

The Cognitive Psychology of Joint Action

Guenther Knoblich

Stephen Butterfill

~~**Elisabeth Pacherie**~~

Natalie Sebanz

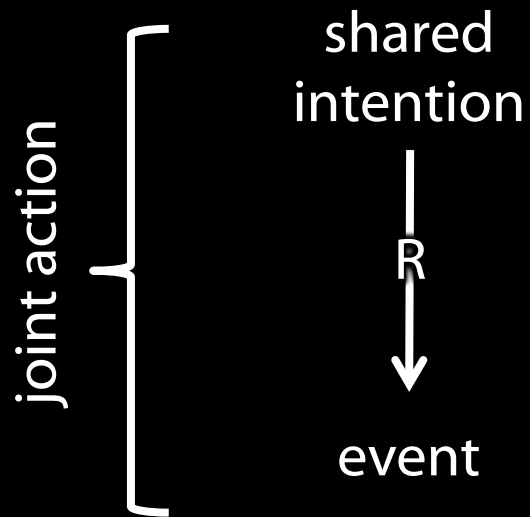
A glass sphere, possibly a paperweight, is shown against a dark background. The sphere's surface is highly reflective, mirroring a vibrant sunset or sunrise scene. The reflection features a bright, glowing sun partially obscured by dark, silhouetted trees. The sky in the reflection is a mix of yellow, orange, and blue, with rays of light emanating from the sun. The sphere's rim is visible, showing some internal reflections and a slight shadow.

Motor Representation and Shared Intention

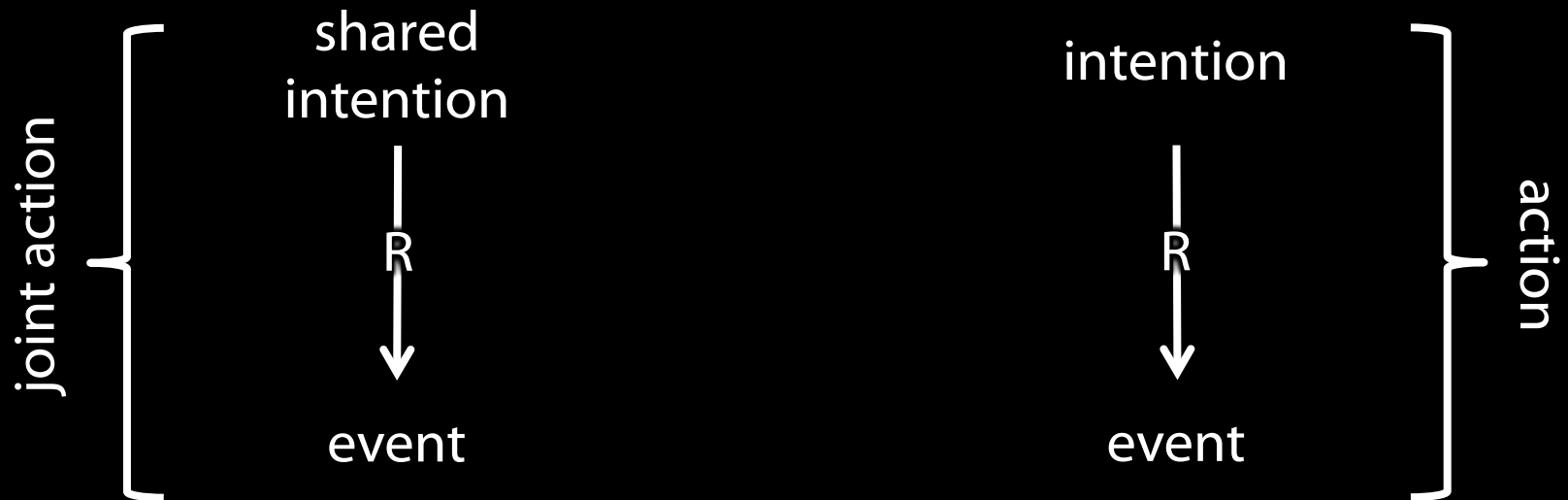
s.butterfill@warwick.ac.uk

Which events are ^{joint} actions?

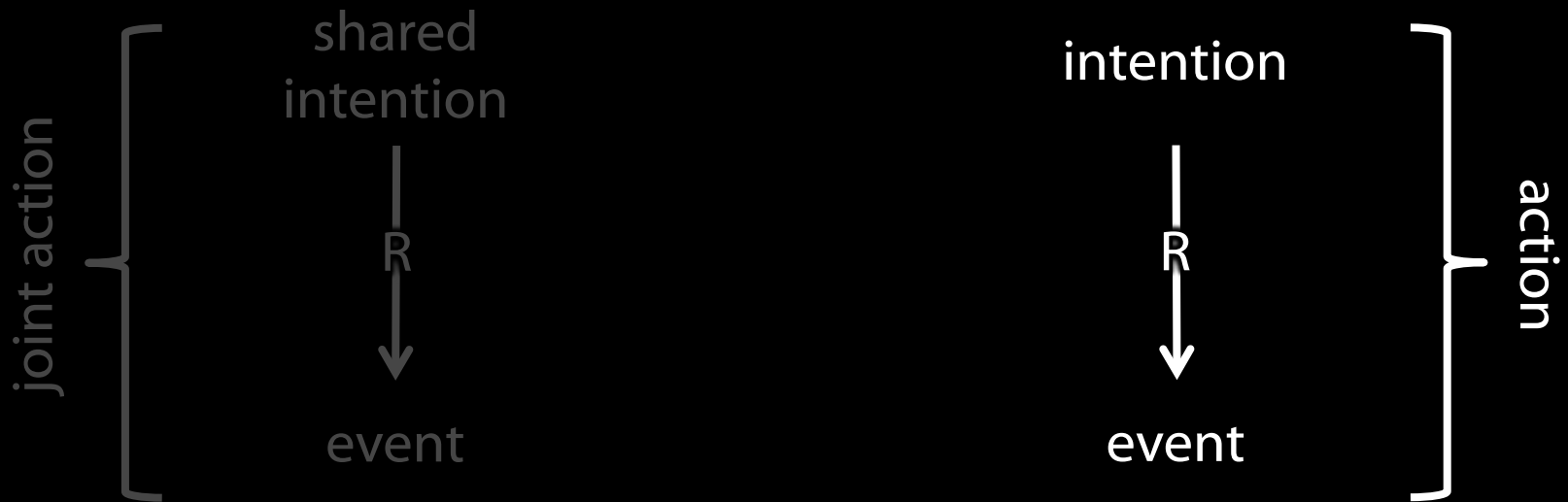
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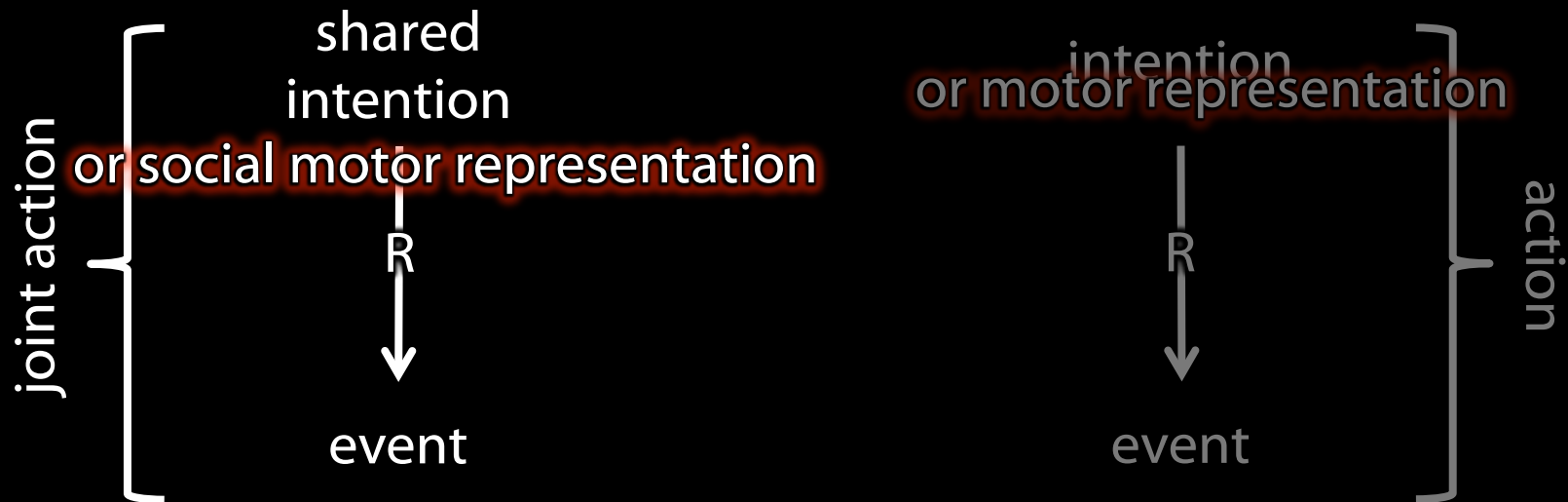
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Which events are ^{joint} actions?



Which events are ^{joint} actions?



premise:

Some joint actions are facilitated by

reciprocal,

agent-neutral

motor

representations

of outcomes

whose obtaining would normally involve action

on the part of each agent

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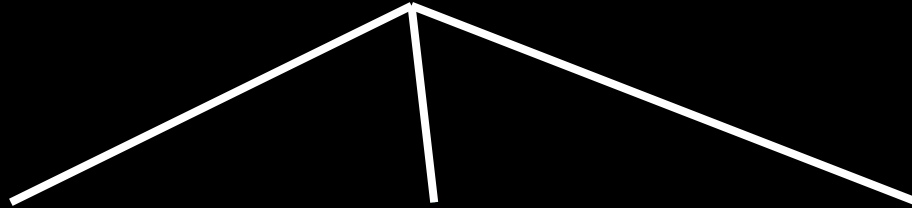
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on the part of each agent

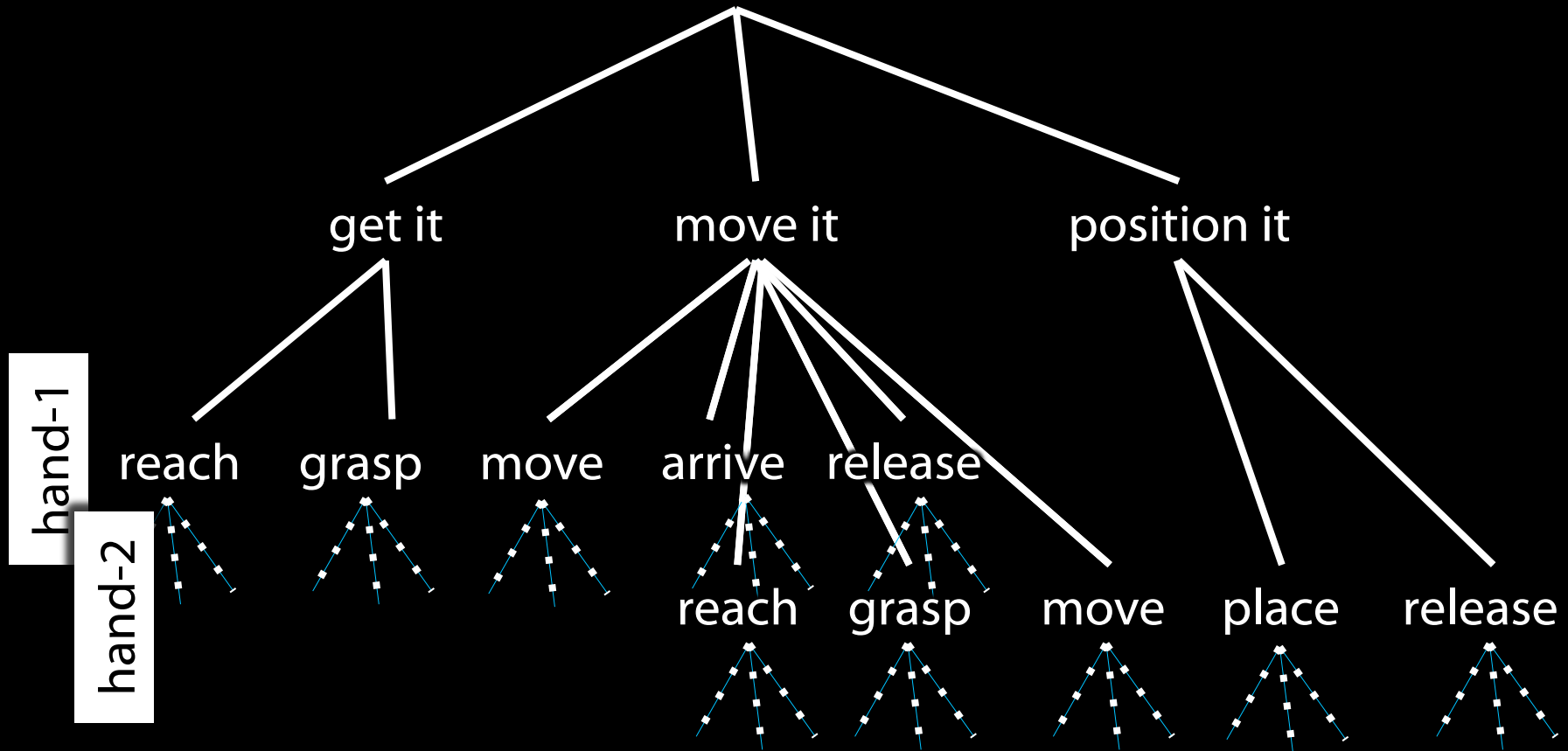
=_{df} 'social motor representation'

How could social motor representation
facilitate any joint action?

