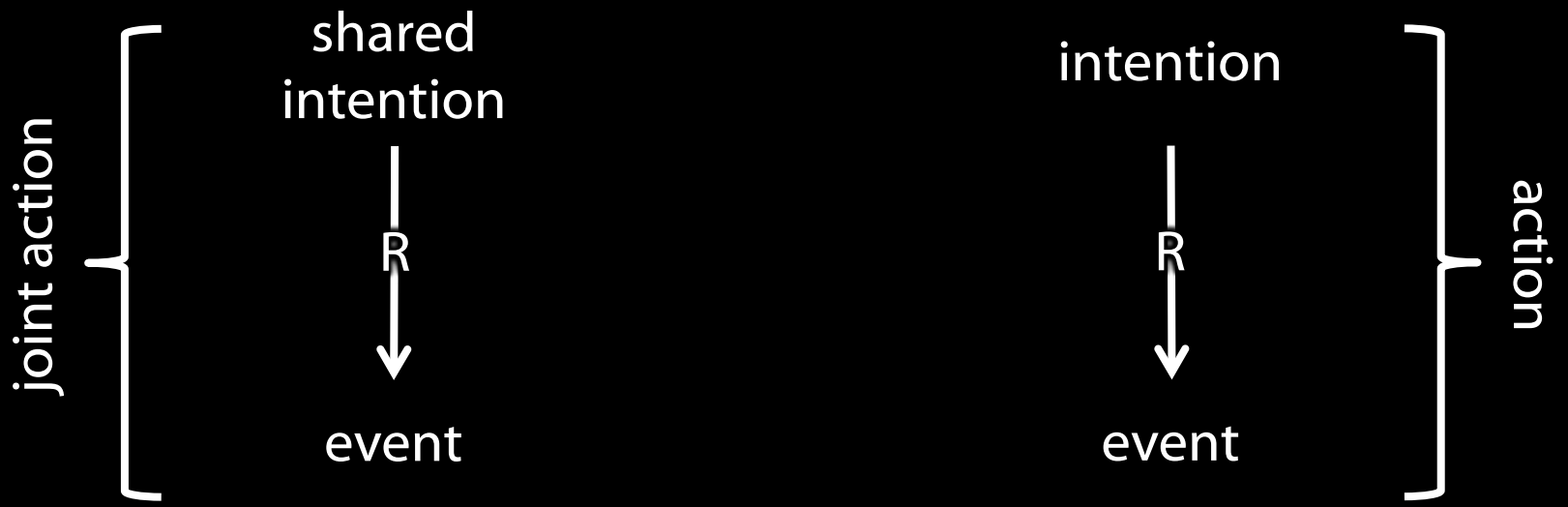
# Motor Representation and Shared Intention

s.butterfill@warwick.ac.uk

Which events are joint actions?



# Which events are joint actions?

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Some joint actions are facilitated by
reciprocal,
agent-neutral
motor
representations
of outcomes
whose obtaining would normally involve action
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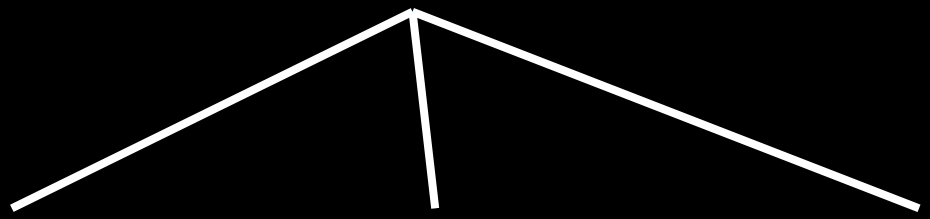
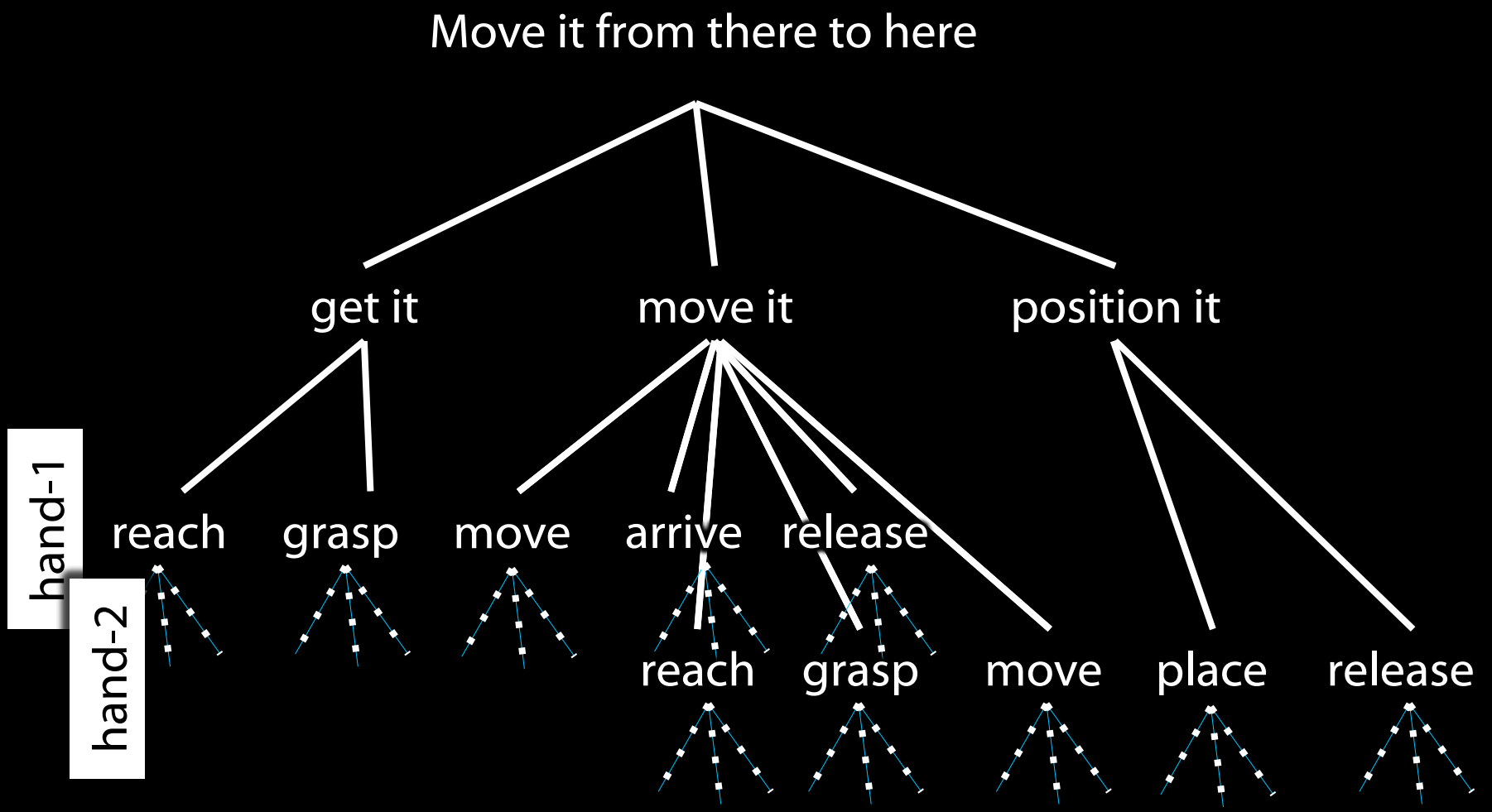
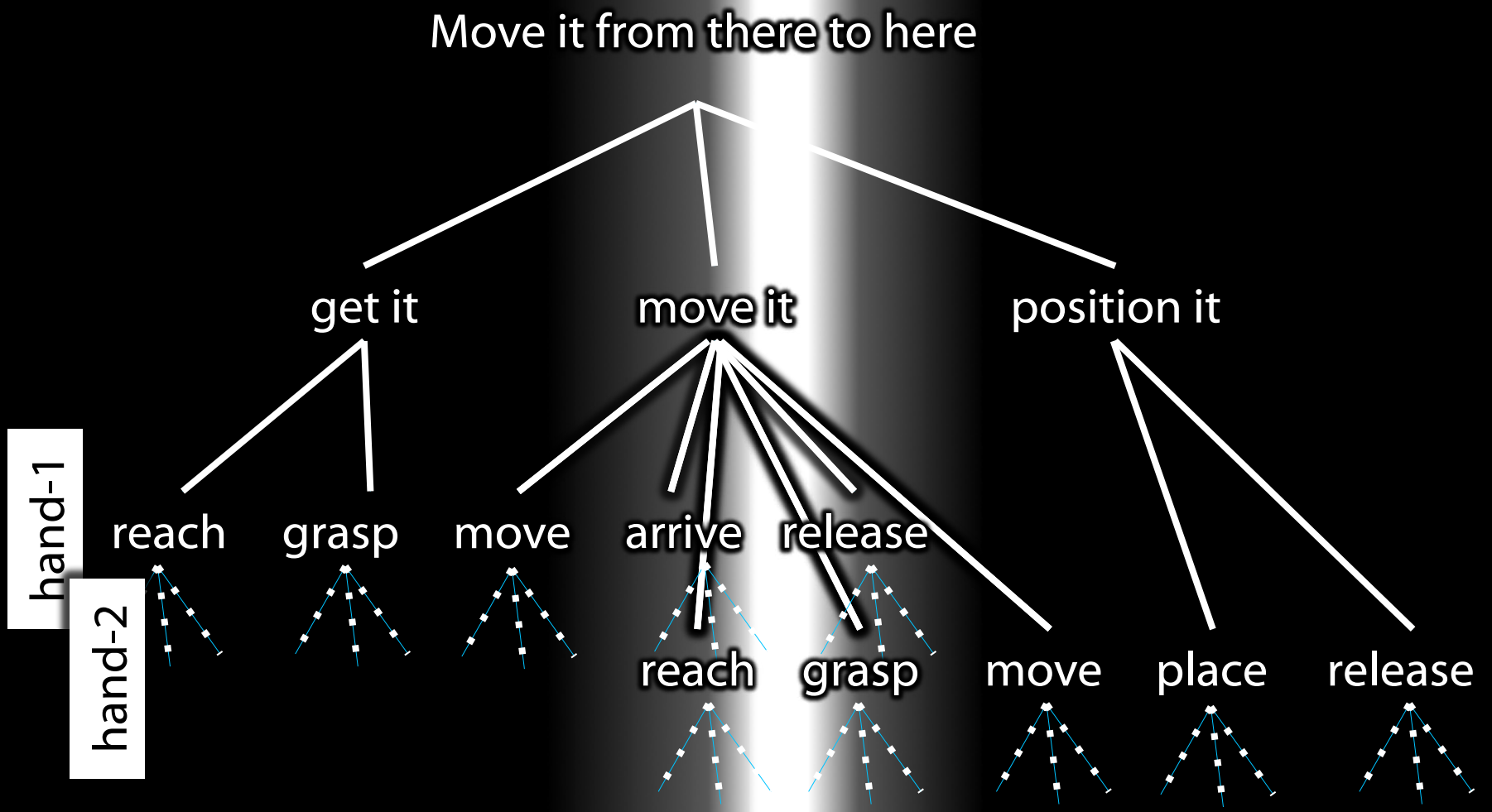
How could social motor representation facilitate any joint action?

Move it from there to here




Move it from there to here
get it
move it
position it
hand-1
hand-2
reach
grasp
move
arrive
release
reach
grasp
move
place
release


