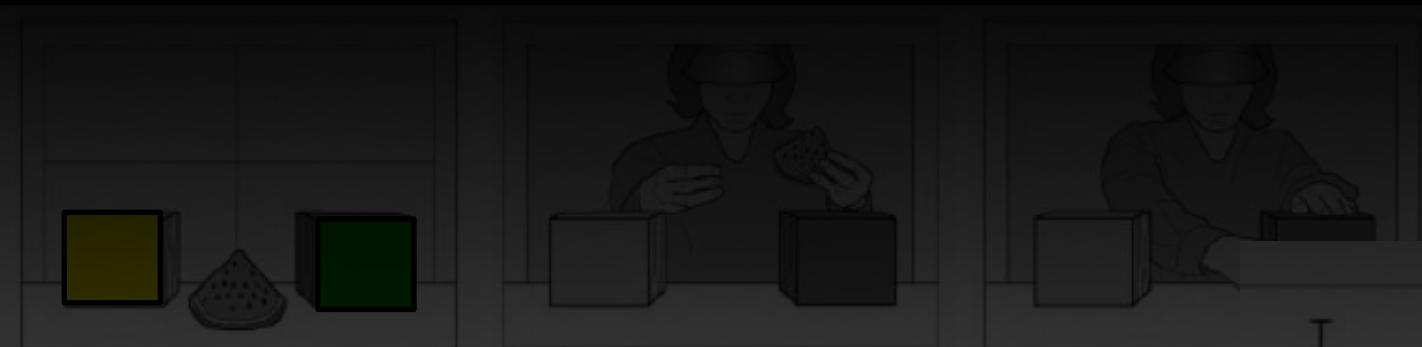


Mindreading & Joint Action

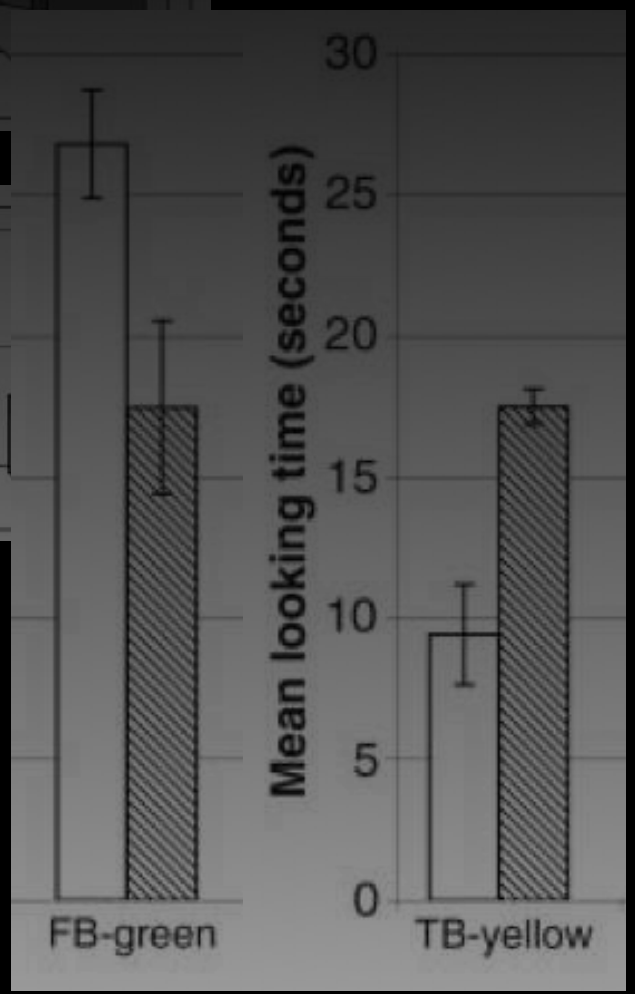
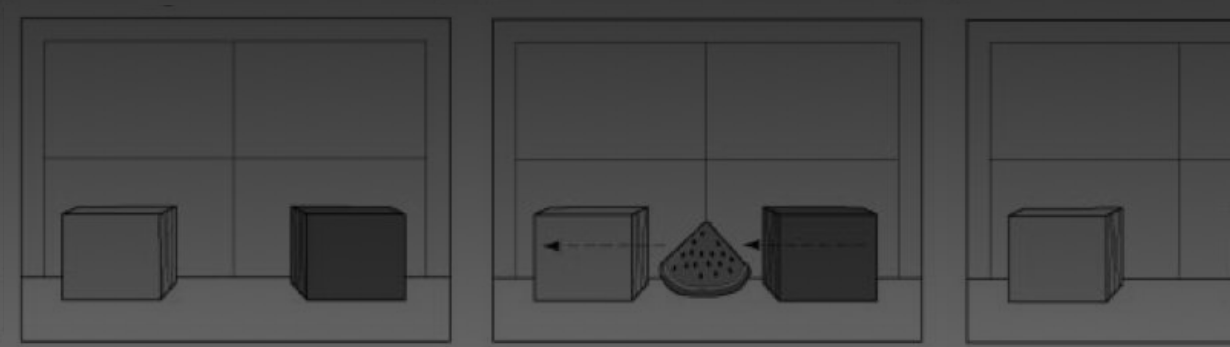
5. Actions, Intentions & Goals



