



Practical Reasoning and Motor Representation

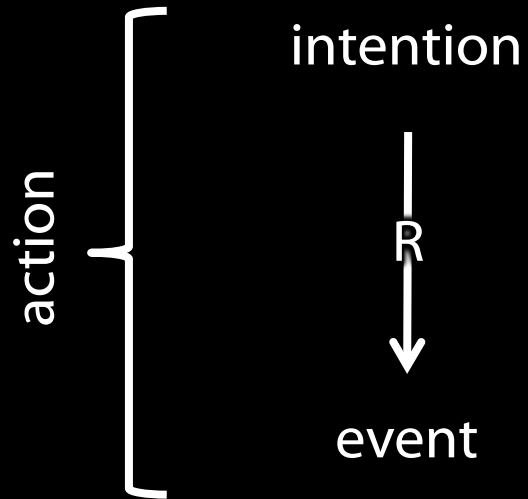
a workshop organised by

& s.butterfill@warwick.ac.uk
corrado.sinigaglia@unimi.it

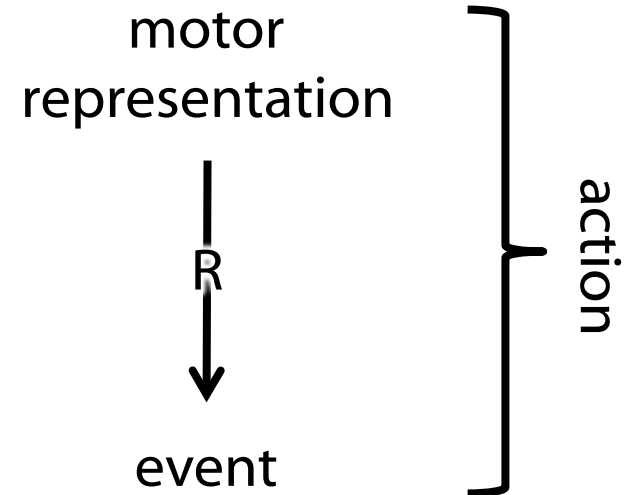
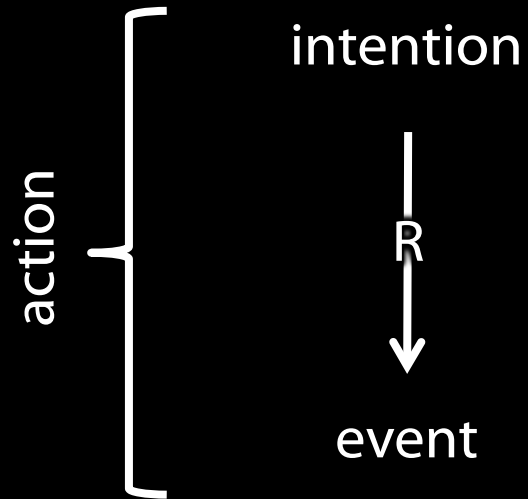
at the University of Warwick

Which events are actions?

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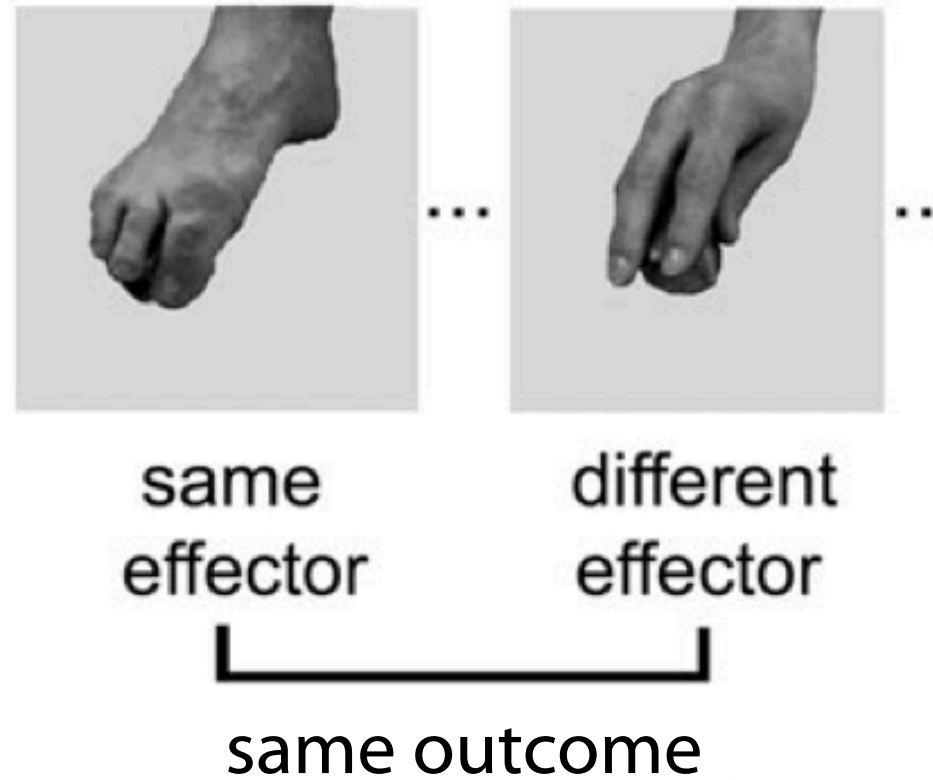


Which events are actions?



Some motor representations carry
information about outcomes.

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Cattaneo et al (2010)

Some motor representations carry information about outcomes.



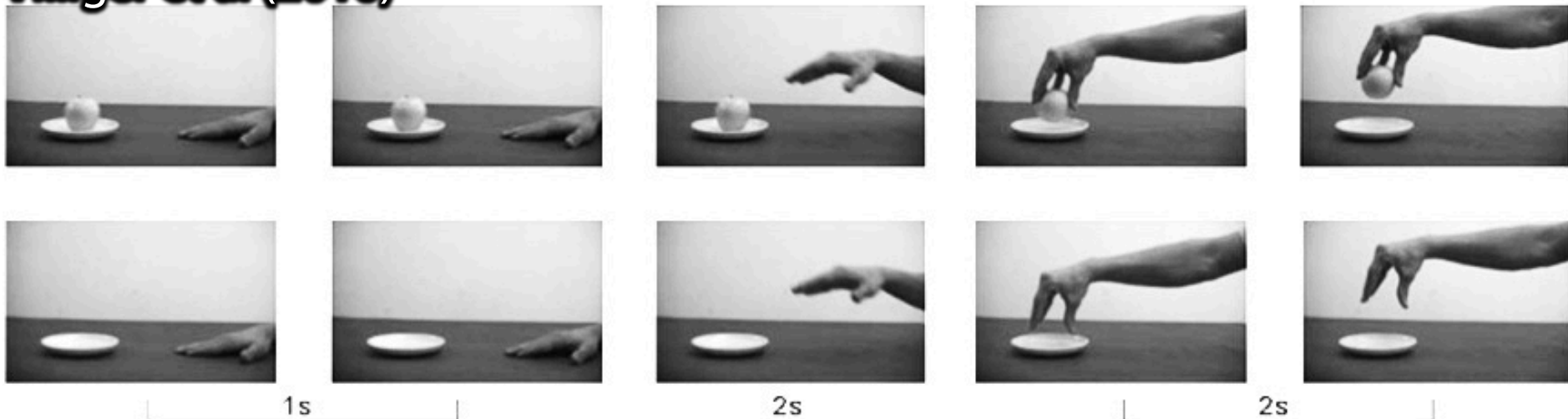
same
effector

different
effector

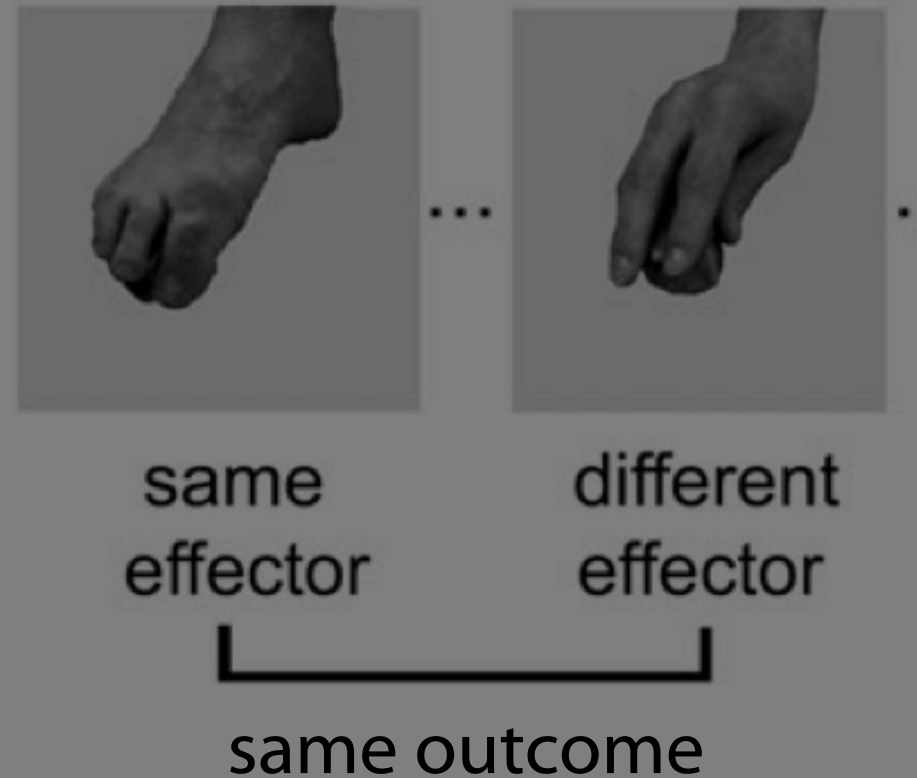
same outcome

Cattaneo et al (2010)