Move it from there to here
get it
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position it
hand-1
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reach
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move
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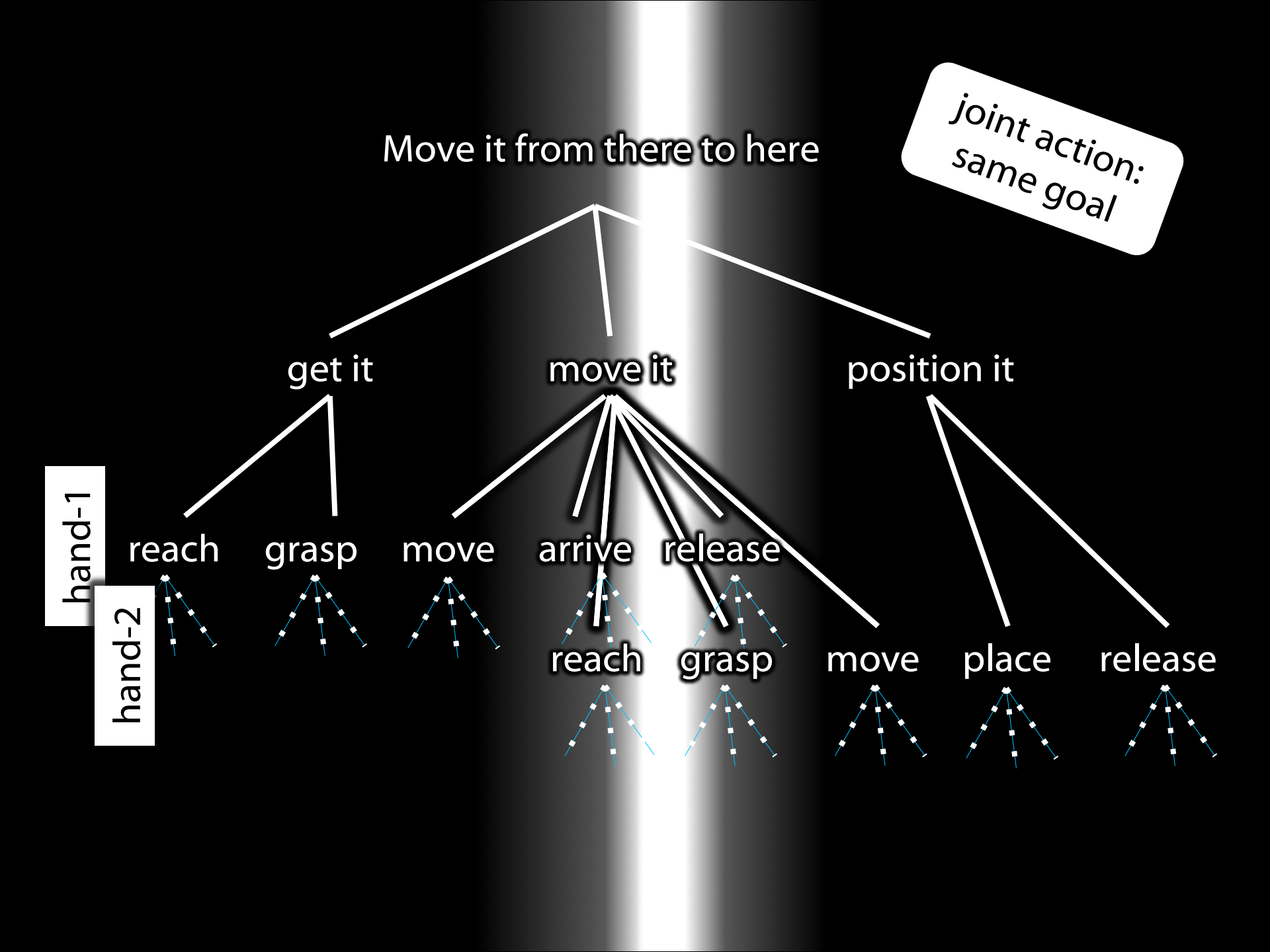
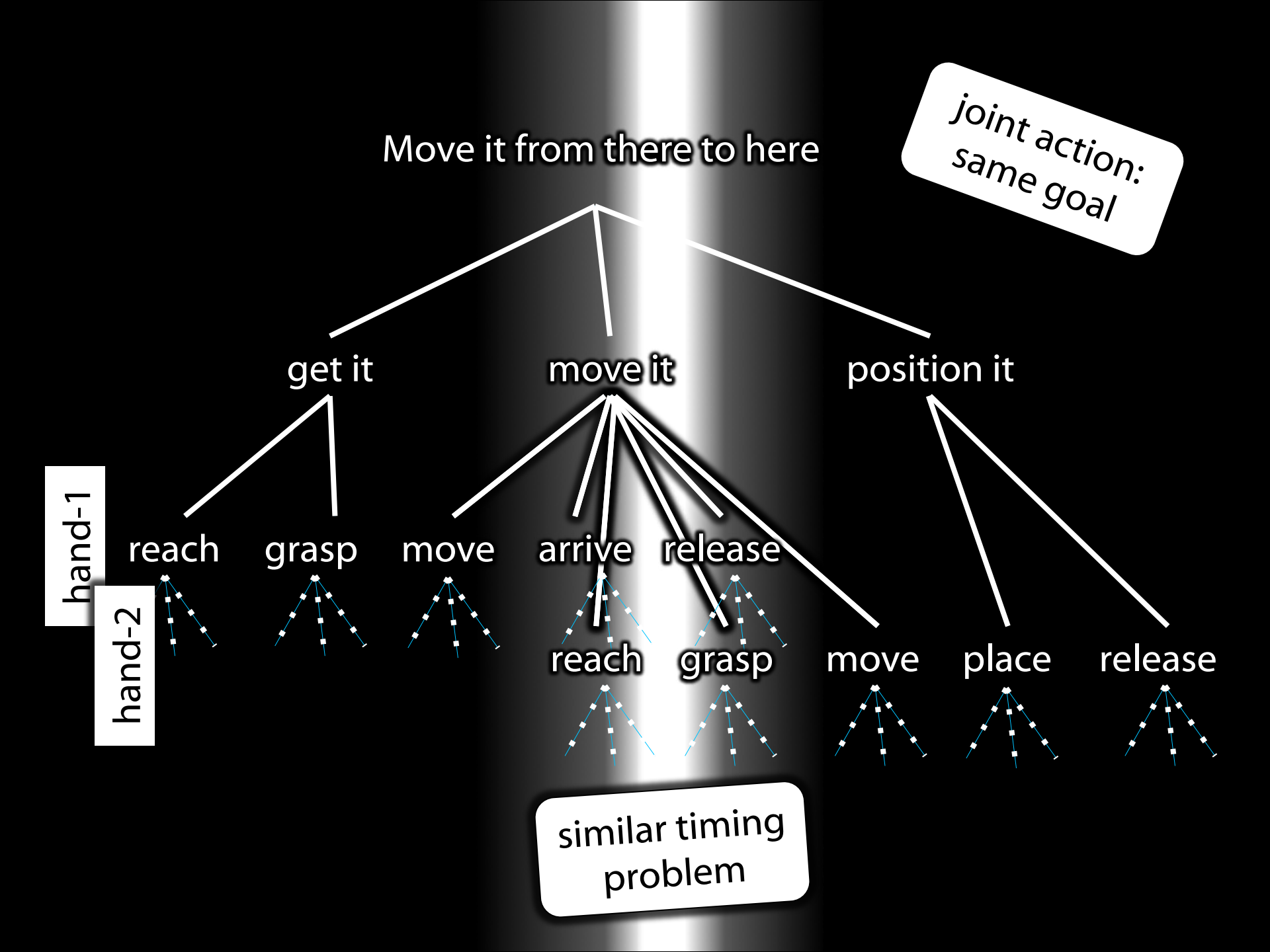
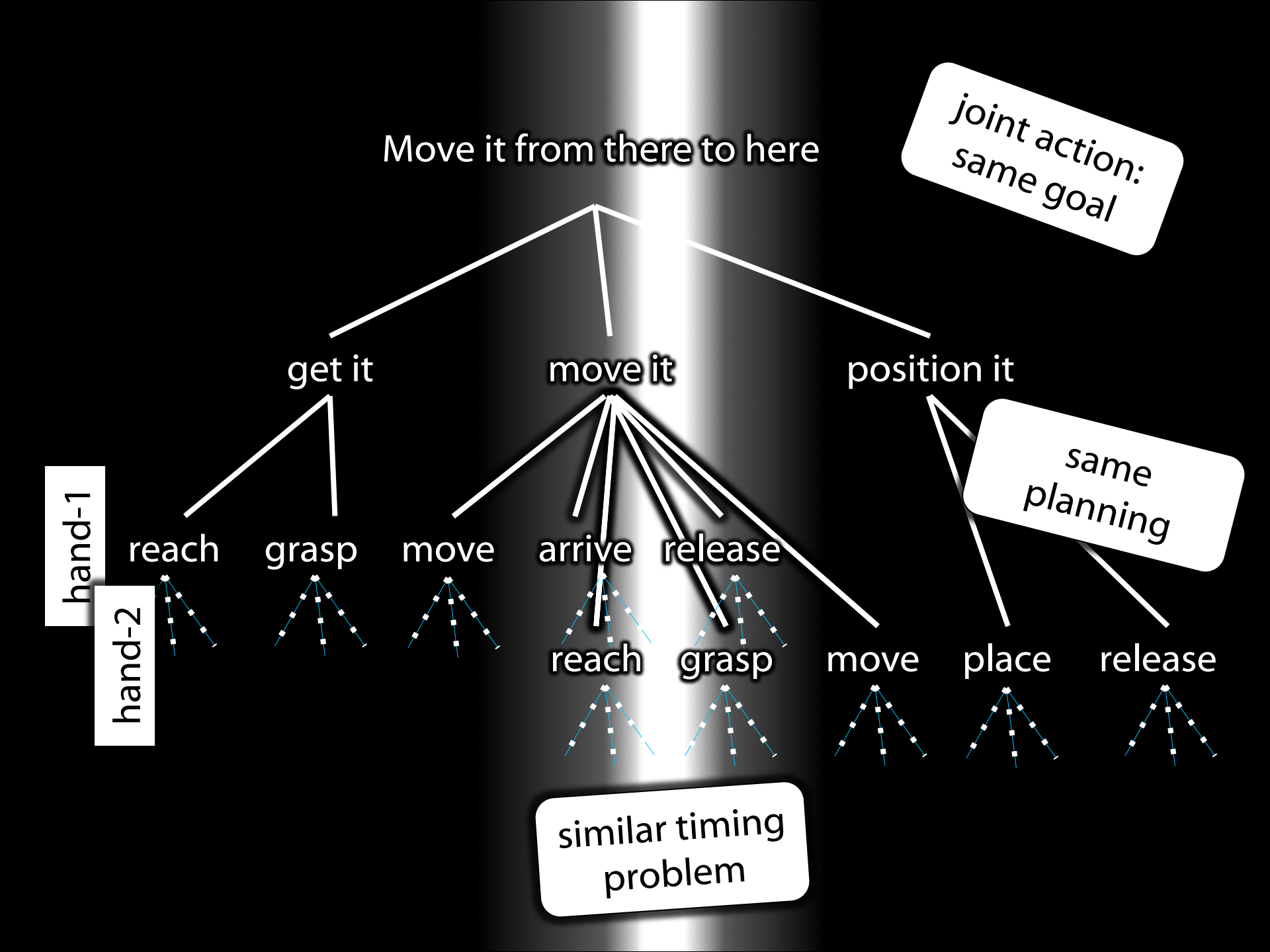
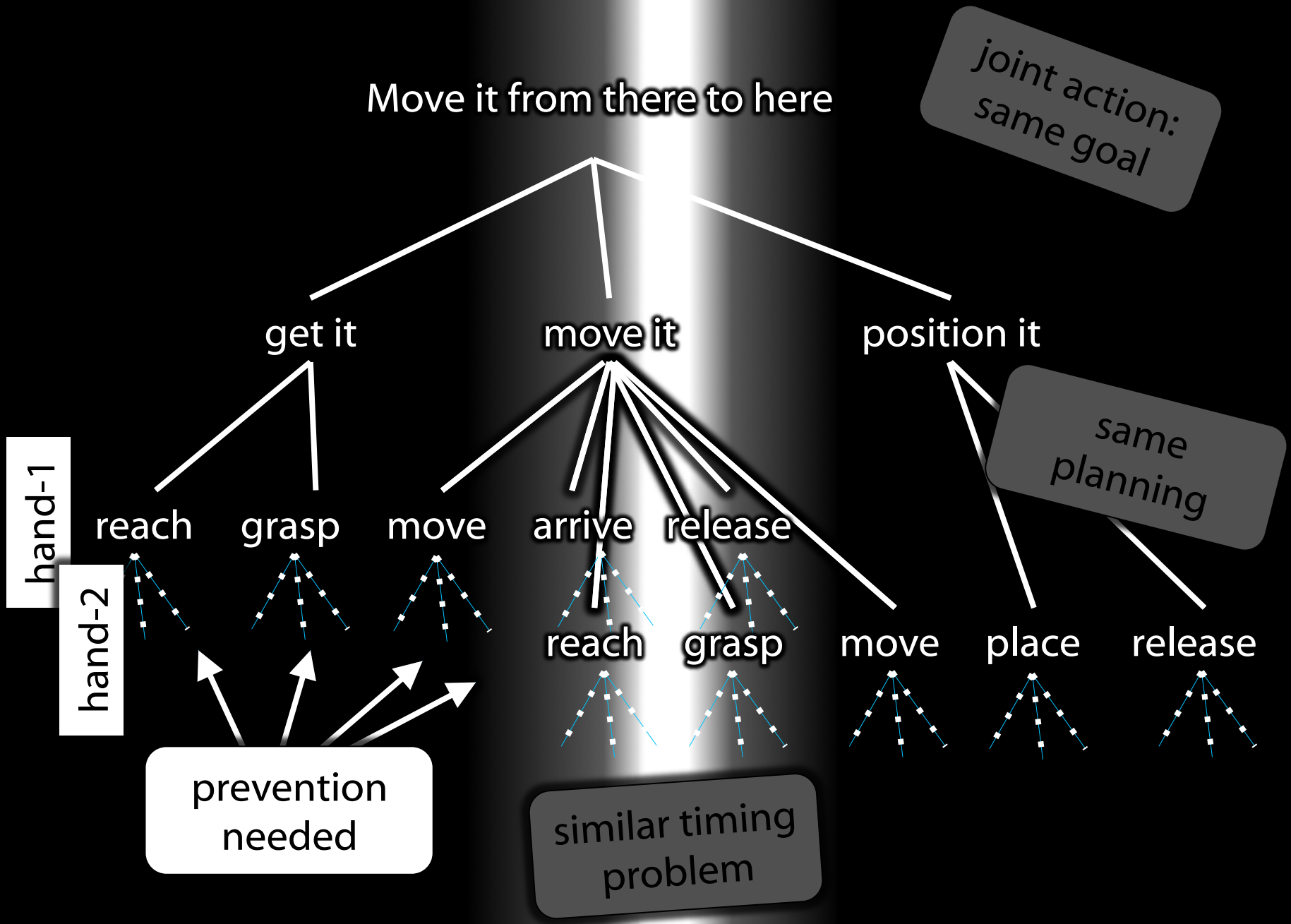
release


Move it from there to here
joint action: same goal
get it
move it
position it
hand-1
hand-2
reach
grasp
move
arrive
release
reach
grasp
move
place
release


Move it from there to here
joint action: same goal
get it
move it
position it
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
similar timing problem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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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prevention needed
similar timing problem