butterfills@ceu.hu

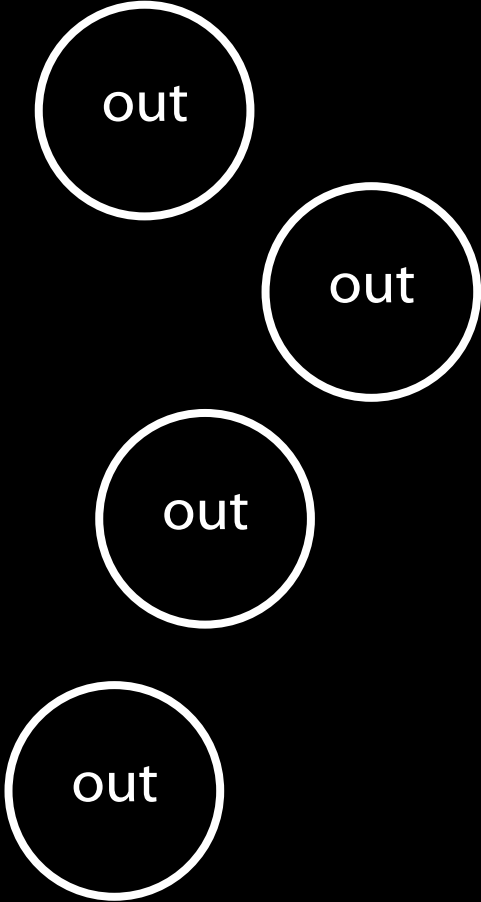
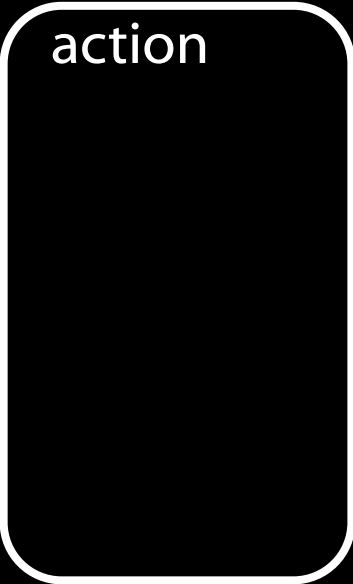


□ yellow-box
 ▨ green-box

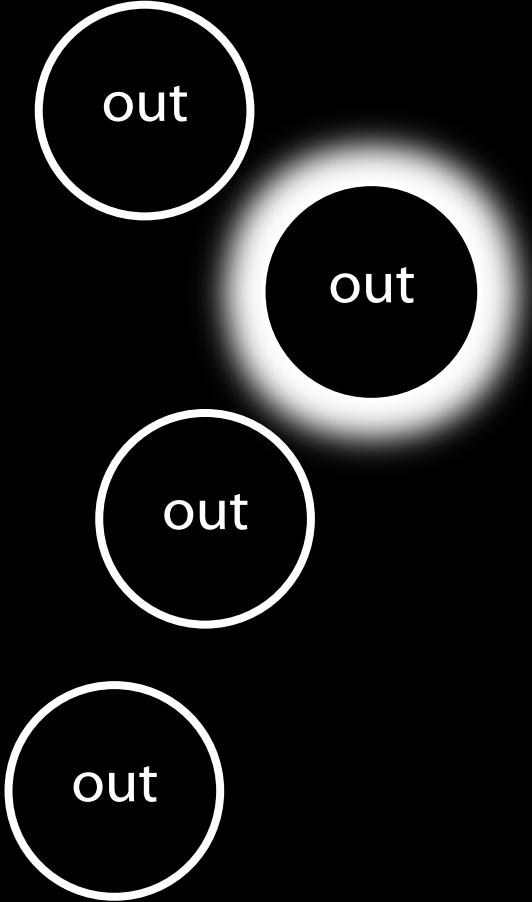
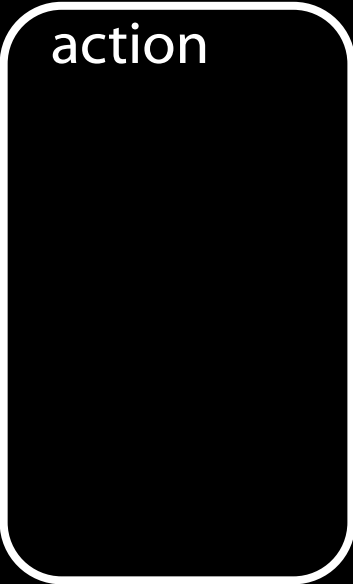


