

A glass sphere, possibly a paperweight, is shown against a dark background. Inside the sphere, a vibrant sunset or sunrise scene is reflected. The sun is a bright, glowing orb in the center, with rays of light radiating outwards. The sky is a mix of orange, yellow, and blue. Silhouettes of trees and foliage are visible in the foreground of the reflection.

Intention and Motor Representation in Joint Action

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'I take a collective action to involve a collective
[shared] intention.'

(Gilbert 2006, p. 5)

'The sine qua non of collaborative action is a joint goal
[shared intention] and a joint commitment'

(Tomasello 2008, p. 181)

'the key property of joint action lies in its internal
component [...] in the participants' having a
"collective" or "shared" intention.'

(Alonso 2009, pp. 444-5)

'Shared intentionality is the foundation upon which
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premise:

Reciprocal agent-neutral motor representation
enables some joint actions

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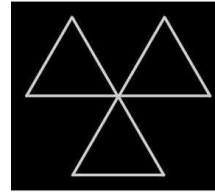
Kourtis et al., subm.



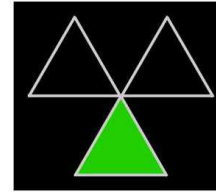
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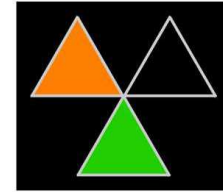
Kourtis et al., subm.



NoGo



Individual Action



Joint Action

Cue Stimulus



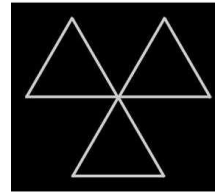
200 ms



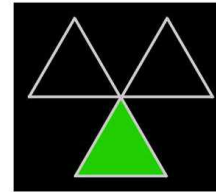
1000 ms



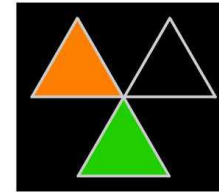
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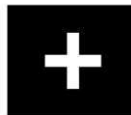


Individual Action



Joint Action

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200 ms



1000 ms

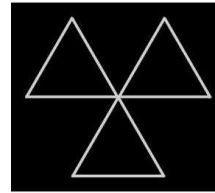


1000 ms

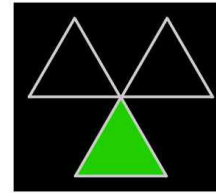


Foreperiod
No Action

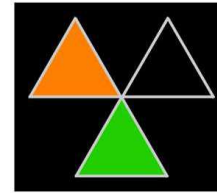
Kourtis et al., subm.



NoGo



Individual Action



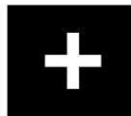
Joint Action

Cue Stimulus

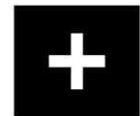
Imperative Stimulus



200 ms



200 ms



1000 ms

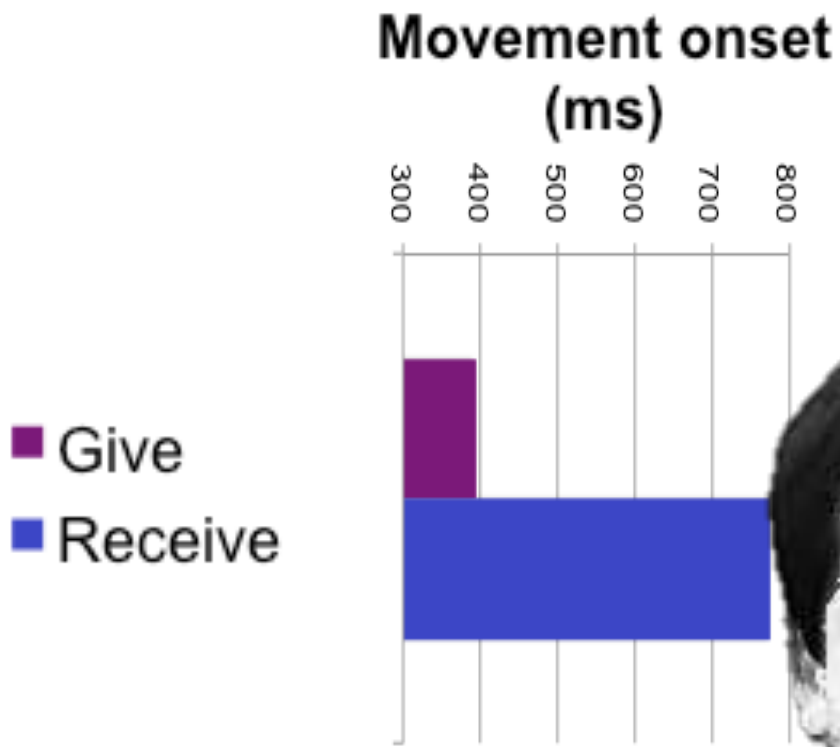
1000 ms

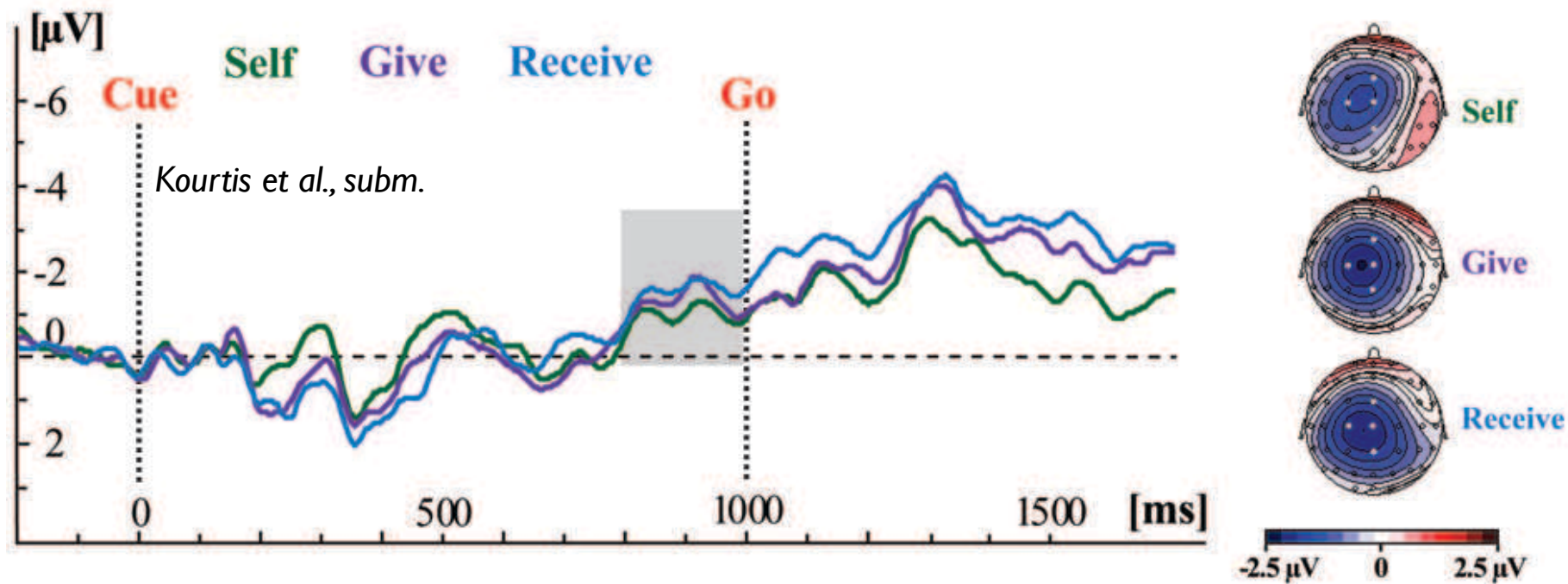
**Foreperiod
No Action**

Response



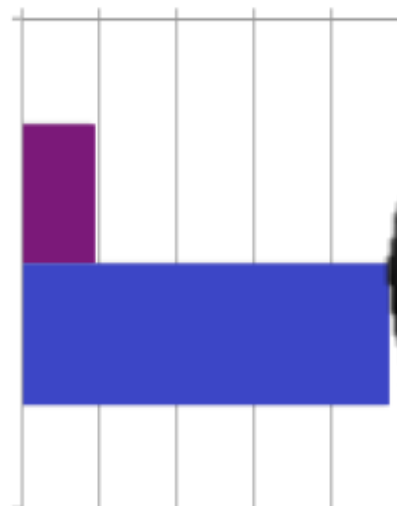
Kourtis et al., subm.