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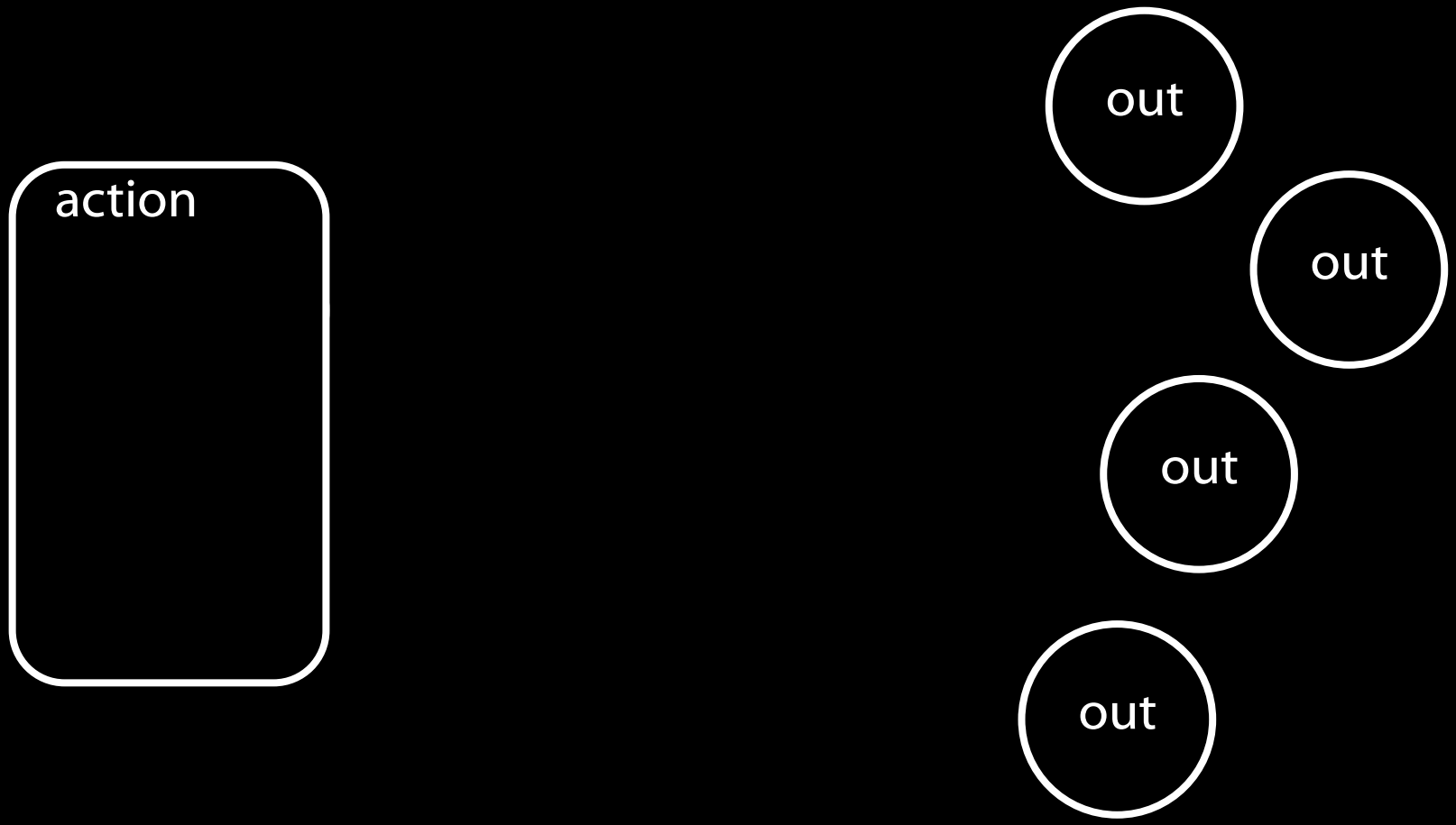
challenge:
How could social motor representation and shared intention harmoniously contribute to joint action?

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



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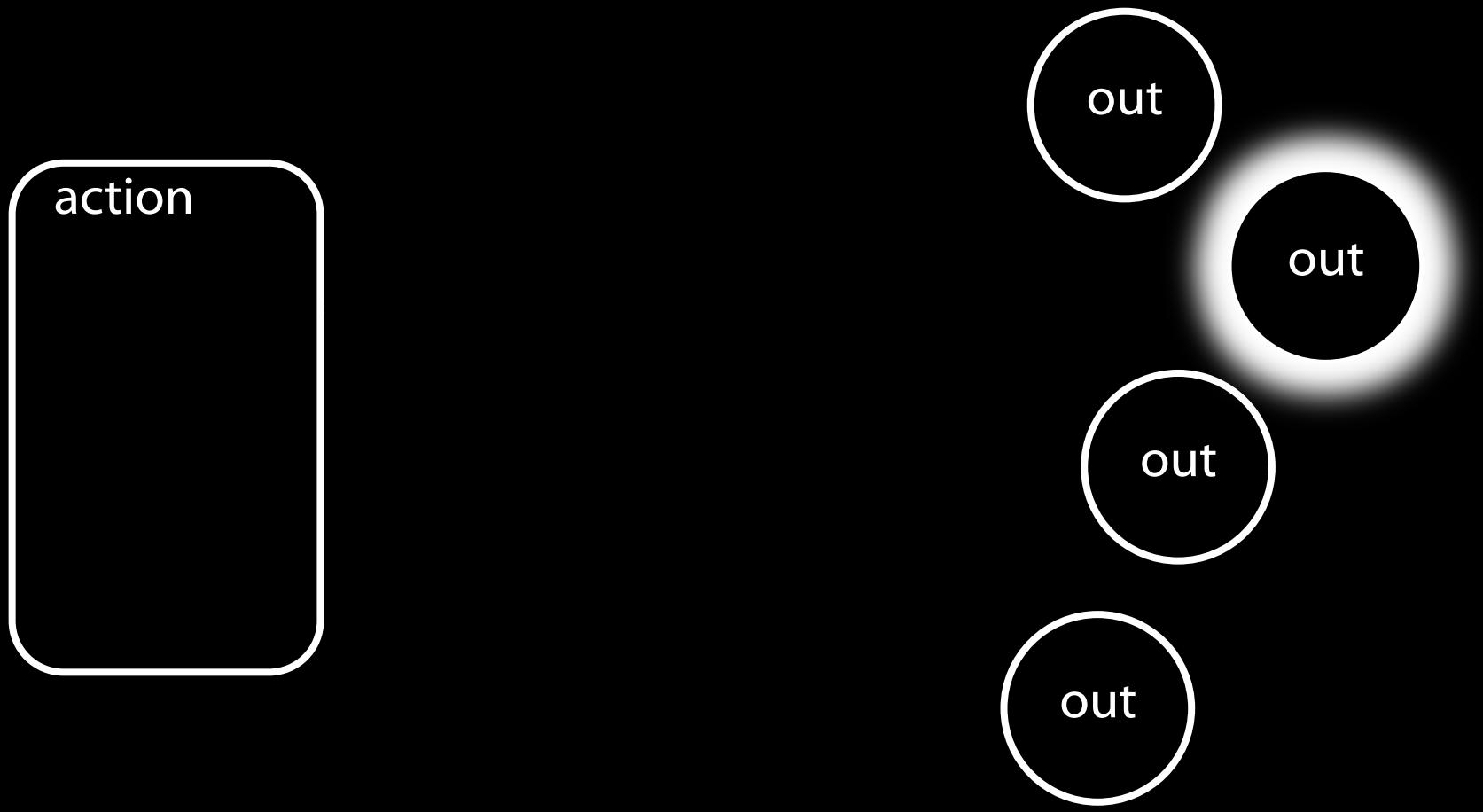

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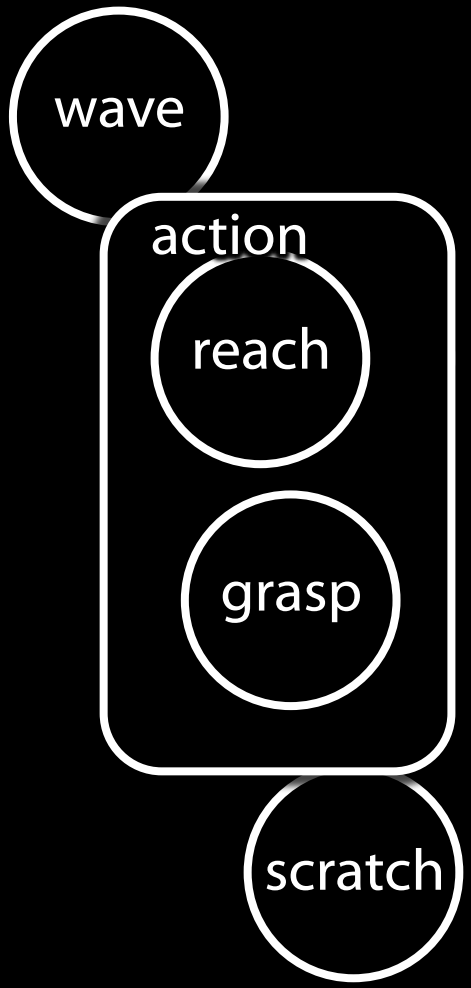


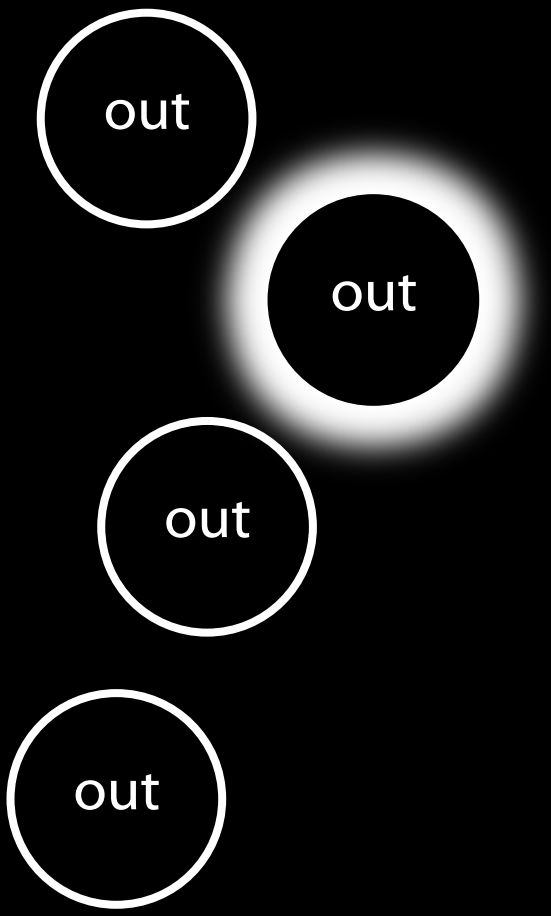

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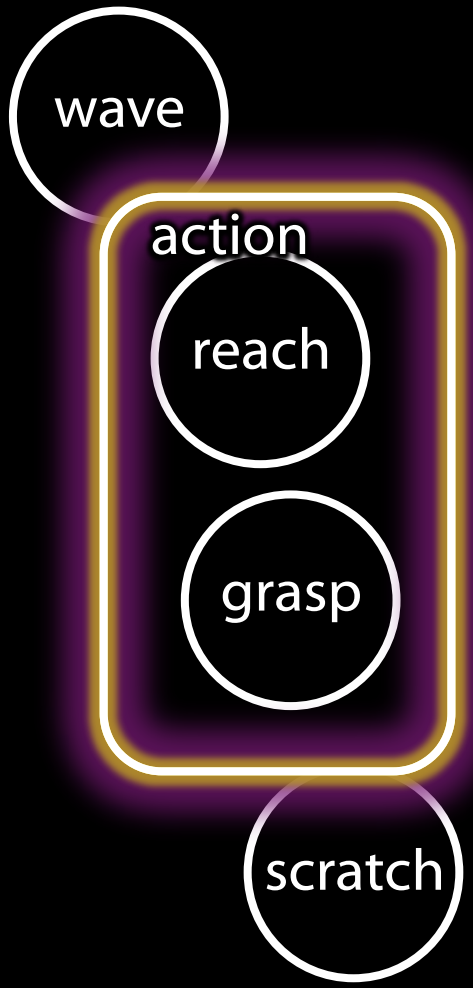


