PH378 Week 9 Handout - The Interface Problem

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1   Why Introduce Motor Representations?

Davidson: "What I despair of spelling out is the way in which attitudes must cause actions if they are to rationalize the action." [5] p79.

Perhaps introducing the idea of motor representations which match the intention can fill in the gap, and provide an account of what it is to cause an action 'in the right way'. The relevant sense of matching here involves the extent to which the **outcomes** specified by each type of representation match.

2   Matching

Here is how Butterfill and Sinigaglia [3] define what it is for the outcomes specified by intention and motor representation to match:

Two collections of outcomes A and B **match** in context C just if, ether:

1. A-outcomes **constitute** or **cause** B-outcomes (or vice-versa)

2. B-outcomes stand to A-outcomes as "elements of a more detailed plan stand to those of a less detailed one"

It may be that there is *not* a match between the two outcomes. One may intend to perform one action and end up doing something else during **action slips**.

More radcial examples include Anarchic Hand Syndome. Here is a case described by Della Sala et al. [1]:

> The right hand frequently carried out complex activities that were not willed by G.C. These activities were clearly goal-directed and were well executed, but undesired by the patient, who used her left hand to try to stop them. For example, when the patient had a steaming cup of tea in front of her, the right hand proceeded to pick

it up and bring it to her mouth, even though the patient knew that it was too hot and had just said she would wait a few moments until it had cooled. Nevertheless it needed the intervention of her left hand to replace the cup on the table.

3 The Interface Problem

Mylopoulos and Pacherie [7] describe various differences between motor representations and intentions which help us understand why there is an interface problem.

Perhaps most importantly, here are the differences in the constraints on information integration which the two types of representation appear to obey:

Intention Rational constraints; the information integrated must be integrated in a way which is responsive to demands of rational planning. Information forms inputs and outputs to practical reasoning processes.

Motor Constraints imposed by the motor system and the biochemical structure of the body: isochrony principle, Fitt's law, two-third power law, etc.

4 Possible Solutions

First solution: *content-respecting cause*

On this solution, we might think that the outcomes specified by representations typically match because there is some system which 'checks' whether the content matches, and ensures that there is consistency between the two systems and what they demand. This suggests there is some translation between the information contained in one representation and another, despite the various differences outlined previously.

Problem: According to Butterfill and Sinigaglia [3], "nothing at all is known about this hypothetical translation between intention and motor representation, nor about how it might be achieved, nor even about how it might be investigated" p133.

Second solution: *deferral to motor representation*

According to Butterfill and Sinigaglia, we defer to motor representations by way of demonstrative concepts in intentions. So, intentions indirectly refer to outcomes through motor representations.

Problem: Mylopoulos and Pacherie [7] argue that "the agent must have an independent grasp of which motor representation is the appropriate one to select via such deferral" requiring a process of translation p329.

Third solution: *motor schema view*

Mylopoulos and Pacherie suggest that we can think about motor schemas as bridging the gap between motor representations and intentions. Motor schemas provide general information about types of action. The account of motor schemas used is mostly taken from an influential account by Richard Schmidt [8].

Problem: Ferretti and Caiani [6] claim that the motor schema account requires "an independent grasp" of which schema should be selected, which requires translation p309.

Fourth solution: *same format view*

Ferretti and Caiani (2019) suggest that intentions feature concepts which themselves have a motor format. This is taken from grounded cognition, inspired by the work of Lawrence Barsalou [2], among others.

Problem: (Warning: not validated by a proper philosopher!) Unless we have some method of translation, it looks difficult to see how we would have an independent grasp of which concepts are appropriate for inclusion within a proposition.

4.1   A recurring criticism and a different approach

It seems like the same criticism comes up again and again: the fact that each view supposes some form of **translation**. That is, in each case, it seems like there must be some way of verifying or 'checking' whether the contents match.

This might make us think: should we just bite the bullet and answer Butterfill and Sinigaglia's challenge: to develop some plan for how to approach the issue of translation. Wayne Christensen [4] thinks so, and attempts to set out the kind of problems we need to focus on, such as how 'superformats' are generated - the meta-representational structures which oversee information integration.

References

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