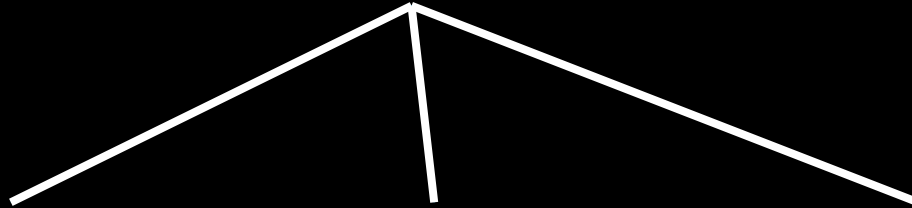
Give

Receive

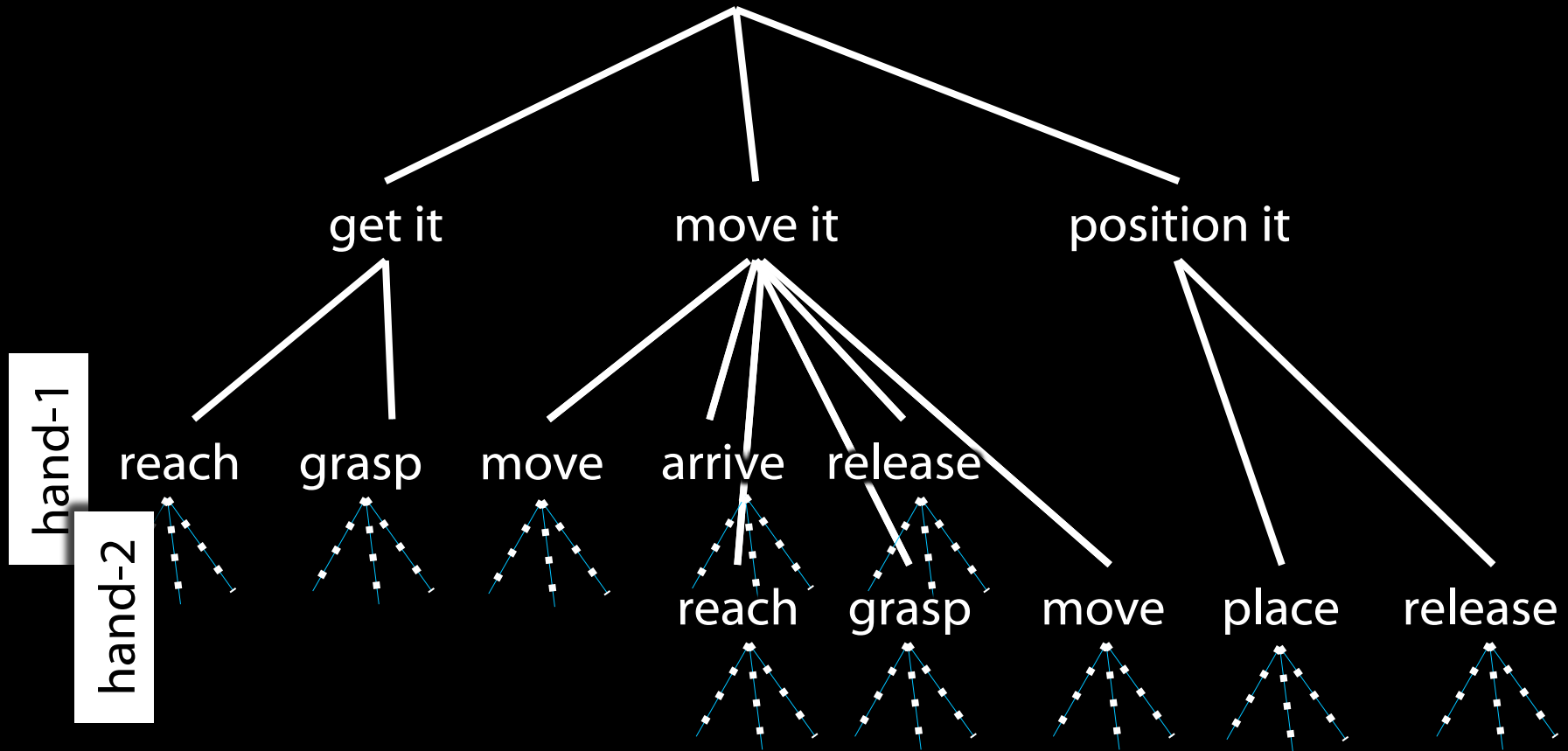


How could reciprocal agent-neutral motor representation ever enable any joint action?

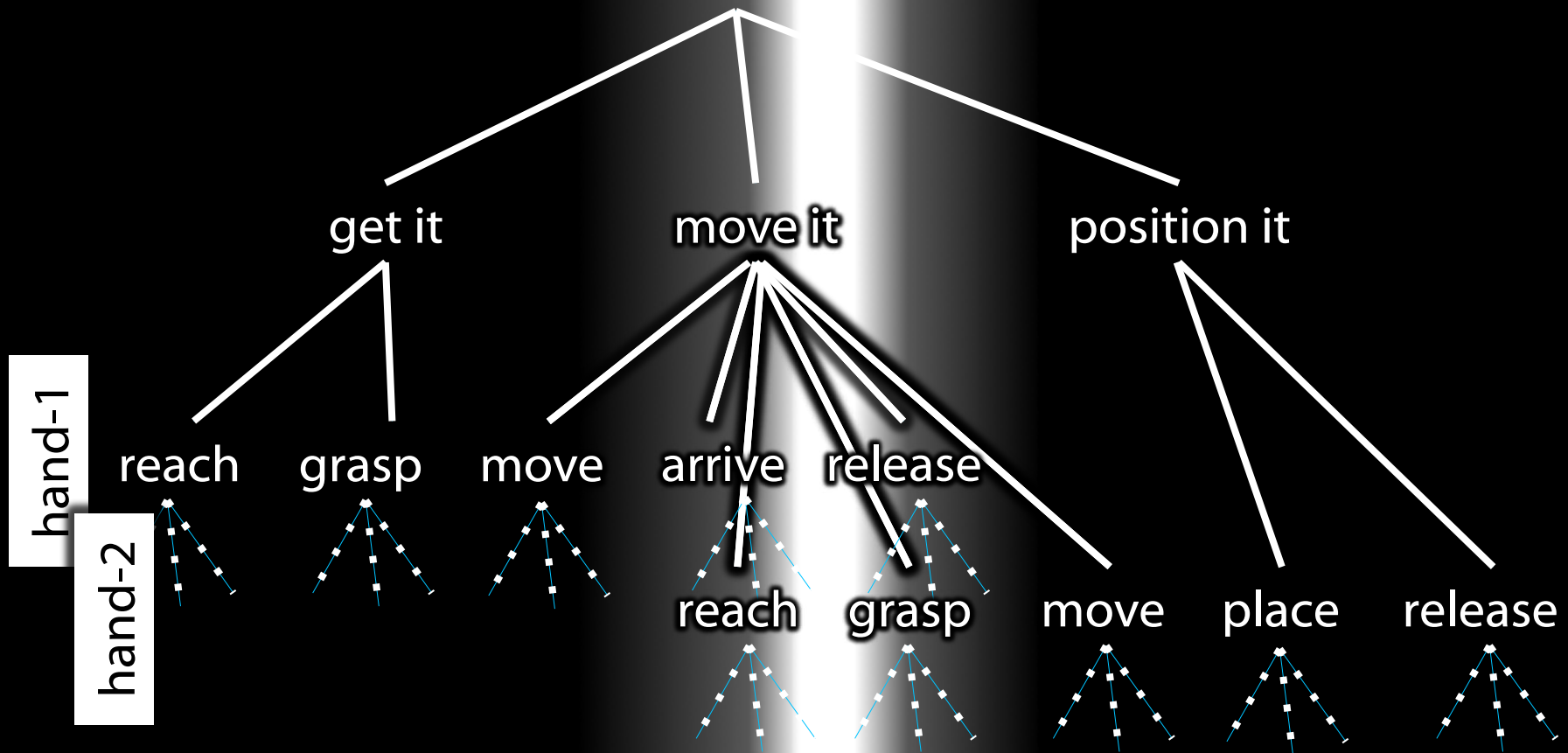
Move it from there to here



Move it from there to here

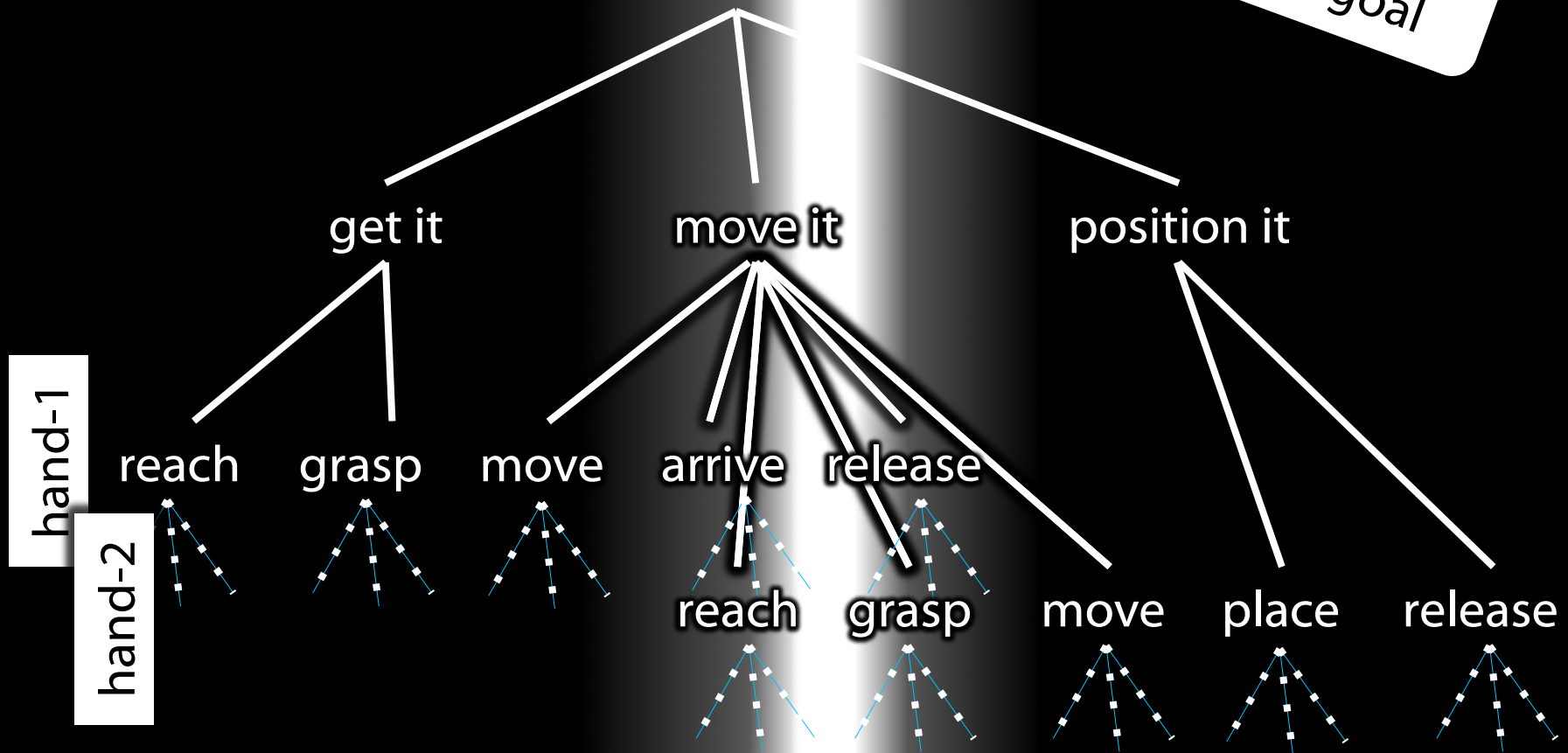


Move it from there to here



Move it from there to here

joint action:
same goal



Move it from there to here

joint action:
same goal

get it

move it

position it

reach

grasp

move

arrive

release

reach

grasp

move

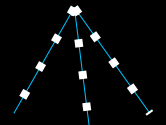
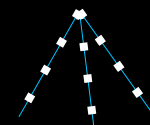
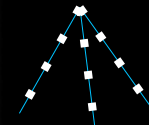
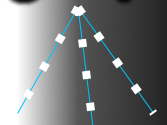
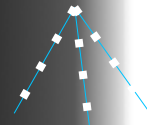
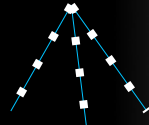
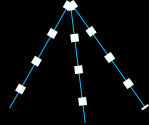
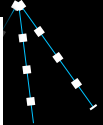
place

