101(2), 327–341.
- [3] Bratman, M. (1993). Shared intention. *Ethics*, 104, 97–113.
- [4] Gilbert, M. P. (1990). Walking together: A paradigmatic social phenomenon. *Midwest Studies in Philosophy*, 15, 1–14.
- [5] Kourttis, D., Sebanz, N., & Knoblich, G. (2012). Predictive representation of other people's actions in

joint action planning: An EEG study. *Social Neuroscience*, *in press*, 1–12.

- [6] Pacherie, E. (2000). The content of intentions. *Mind and Language*, 15(4), 400–432.
- [7] Searle, J. R. (1990). Collective intentions and actions. In P. Cohen, J. Morgan, & M. Pollack (Eds.), *Intentions in Communication* (pp. 90–105). Cambridge: Cambridge University Press. Reprinted in Searle, J. R. (2002) *Consciousness and Language*. Cambridge: Cambridge University Press (pp. 90–105).
- [8] Sebanz, N., Knoblich, G., Prinz, W., & Wascher, E. (2006). Twin peaks: An ERP study of action planning and control in coacting individuals. *Journal of Cognitive Neuroscience*, 18(5), 859–870.
- [9] Tsai, C.-C., Kuo, W.-J., Hung, D. L., & Tzeng, O. J. L. (2008). Action co-representation is tuned to other humans. *Journal of Cognitive Neuroscience*, 20(11), 2015–2024.
- [10] Tsai, J. C.-C., Sebanz, N., & Knoblich, G. (2011). The GROOP effect: Groups mimic group actions. *Cognition*, 118(1), 135–140.
- [11] Vesper, C., van der Wel, R. P. R. D., Knoblich, G., & Sebanz, N. (2012). Are you ready to jump? predictive mechanisms in interpersonal coordination. *Journal of Experimental Psychology: Human Perception and Performance*.