Villiger et al (2010)

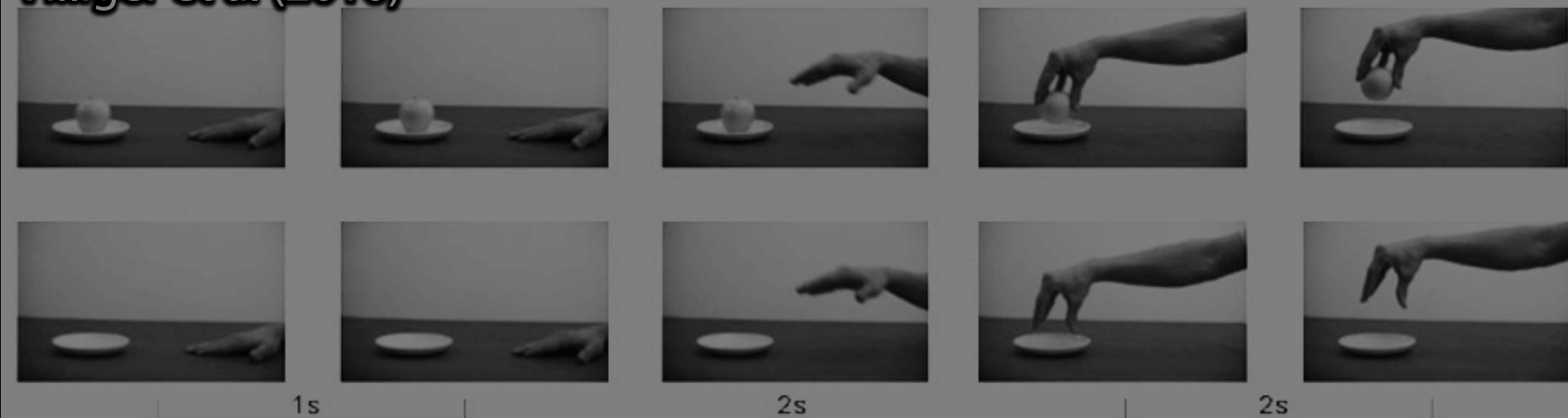


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Some motor representations carry information about outcomes.

And these representations trigger planning-like processes.

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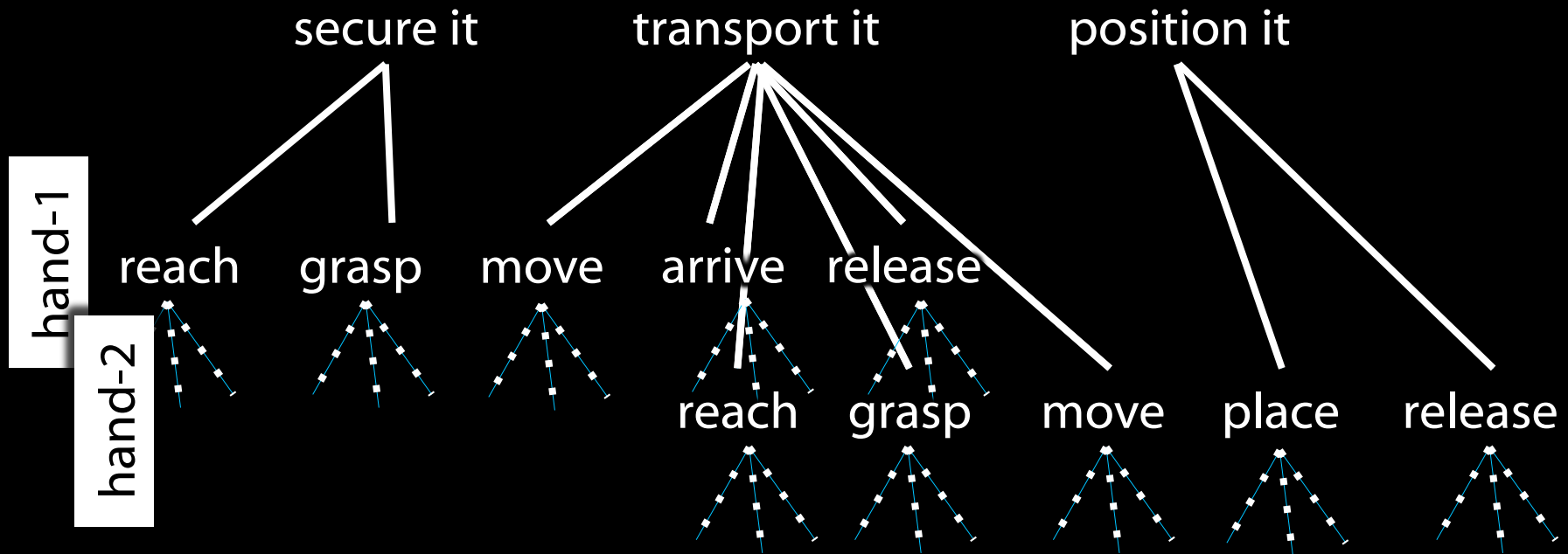
secure it