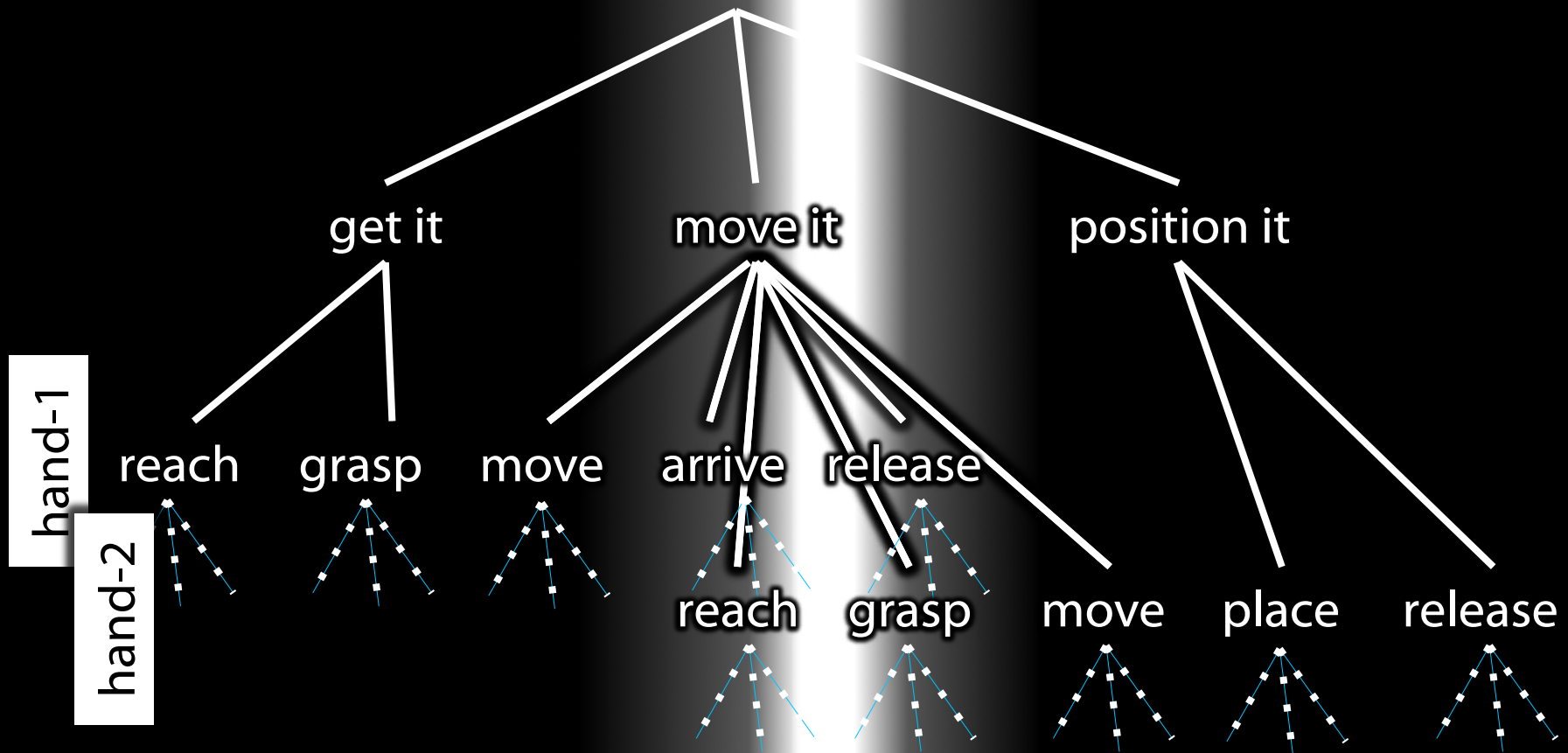
Move it from there to here



Move it from there to here



Move it from there to here



Move it from there to here

joint action:
same goal

get it

move it

position it

reach

grasp

move

arrive

release

reach

grasp

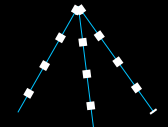
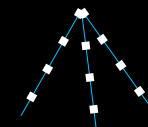
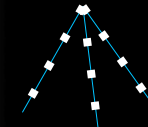
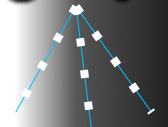
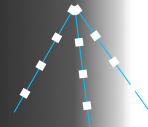
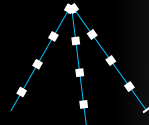
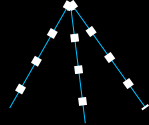
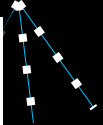
move

place

release

hand-1

hand-2



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

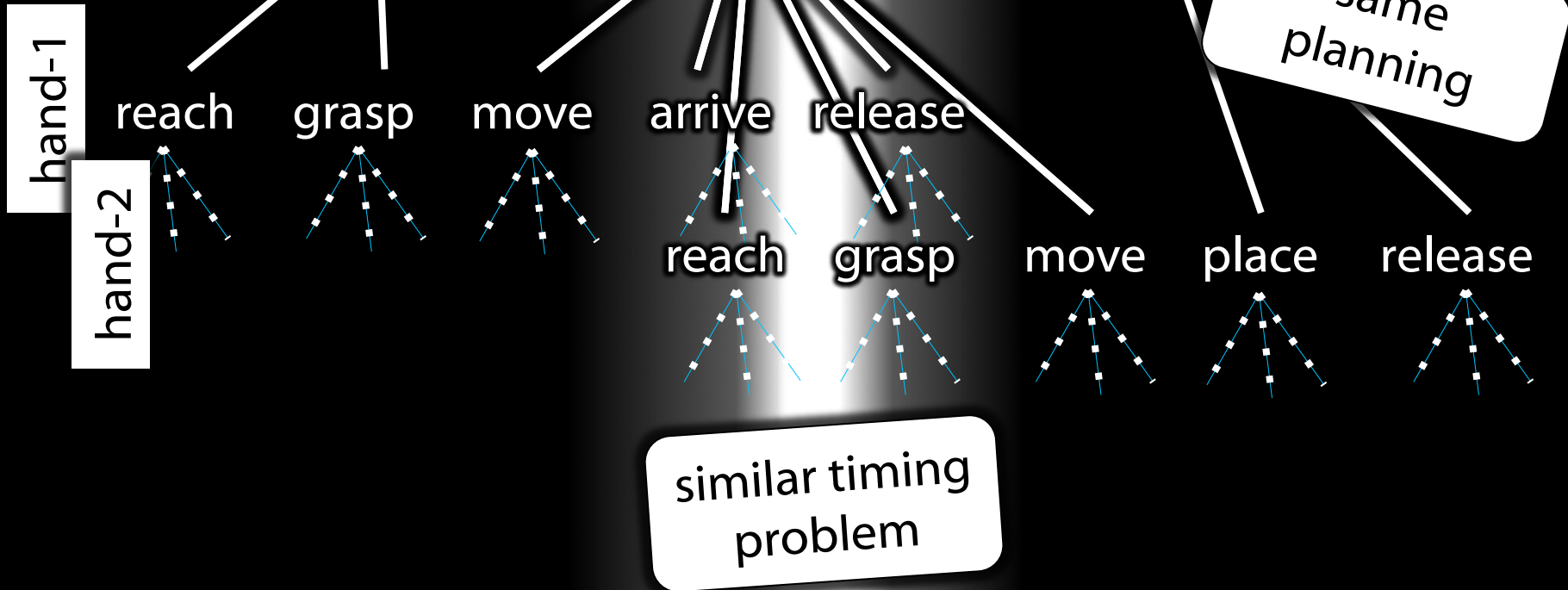
grasp

move

place

release

similar timing
problem



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

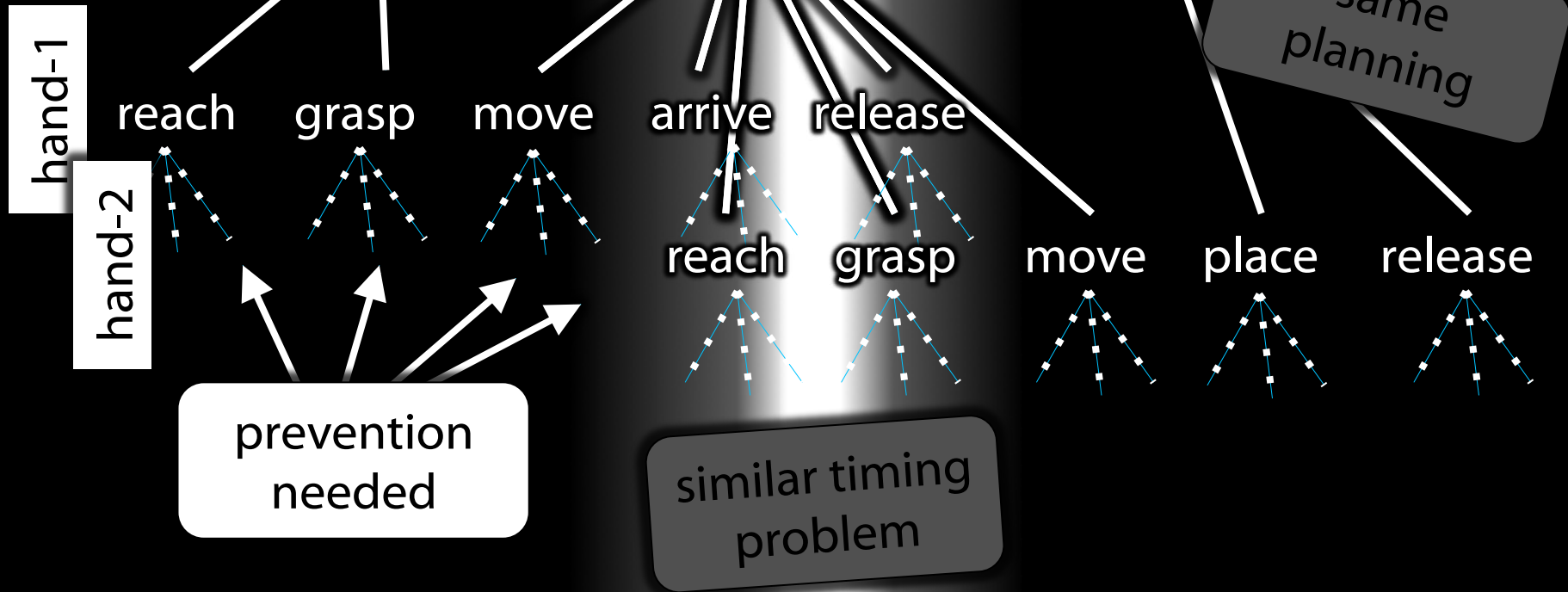
move

place

release

prevention
needed

similar timing
problem



premise:

Some joint actions are facilitated by

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motor

representations

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whose obtaining would normally involve action

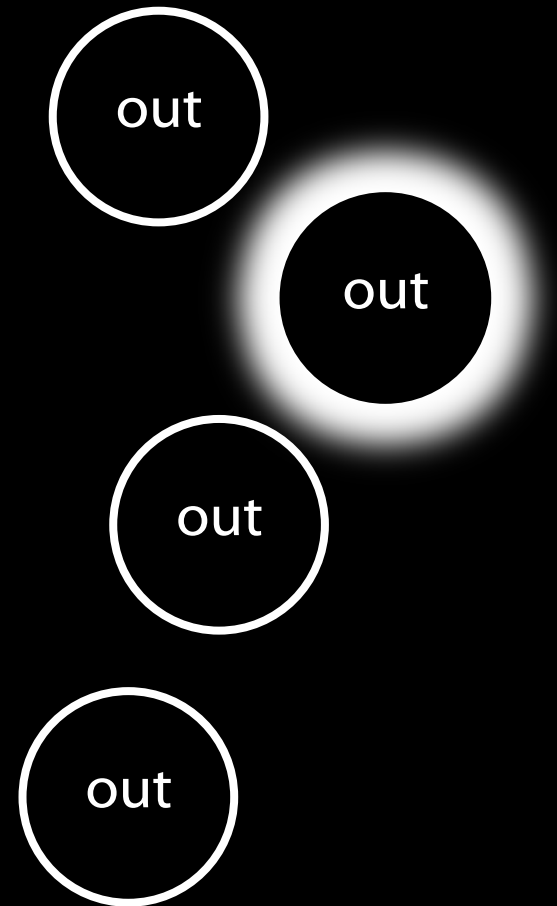
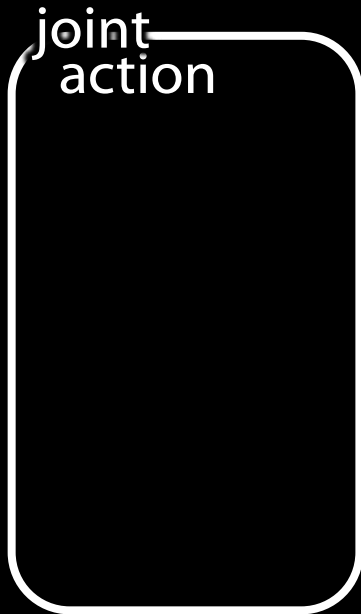
on the part of each agent