release

similar timing
problem

hand-1

hand-2



Move it from there to here

joint action:
same goal

get it

move it

position it

same
planning

hand-1

hand-2

reach

grasp

move

arrive

release

reach

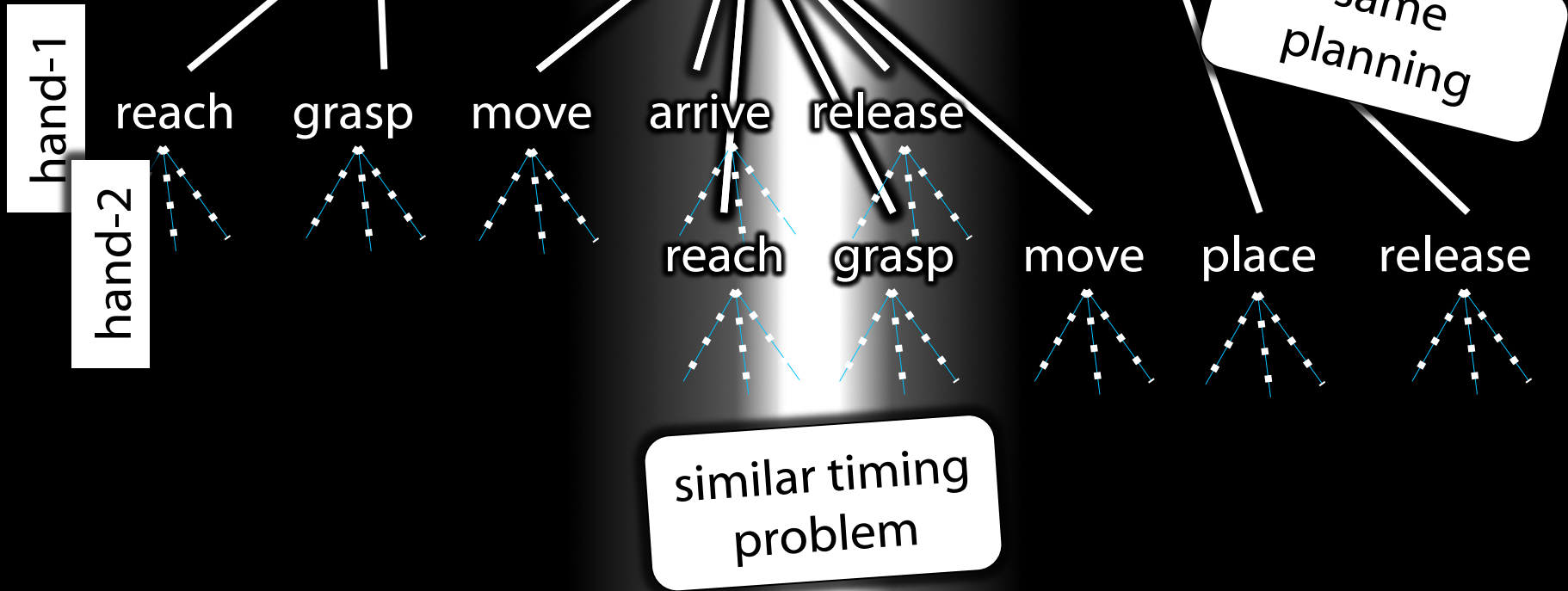
grasp

move

place

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problem



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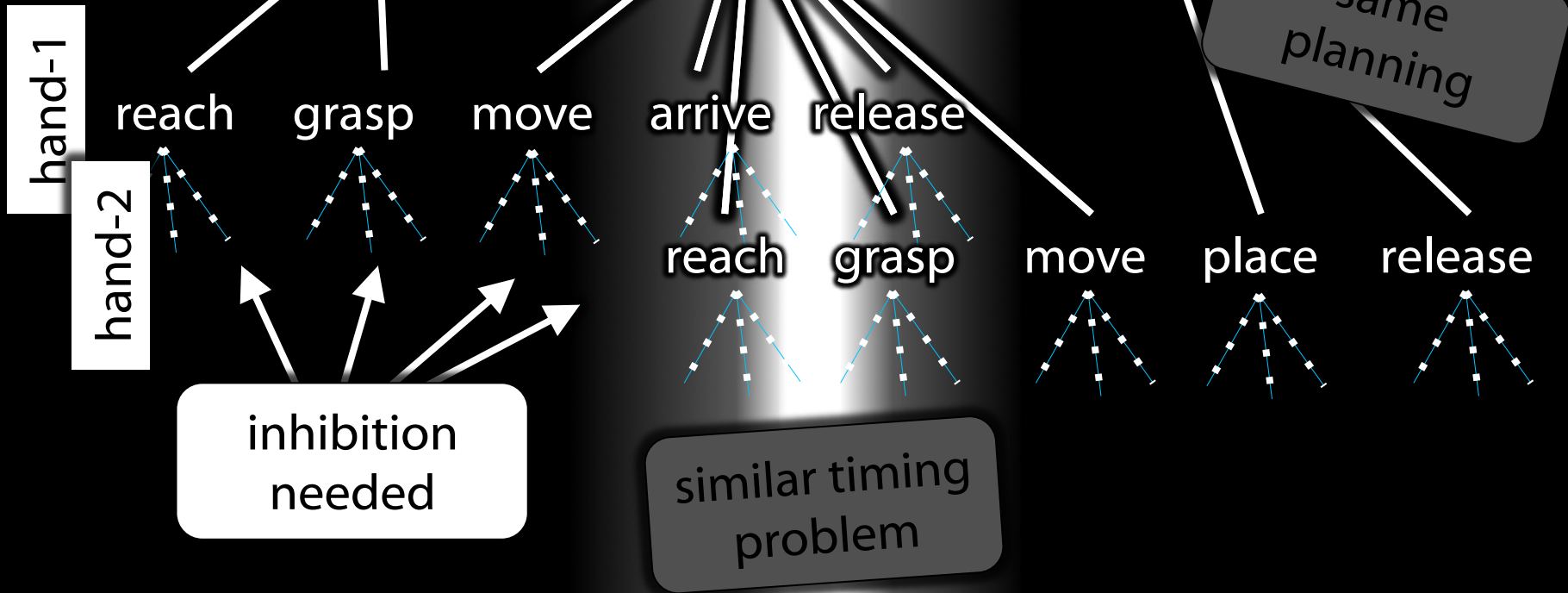
move

place

release

inhibition
needed

similar timing
problem



premise:

Reciprocal agent-neutral motor representation
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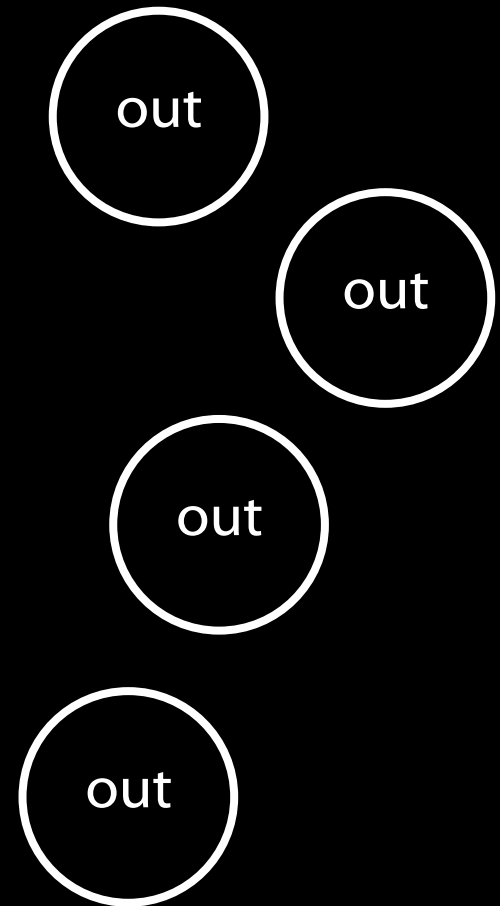
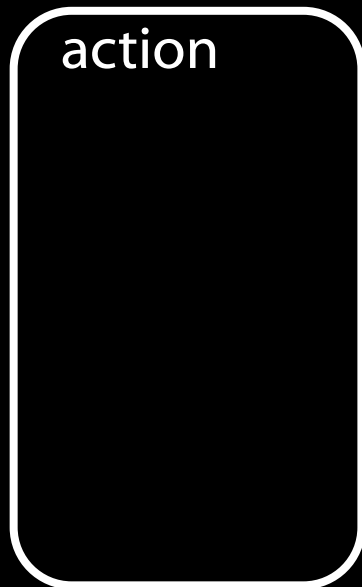
question:

Does reciprocal agent-
neutral motor
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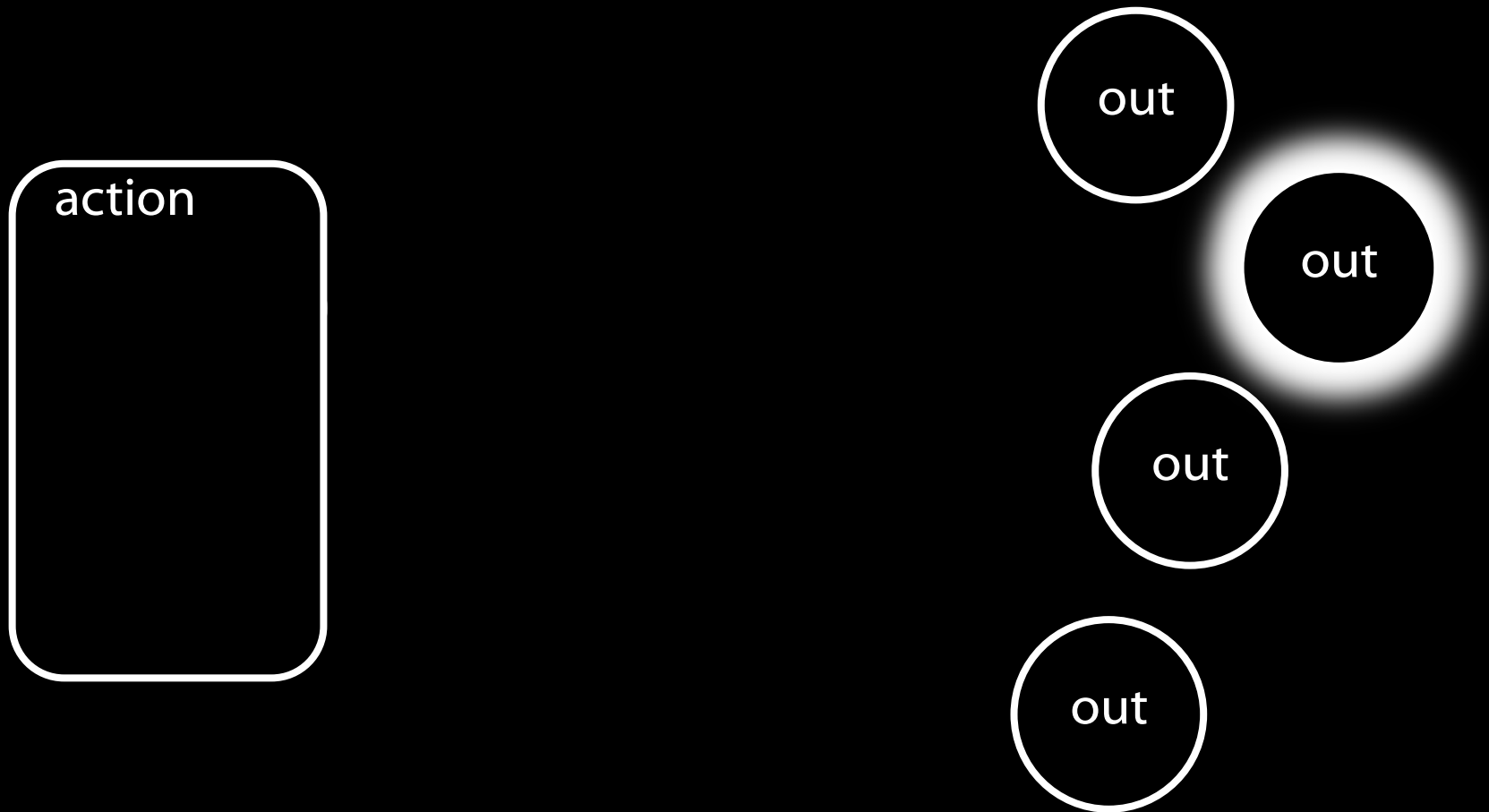
challenge:

How could social motor
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to joint action?