transport it

position it

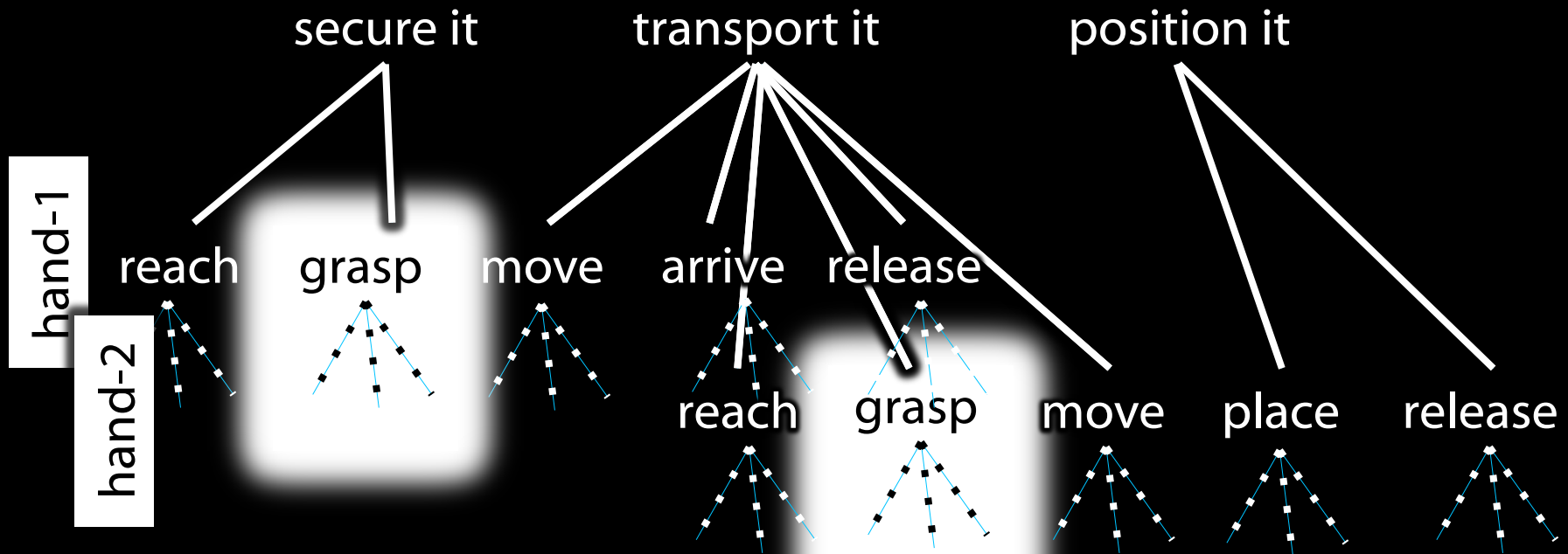
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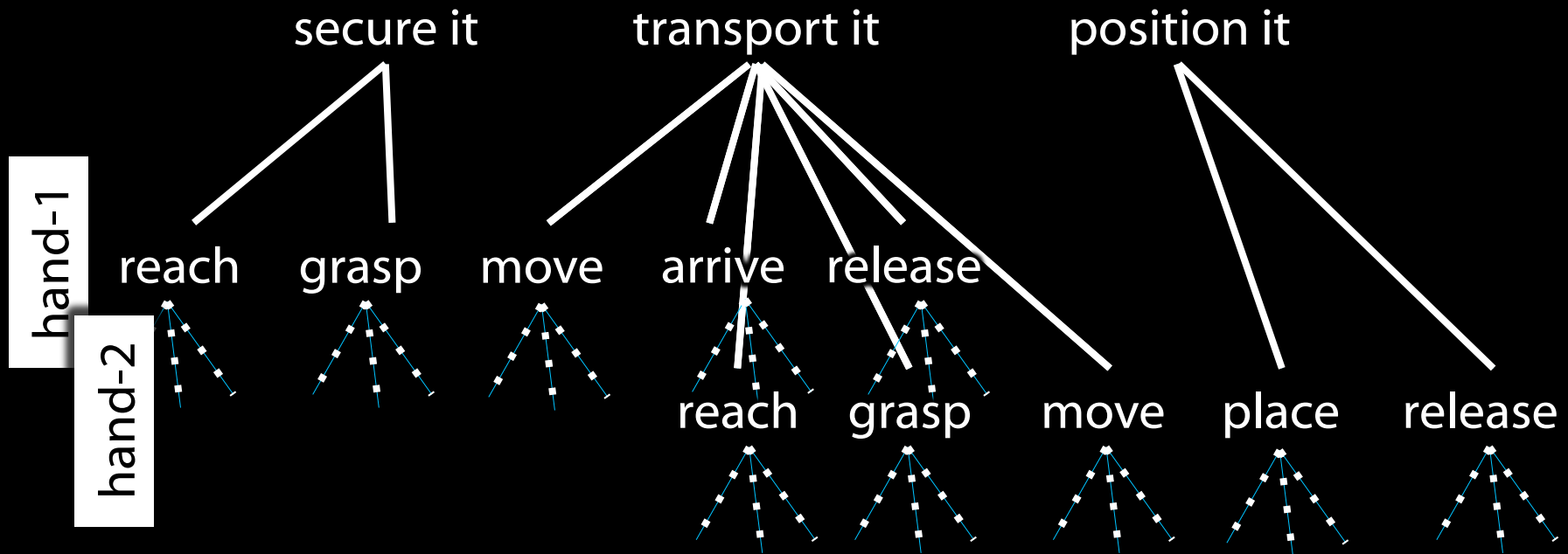
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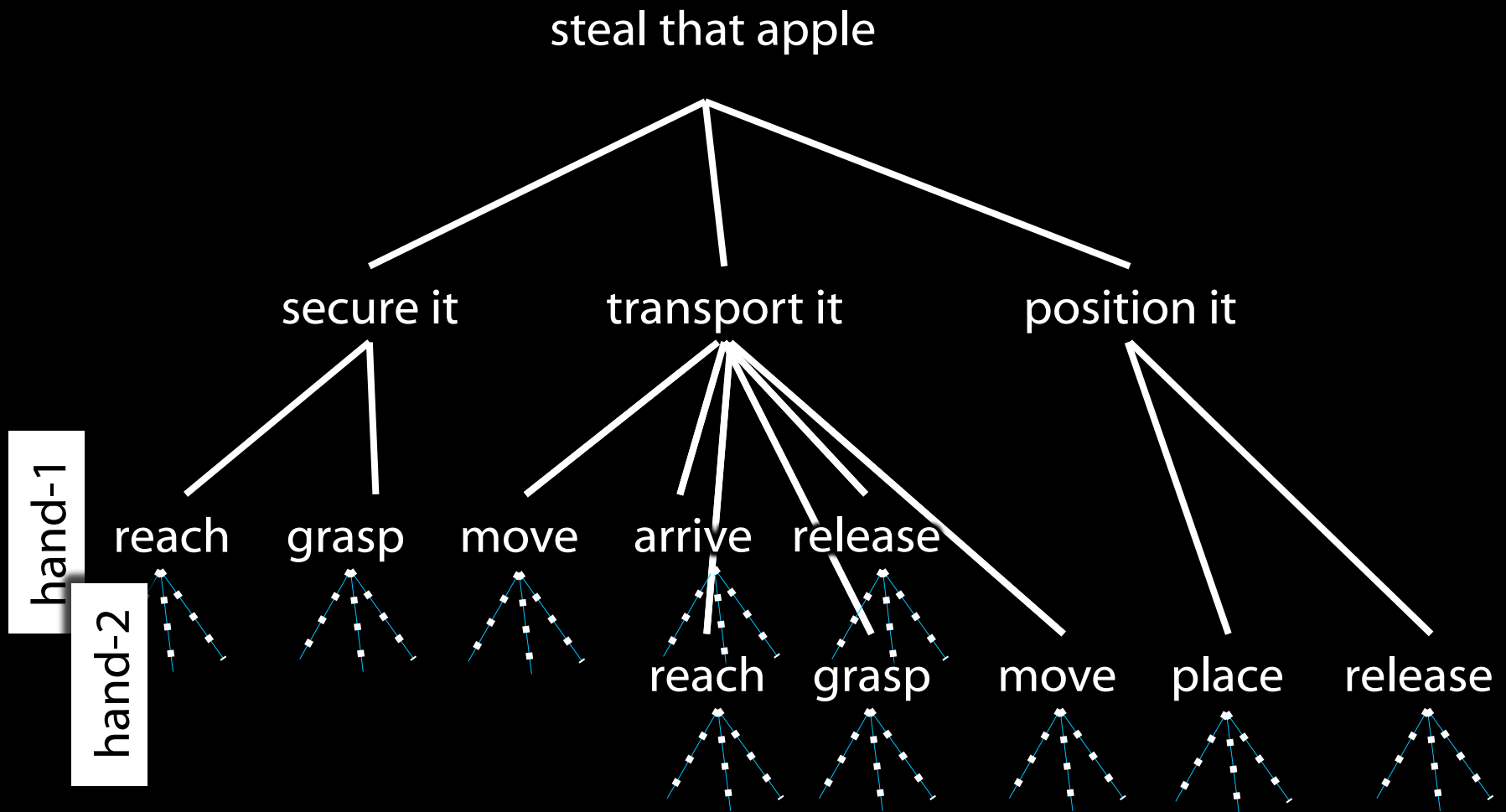


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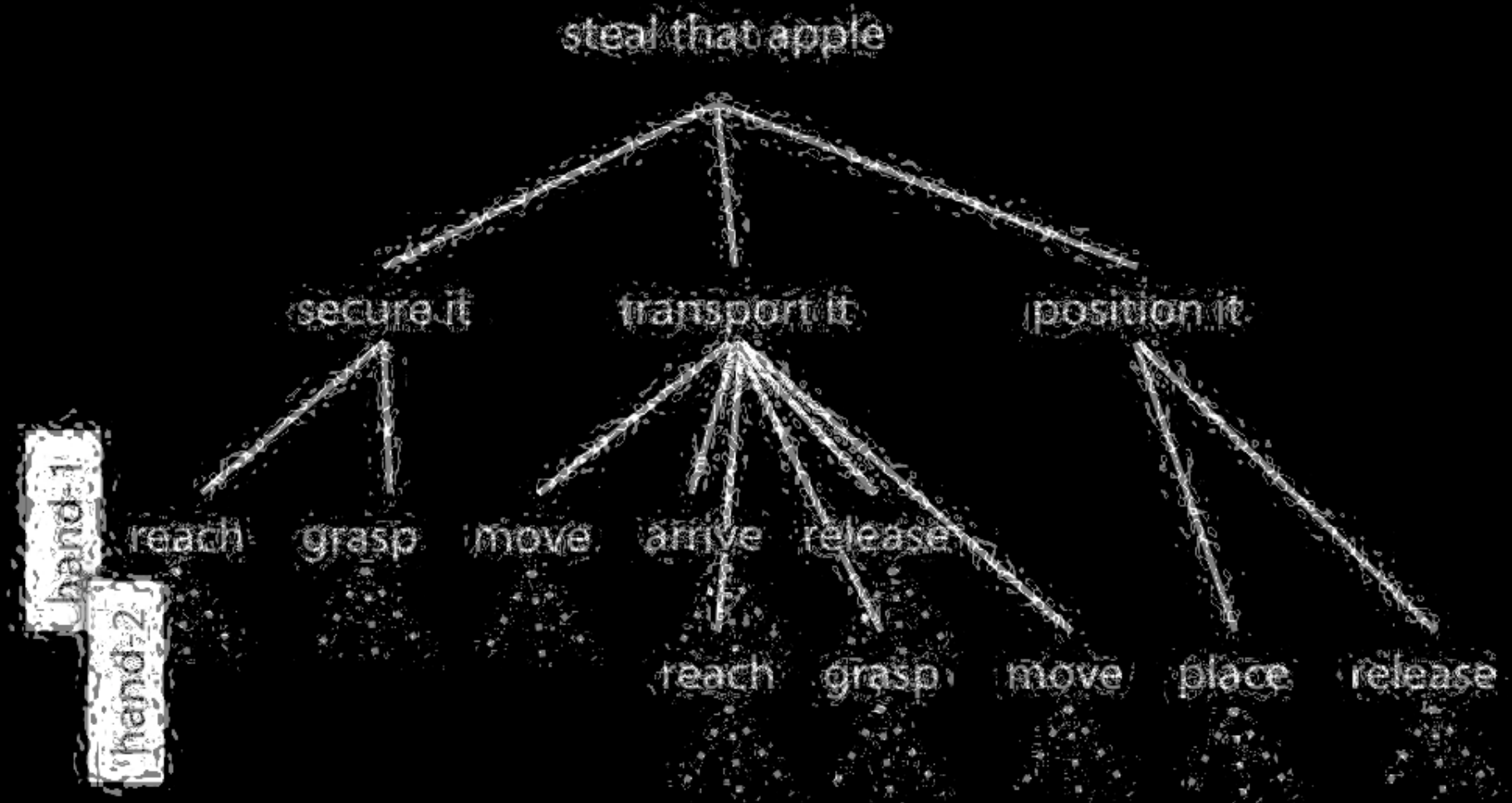


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Some motor representations carry information about outcomes.