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

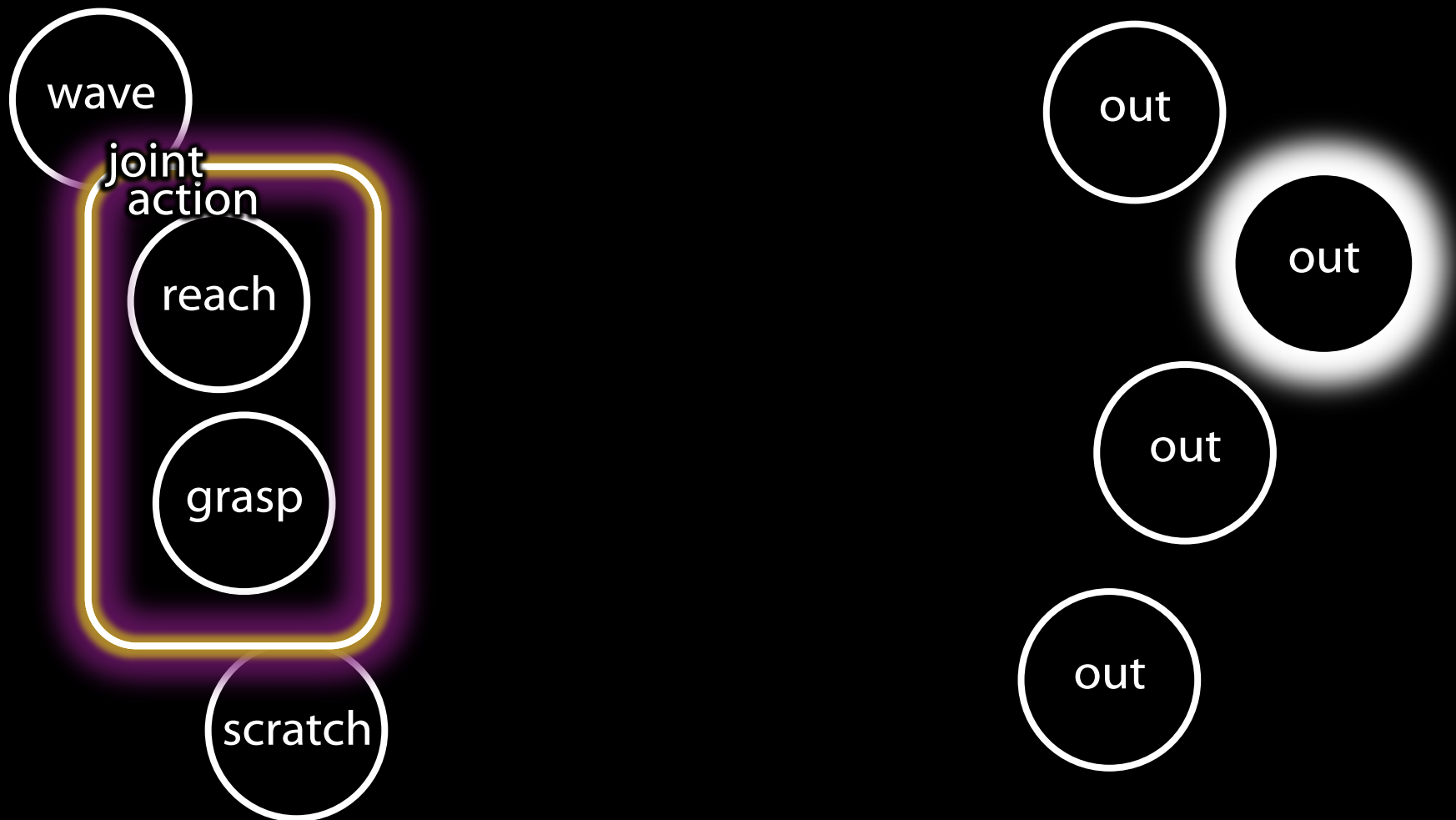
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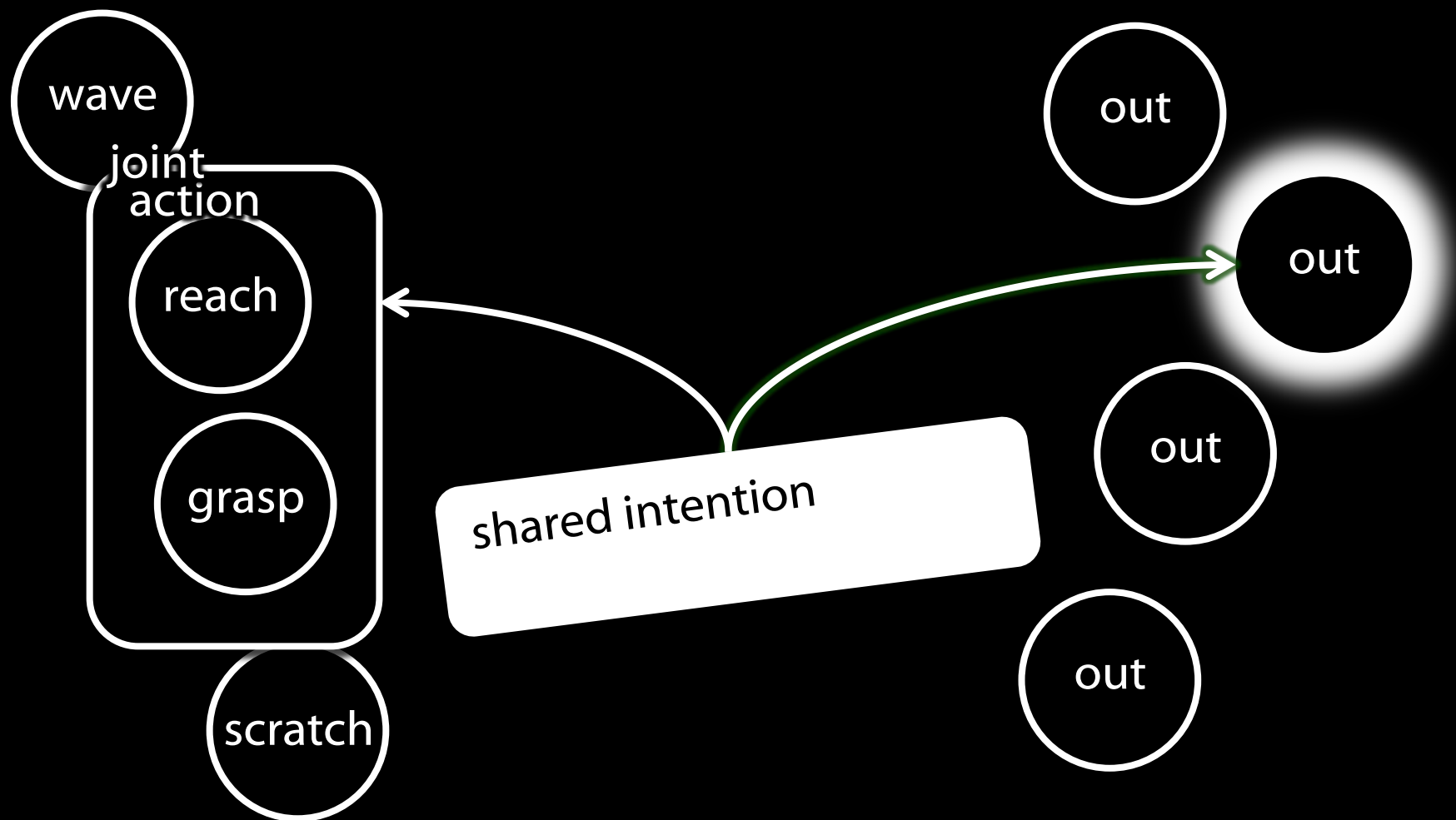
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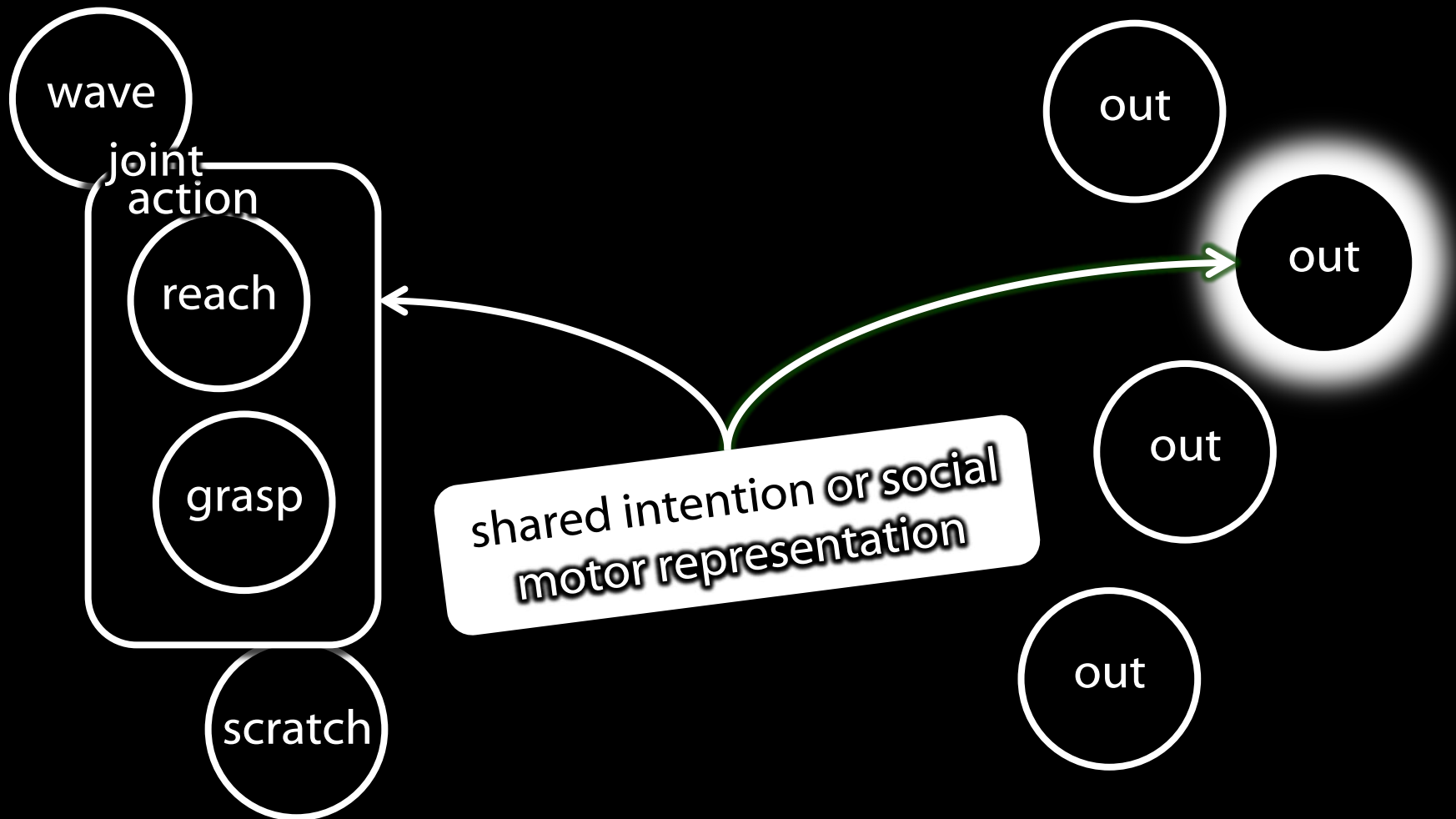
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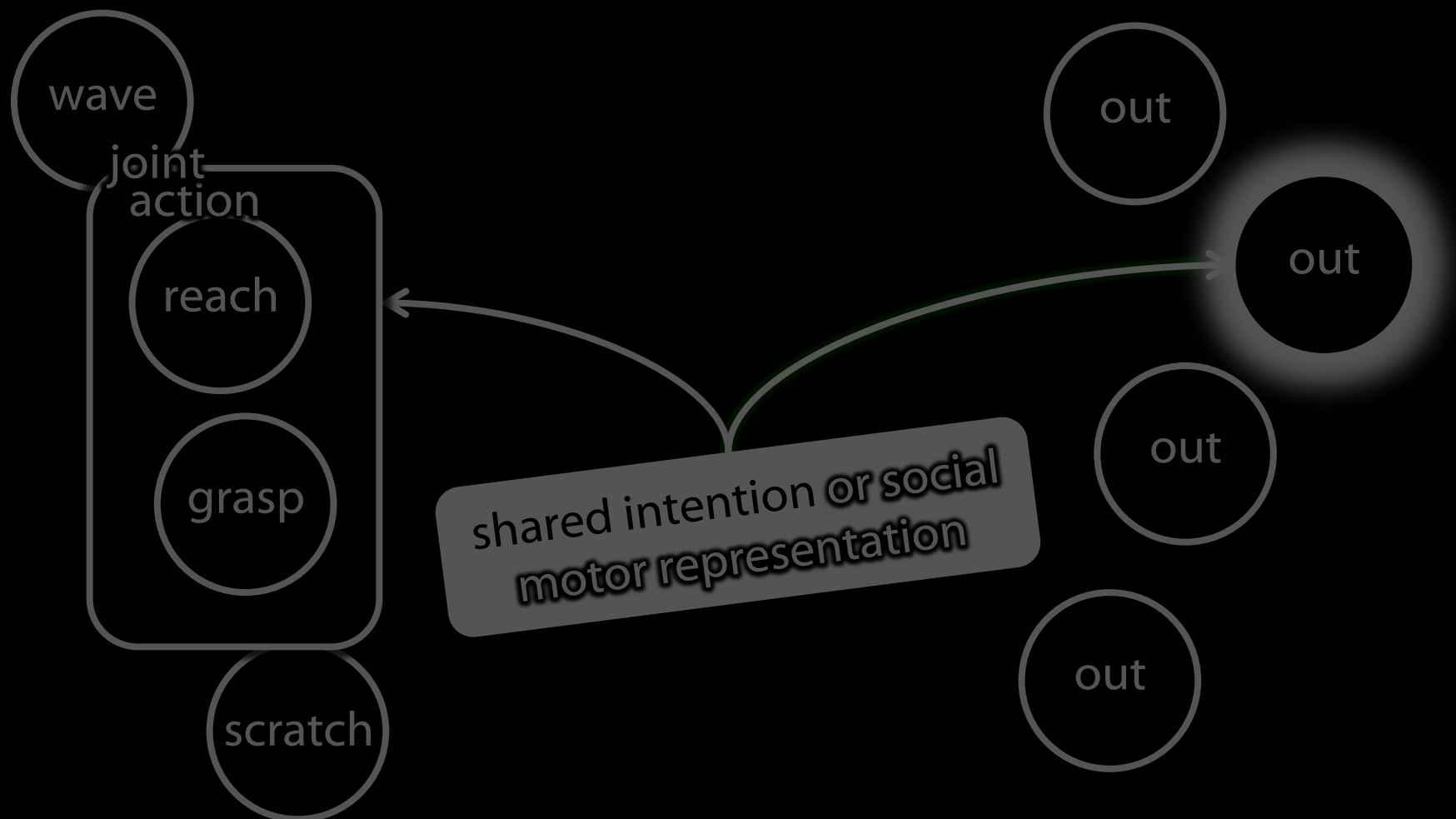
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Two outcomes, A and B,
match in a particular
context just if, in that
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vice versa.

