

Lecture 06 : Philosophical Issues in Behavioural Science

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1. Introduction

How, if at all, are discoveries about game theory and its limits important for philosophical theories of joint action? In this lecture we investigate how team reasoning entails the existence of aggregate subjects. We also learn how to construct an account of shared intention using team reasoning. The result contrasts with Bratman (2014)'s account of shared intention.

This lecture depends on you having studied some sections from a previous lecture:

- *The Problem of Joint Action* in Lecture 04
- *Bratman on Shared Intentional Action* in Lecture 04
- *What Is Team Reasoning?* in Lecture 05

For the minimum course of study, consider only this section:

- *From Team Reasoning to Shared Intention* (section §3)

The lecture is about applications of team reasoning to theories of aggregate subjects and shared intentions.

1.1. Main Objective

We will investigate how to construct an account of shared intention using team reasoning following Gold & Sugden (2007) and Pacherie (2013).

The upshot is an account of shared intention incompatible with Bratman's account (see *Bratman on Shared Intentional Action* in Lecture 04). This incompatibility, and the difficulty of picking a winner, is an obstacle to combining philosophical and formal approaches. We are therefore motivated to consider whether either there is a good objection to either account—or, alternatively, a way of making them consistent with each other.

As background, we will also introduce the notions of plural subject and aggregate subject. These are useful for distinguishing and relating different response to The Problem of Joint Action. Whereas Bratman (2014)'s theory requires neither plural subjects nor aggregate subjects, theories based on team reasoning do require aggregate subjects.

2. Aggregate Subjects

Assume we do need a theory of shared intention in order to solve The Problem of Joint Action. Perhaps we construct such a theory using the idea that a shared intention is an intention of an aggregate subjects. Before doing this,

we need to know what aggregate subjects are, whether there are any, and whether they could have intentions.

2.1. Aggregate Subjects

Are there aggregate subjects and, if so, can they have intentions?

Theories of team reasoning require that teams can have preferences. To have a preference is to be a subject (of the preference), so teams are aggregate subjects.

If aggregate subjects can have not just preferences but also intentions, then it is possible that to have a shared intention is to be a part of an aggregate subject which has an intention.

2.1.1. Reductive Strategy

On the Reductive Strategy, there is no need for aggregate agents in constructing an account of shared intention.

On a view like Bratman (2014)'s, for us to have a shared intention is just for us each to have certain intentions and for this to be common knowledge among us.

This is a reductive strategy: nothing other than ordinary individual subjects need have intentions.

2.2. Background: Terminology

Why *aggregate*? From biology (an aggregate or colonial organism): Wikipedia: 'the Portuguese man o' war is a colony of four different types of polyp or related forms'

Theories of group agency are theories of aggregate subjects.

3. From Team Reasoning to Shared Intention

Does reflection on team reasoning enable us to understand shared intention and thereby solve The Problem of Joint Action? In this section introduces Pacherie (2013)'s proposal. It also highlights four questions for proponents of team-reasoning based accounts of shared intention.

3.1. Prerequisites

This section depends on you having studied some sections from a previous lecture:

- *Bratman on Shared Intentional Action* in Lecture 04
- *What Is Team Reasoning?* in Lecture 05

3.2. Motivation

Why investigate another theory of shared intention? One possible reason is dissatisfaction with the first theory we encountered (in *Bratman on Shared Intentional Action* in Lecture 04):

‘I am skeptical that all intentional joint actions require the sophistication in ascribing propositional attitudes that Bratman’s account appears to demand. To motivate this skepticism, I’ll turn to [...] empirical evidence that young children engage in what appears to be intentional joint action despite lacking this conceptual sophistication.’ (Pacherie 2013, p. 2)

3.3. Aim

Whereas Gold & Sugden (2007) aim to completely replace other theories of shared intention, Pacherie (2013) suggests that we may need more than one such theory (presumably she holds that there are multiple kinds of shared intention):

‘a modest or ‘lite’ notion of shared intention, less cognitively demanding than what the analyses proposed by leading philosophical accounts suggest and constituting a plausible basis from which more sophisticated forms of shared intentions can [...] emerge’ (Pacherie 2013, p. 2)

3.4. Pacherie’s ‘shared intention lite’

‘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); and
- (iii) each therefore intends to do his part of A (team reasoning from an individual viewpoint).’ (Pacherie 2013 see also Gold & Sugden 2007; Pacherie 2011)

3.5. Bratman's Response

Pacherie's account is one on which what makes something a shared intention is the (team) reasoning which gave rise to it. Bratman responds:

'my thought, in contrast, is that in order to articulate various forms of reasoning that can legitimately issue in a shared intention we need to know what work shared intentions do, and so we need to articulate their downstream roles and associated norms.'