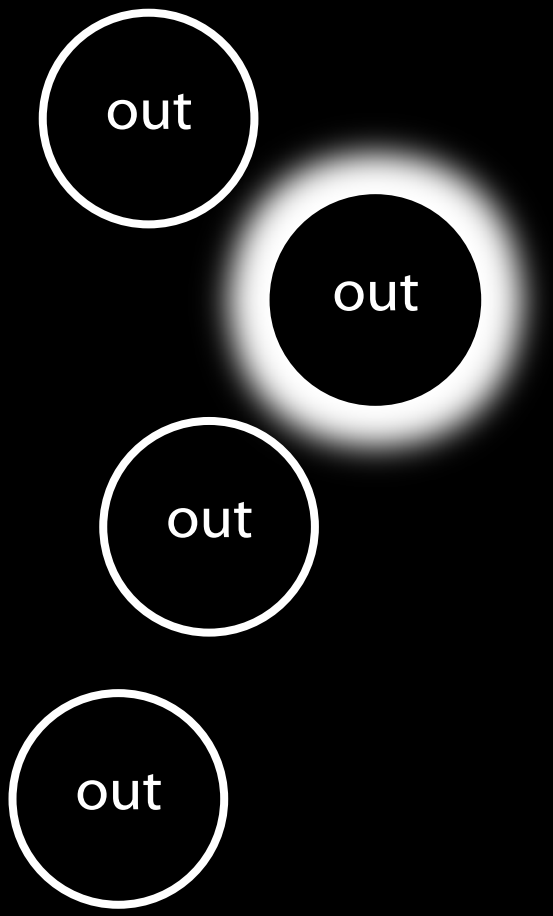

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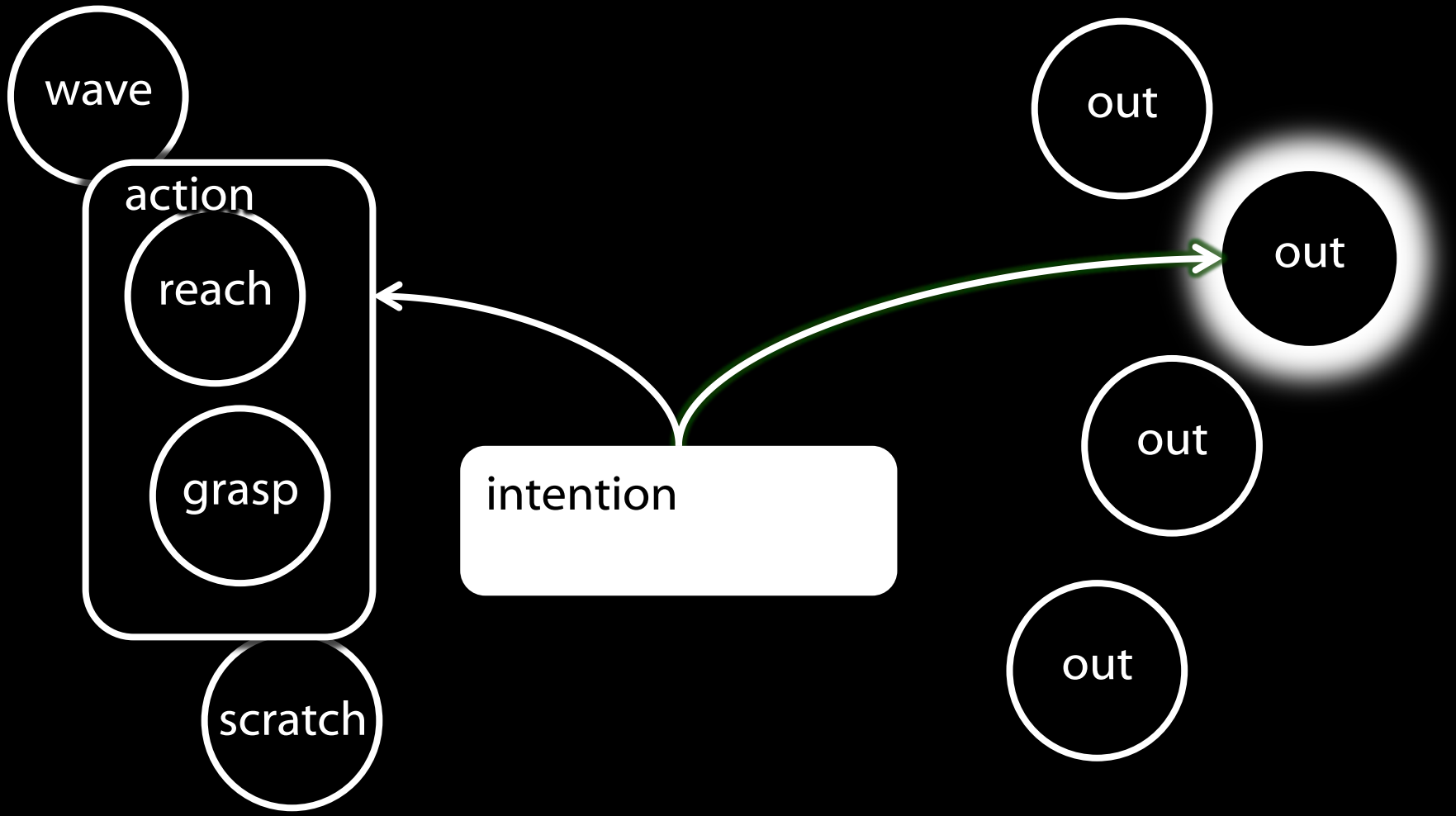

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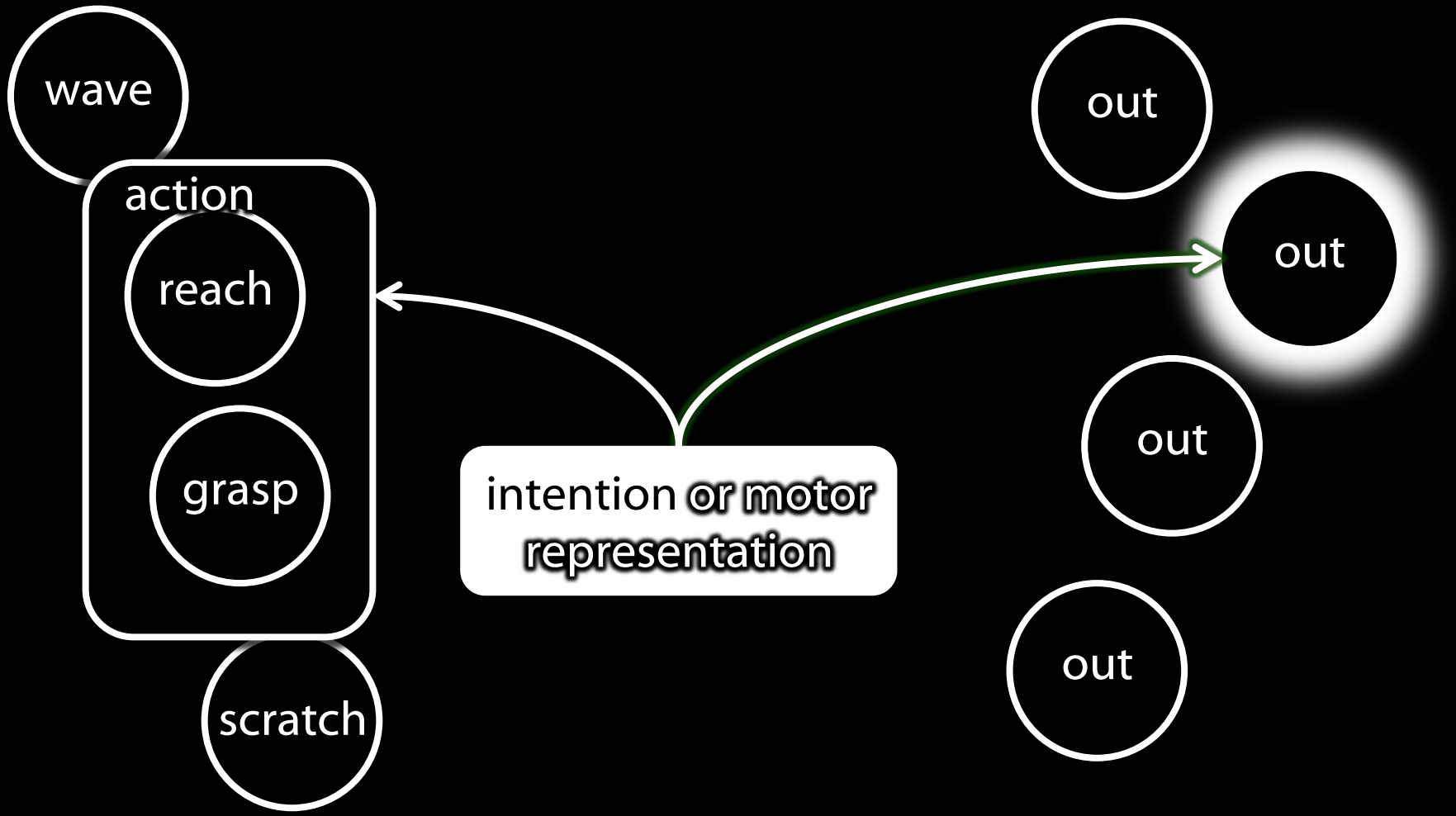

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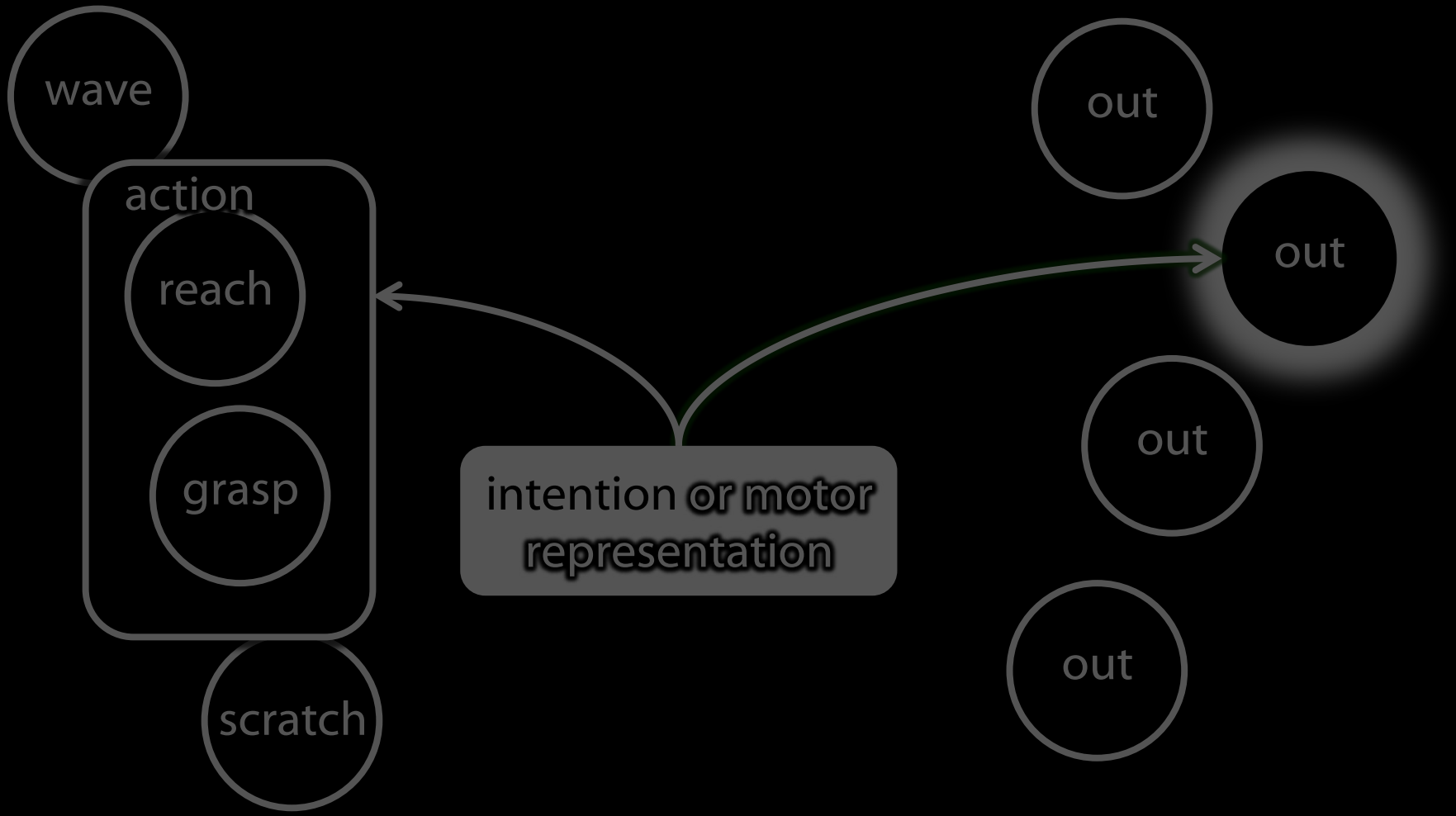

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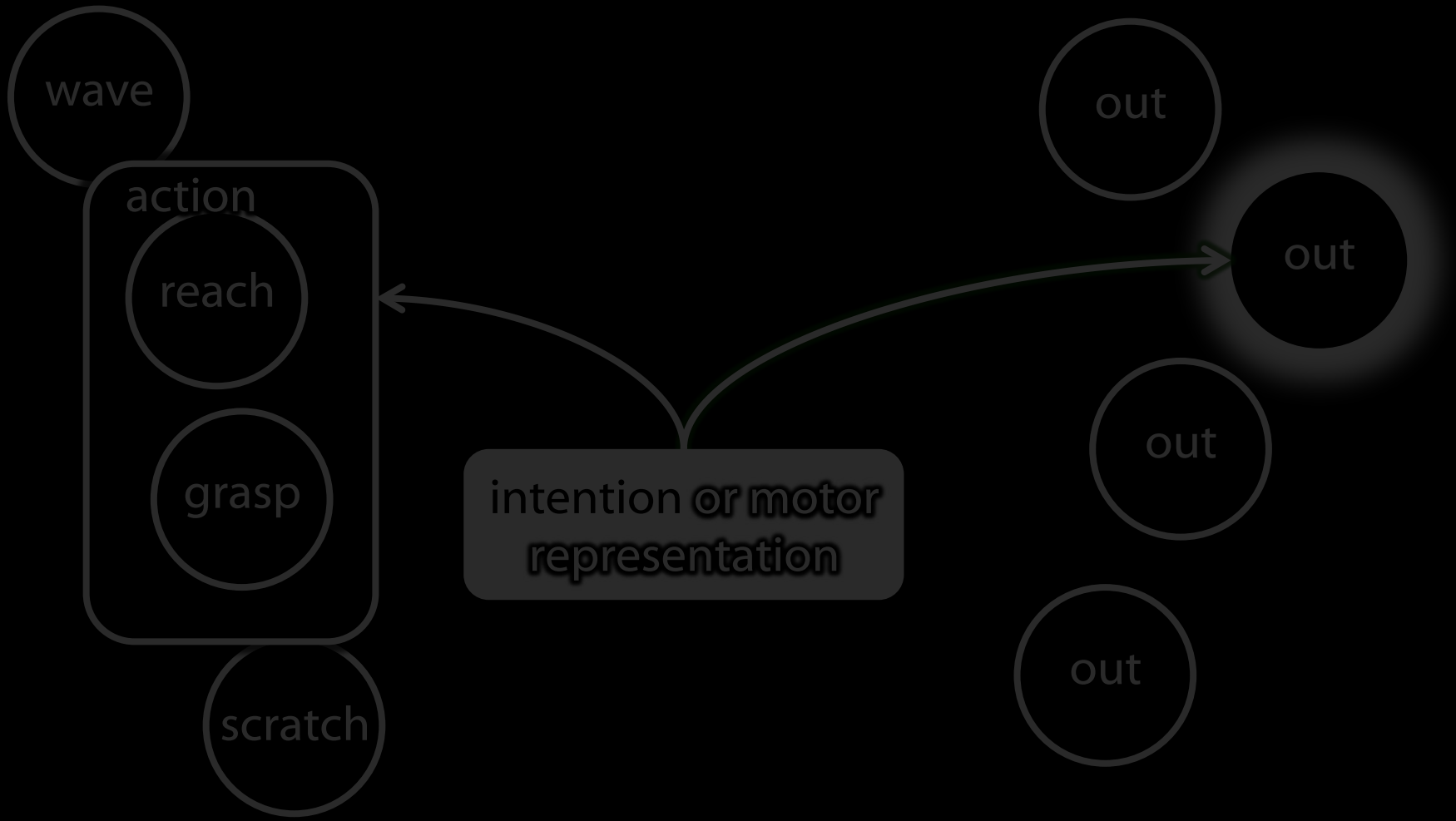