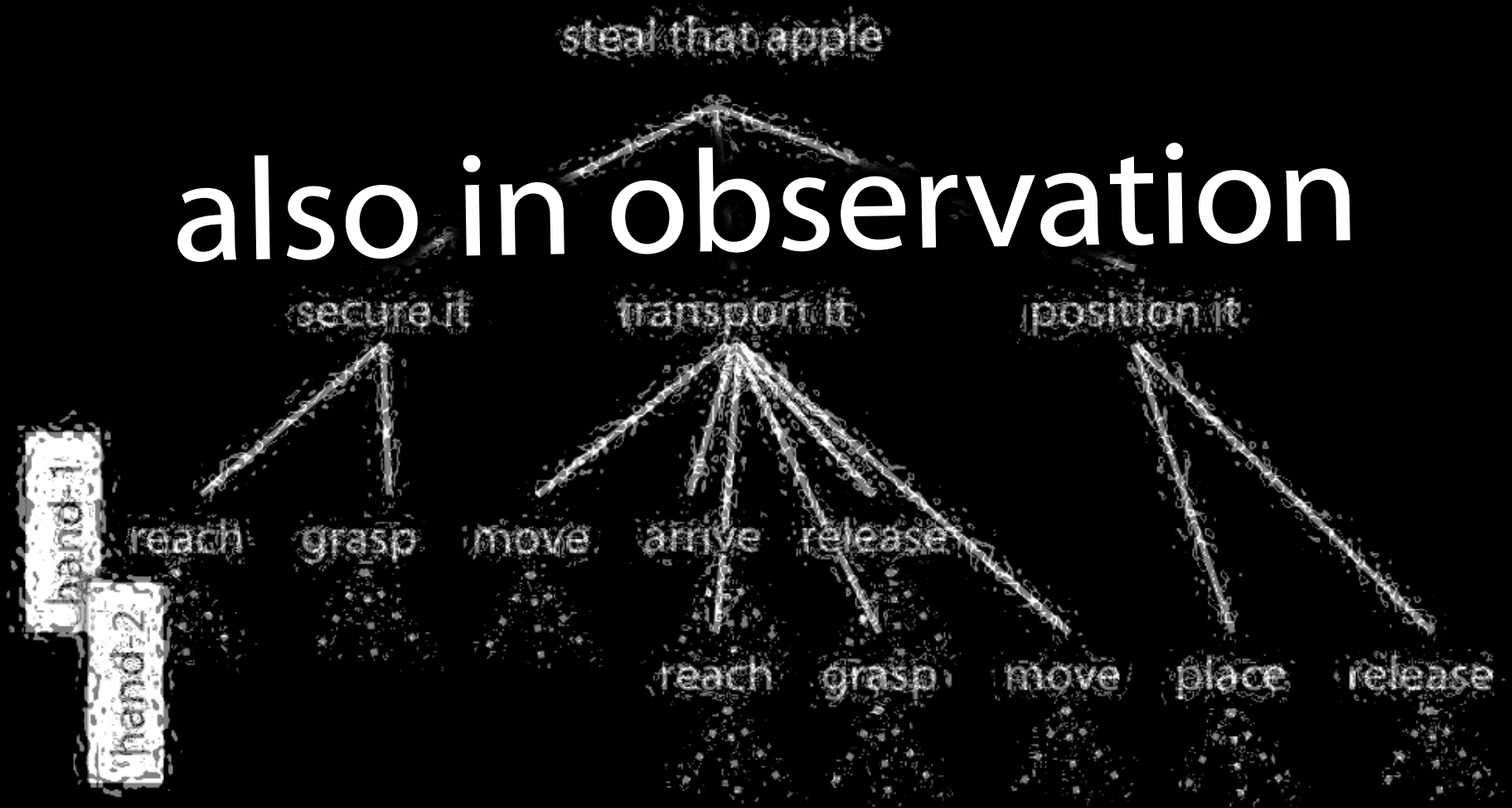
And these representations trigger planning-like processes.



Some motor representations carry information about outcomes.

And these representations trigger planning-like processes.

also in observation



motor representation = intention ?

motor representation = intention ? No !

< different content >



< different content >

< different format >

Head down 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 down Rue Cujas
toward Rue Victor
Cousin. Turn right onto
Rue Saint-Jacques... =



motor representation = intention ? No !

steal that apple

secure it

transport it

position it

reach

grasp

move

arrive

release

reach

grasp

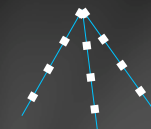
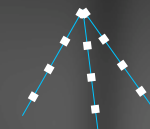
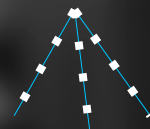
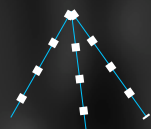
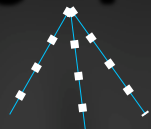
move

place

release

hand-1

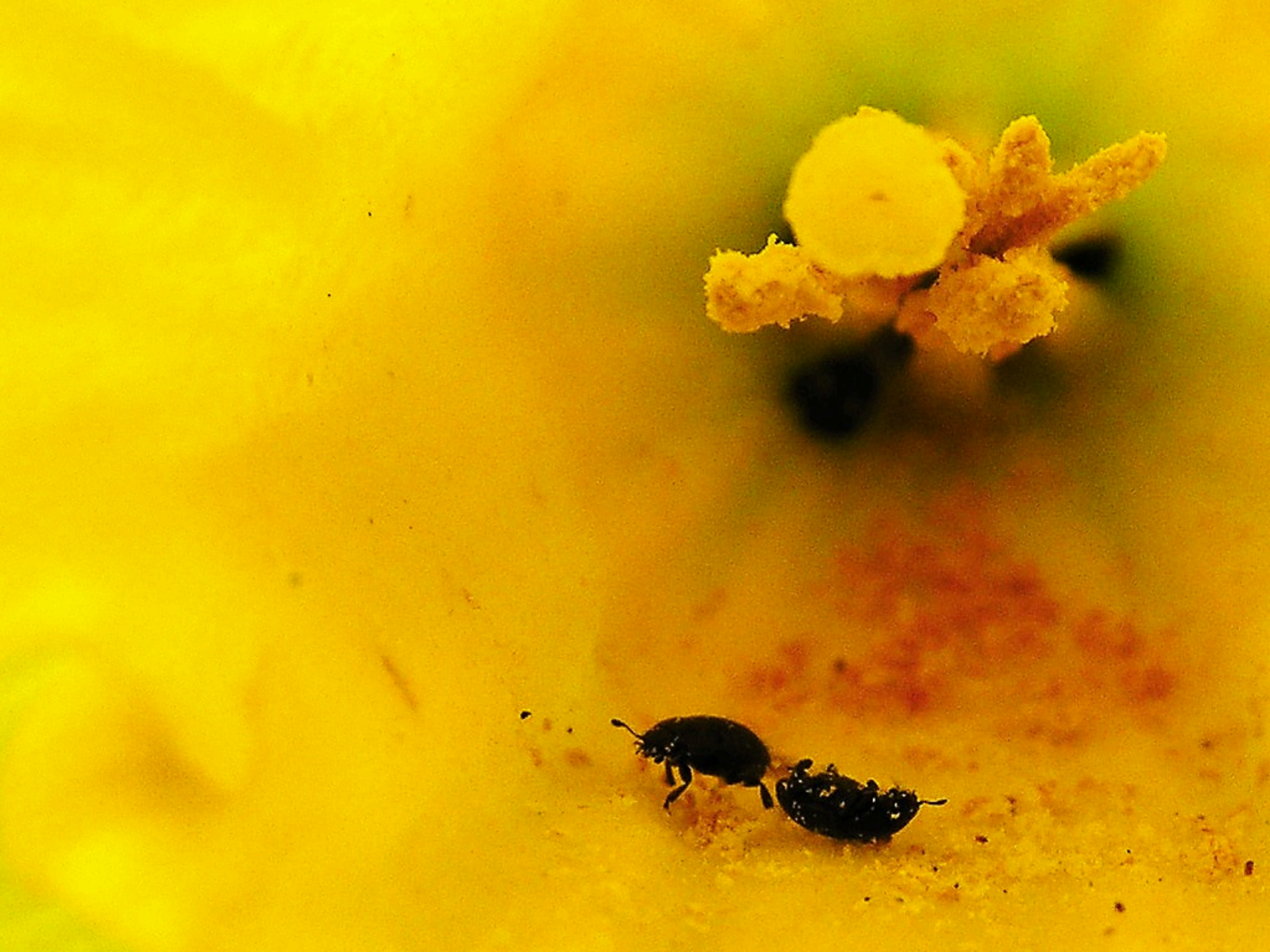
hand-2



How do motor processes and practical reasoning interact in enabling us to perform and in understand actions?





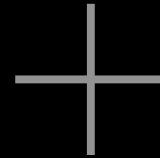


Only representations with a common format can be inferentially integrated.

Any two intentions can be inferentially integrated in practical reasoning.

My intention that I visit Glasgow on Monday is a propositional attitude.

All intentions are propositional attitudes.



No motor representations are propositional attitudes.

No motor representations are intentions

The Interface Problem

The Interface Problem

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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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.