Onishi & Baillargeon (2005)

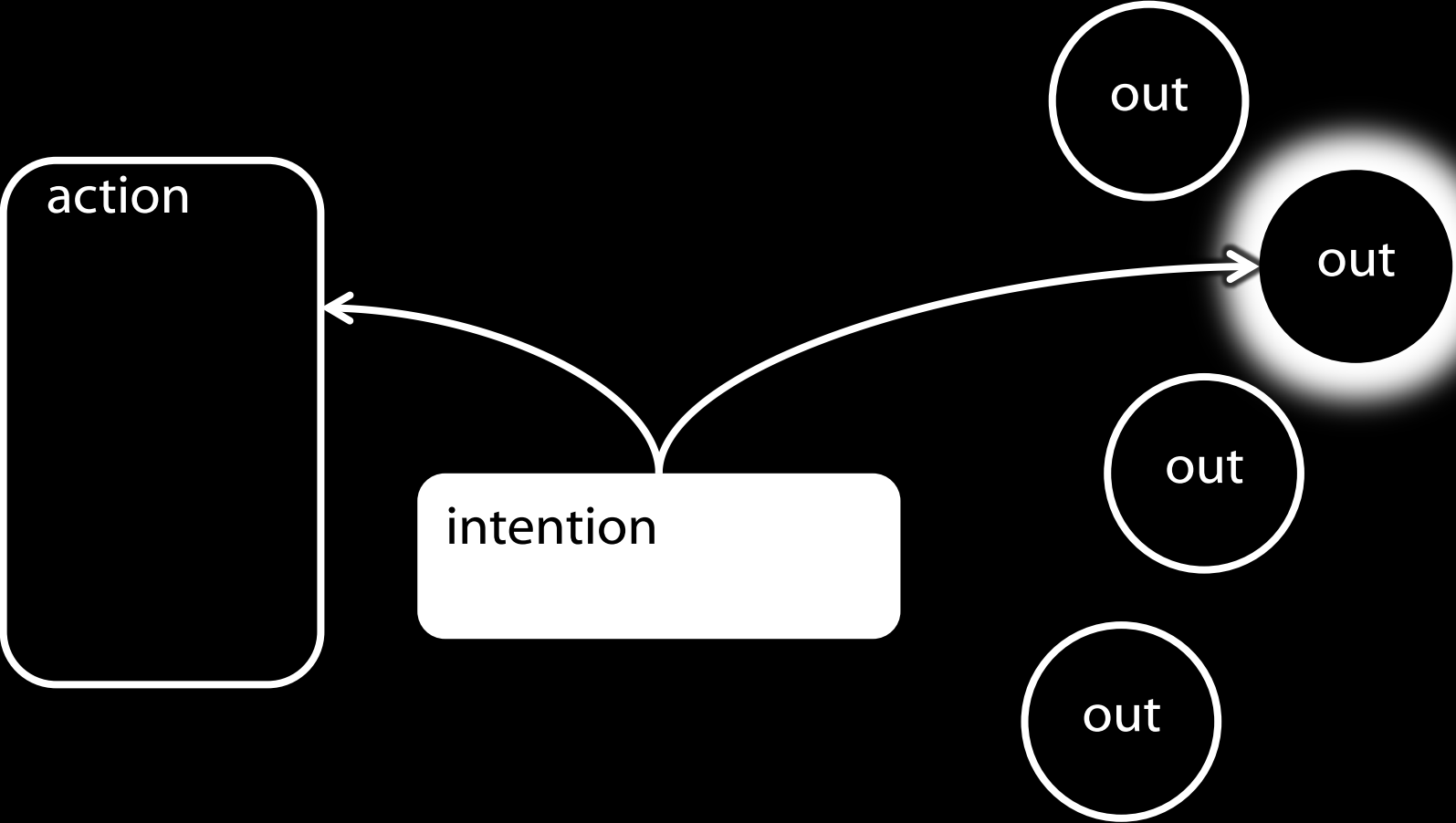
What is the relation between an action and the outcome or outcomes to which it is directed?