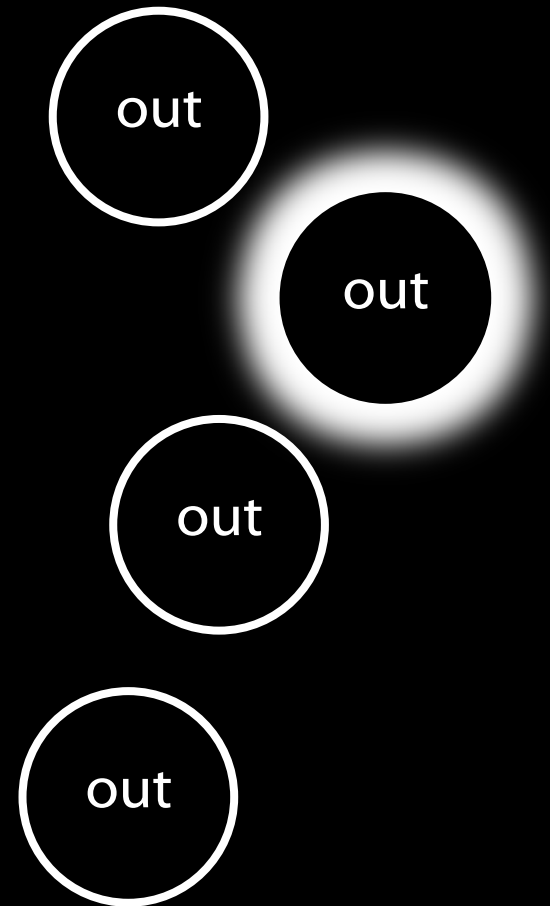
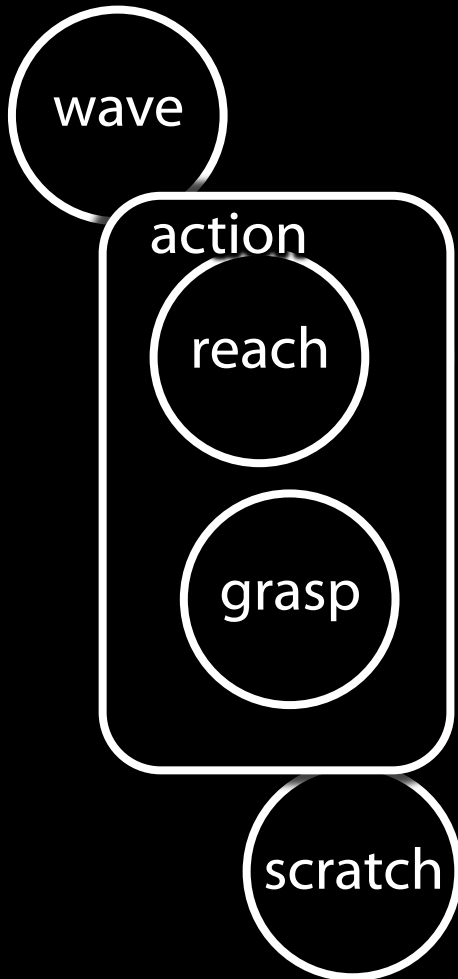
What is the relation between a purposive action and the outcome or outcomes to which it is directed?