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

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Follow *that* route

=



Follow *that* route



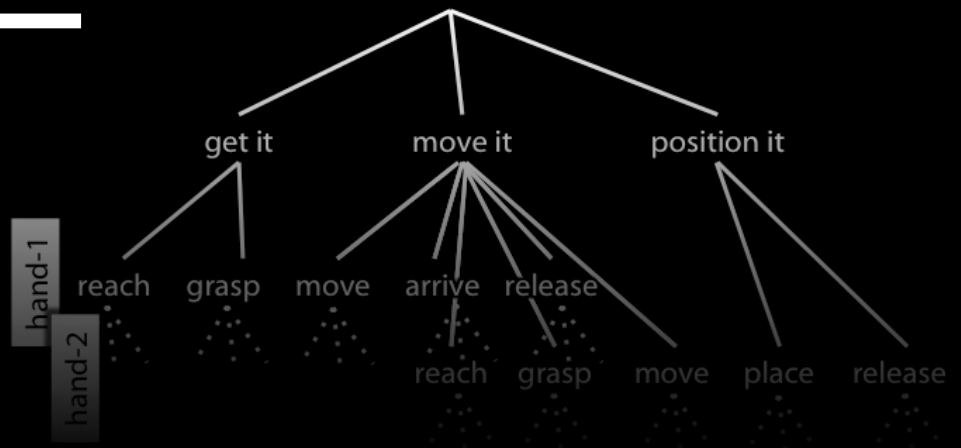
?

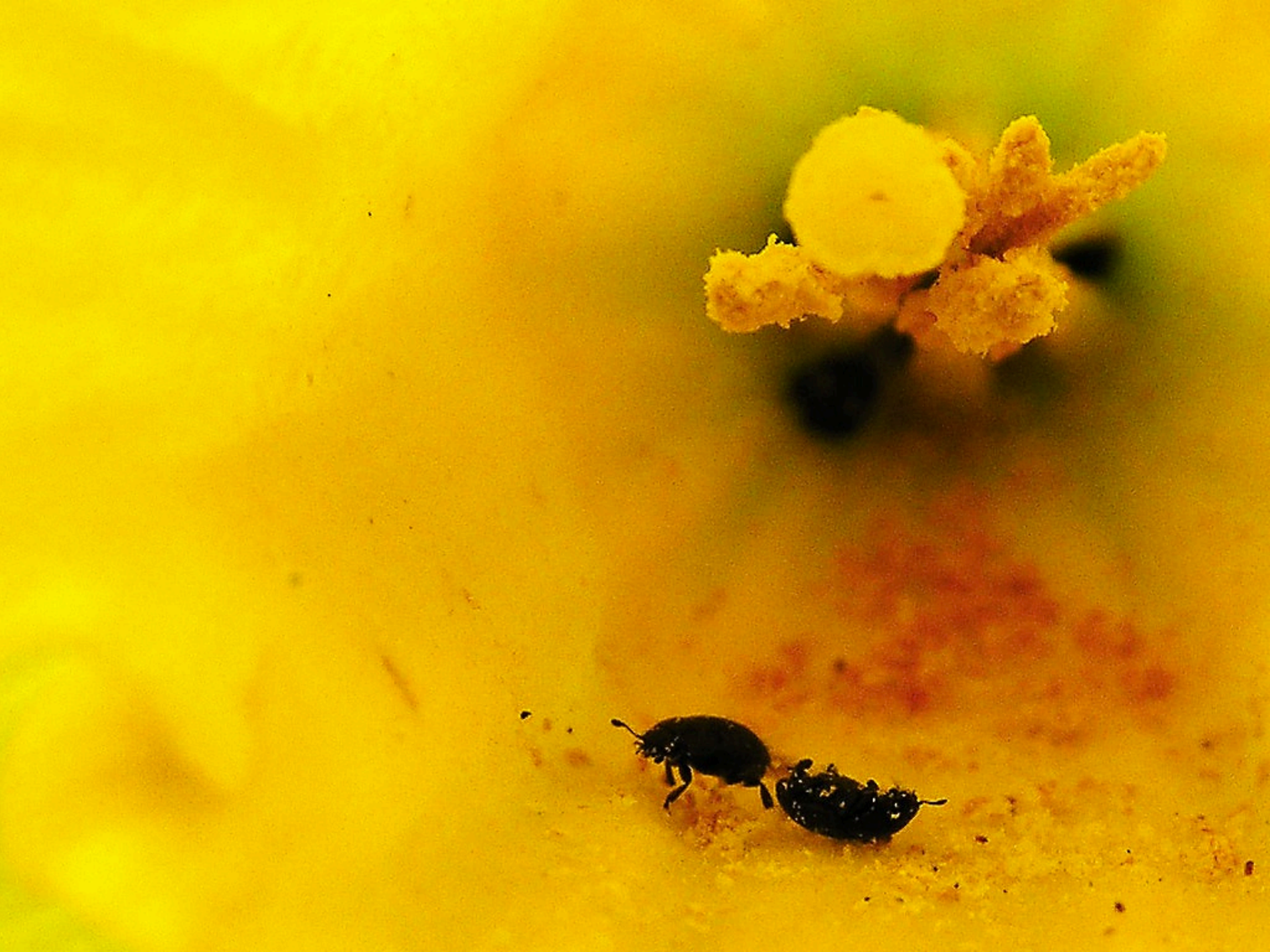
Do that

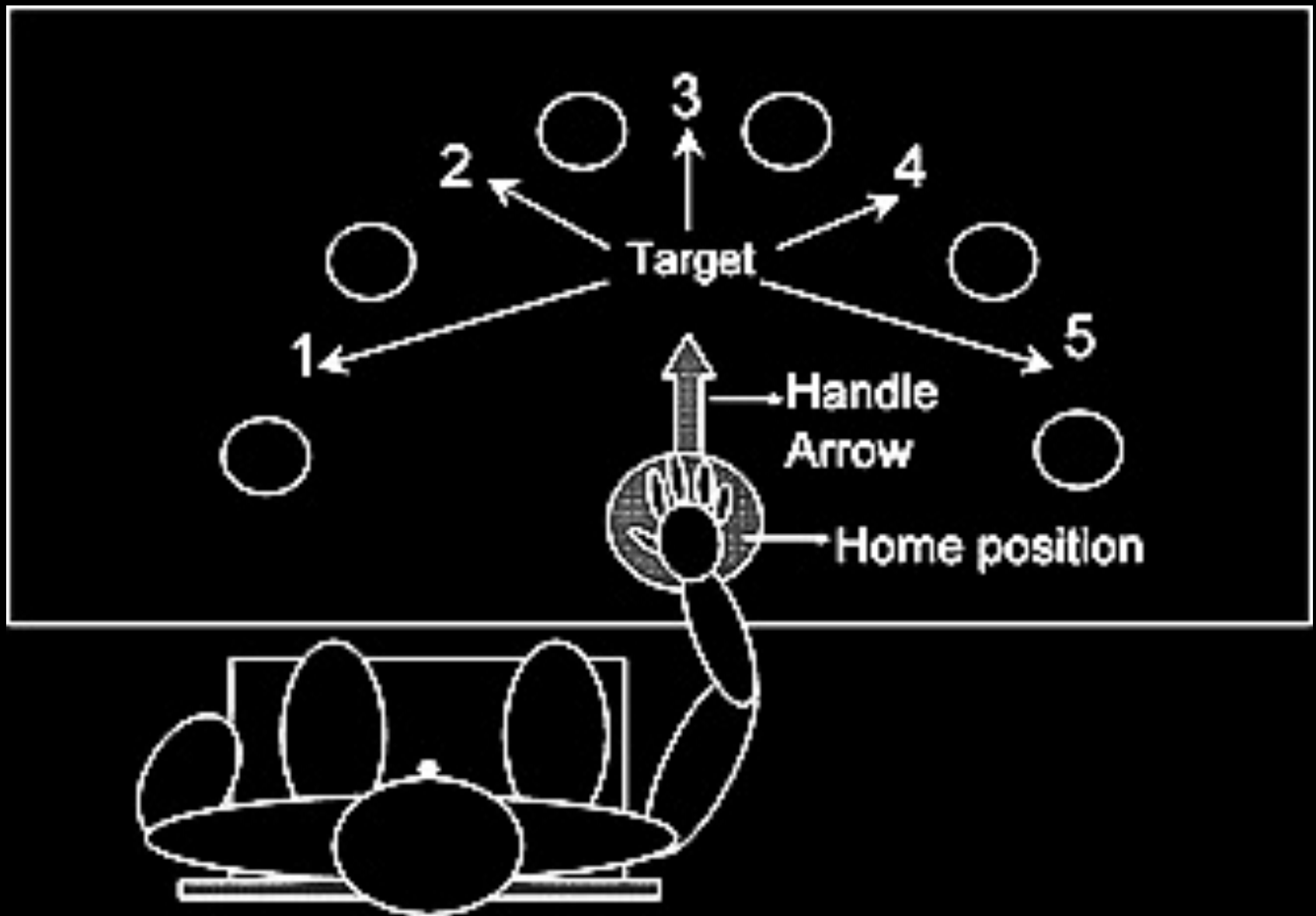
=

Move it from there to here

?