\citep[p.~168 (footnote 72)]{bratman:2014_book}

3.6. Sources for Further Research

Gold & Sugden (2007) give an account of shared intention involving team reasoning. (Roughly, shared intentions are ordinary individual intentions; the difference is just that the shared intentions are formed as a consequence of team reasoning.)

Pacherie (2013) gives an alternative account of shared intention involving team reasoning.

Gold & Sugden (2007) and Pacherie (2013) both offer objections to *Bratman on Shared Intentional Action* in Lecture 04.

Bratman (2014, pp. 95–6) replies to Gold & Sugden (2007)'s objection (do read the footnotes, that's where much of the substance is).

On what might prompt agents to engage in team reasoning, Hindriks (2012) critically discusses both Bacharach's and Sugden's different views.

Bermúdez (2020, pp. 188ff) offers 'two very significant difficulties for Bacharach's theory' of team reasoning. This discussion is not directly relevant to Gold & Sugden (2007) and Pacherie (2013).

3.7. Other Approaches to Joint Action

There are a wide range of other approaches to characterising joint action which are not covered in these lectures but are relevant to the syllabus.

Gilbert (1990, 2013) develops an alternative to Bratman based on her notion of joint commitment.

It may be that Tuomela & Miller (1988) and Searle (1990)'s response initiated contemporary debate. (Brooks (1981) does not appear to have been considered.)

Many philosophers agree that distinguishing acting jointly from acting in parallel but merely individually involves invoking states of the agents who

are acting jointly, often dubbed ‘we-’, ‘shared’ or ‘collective intentions’ Some hold that the states in question involve a novel attitude (Searle 1990; Gallotti & Frith 2013). Others have explored the notion that the primary distinguishing feature of these states is not the kind of attitude involved but rather the kind of subject, which is plural (Helm 2008). Or they may differ from ordinary intentions in involving distinctive obligations or commitments to others (Gilbert 1992; Roth 2004).

No all philosophers invoke shared intention to explicate joint action. Petersson (2007, p. 138), for instance, attempts to explicate the distinction between acting jointly and acting in parallel but merely individually ‘in terms of dispositions and causal agency’. See also Chant (2007) for another alternative line.

Miller (2001) is unusual in focussing first on ends (which I label goals) rather than starting with some kind of intention or other mental state.

Ludwig (2007, 2016) offers a distinctive approach based on semantic analysis. Although this is sometimes viewed as a variant of Bratman’s theory, Ludwig and Bratman probably disagree on fundamental issues about what a theory of joint action is supposed to achieve. Helpfully, Ludwig (2015) has discussed Bratman.

4. Pacherie’s Objection to Bratman on Shared Intention

Pacherie (2013, p. 2) objects to Bratman (2014)’s theory of shared intention on the grounds that not ‘intentional joint actions require the sophistication in ascribing propositional attitudes that Bratman’s account appears to demand.’ What is this objection and what is the evidence for it?

This an optional section that may move to a later lecture. It’s here now because I might use it in response to a question.

Pacherie (2013)’s objection slightly modified:

1. Bratman (2014)’s account¹ requires sophistication in coordinating planning.
2. There is an age at which children engage in joint action
3. while lacking this sophistication.

☒ Not all joint action involves the shared intentions Bratman characterises.

¹ See *Bratman on Shared Intentional Action* in Lecture 04.

If the objection succeeds, it provides reason to prefer Pacherie (2013, p. 18)'s team-reasoning-based account of shared intention over Bratman (2014)'s. This is because the former does not require sophistication in coordinating planning.

4.1. Premise 2: One- and Two-Year-Olds Are Capable of Performing Joint Actions

A variety of evidence indicates that although they have quite limited capacities to coordinate their actions with others, even fourteen-month-olds will spontaneously initiate joint action with an adult. Children of around this age also demonstrate awareness in the context of joint action that success requires another person's contribution.