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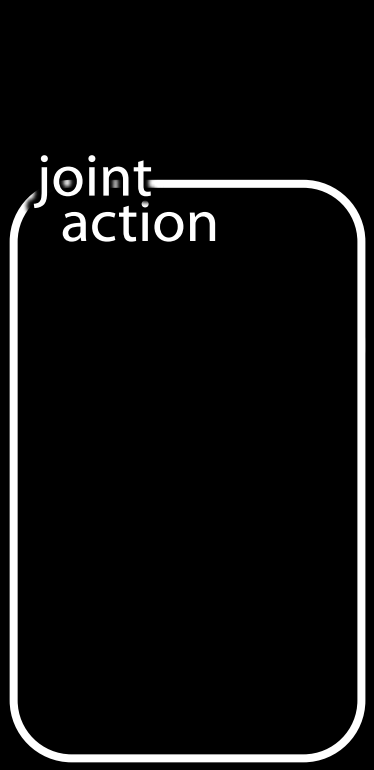


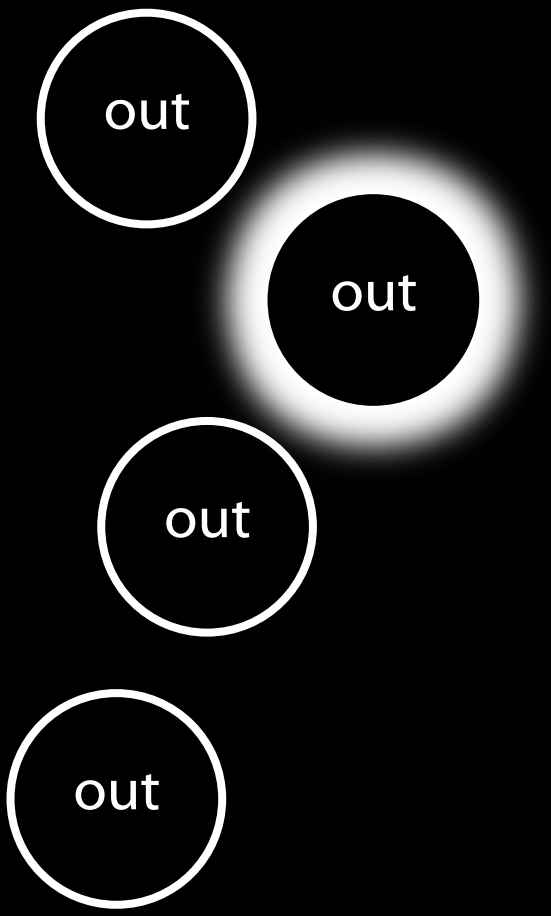

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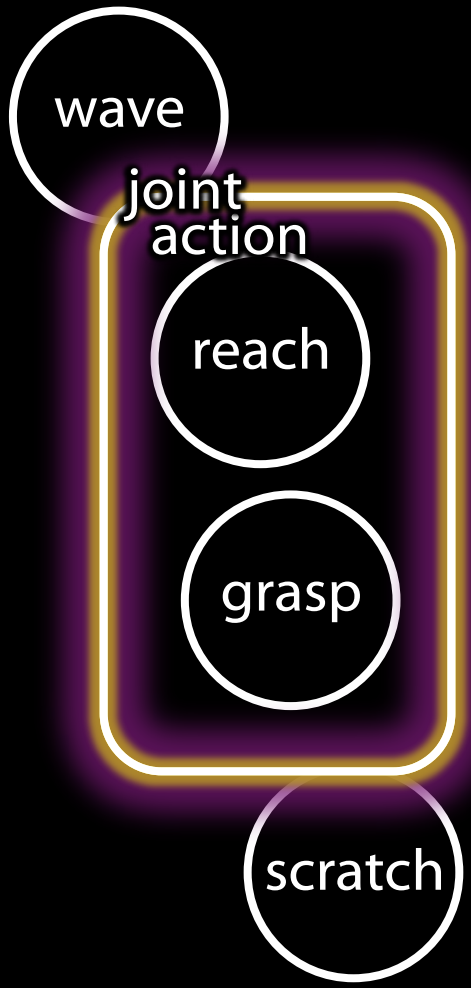


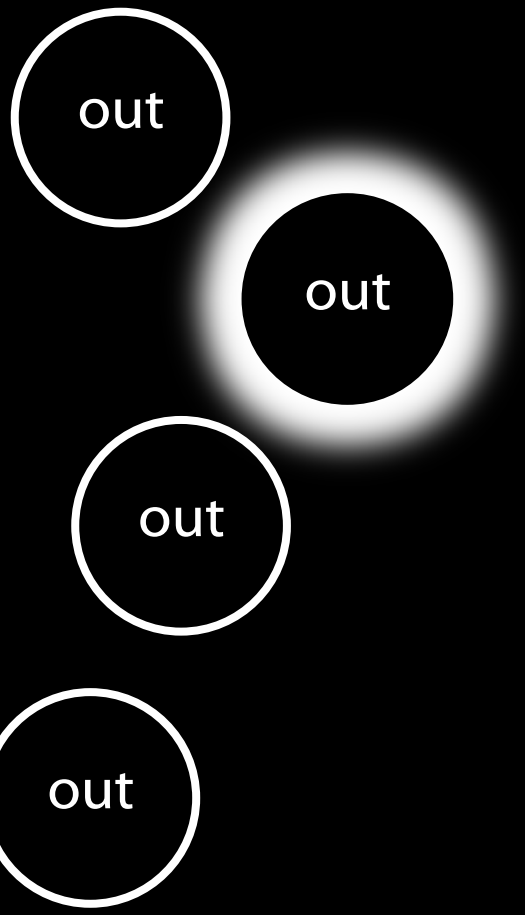

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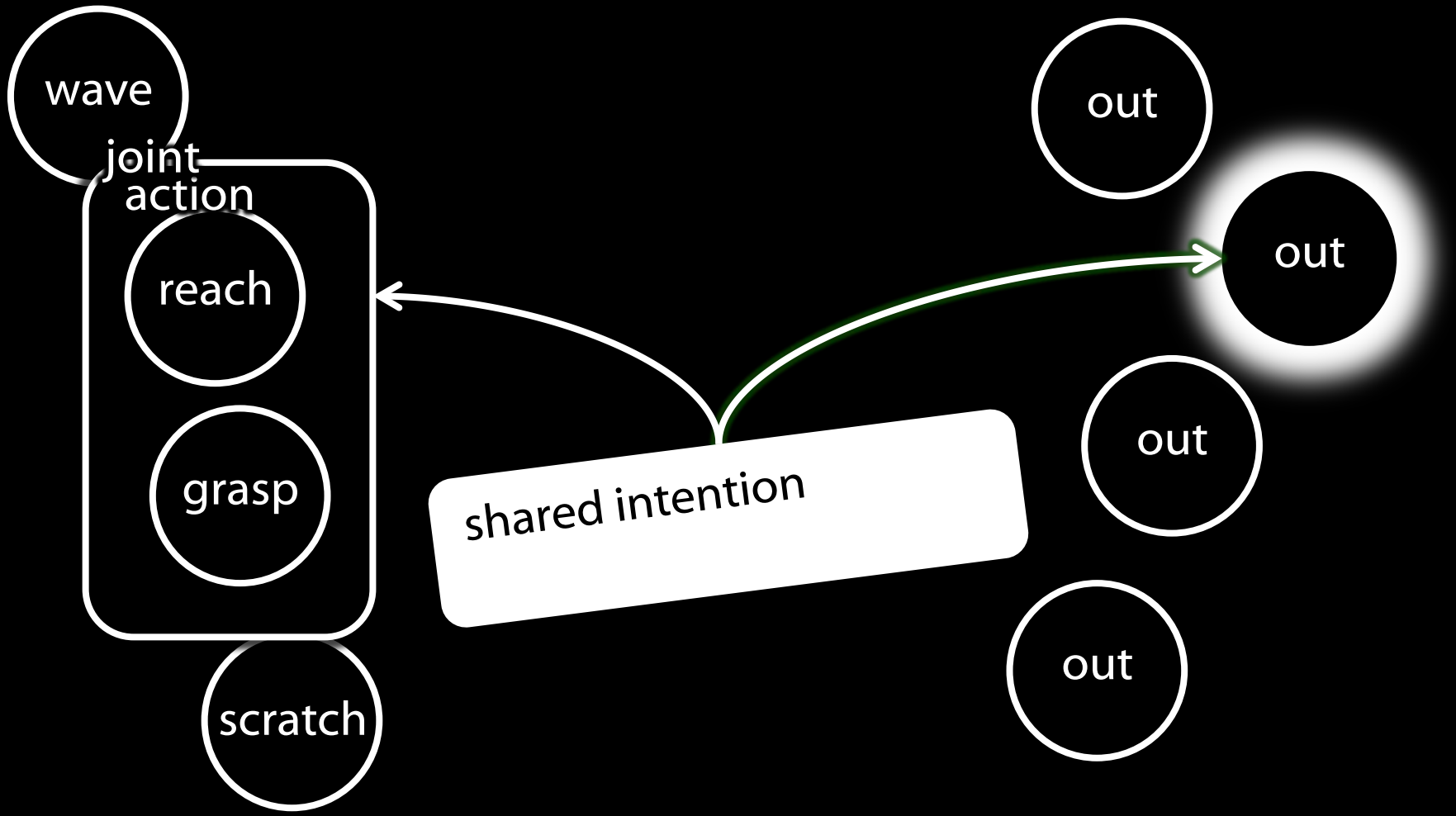

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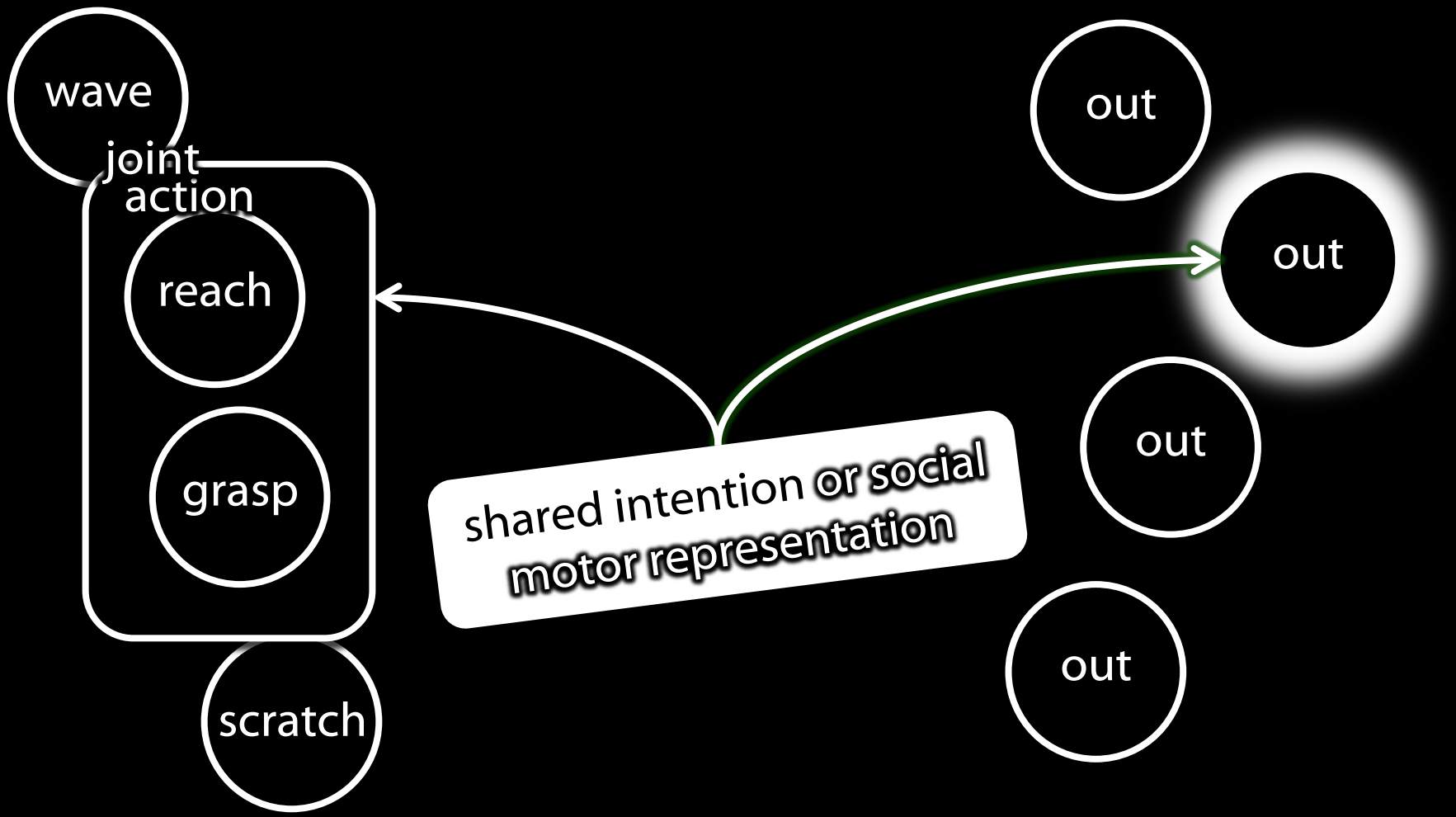