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vice versa.

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)





We have a shared intention
that we J if

“1. (a) I intend that we J and
(b) you intend that we J

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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 1a, 1b, and
meshing subplans of 1a and
1b; you intend [likewise] ...

“3. 1 and 2 are common
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(Bratman 1993:View 4)



We have a shared intention
that we J if

“1. (a) I intend that we J and
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because of la, lb, and
meshing subplans of la and
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“3. 1 and 2 are common
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(Bratman 1993: View 4)





We have a shared intention
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(Bratman 1993: View 4)

question:
Which events are joint
actions?

challenge:
How could social motor
representation and
shared intention
harmoniously contribute
to joint action?

premise:
Some joint actions are facilitated by
reciprocal,
agent-neutral
motor
representations
of outcomes
whose obtaining would normally involve action
on the part of each agent



premise:

Reciprocal agent-neutral motor representation
enables some joint actions

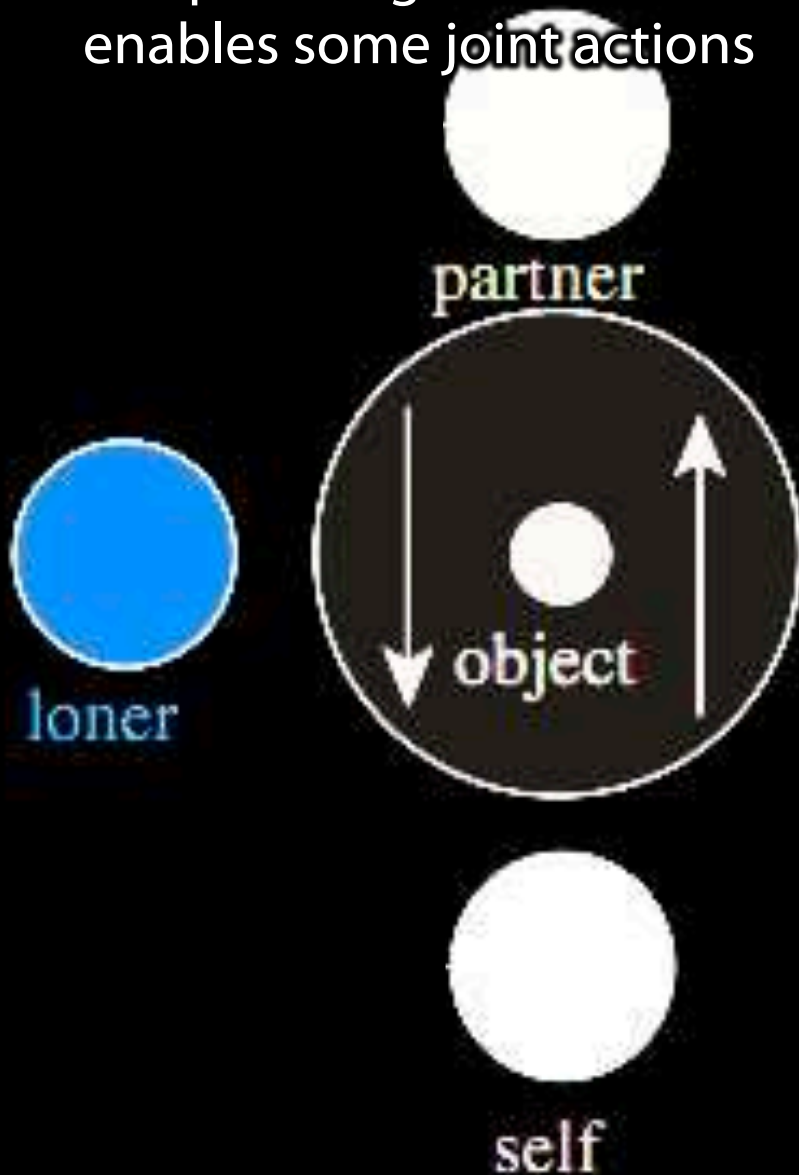
“Simulation of another person’s action, as reflected
in the activation of motor cortices, gets stronger the
more the other is perceived as an interaction
partner.”

--- Kourti, Sebanz & Knoblich (2010, p. 4)



premise:

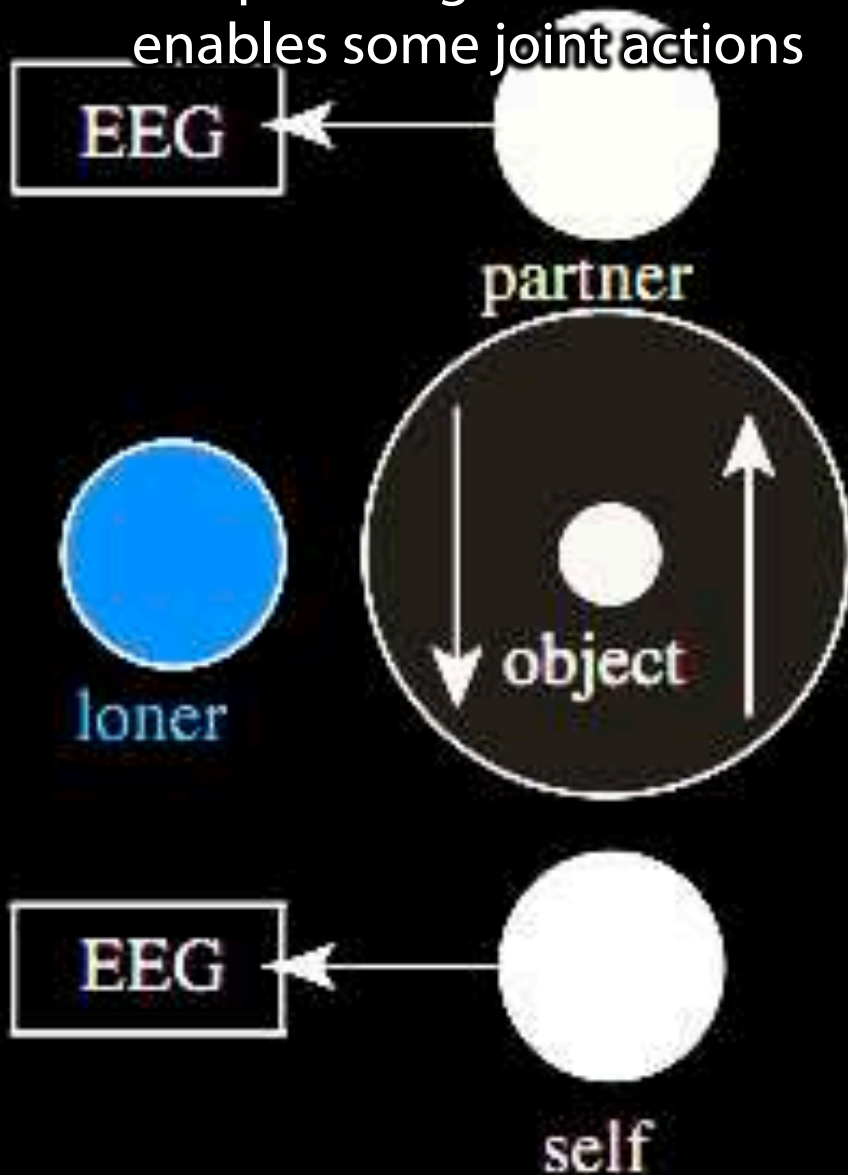
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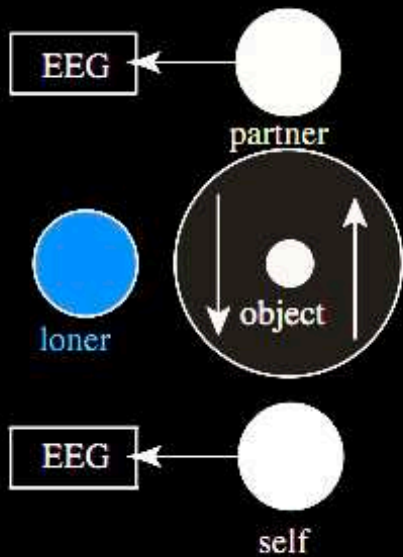
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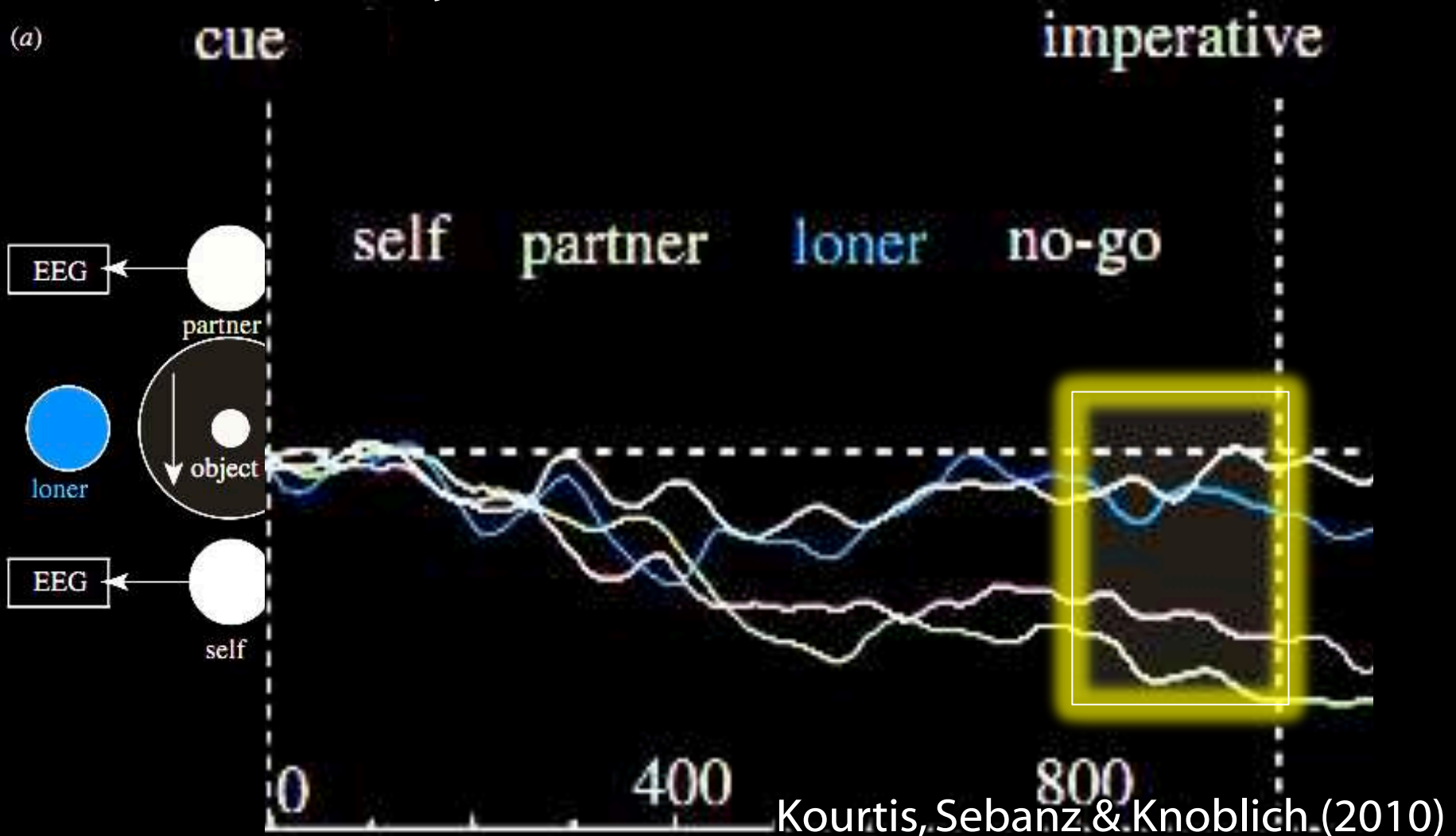
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(a)

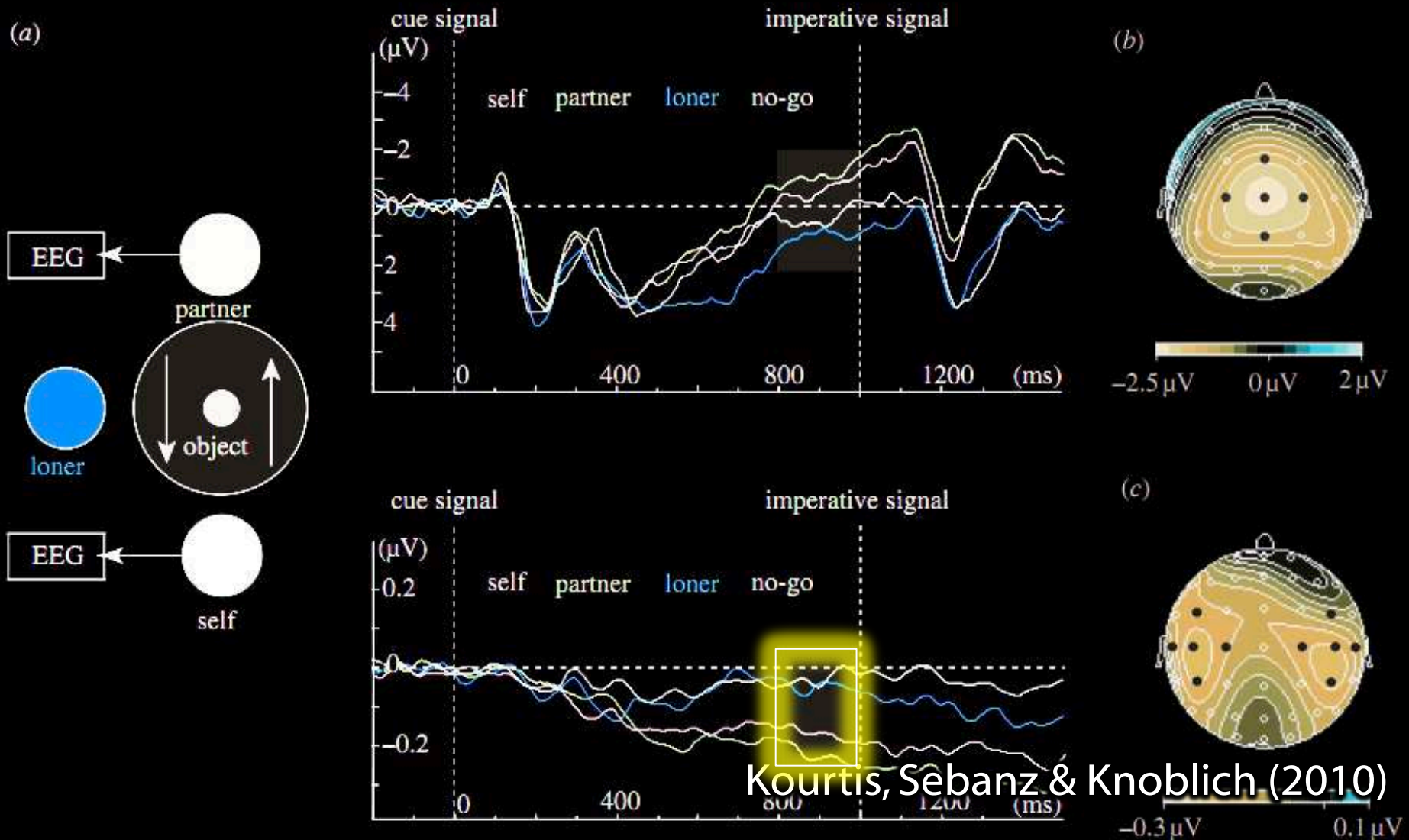


Kourtis, Sebanz & Knoblich (2010)