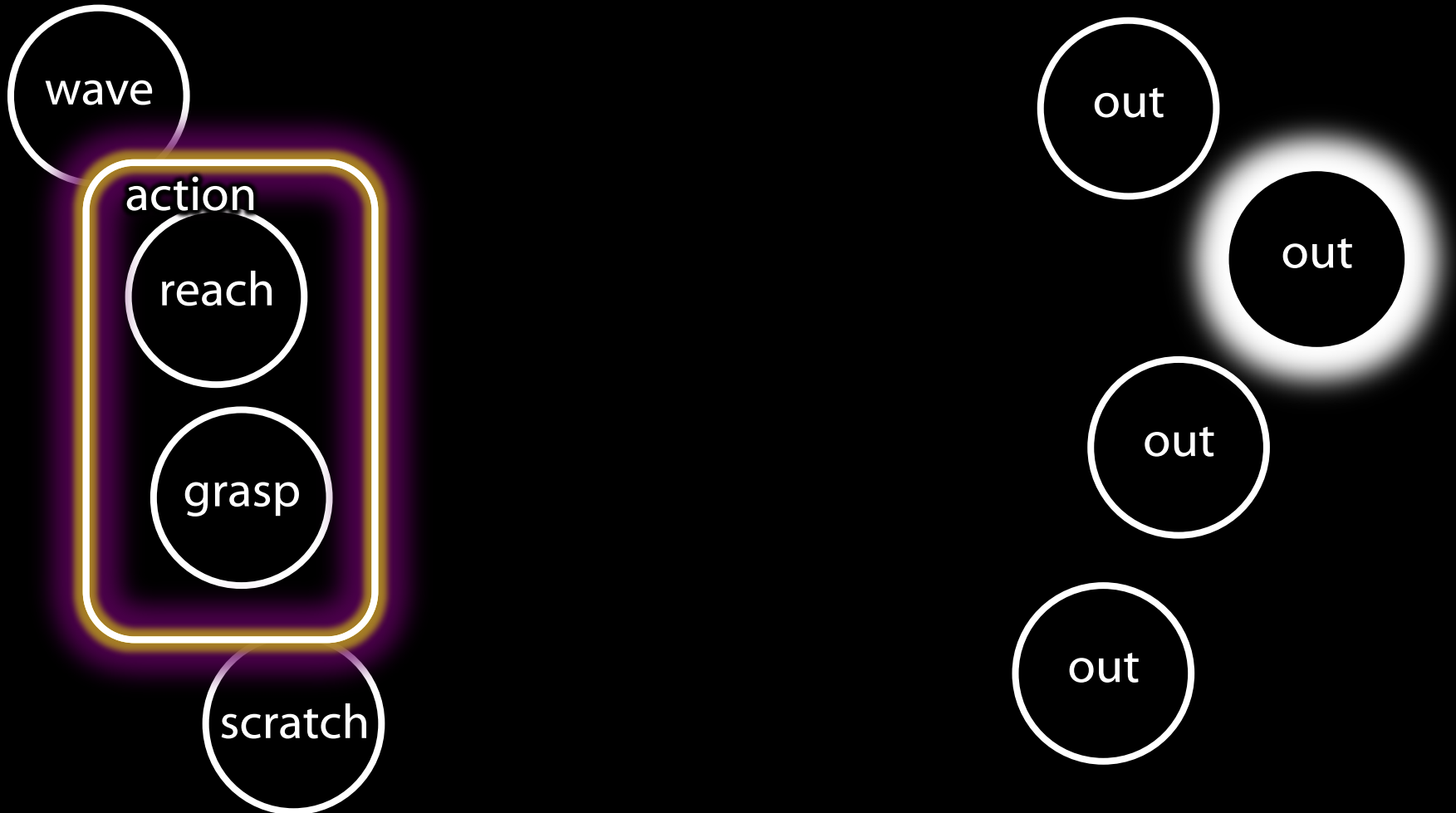
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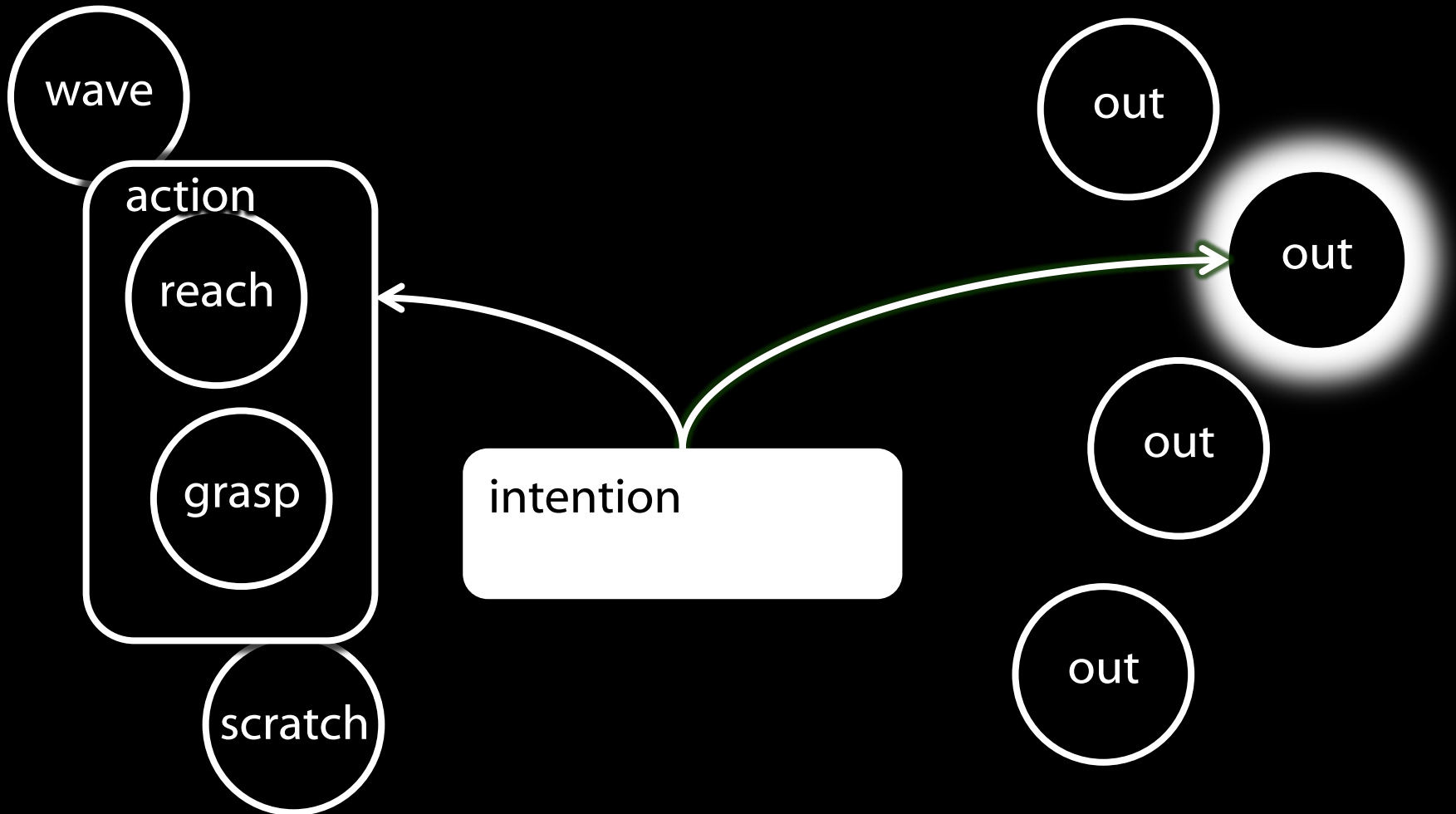
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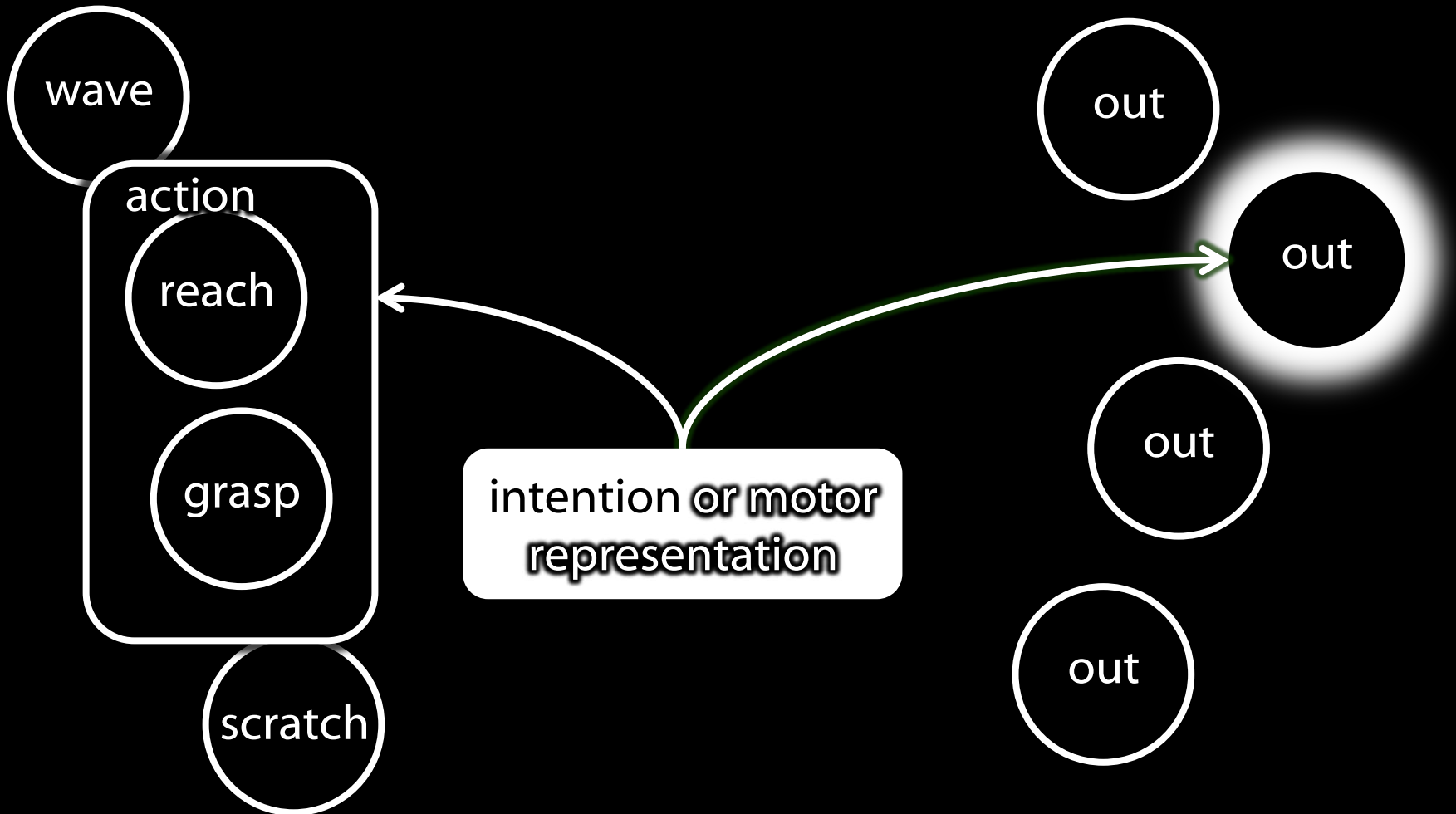
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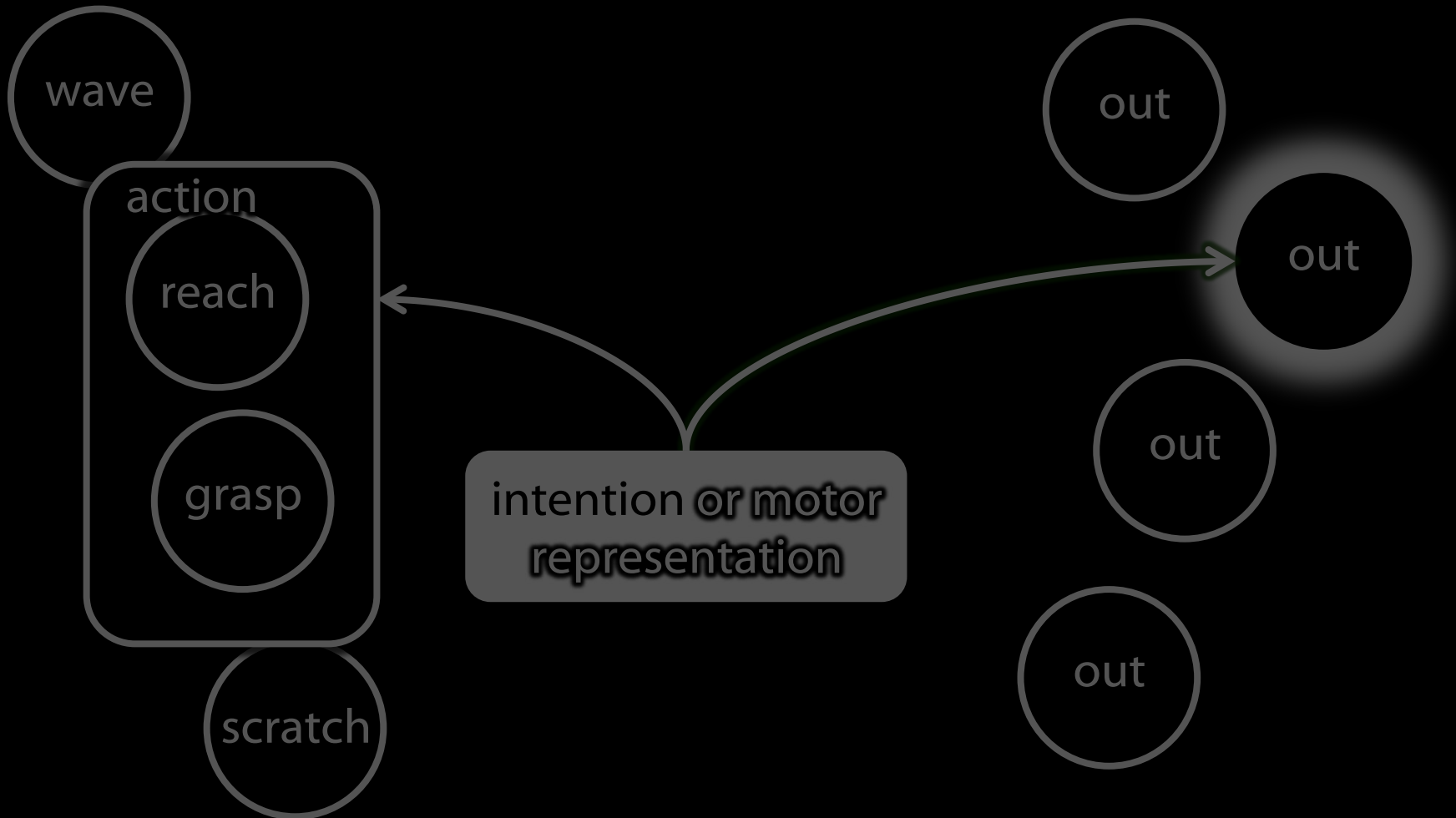
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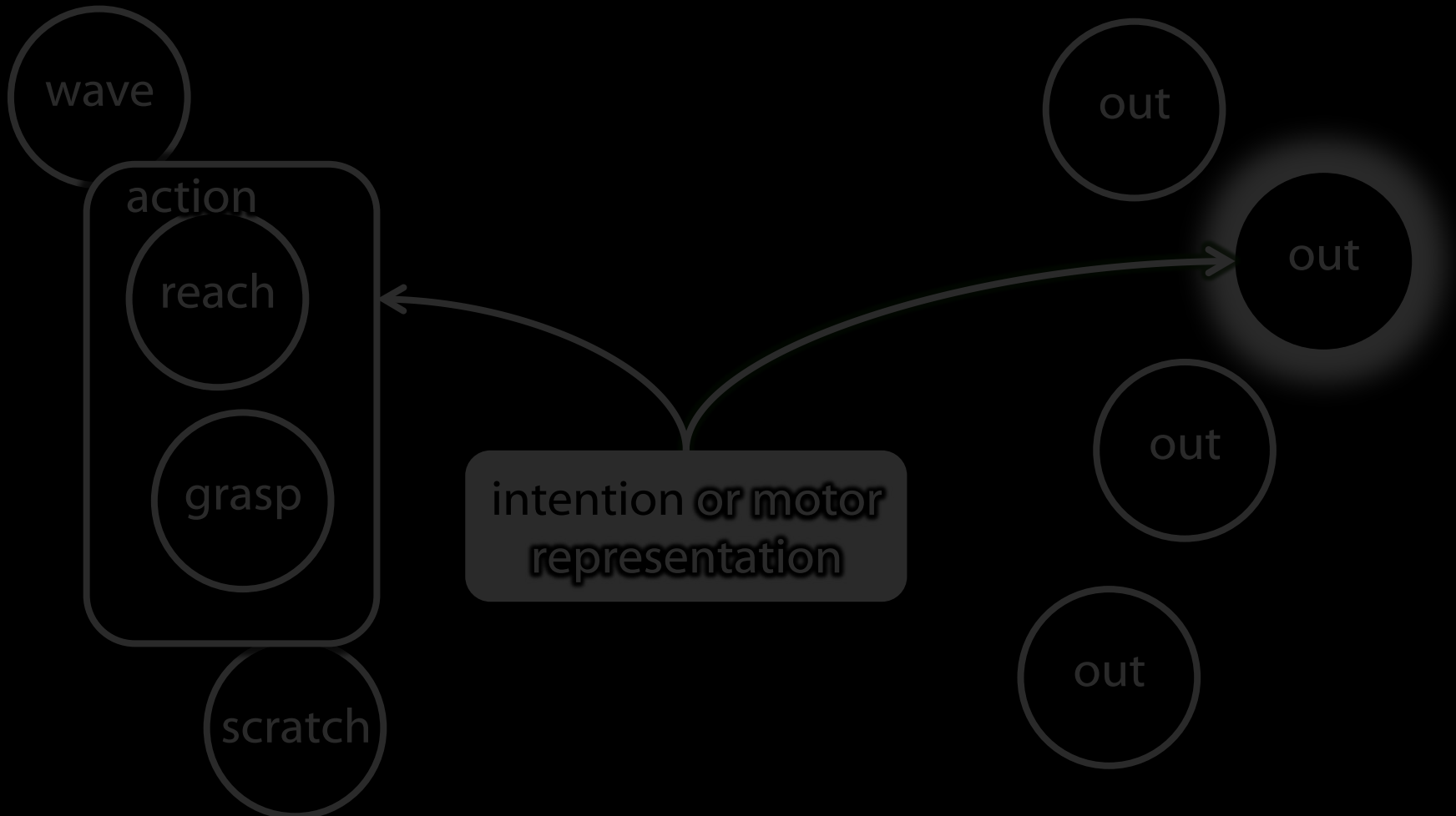