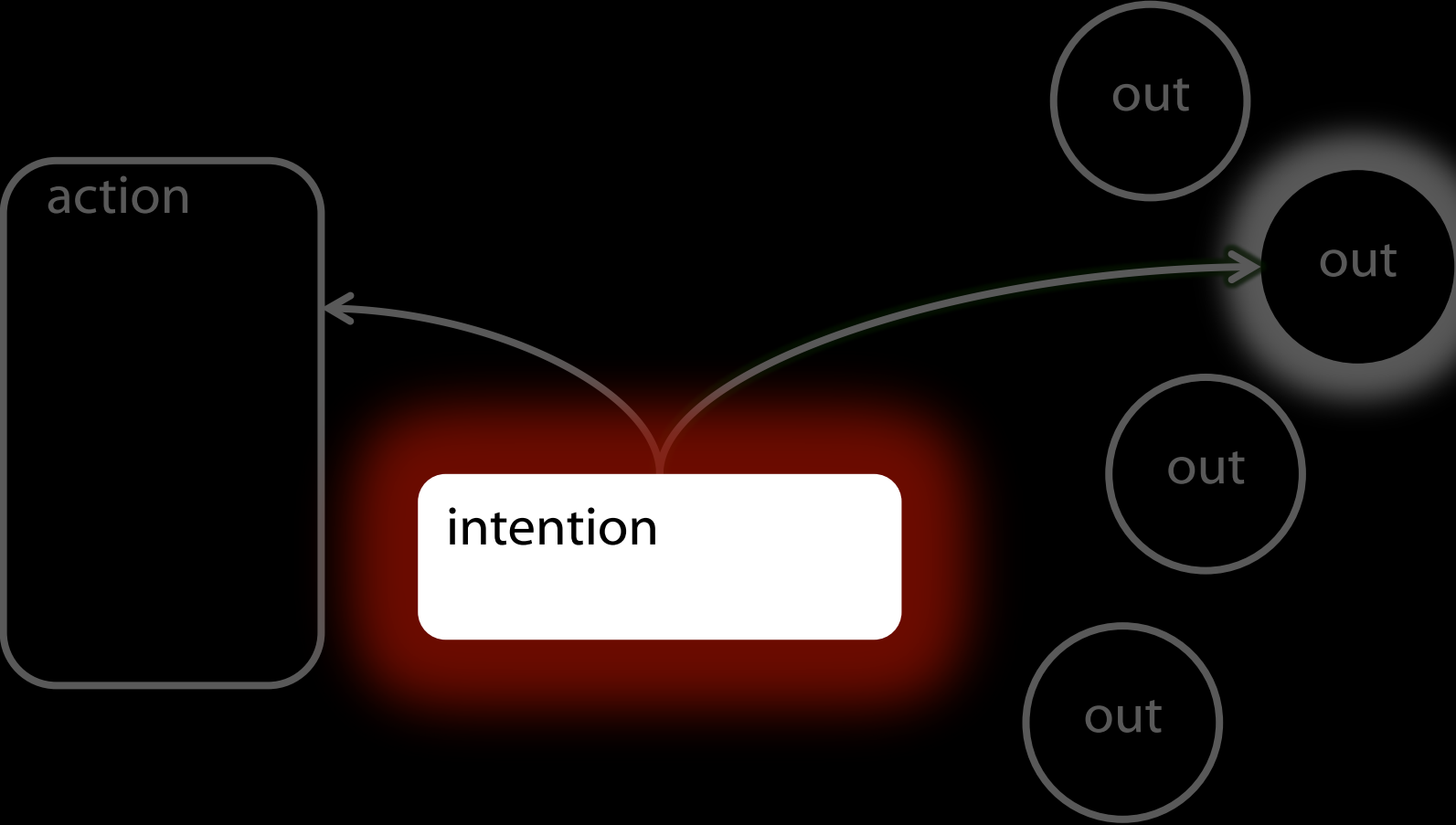
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