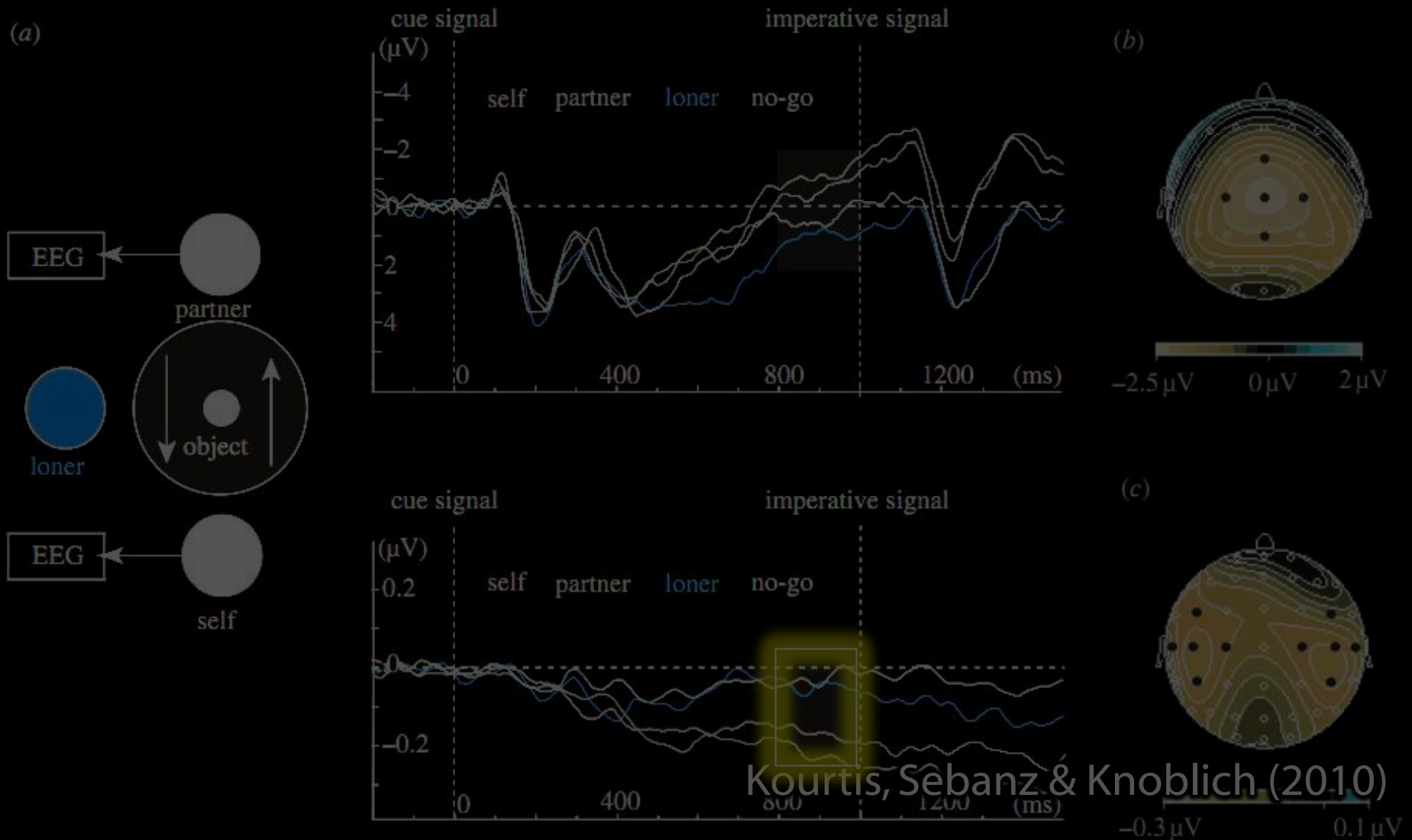
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Kourtis et al., subm.

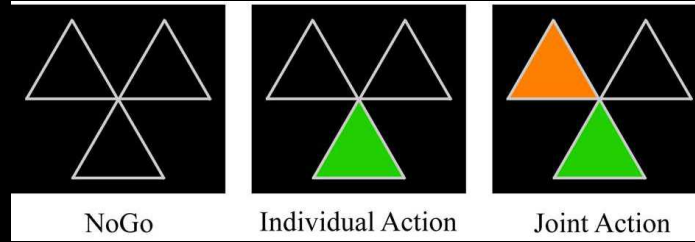


Kourtis et al., subm.



Joint Planning

Kourtis et al., subm.



Cue Stimulus



200 ms

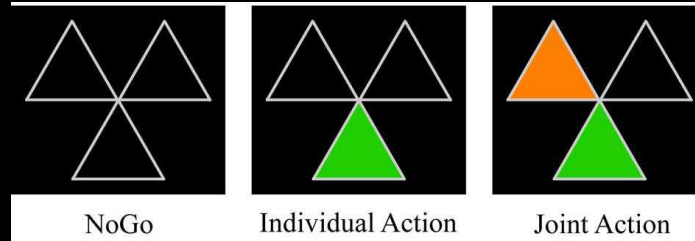


1000 ms

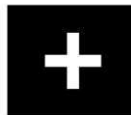


Joint Planning

Kourtis et al., subm.



Cue Stimulus



200 ms



1000 ms



1000 ms



Foreperiod
No Action

Joint Planning

Kourtis et al., subm.

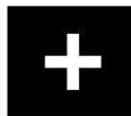


Cue Stimulus

Imperative Stimulus



200 ms



200 ms



1000 ms

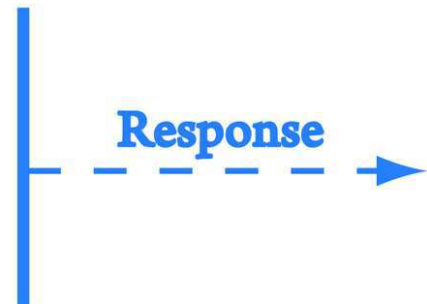


1000 ms

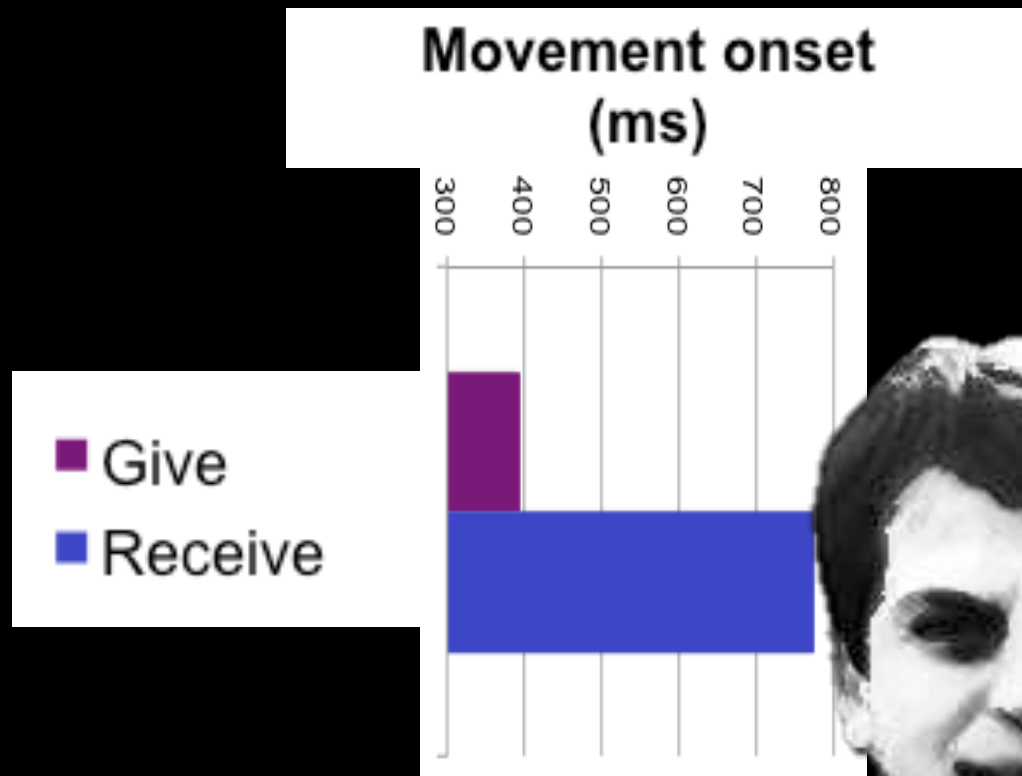


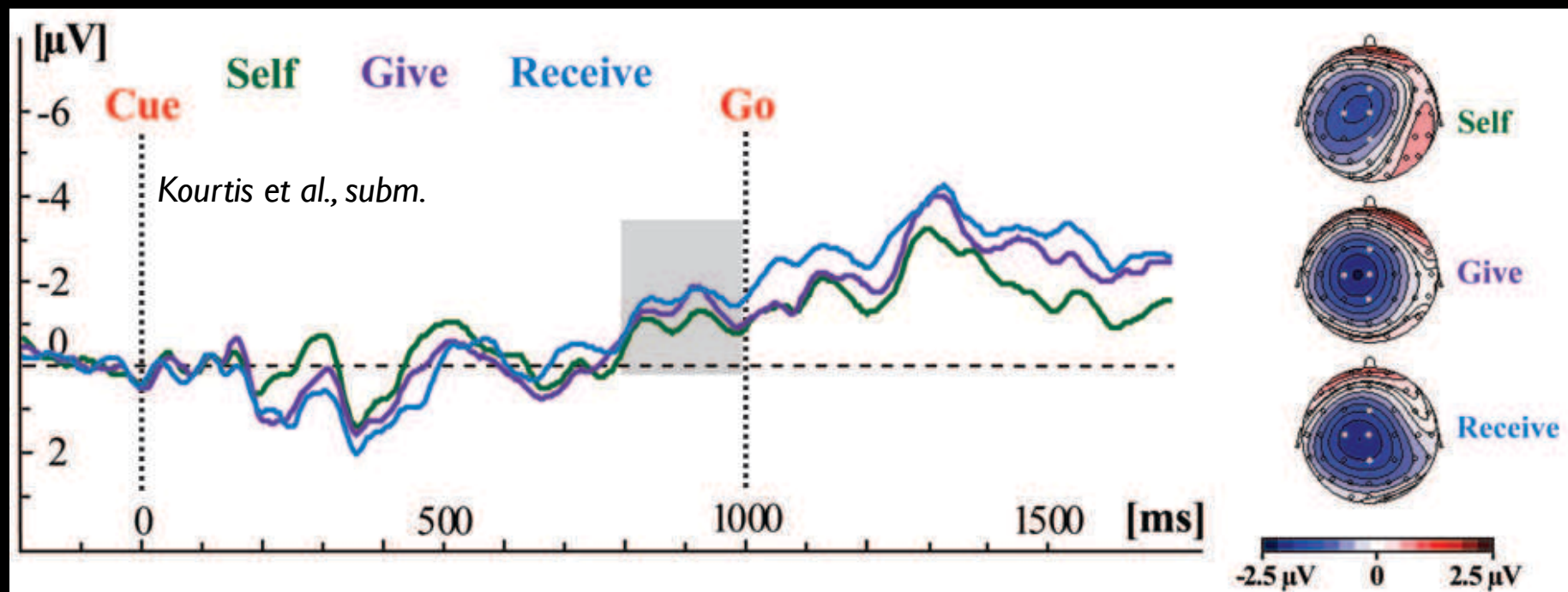
**Foreperiod
No Action**

Response



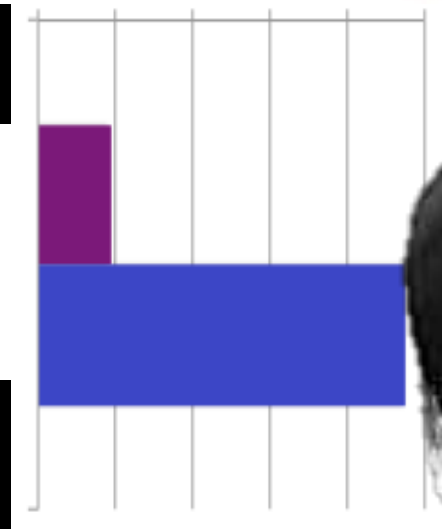
Kourtis et al., subm.