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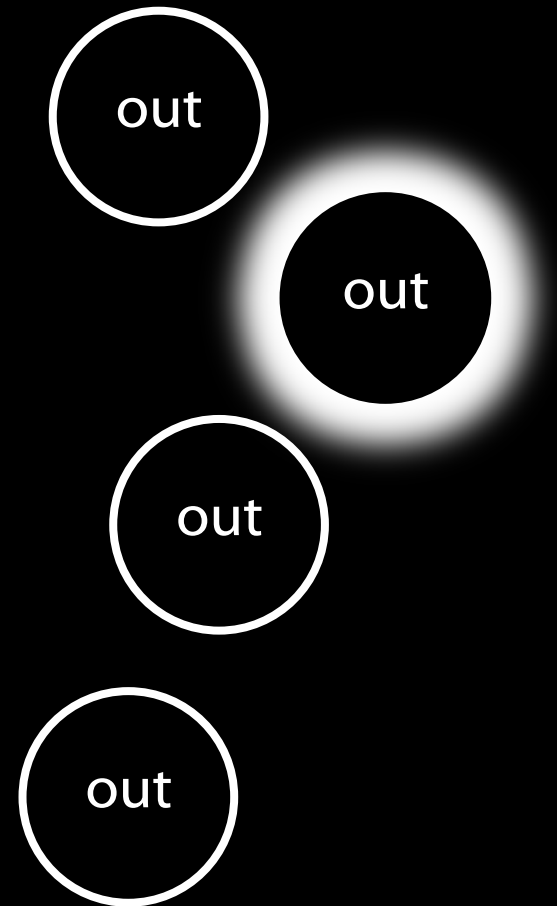
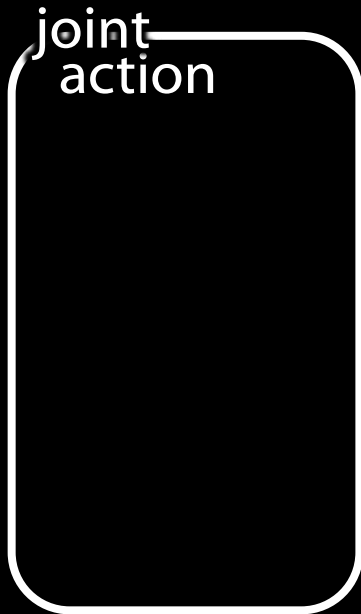
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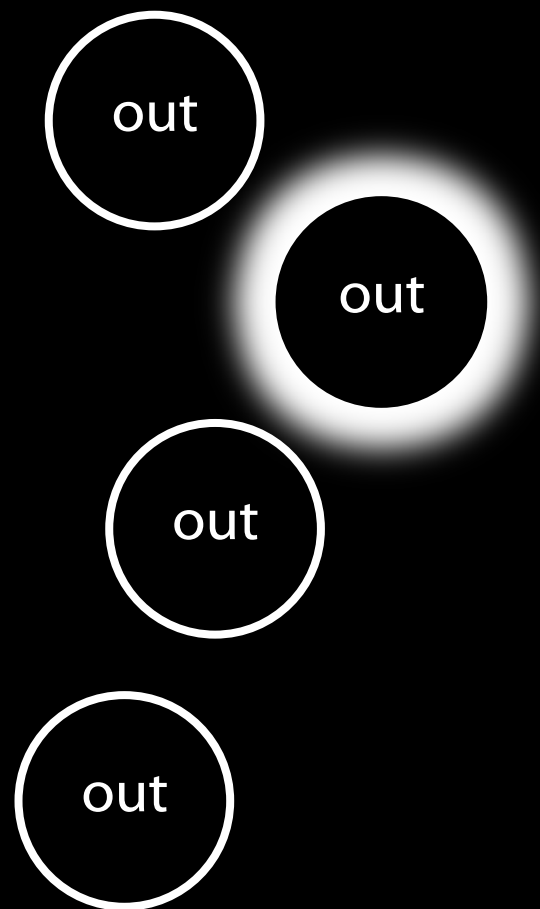
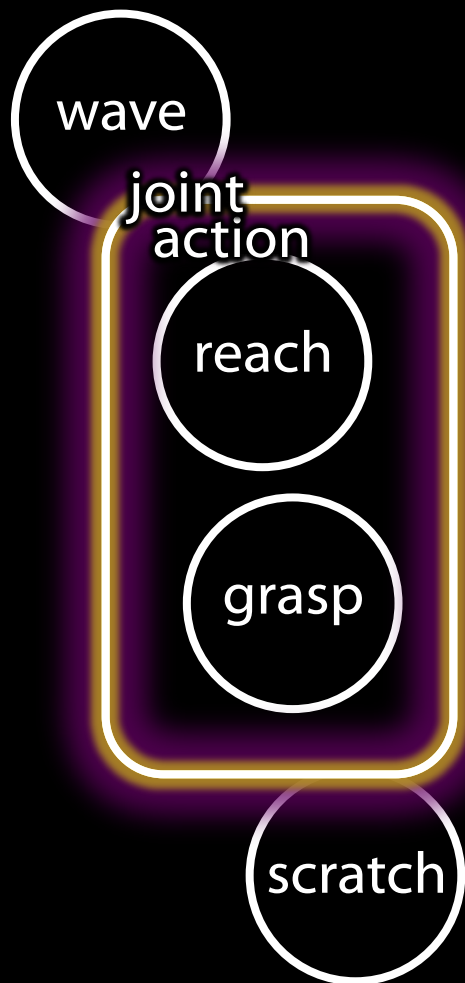
What is the relation between a purposive^{joint} action and the outcome or outcomes to which it is directed?