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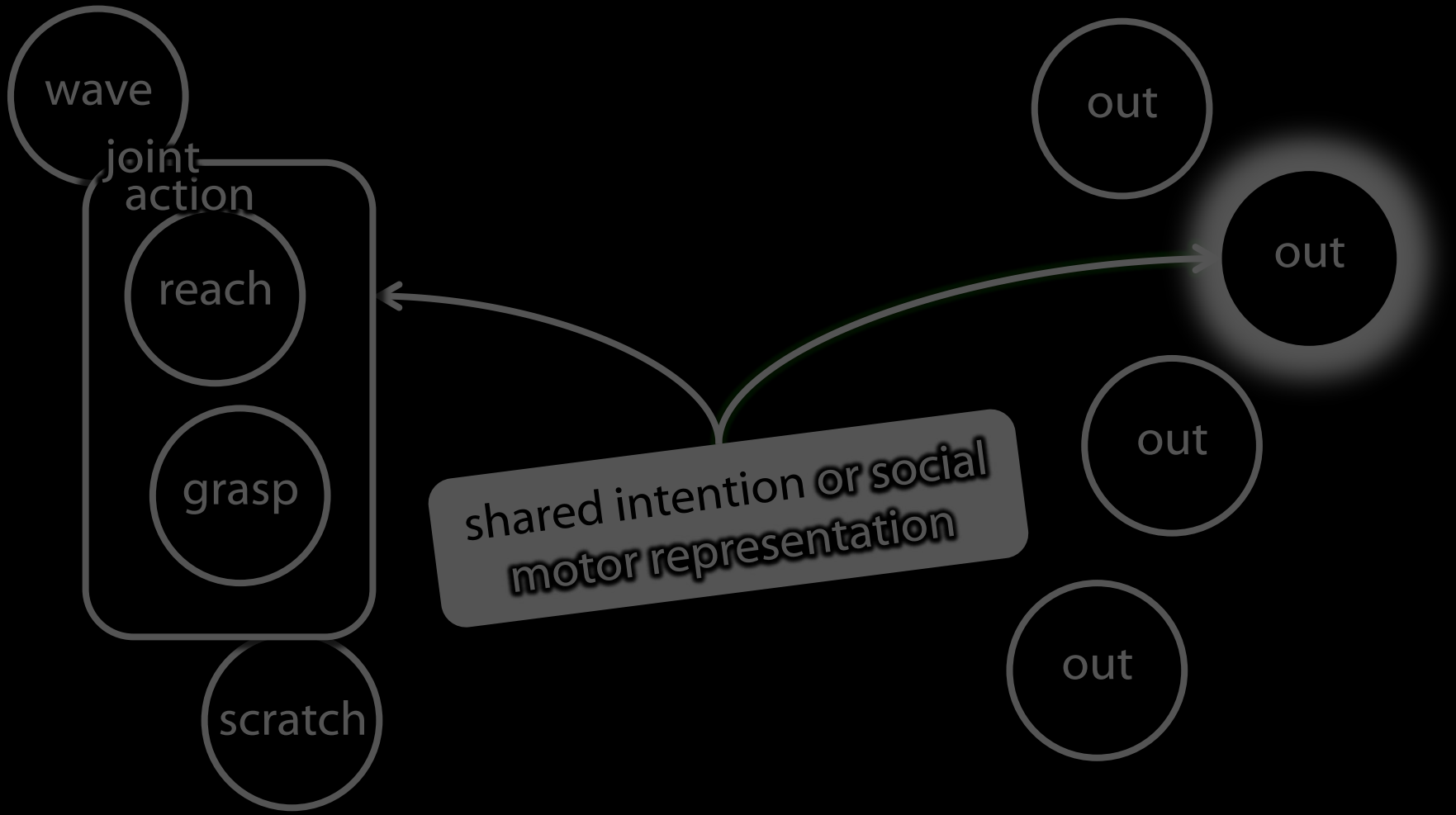

Sufficient conditions

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] …

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premise:
Reciprocal agent-neutral motor representation enables some joint actions

question:
Does reciprocal agent-neutral motor representation also play a role in explaining what joint action is? [Yes]

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

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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."

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

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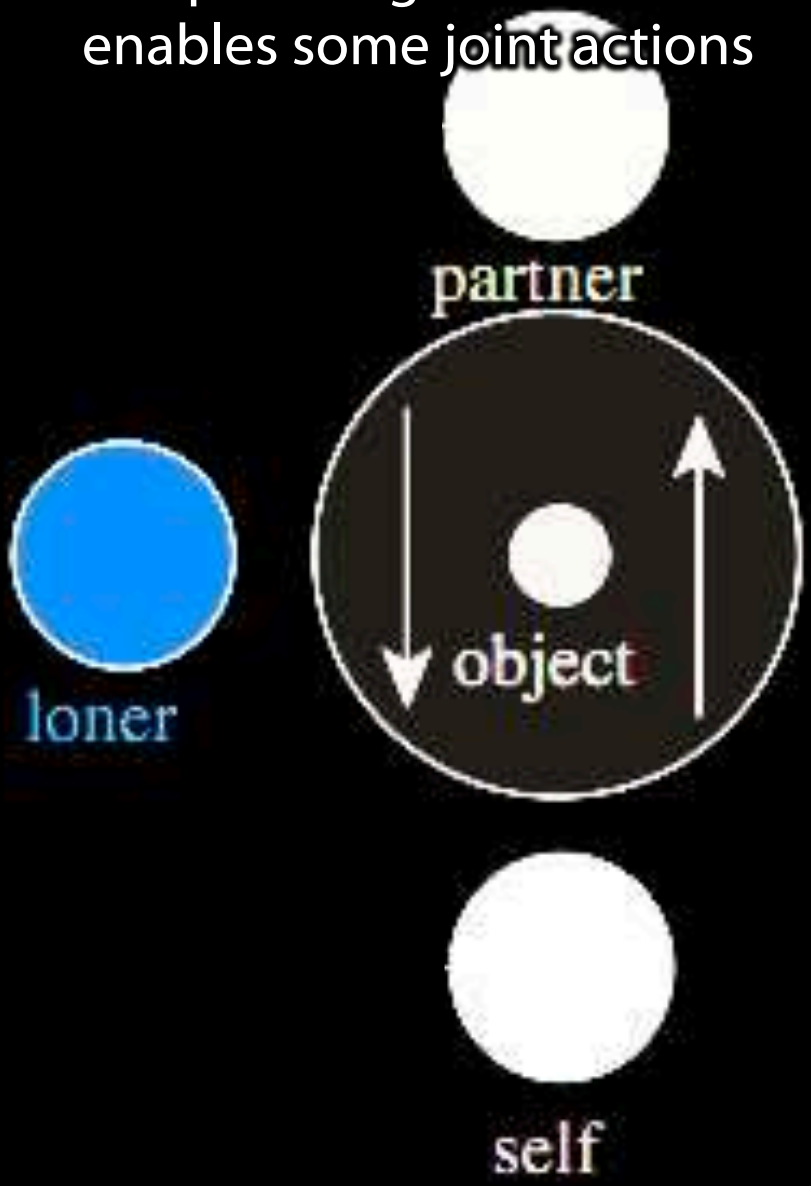


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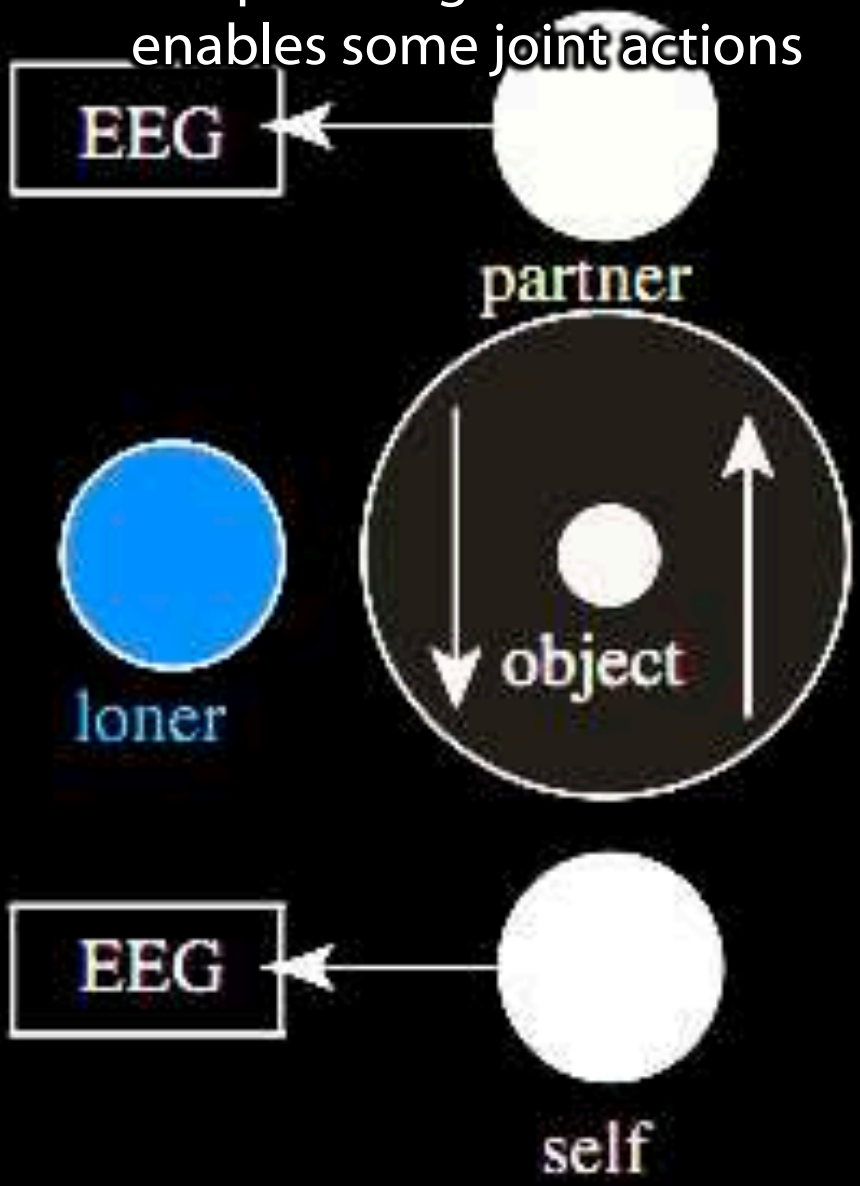


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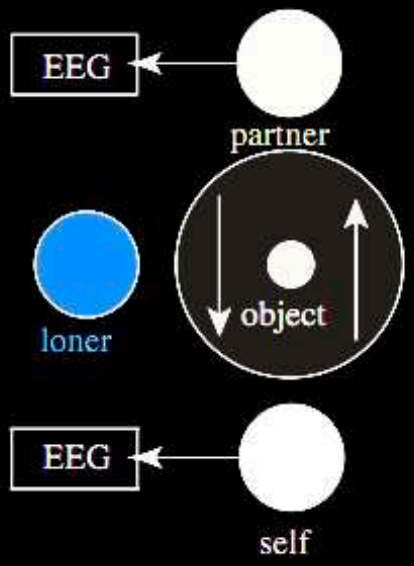
(a)