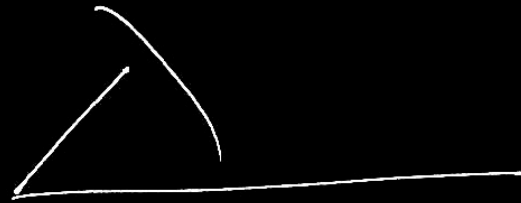
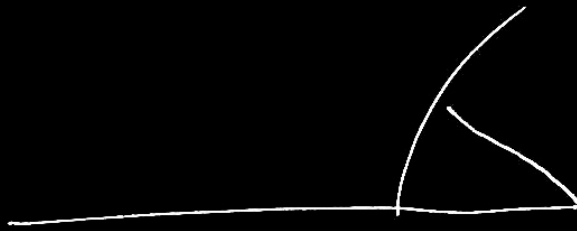




(Zhang and Rosenbaum 2007)



(big
reward)



↑
ONE
WAY

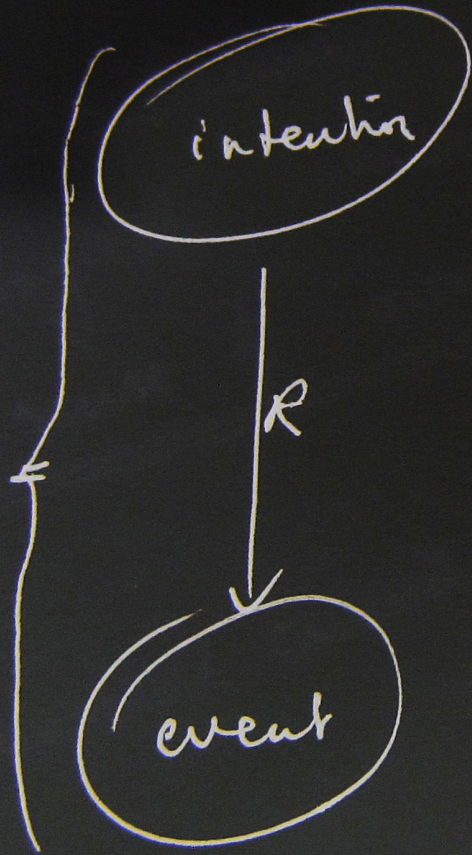


x

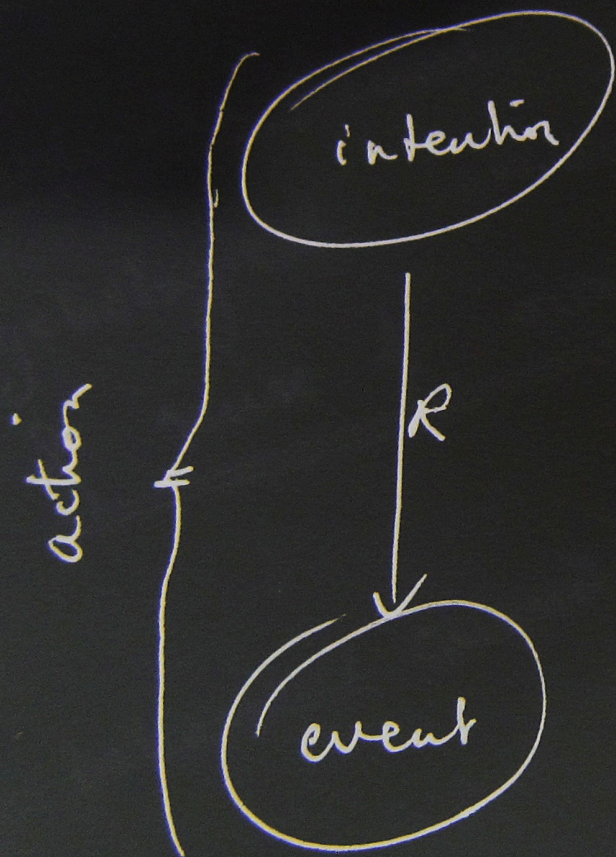
start here

philosophy

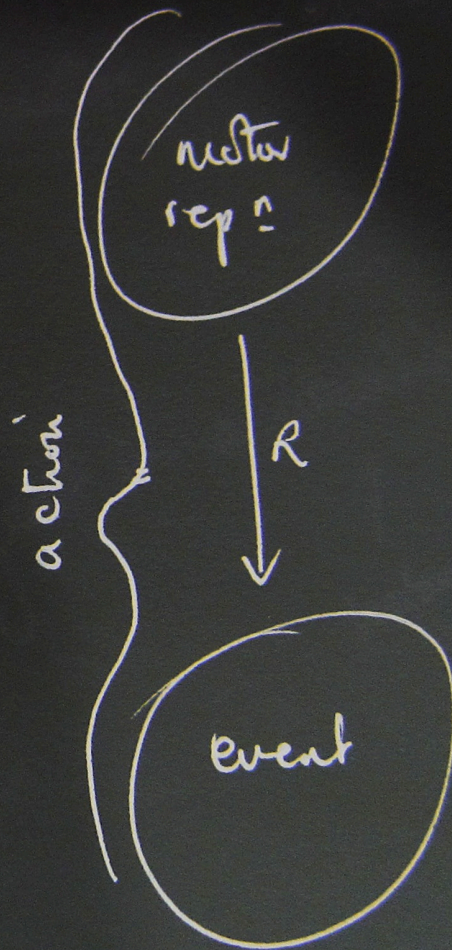
action



philosophy



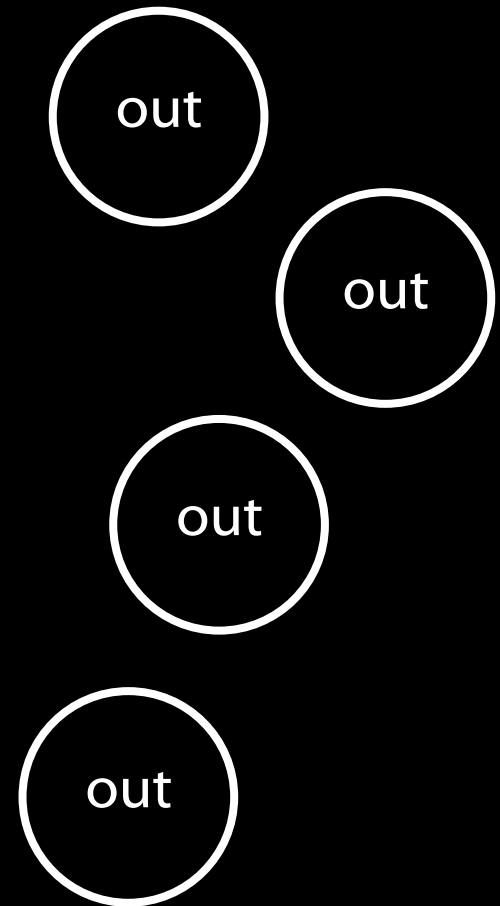
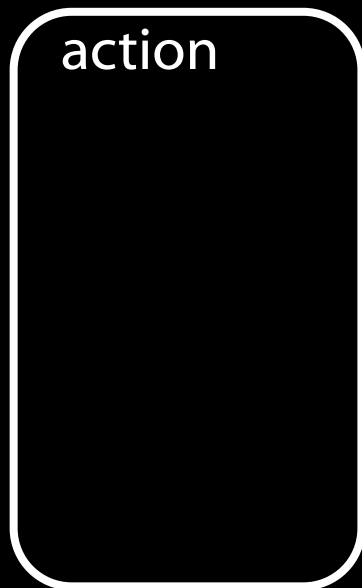
science



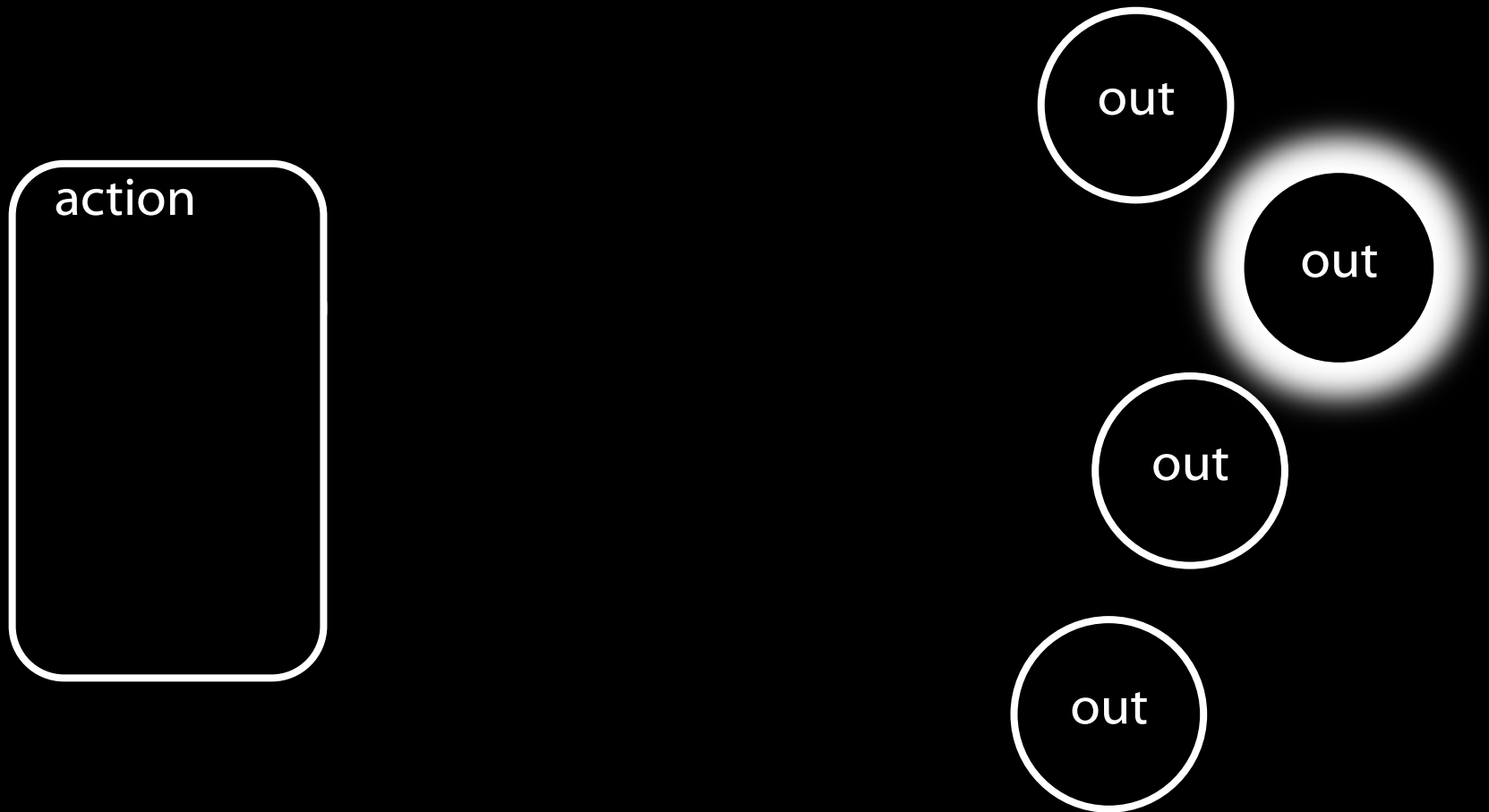
hip.