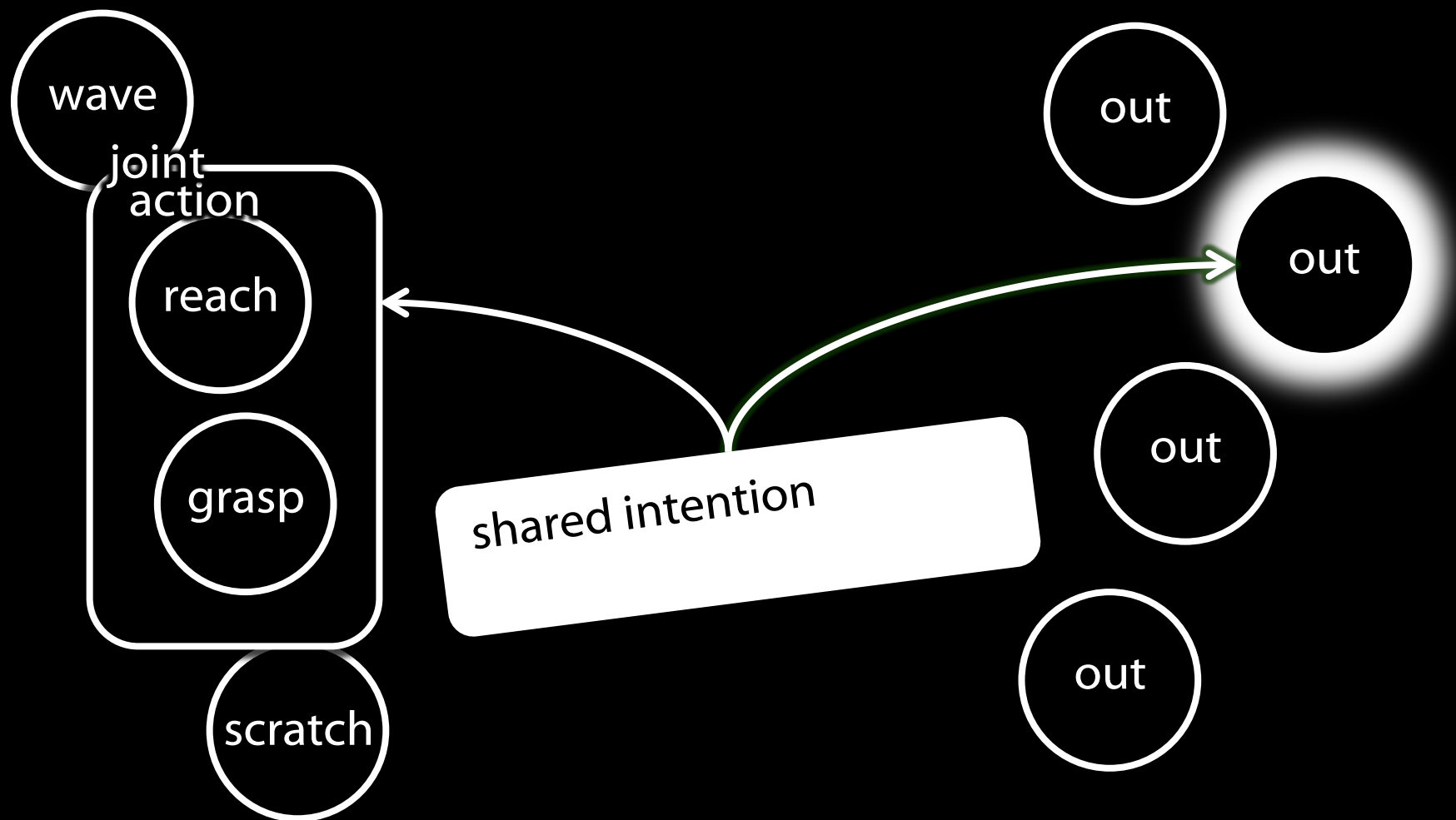
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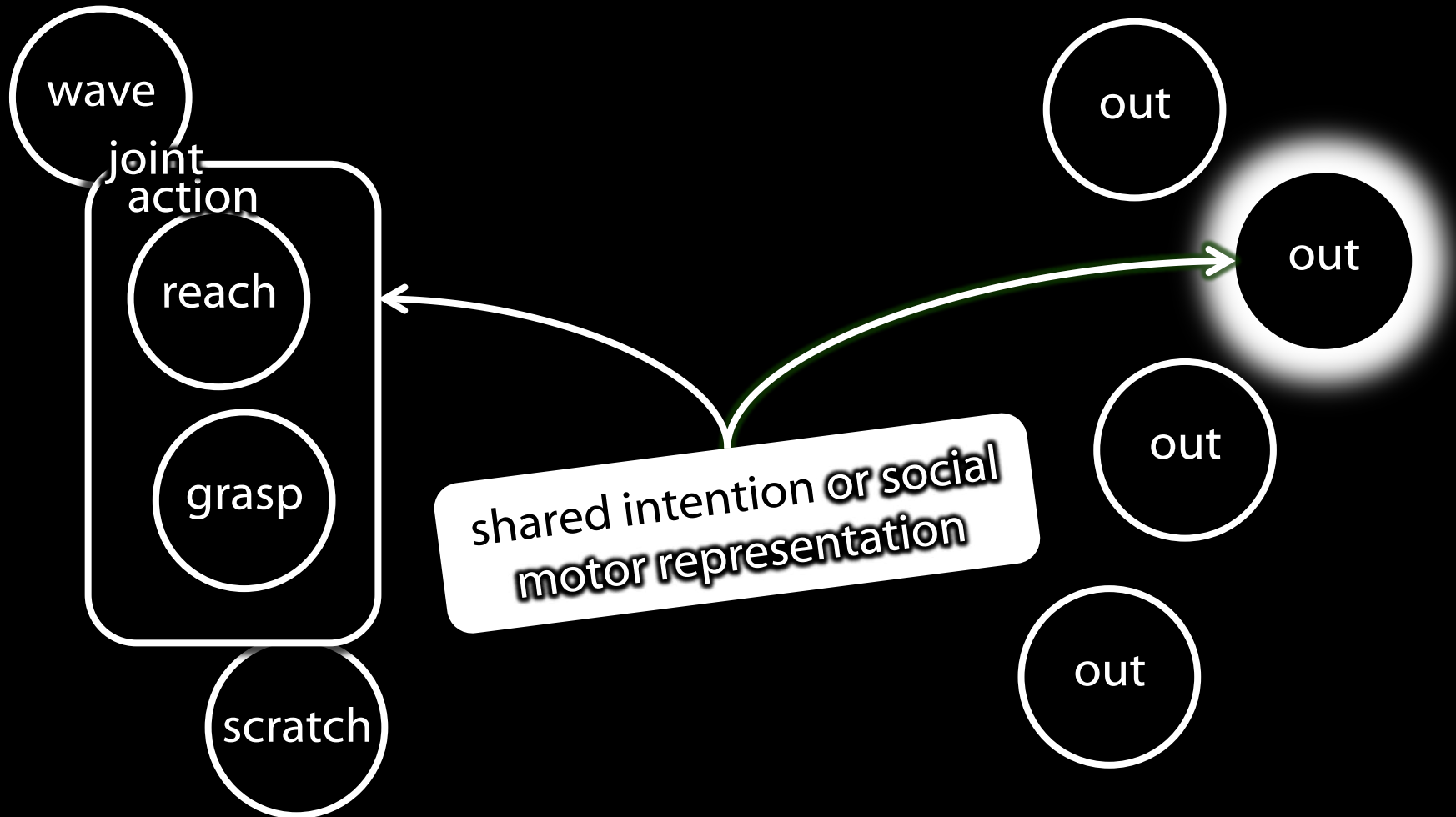
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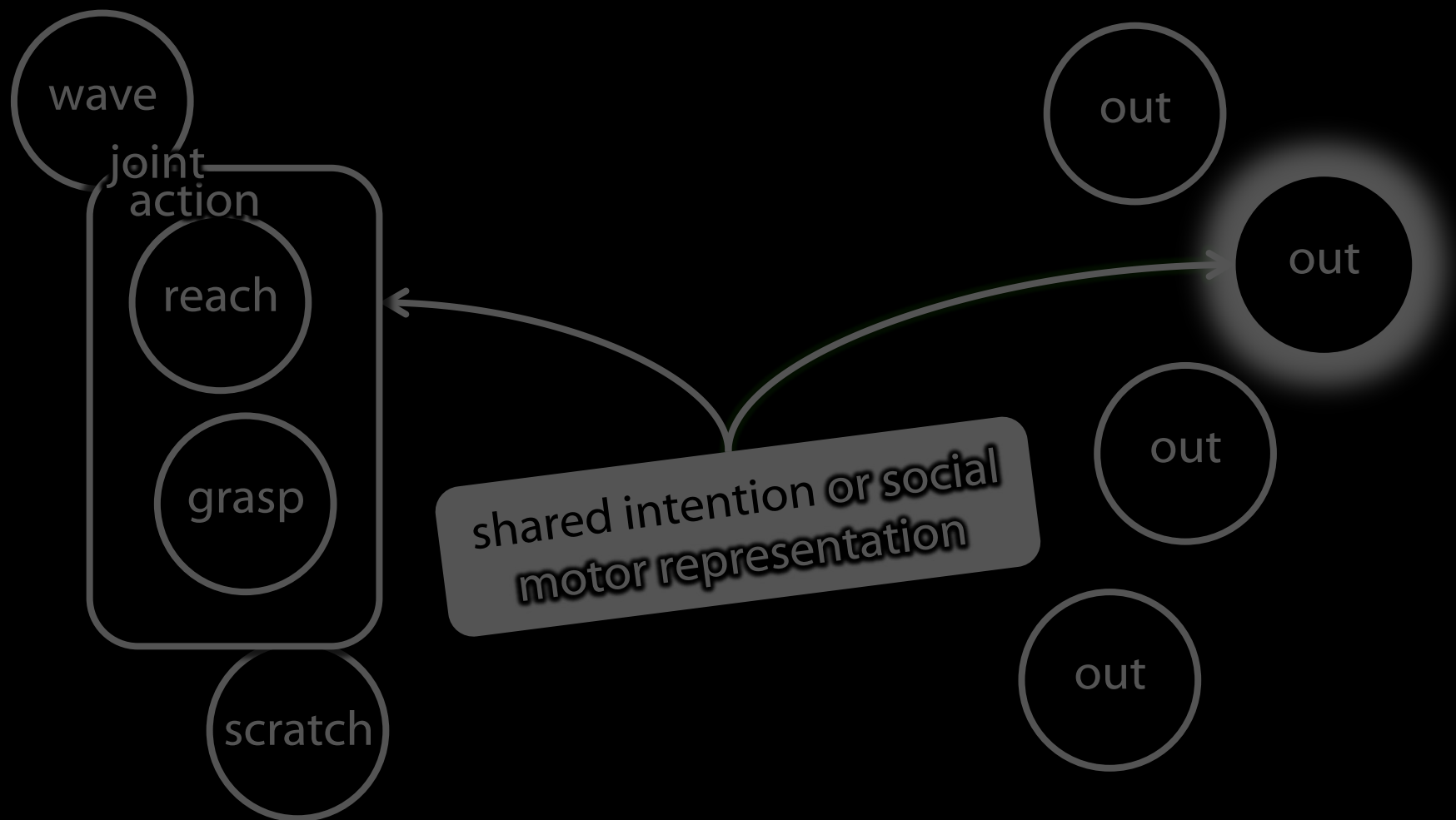
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Sufficient conditions