Give

Receive



****ALT OPENING*

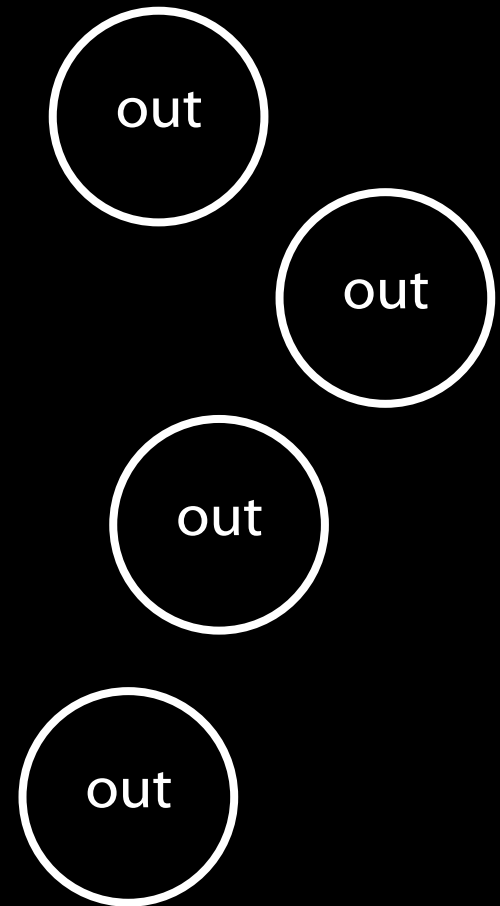
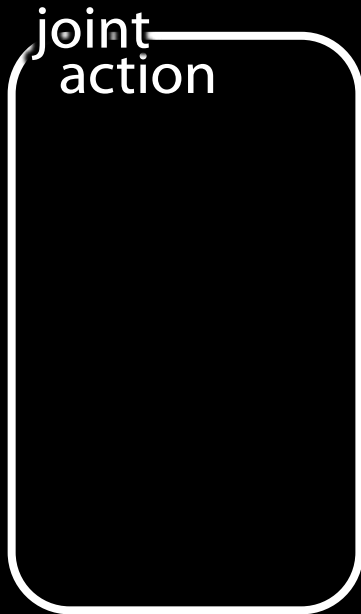
The idea was to start with the most direct question (instead of events, about the relation of directedness.)

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

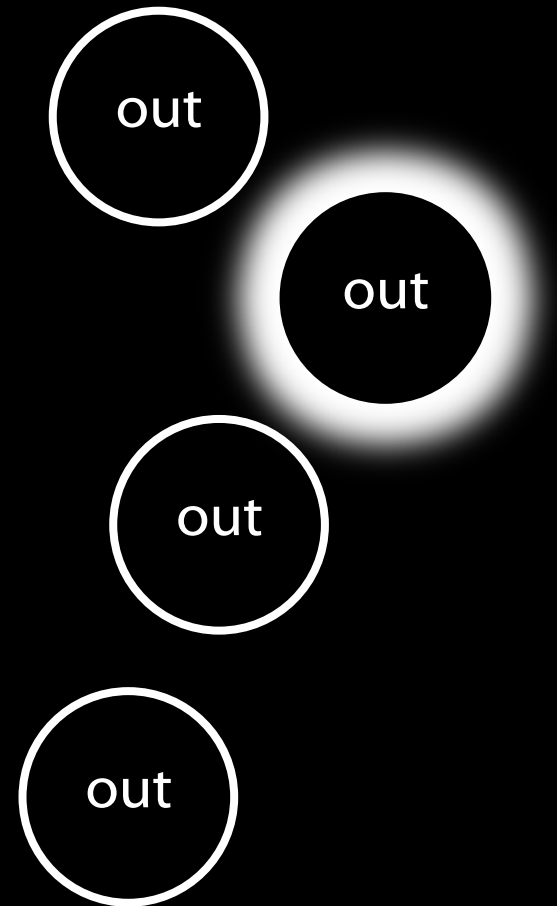
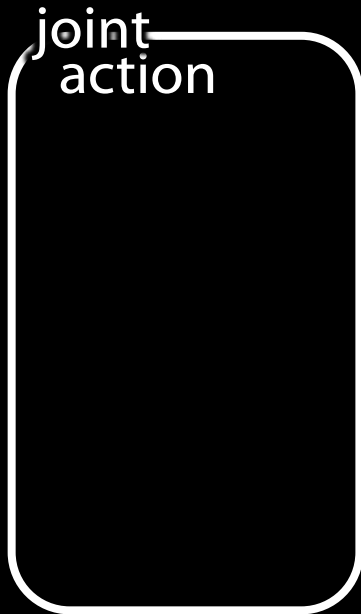
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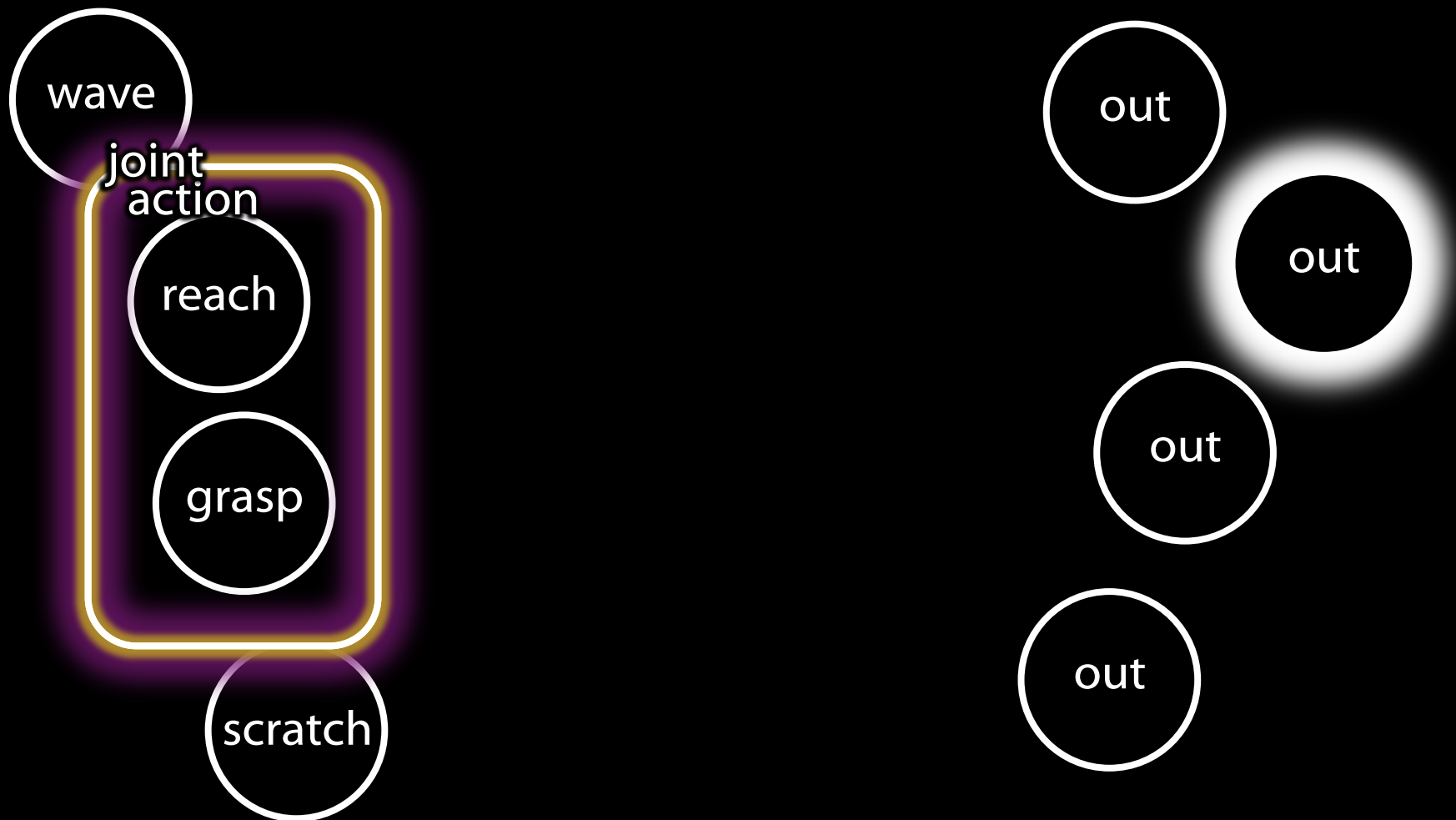
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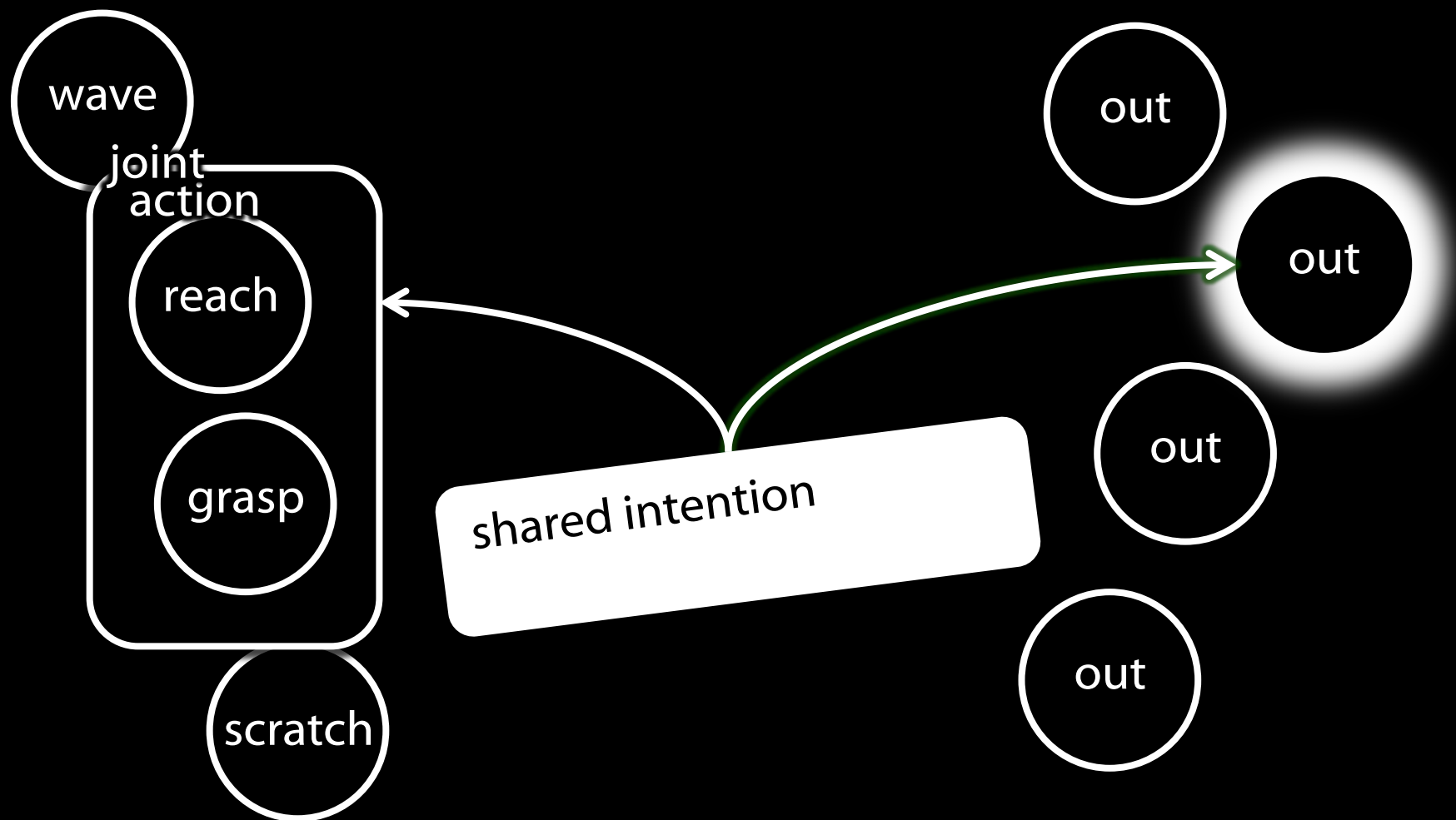
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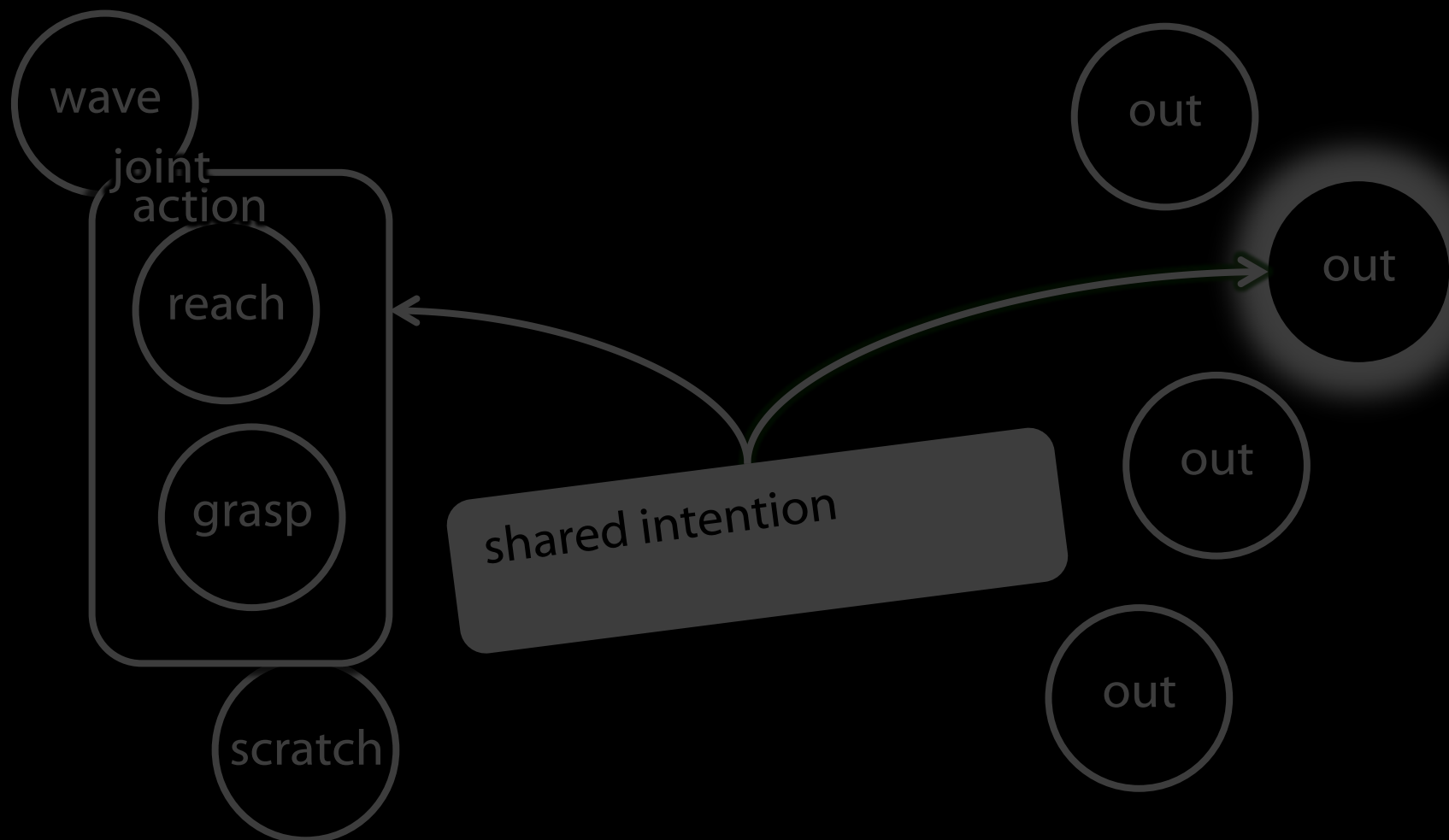
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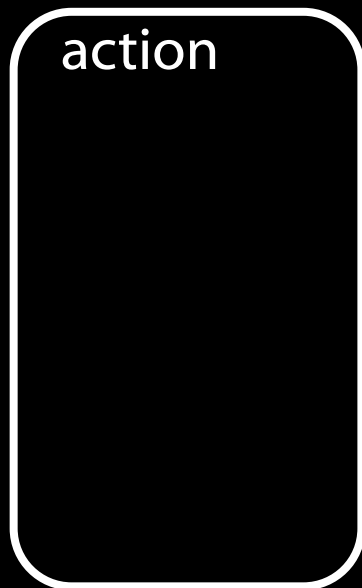
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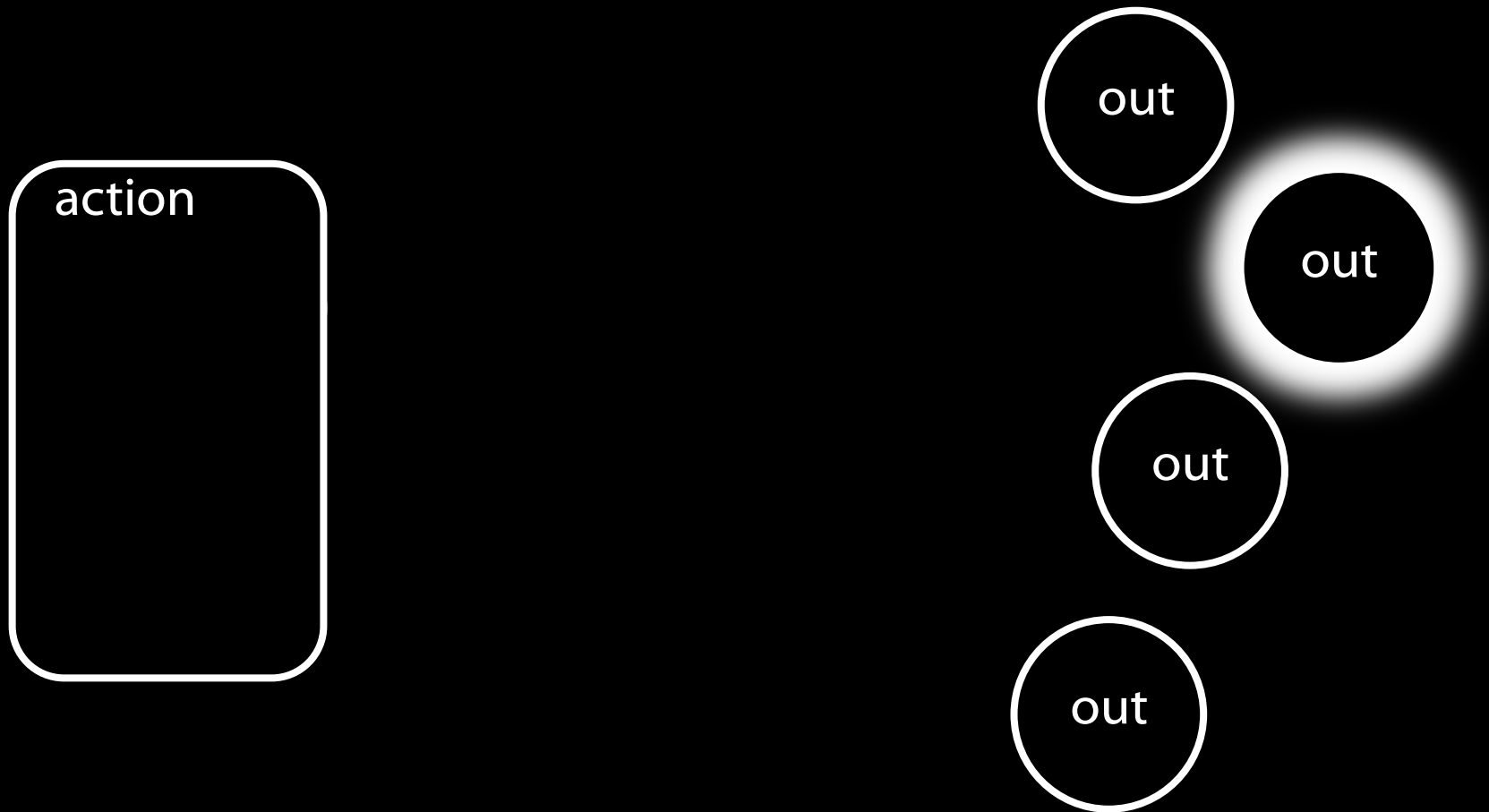
****CUT*

