Intention and Motor Representation in Action Explanation

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What is the relation between a purposive action and the outcome or outcomes to which it is directed?
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Some motor representations carry information about outcomes.
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Information about outcomes guides planning.
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Move it from there to here

get it

move it

position it

hand-1
reach gras pmve arrive release

hand-2
reach grasp move place release
Some motor representations carry information about outcomes.

Information about outcomes guides planning.
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Information about outcomes guides planning.

Some motor representations represent outcomes.

Move it from there to here.

- Get it
- Move it
- Position it

**Hand-1**
- Reach
- Grasp
- Move
- Arrive
- Release

**Hand-2**
- Reach
- Grasp
- Move
- Place
- Release
What is the relation between a purposive action and the outcome or outcomes to which it is directed?
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motor representation = intention ?
motor representation = intention ? No !
< different content >
Head southeast on Rue Cujas toward Rue Victor Cousin. Turn right onto Rue Saint-Jacques. ...

Take RER B and get out at the Luxembourg station, from there it's less than 5 minutes walk.
Head southeast on Rue Cujas toward Rue Victor Cousin. Turn right onto Rue Saint-Jacques. ...
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e.g. rapid identification of key landmarks; slow translation into compass directions

Rapid identification of direction of start from end (projection-dependent)
imagine seeing
imagine
seeing
acting

1

2

actually
seeing
acting
imagine actually
seeing acting seeing acting
1 2
Fiori et al (2012)
imagine (cognitive)

actually

seeing

acting

seeing

acting
Only representations with a common format can be inferentially integrated.

Any two intentions can be inferentially integrated in practical reasoning.

My intention that I visit Lyon on Friday is a propositional attitude.
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No motor representations are propositional attitudes.
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The Interface Problem
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Some actions involve both intention and motor representation
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motor representations:

i. represent outcomes;

ii. ground the purposiveness of some actions

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The Interface Problem

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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.

Some actions involve both intention and motor representation
**The Interface Problem:**

**How are non-accidental matches possible?**

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The Interface Problem:
How are non-accidental matches possible?

motor representations:

i. represent outcomes;

ii. ground the purposiveness of some actions; and

iii. differ in format from intentions.

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Head southeast on Rue Cujas toward Rue Victor Cousin. Turn right onto Rue Saint-Jacques. ...
Follow *that* route
Follow *that* route
Do *that* = "Move it from there to here"

- get it
- move it
- position it

- hand-1
  - reach
  - grasp
  - move
  - arrive
  - release
- hand-2
  - reach
  - grasp
  - move
  - place
  - release
X  start here

ONE WAY

(small reward)

(big reward)