We have a shared intention
that we J if

“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 Ia, Ib, and
meshing subplans of Ia and
Ib; you intend [likewise] ...

“3. 1 and 2 are common
knowledge between us”

(Bratman 1993:View 4)

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We have a shared intention
that we J if

“1.(a) I intend that we J and
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meshing subplans of 1a and
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premise:

Reciprocal agent-neutral motor representation
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question:

Does reciprocal agent-
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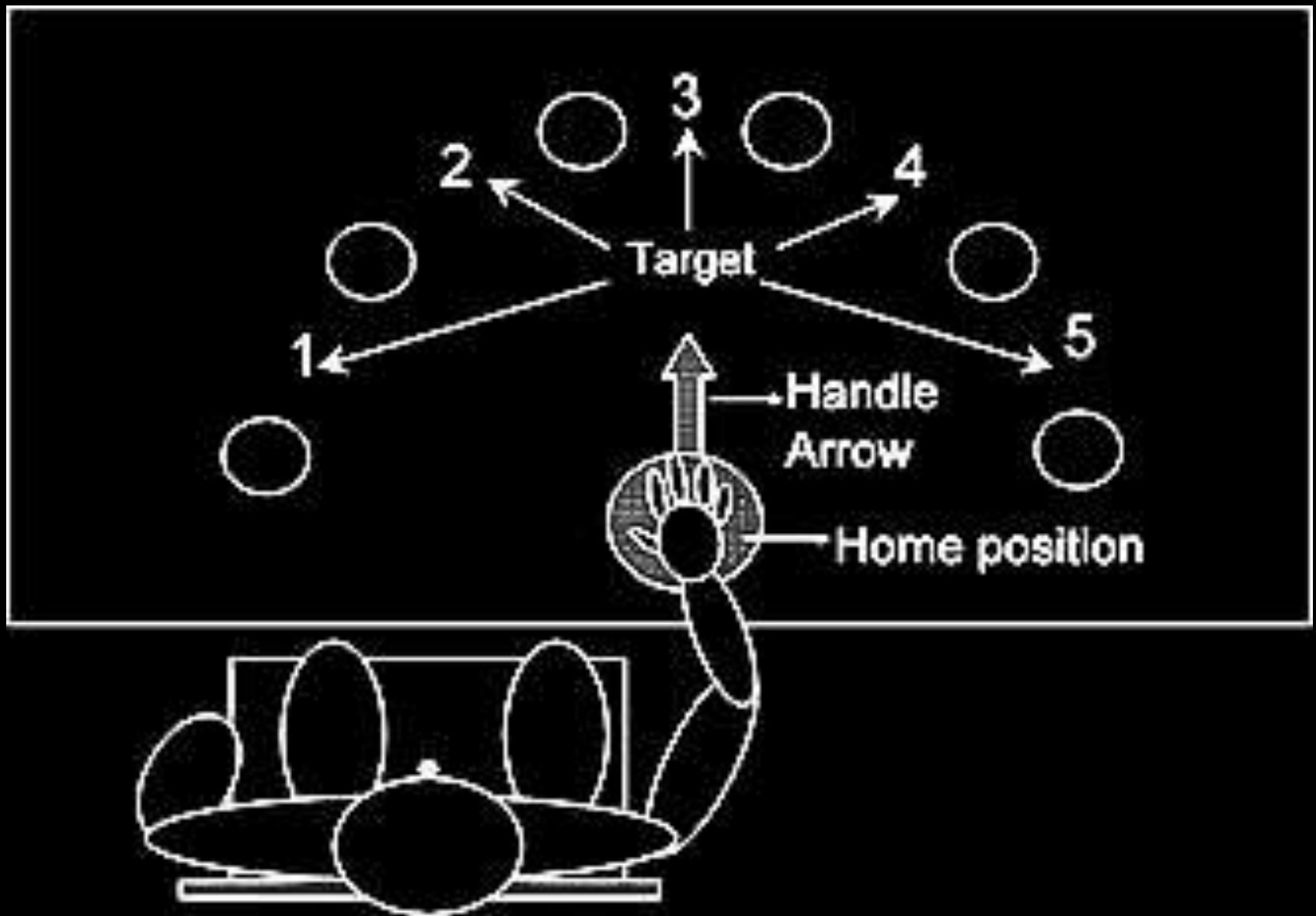
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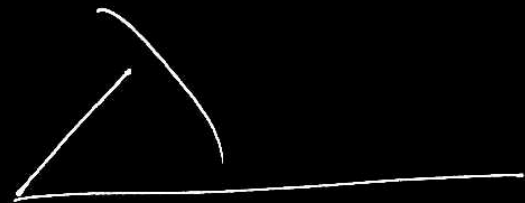
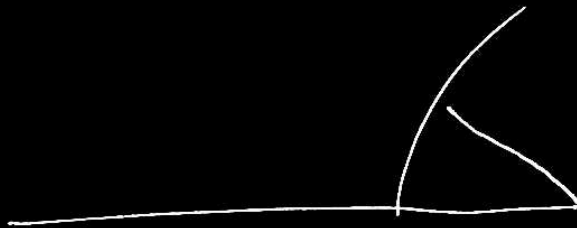
What are intentions for?



(Zhang and Rosenbaum 2007)



(big
reward)



↑
ONE
WAY



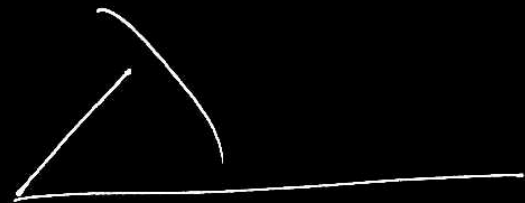
x

start here

shared
What are intentions for?
人



(big
reward)



↑
ONE
WAY



x

start here

moving an object together

(Kourtis et al 2010)

tidying up the toys together

(Behne et al 2005)

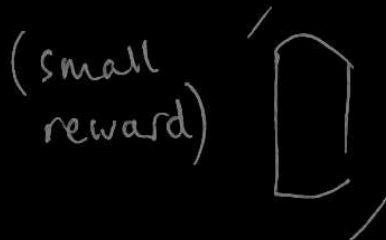
cooperatively pulling
handles in sequence to
make a dog-puppet sing

(Brownell et al 2006)

bouncing a cube on a large
trampoline together

(Tomasello & Carpenter 2007)

pretending to row a boat
together



ONE
WA-

X

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< different content >



< different content >

< different format >

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...



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 Paris on Friday is a propositional attitude.

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My intention that I visit Paris on Friday is a propositional attitude.



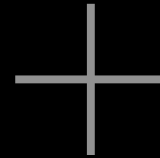
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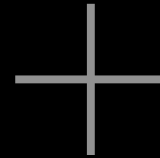
No motor representations are propositional attitudes.

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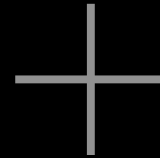
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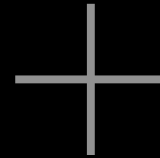
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The Interface Problem

The Interface Problem

Some joint actions involve
both shared intention and
reciprocal agent-neutral
motor representation

The Interface Problem

Reciprocal agent-neutral
motor representations:

i. represent outcomes;

ii. ground the
purposiveness of some
joint actions

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The Interface Problem

Reciprocal agent-neutral
motor representations:

- i. represent outcomes;
- ii. ground the
purposiveness of some
joint actions

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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i. represent outcomes;

ii. ground the
purposiveness of some
joint actions; and

iii. differ in format from
(the constituent attitudes
of) shared intentions.

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 joint actions involve
both shared intention and
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The Interface Problem: How are non-accidental matches possible?

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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

=



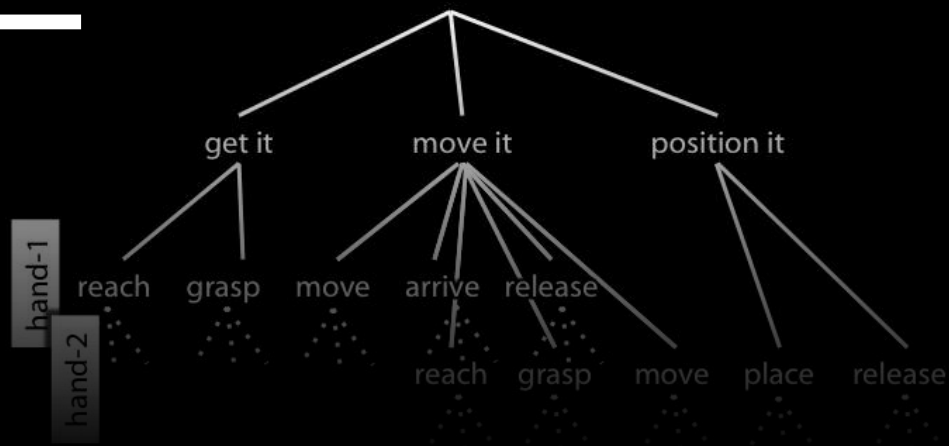
?

Do that

=

Move it from there to here

?



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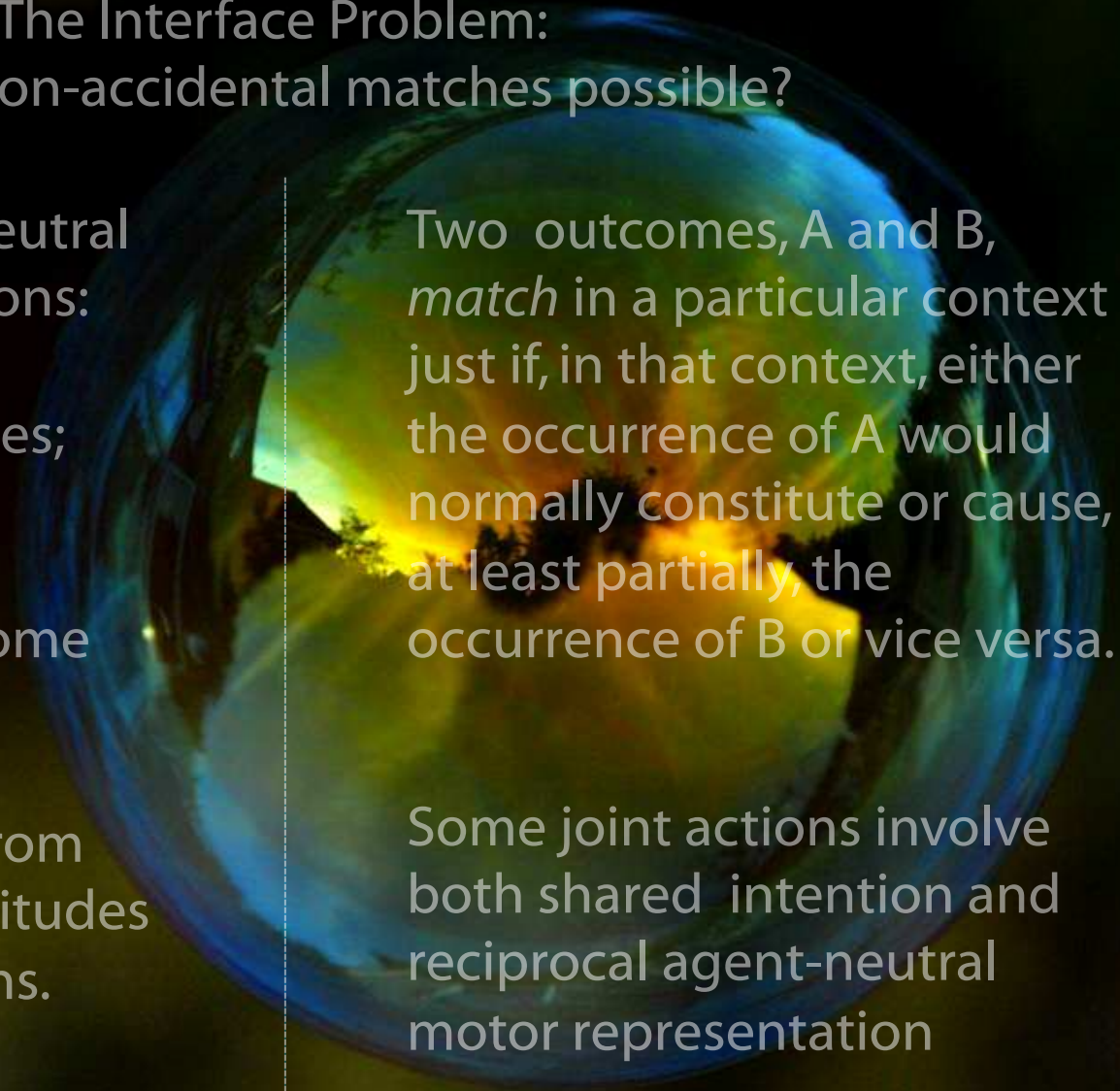
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