What is the relation between a purposive action and the outcome or outcomes to which it is directed?

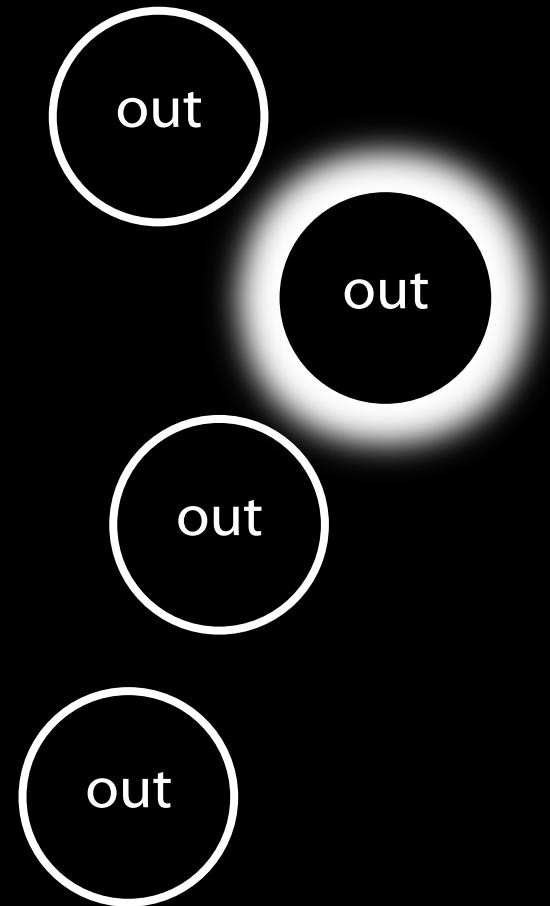
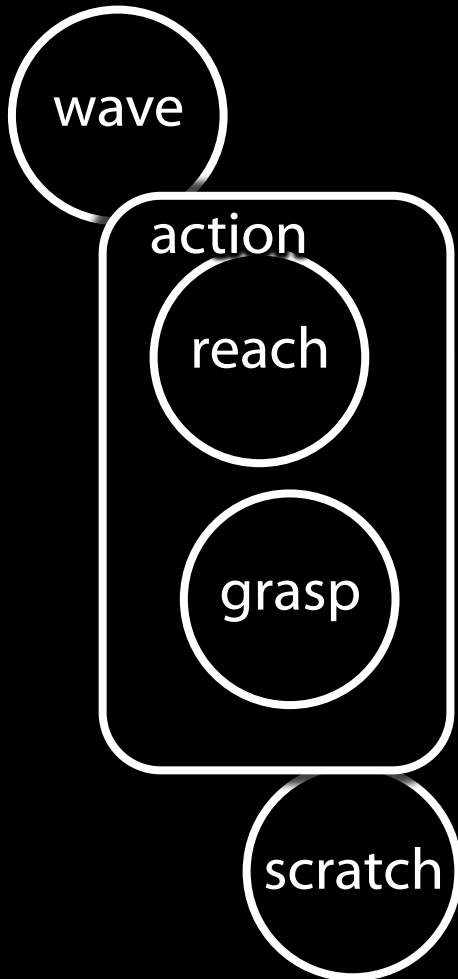
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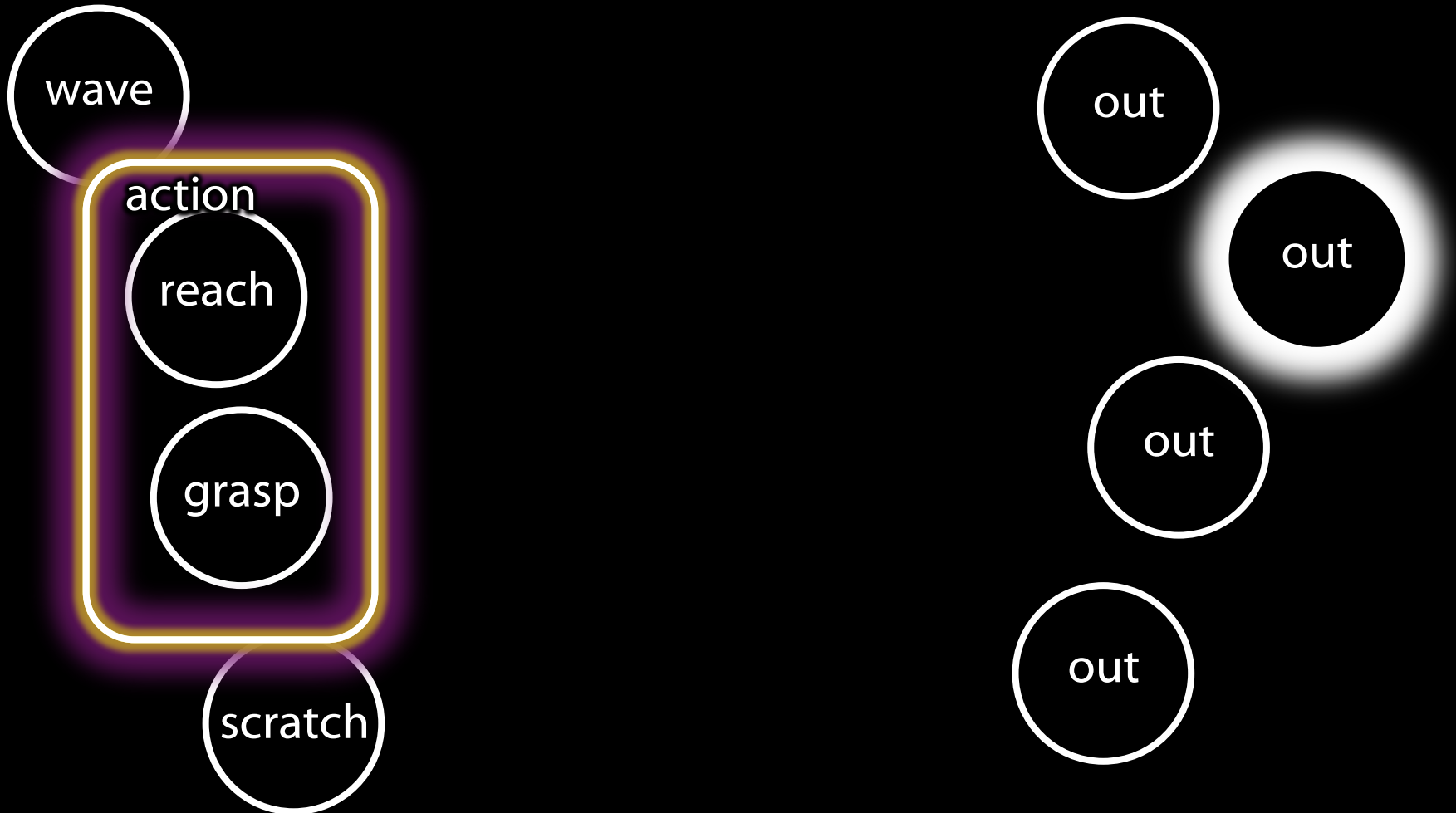
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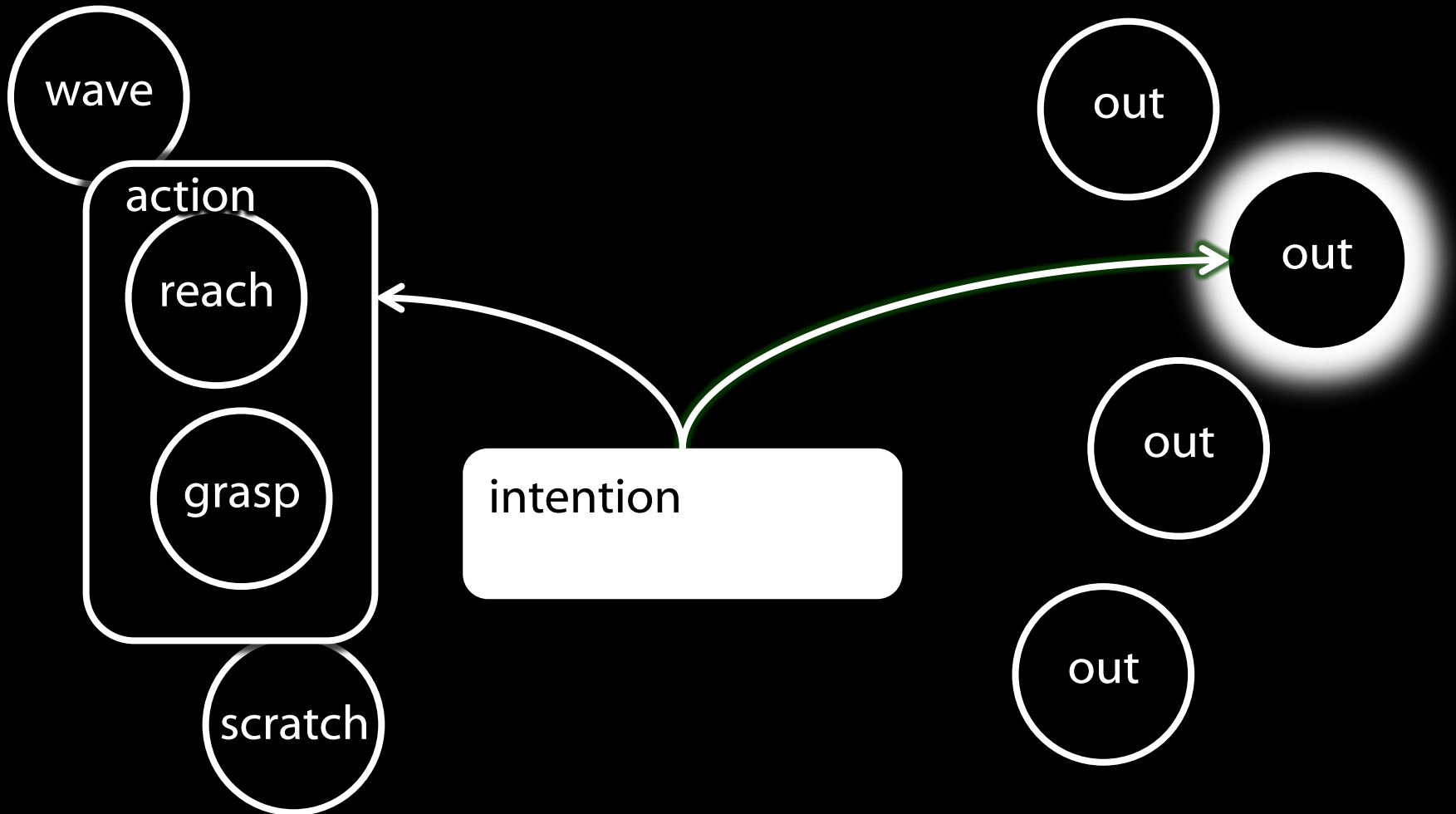
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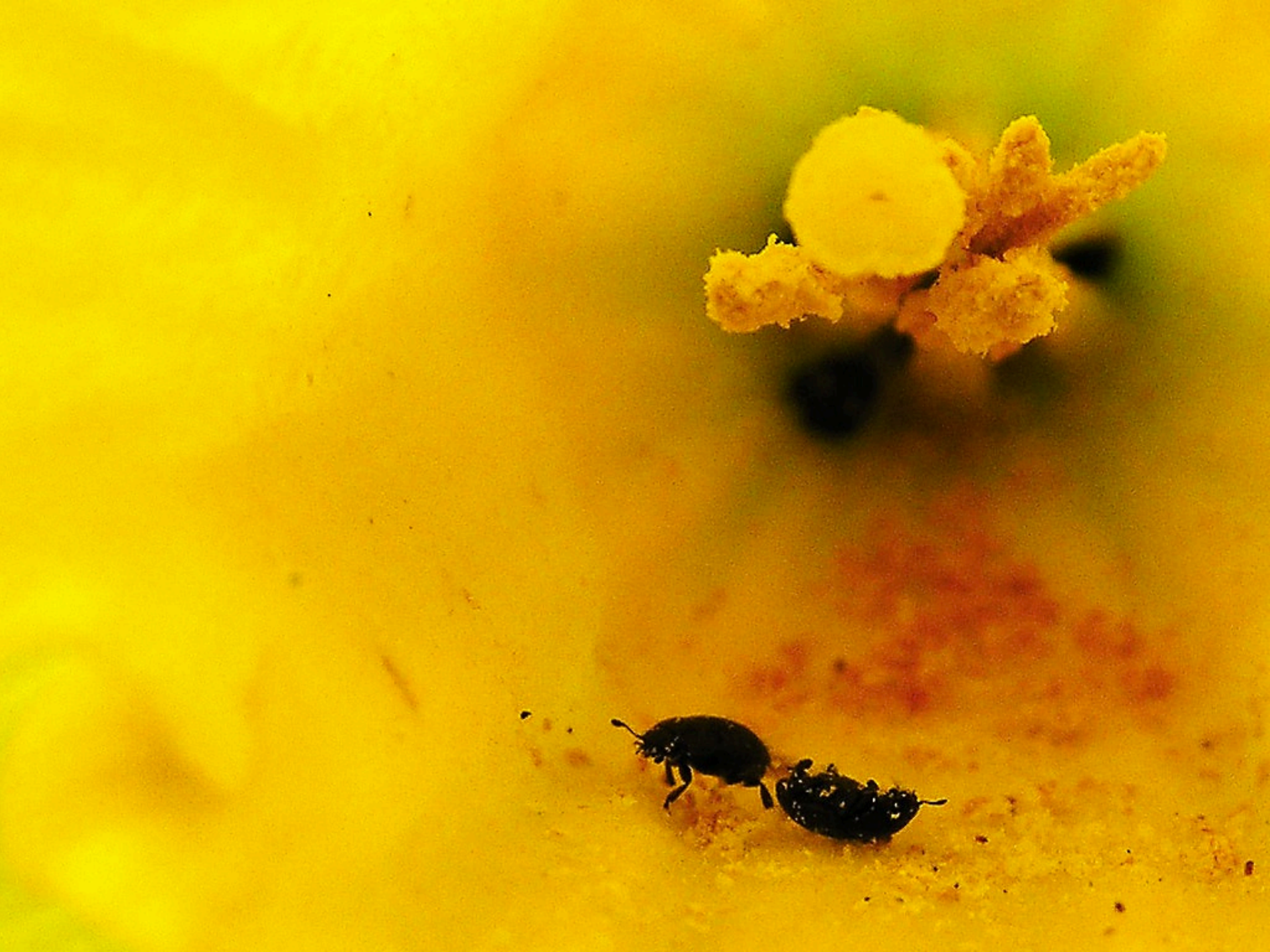