Following can be used to
explain idea about motor
representation and ordinary,
individual intention (not
essential?)

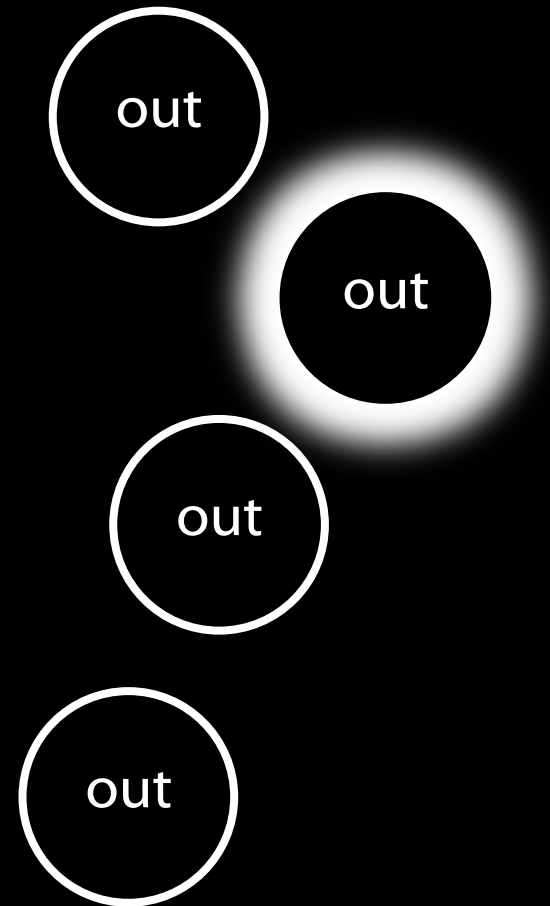
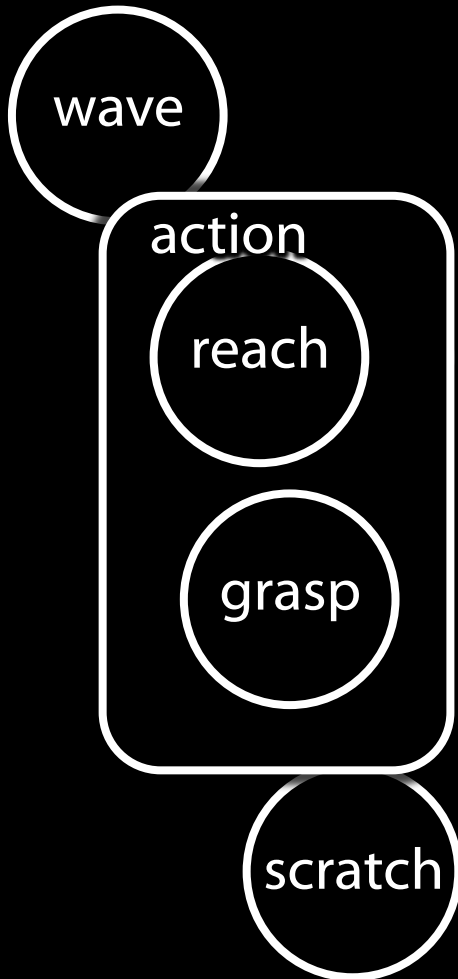
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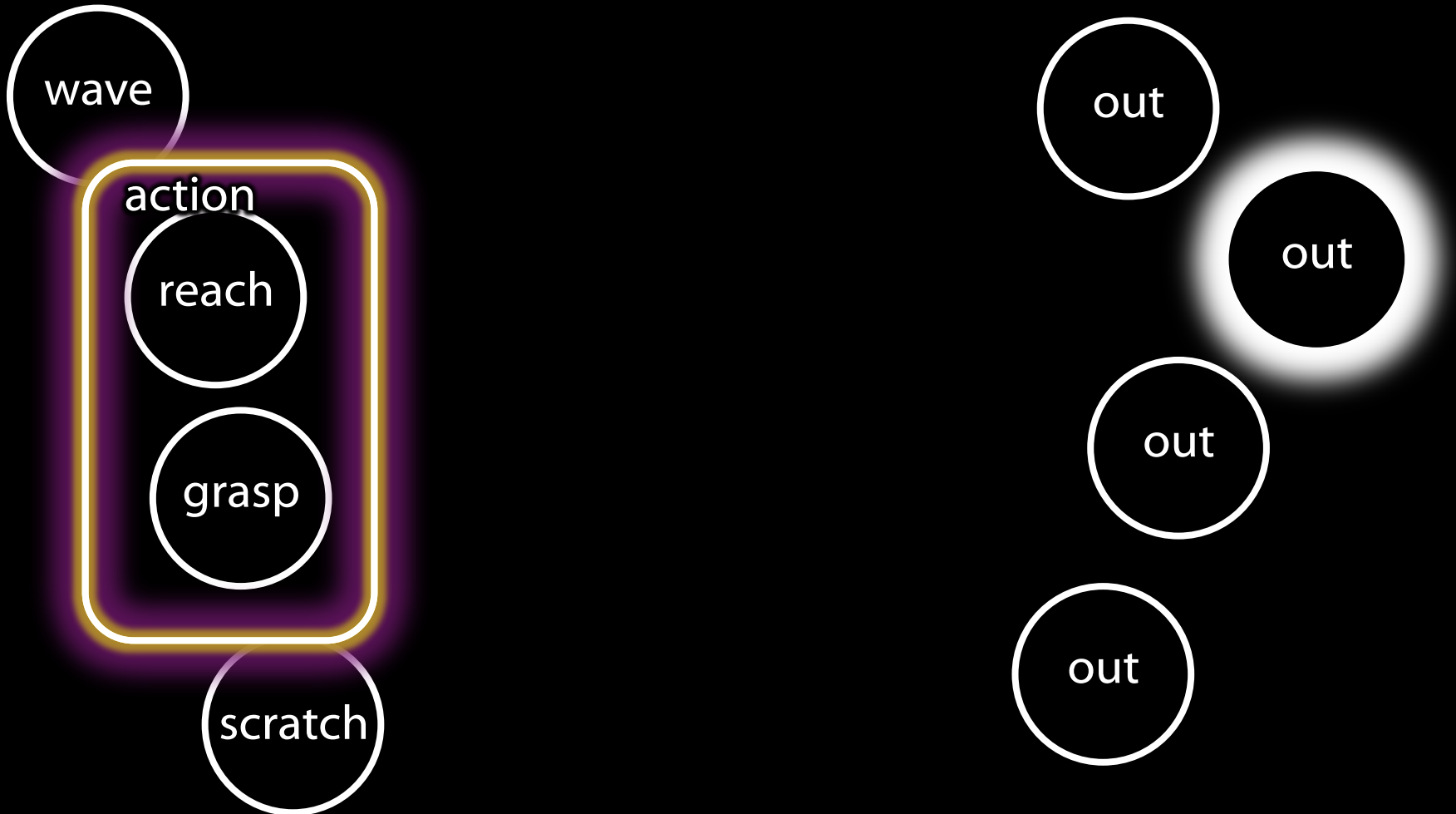
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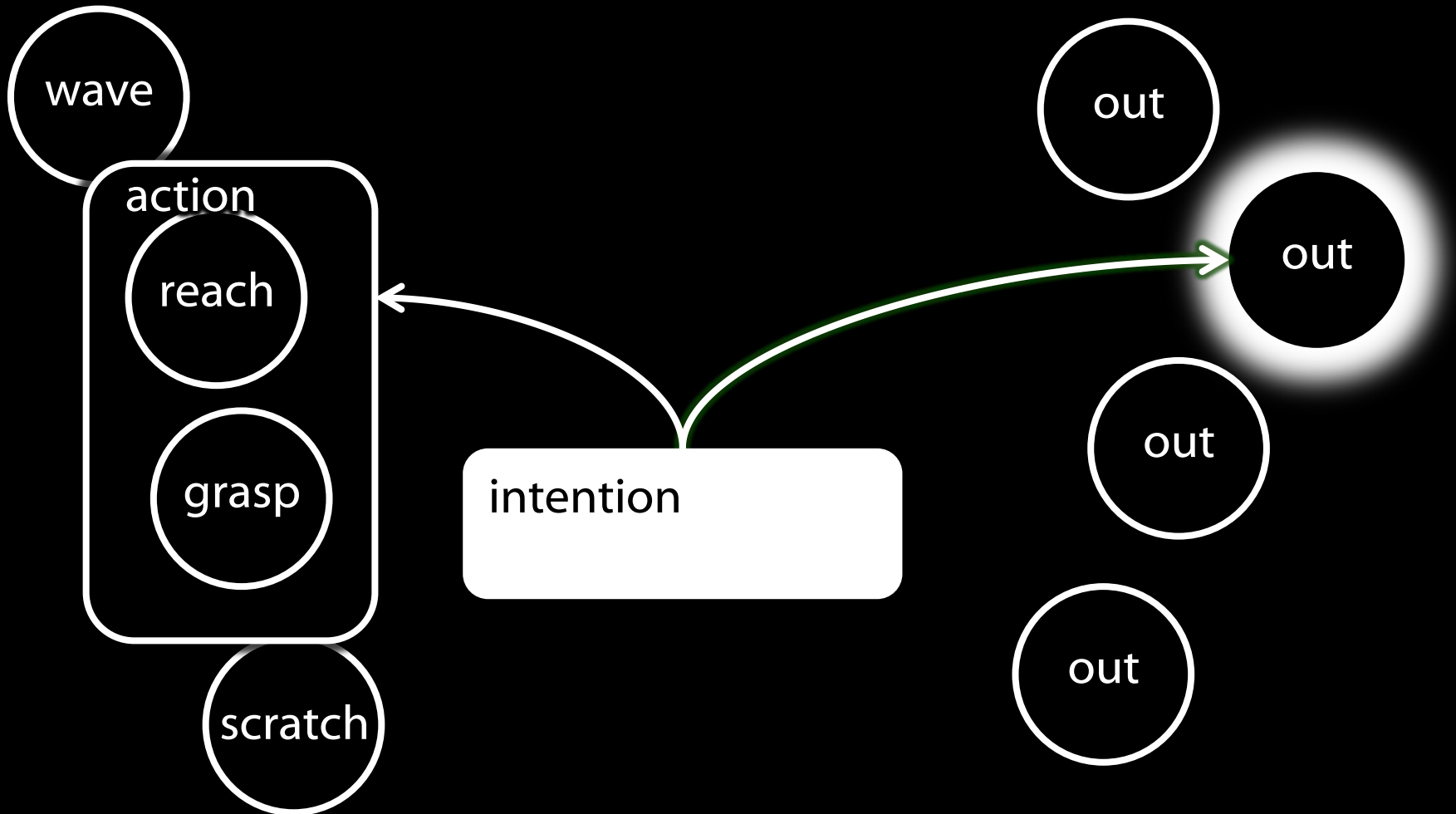
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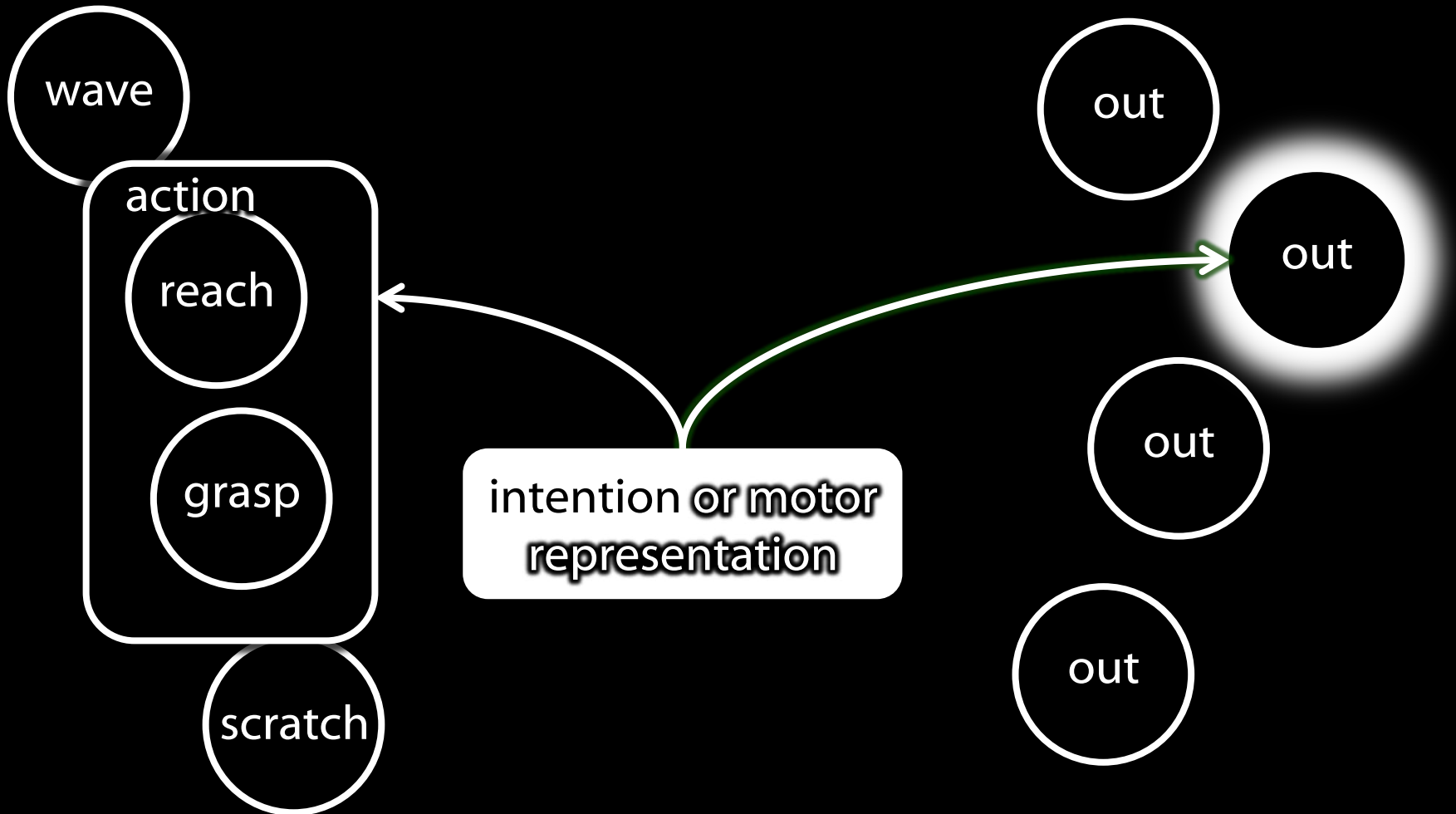
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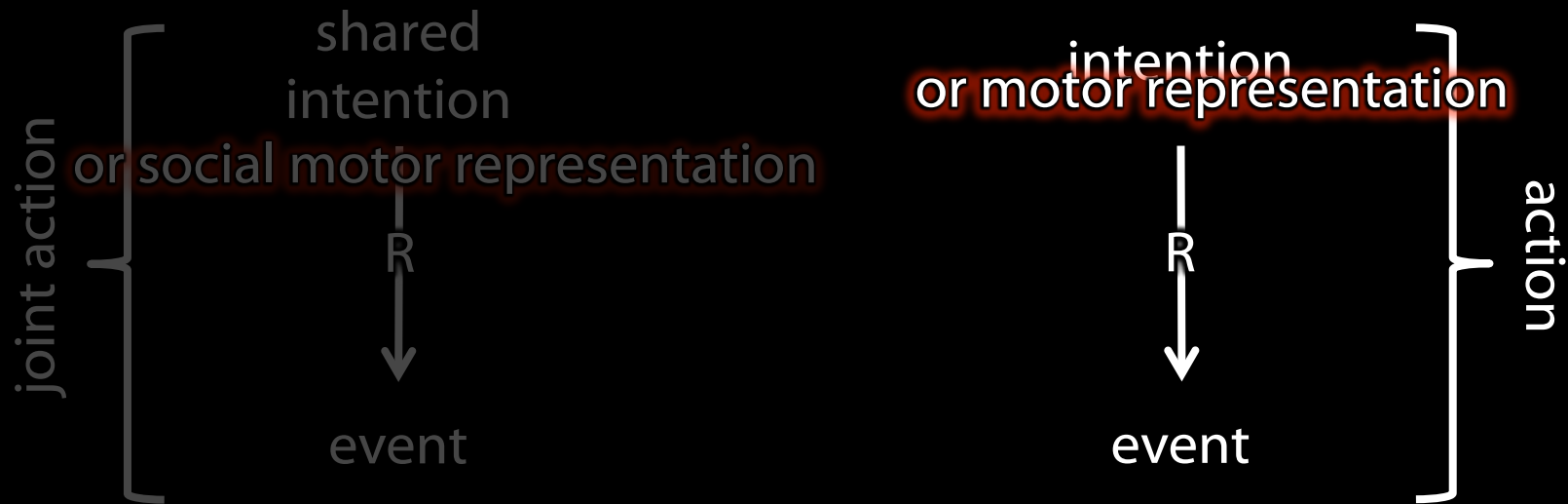