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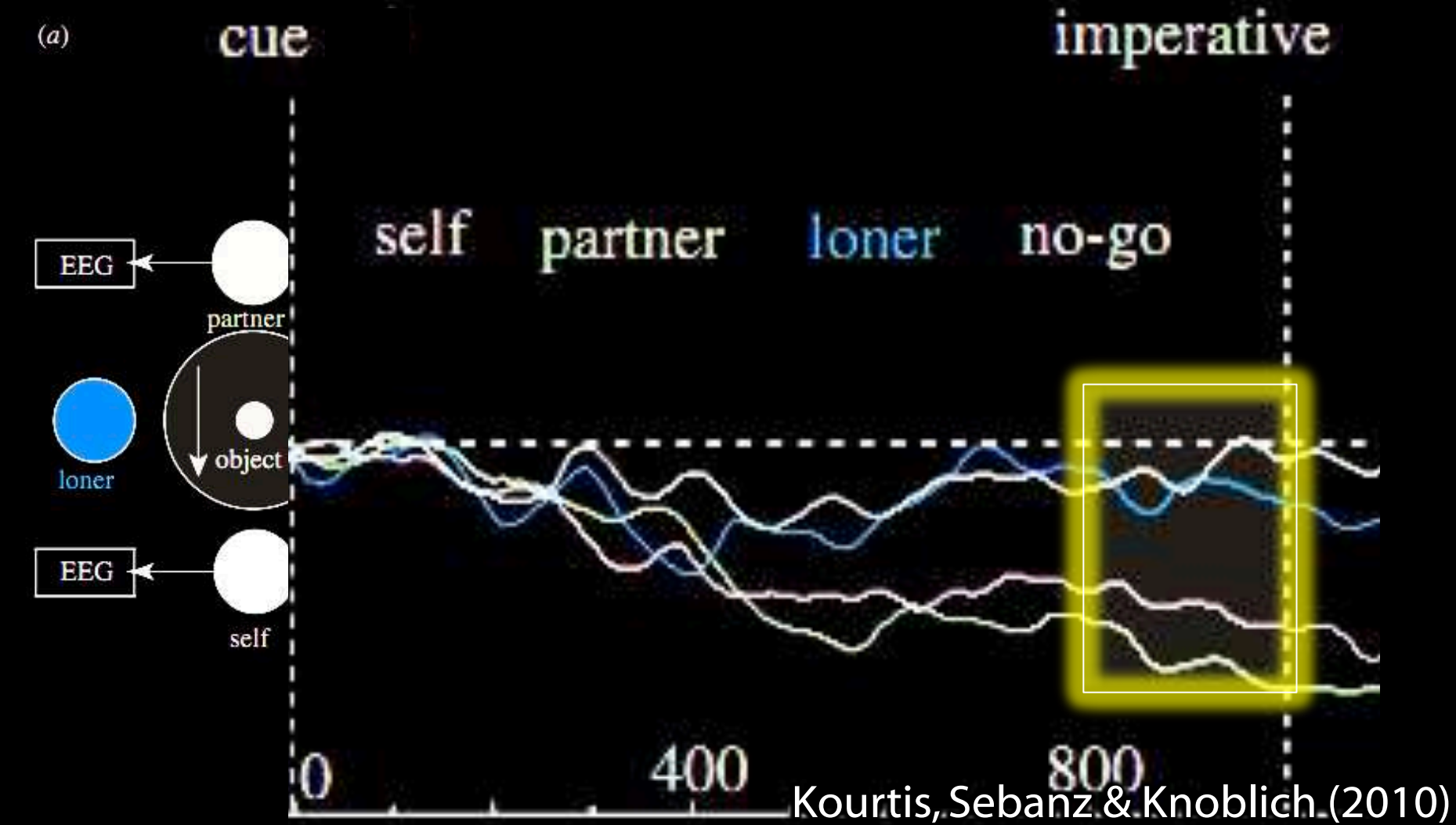


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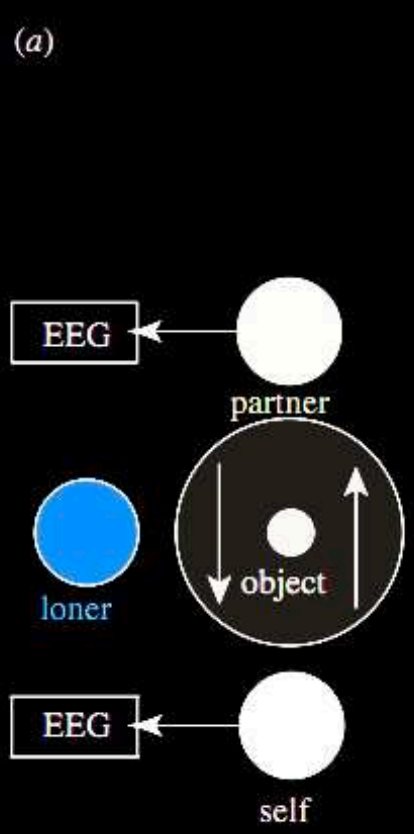


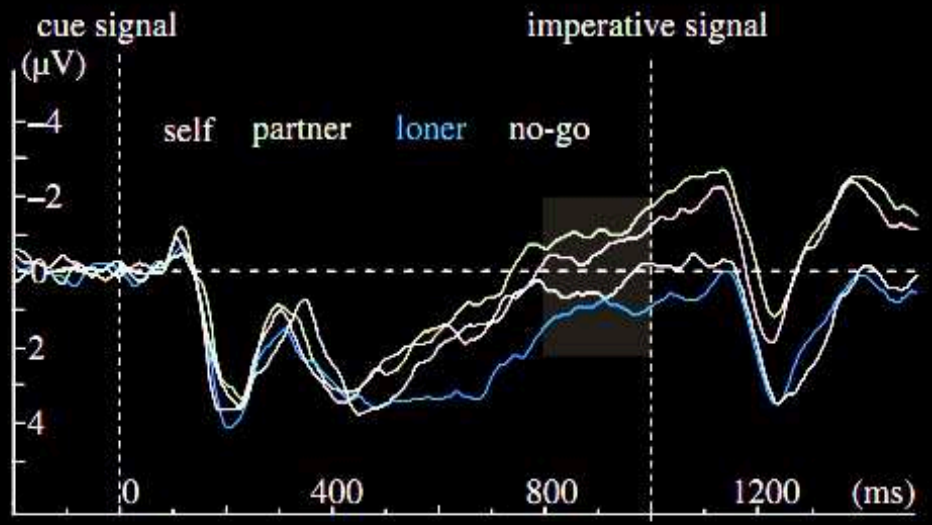


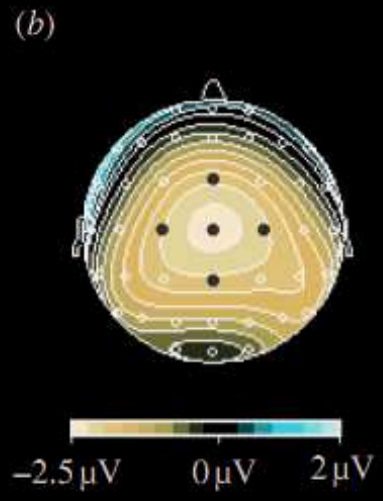


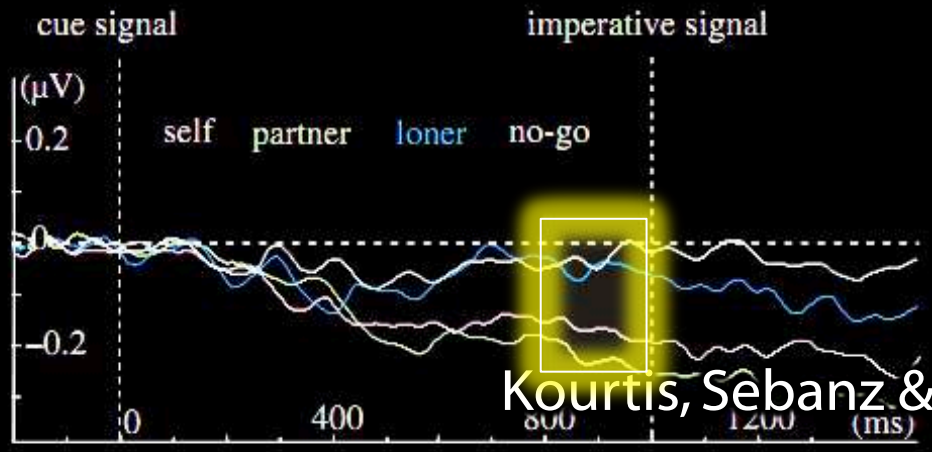

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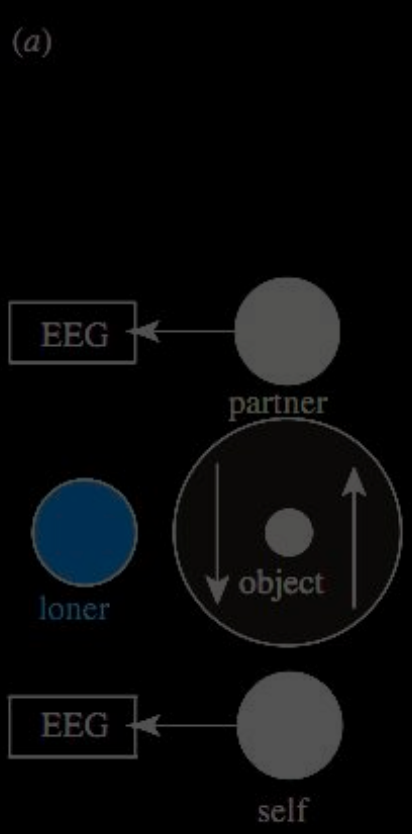


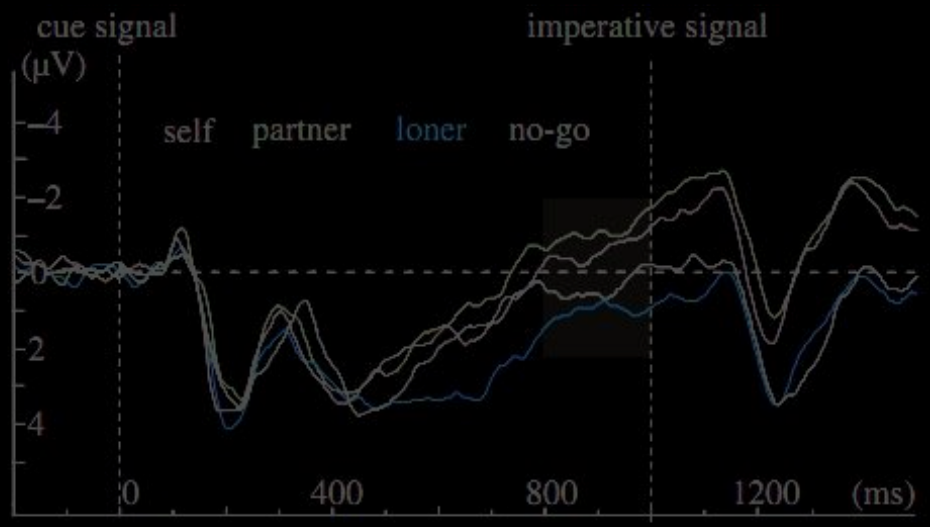


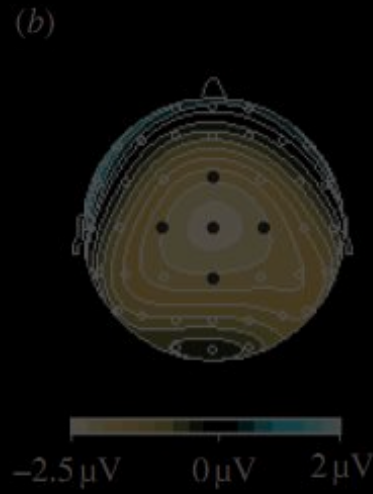


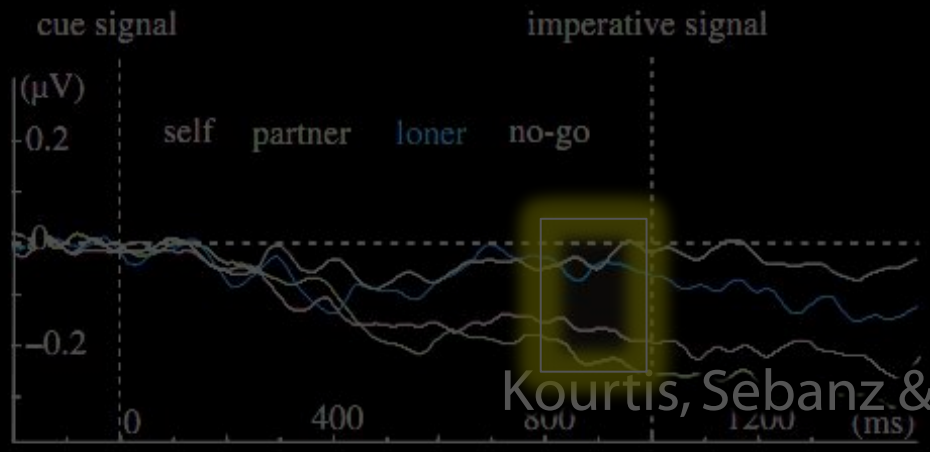

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*Kourtis et al., subm.*

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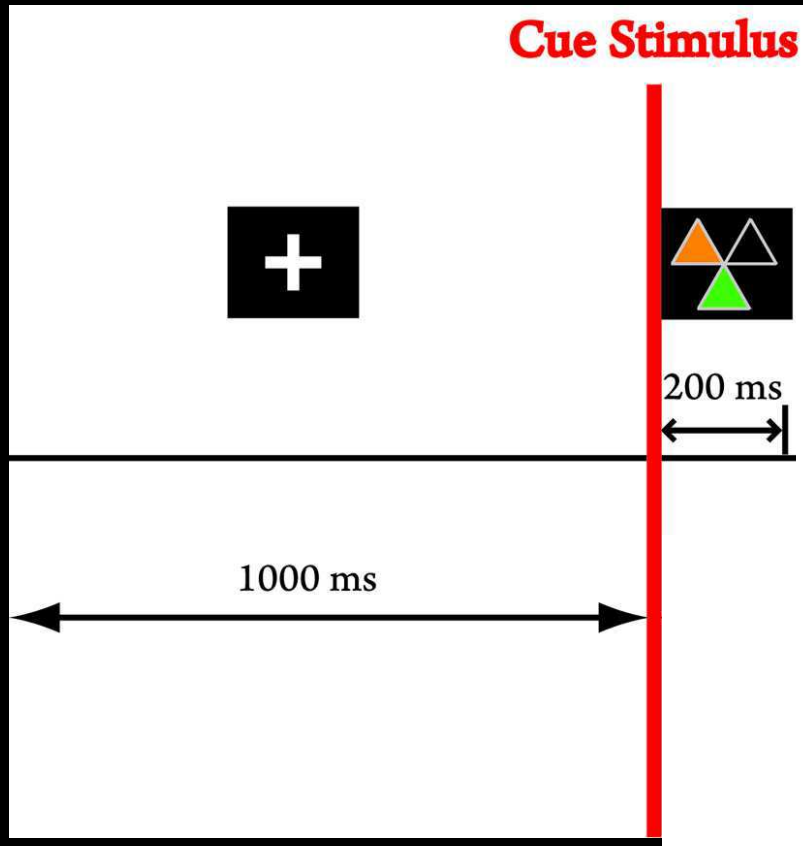