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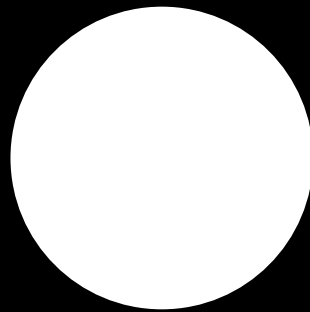
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imagine

seeing

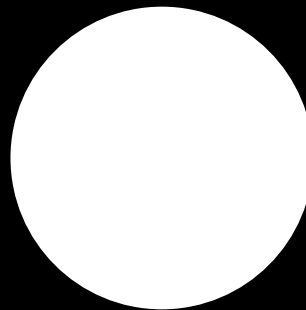


imagine

actually

seeing

seeing



imagine

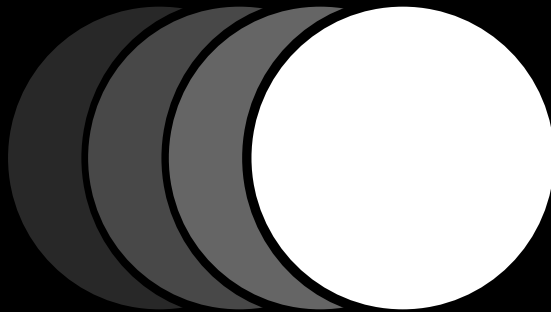
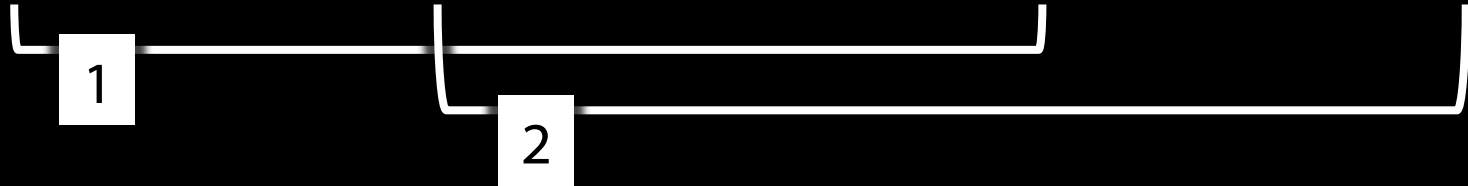
actually

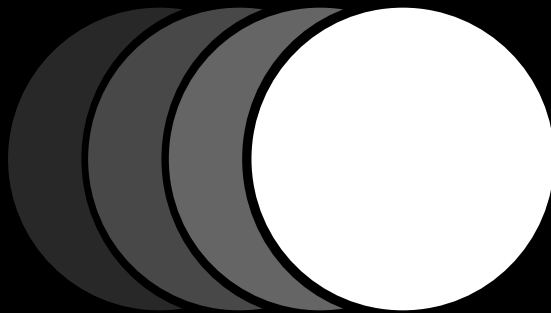
seeing

acting

seeing

acting







Fiori et al (submitted)