Carpenter makes a strong case for the claim that one- and two-year-olds are capable of performing joint actions:

‘By 12–18 months, infants are beginning to participate in a variety of joint actions which show many of the characteristics of adult joint action.’ (Carpenter 2009a, p. 388)

As does Brownell:

‘infants learn about cooperation by participating in joint action structured by skilled and knowledgeable interactive partners before they can represent, understand, or generate it themselves. Cooperative joint action develops in the context of dyadic interaction with adults in which the adult initially takes responsibility for and actively structures the joint activity and the infant progressively comes to master the structure, timing, and communications involved in the joint action with the support and guidance of the adult. ... Eager participants from the beginning, it takes approximately 2 years for infants to become autonomous contributors to sustained, goal-directed joint activity as active, collaborative partners’ (Brownell 2011, p. 200).

4.2. Premise 3: One- and Two-Year-Olds Do Not Coordinate Their Plans with Yours

The hypothesis that one- and two-year-olds have shared intentions as characterised by Bratman generates a prediction: since a function of shared intention is to coordinate planning, children of this age should be capable, at least in some minimally demanding situations, of coordinating their plans with another's.

Is the prediction correct?

There is good evidence that even 3-year-olds' abilities to coordinate plans are quite limited. For instance:

'3- and 5-year-old children do not consider another person's actions in their own action planning (while showing action planning when acting alone on the apparatus). Seven-year-old children and adults however, demonstrated evidence for joint action planning. ... While adult participants demonstrated the presence of joint action planning from the very first trials onward, this was not the case for the 7-year-old children who improved their performance across trials.' (Paulus 2016, p. 1059)

And:

'proactive planning for two individuals, even when they share a common goal, is more difficult than planning ahead solely for oneself' (Gerson et al. 2016, p. 128).

There is a review of evidence that the prediction is falsified in Butterfill (2020, Chapter 15).

5. The Autonomy Dilemma (Objection to Pacherie)

The Autonomy Dilemma is an objection to the claim that team reasoning can be used to construct a correct account of shared intention.

This an optional section that may move to a later lecture. It's here now because I might use it in response to a question.

5.1. The Dilemma

If team-reasoning-based accounts of shared intention require aggregate subjects whose preferences are autonomous from their components agents' preferences, then they cannot account for small-scale, spontaneous joint action with near strangers

If team-reasoning-based accounts of shared intention do not require aggregate subjects whose preferences are autonomous, then they merely capture self-interested optimism which is insufficient for shared intention.

5.2. Significance of the Dilemma

The dilemma is an obstacle to using team reasoning to provide a theory of shared intention (see *From Team Reasoning to Shared Intention* (section §3)).

The idea that team reasoning can be used to construct a theory of shared intention requires that team reasoning is a feature of all forms of joint action (Gold & Sugden 2007); or, if not, then at least of the simplest everyday cases of joint action (Pacherie 2013).

But small-scale, spontaneous joint action with near strangers is a familiar and common feature of everyday life. Accepting the first horn is therefore untenable.

5.3. A Qualification

Sugden himself would disagree with the view about what preferences are that is assumed in this section. (This view about preferences was introduced in *What Are Preferences?* in Lecture 03). Sugden rejects that view on the grounds that:

‘On some revealed-preference accounts, preference is nothing more than a disposition that a person may come to have, for whatever reason or for none, which prompts her to choose actions of one kind rather than actions of another. However, such an interpretation of preference seems not to acknowledge the sense in which the theory of rational choice is a theory of reasoning.² It would be more faithful to the practice of rational choice theory to say that a person’s preferences are whatever she takes to be choice-relevant reasons, all things considered.’ (Sugden 2000, p. 197)

This requires that we, as researchers, have a shared understanding of preference as ‘taking something to be a choice relevant reason’, that this understanding is not anchored by decision theory, and that aggregate subjects are capable of having preferences so understood.