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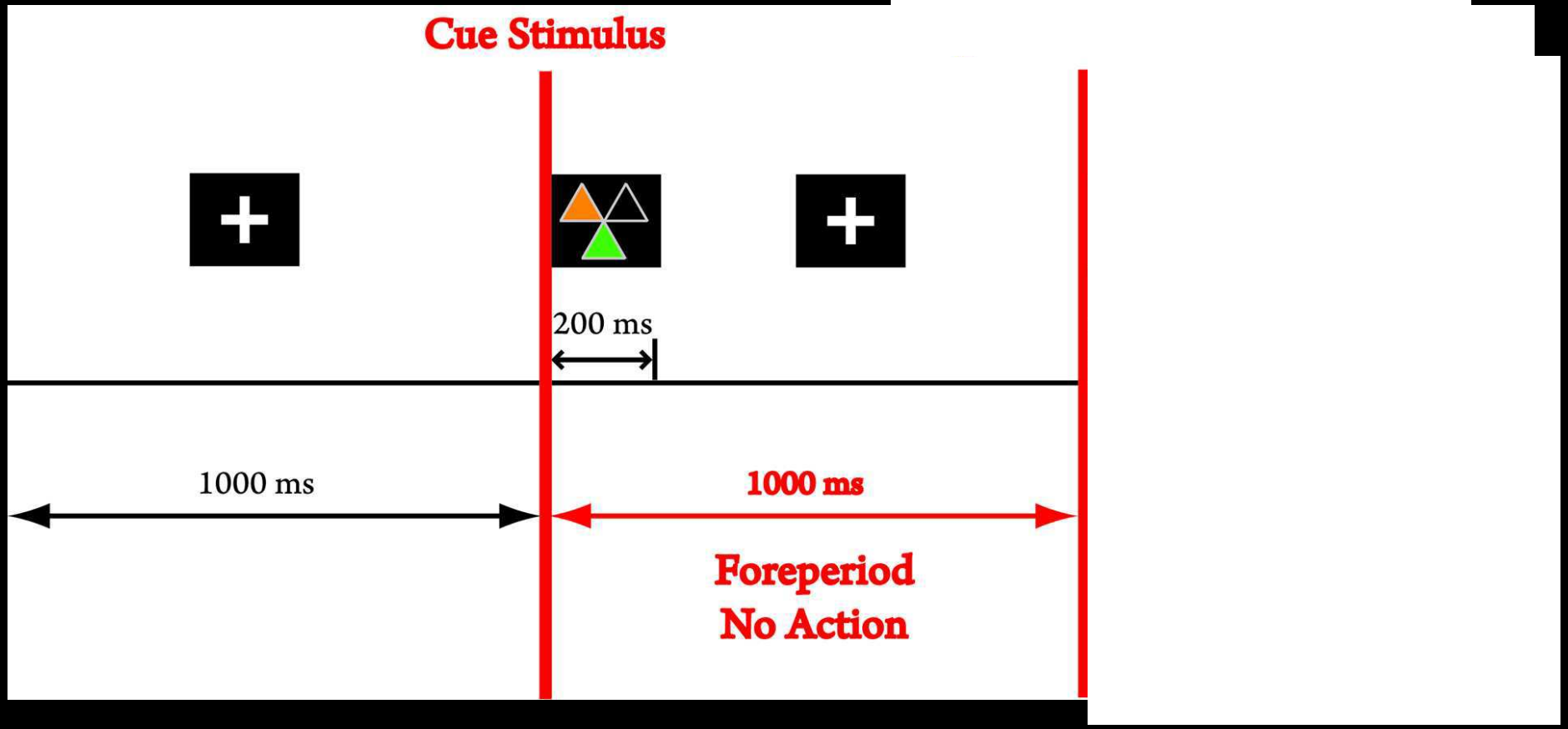

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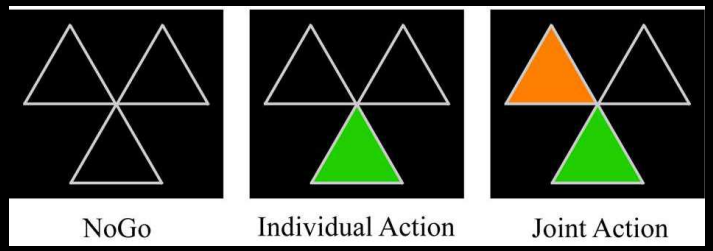
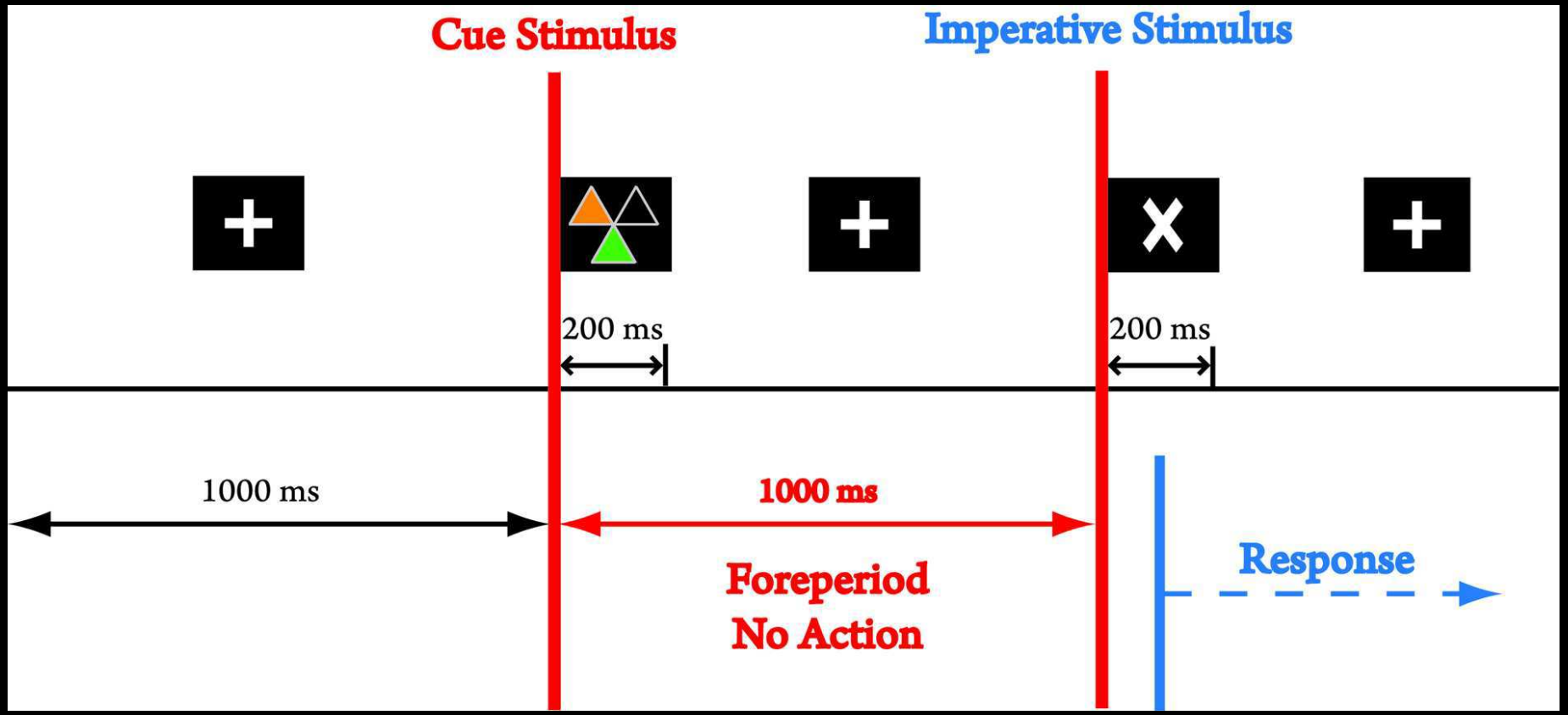
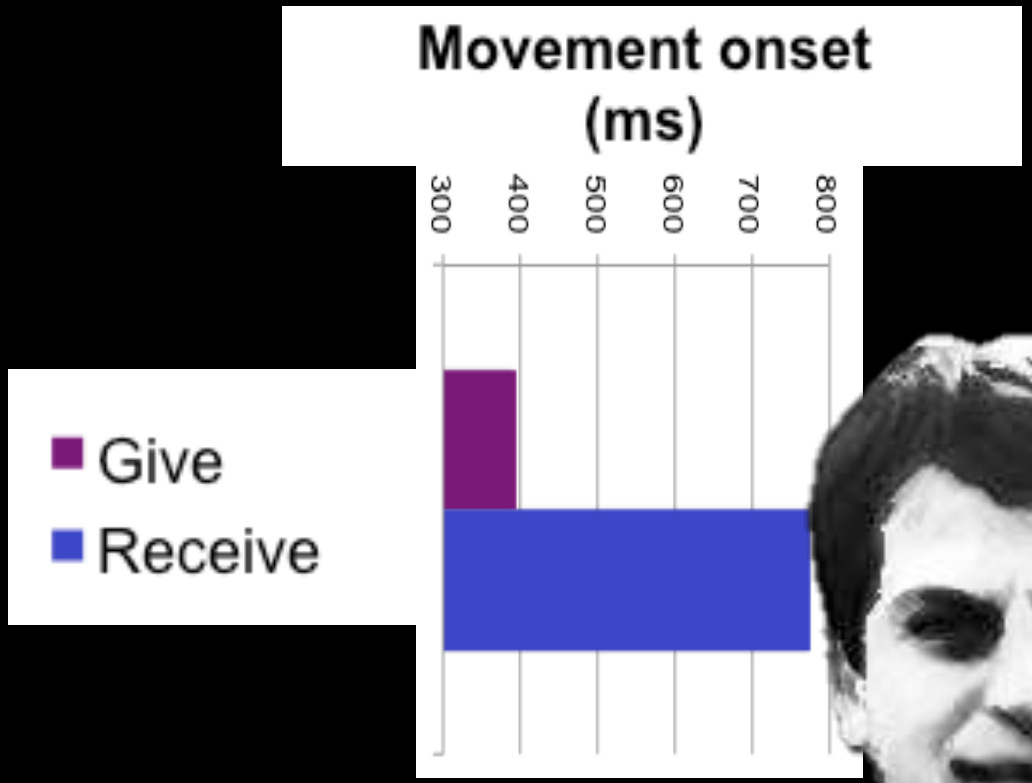
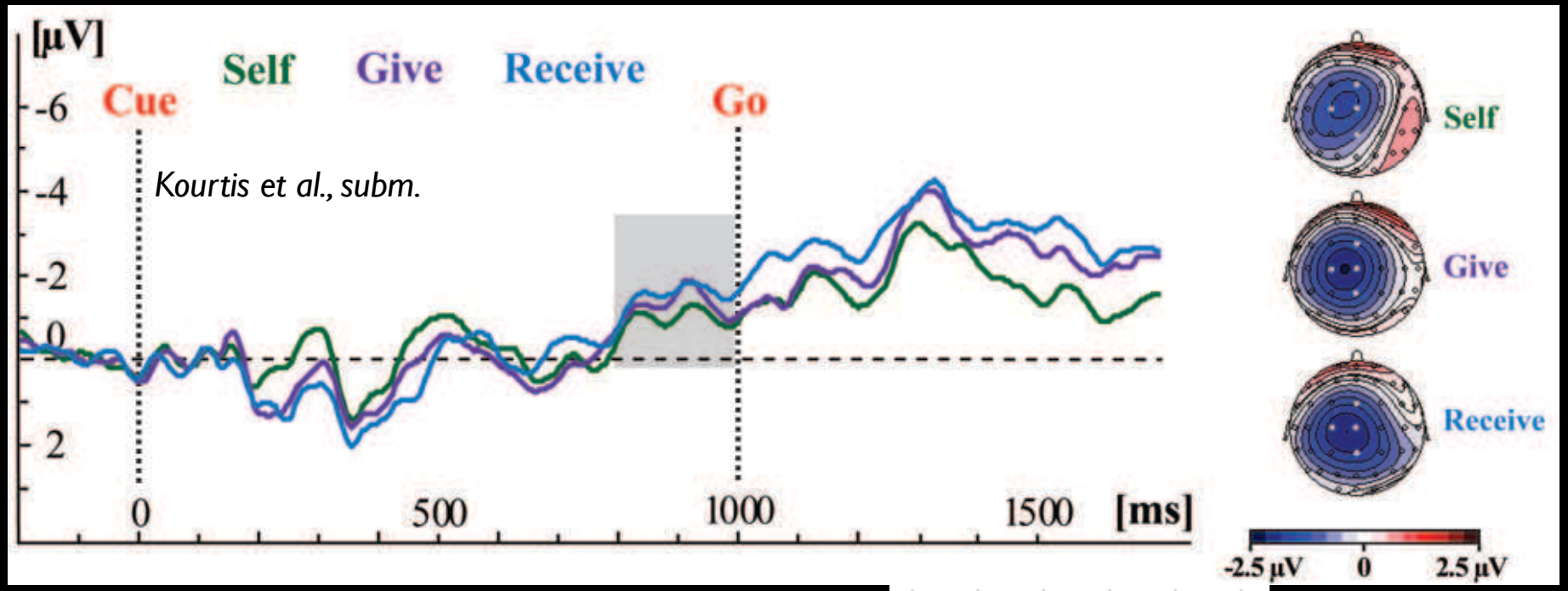


*Kourtis et al., subm.*




[μV]
Cue
Self
Give
Receive
Go
-6
-4
-2
0
2
0
500
1000
1500
[ms]
Kourtis et al., subm.
Self
Give
Receive
-2.5 μV
0
2.5 μV

Give
Receive