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Which events are ^{joint} actions?



Which events are joint actions?



Which events are joint actions?



***more cuts

question:

Which events are joint actions?

challenge:

How could social motor representation and shared intention harmoniously contribute to joint action?

premise:

Some joint actions are facilitated by

reciprocal,

agent-neutral

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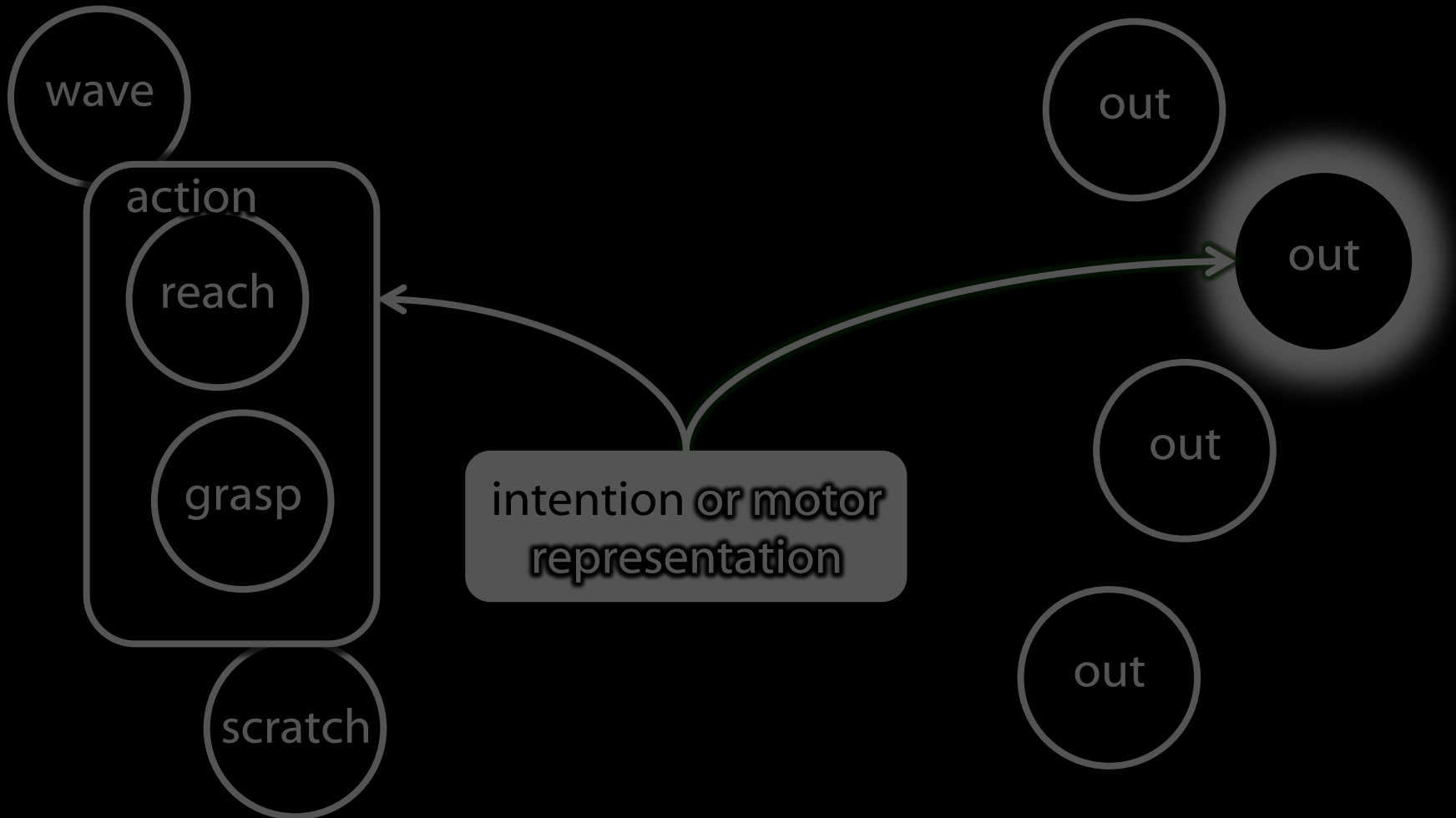
representations

of outcomes

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