6. Conclusion

How can we combine formal and philosophical approaches to joint action? One initially promising idea is to use team reasoning to construct a theory of

² Is decision theory (‘the theory of rational choice’) a theory of reasoning? Arguably it is a model which can be applied to various projects including understanding processes that might be called reasoning (see **ERROR! MISSING xref FOR unit : ellsborgparadoxvs_dualprocess_theory**) as well as to things that are probably not reasoning (for example, motor control; see Trommershäuser et al. 2009; Wolpert & Landy 2012). As reflection on these applications shows, to say that preference is a construct of decision theory does not imply that ‘preference is nothing more than a disposition ... to choose actions’.

shared intention, thereby providing a candidate solution to the The Problem of Joint Action. We have seen how this could be done. But does it succeed? Is the theory of shared intention true; and, if so, does it actually solve The Problem of Joint Action?

Glossary

aggregate subject A subject whose proper parts are themselves subjects. A paradigm example would be a Portuguese man o' war (*Physalia physalis*), which is an animal that can swim and eat and whose swimming and eating is not simply a matter of the swimming or eating of its constituent animals. Distinct from, but sometimes confused with, a plural subject. 3, 4, 9, 10, 12

anchor A theory, fact or other thing that is used by a group of researchers to ensure that they have a shared understanding of a phenomenon. An anchor is needed when it is unclear whether different researchers are offering incompatible claims about a single phenomenon or compatible claims about distinct phenomena. For example, we might take decision theory to anchor a shared understanding of belief and desire. 10

decision theory I use 'decision theory' for the theory elaborated by Jeffrey (1983). Variants are variously called 'expected utility theory' (Hargreaves-Heap & Varoufakis 2004), 'revealed preference theory' (Sen 1973) and 'the theory of rational choice' (Sugden 1991). As the differences between variants are not important for our purposes, the term can be used for any of core formal parts of the standard approaches based on Ramsey (1931) and Savage (1972). 10, 11

game theory This term is used for any version of the theory based on the ideas of von Neumann et al. (1953) and presented in any of the standard textbooks including. Hargreaves-Heap & Varoufakis (2004); Osborne & Rubinstein (1994); Tadelis (2013); Rasmusen (2007). 3

goal A *goal* of an action is an outcome to which it is directed. 7

joint action Many of the things we do are, or could be, done with others. Mundane examples favoured by philosophers include painting a house together (Bratman 1992), lifting a heavy sofa together (Velleman 1997), preparing a hollandaise sauce together (Searle 1990), going to Chicago

together (Kutz 2000), and walking together (Gilbert 1990). These examples are supposed to be paradigm cases of a class of phenomena we shall call 'joint actions'.

Researchers have used a variety of labels including 'joint action' (Brooks 1981; Sebanz et al. 2006; Knoblich et al. 2011; Tollefsen 2005; Pettit & Schweikard 2006; Carpenter 2009b; Pacherie 2010; Brownell 2011; Sacheli et al. 2018; Meyer et al. 2013), 'social action' (Tuomela & Miller 1985), 'collective action' (Searle 1990; Gilbert 2010), 'joint activity' (Baier 1997), 'acting together' (Tuomela 2000), 'shared intentional activity' (Bratman 1997), 'plural action' (Schmid 2008), 'joint agency' (Pacherie 2013), 'small scale shared agency' (Bratman 2014), 'intentional joint action' (Blomberg 2016), 'collective intentional behavior' (Ludwig 2016), and 'collective activity' (Longworth 2019).

We leave open whether these are all labels for a single phenomenon or whether different researchers are targeting different things. As we use 'joint action', the term applies to everything any of these labels applies to. 3, 8–10

model A model is a way some part or aspect of the world could be. 10

plural subject Some subjects who are collectively the subject of an intention or other attitude. If there is one token intention that is both my intention and your intention and no one else's intention, then we are the plural subject of that intention. (The intention is therefore shared in the same sense that, if we were siblings, we would share a parent.) Distinct from, but sometimes confused with, an aggregate subject. 3, 11

shared intention An attitude that stands to joint action as ordinary, individual intention stands to ordinary, individual action. It is hard to find consensus on what shared intention is, but most agree that it is neither shared nor intention. (Variously called 'collective', 'we-' and 'joint' intention.) 3, 4, 8–11

team reasoning 'somebody team reasons if she works out the best possible feasible combination of actions for all the members of her team, then does her part in it' (Bacharach 2006, p. 121). 3, 4, 9, 10

The Problem of Joint Action What distinguishes doing something jointly with another person from acting in parallel with them but merely side by side? 3, 4, 11

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