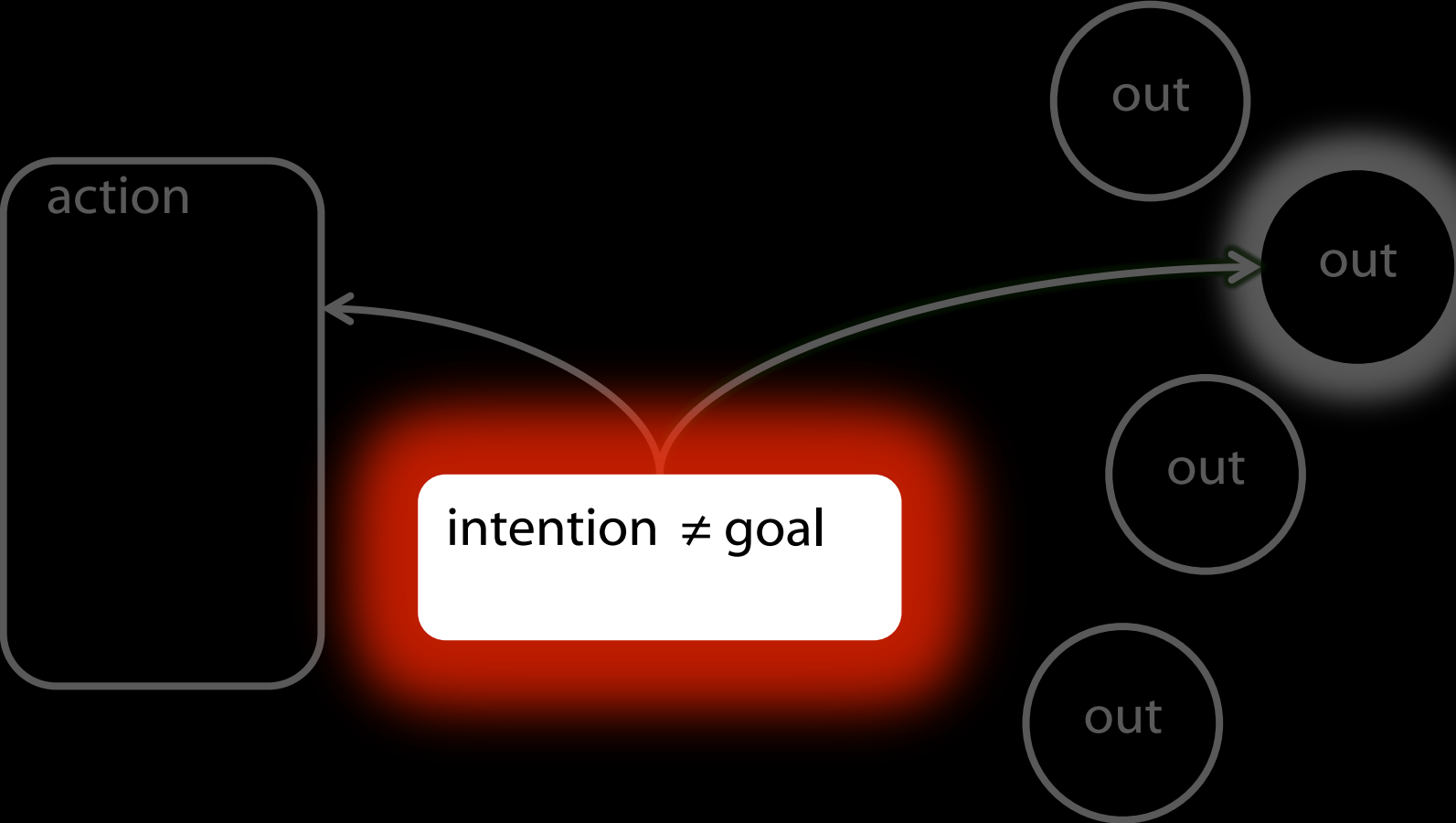
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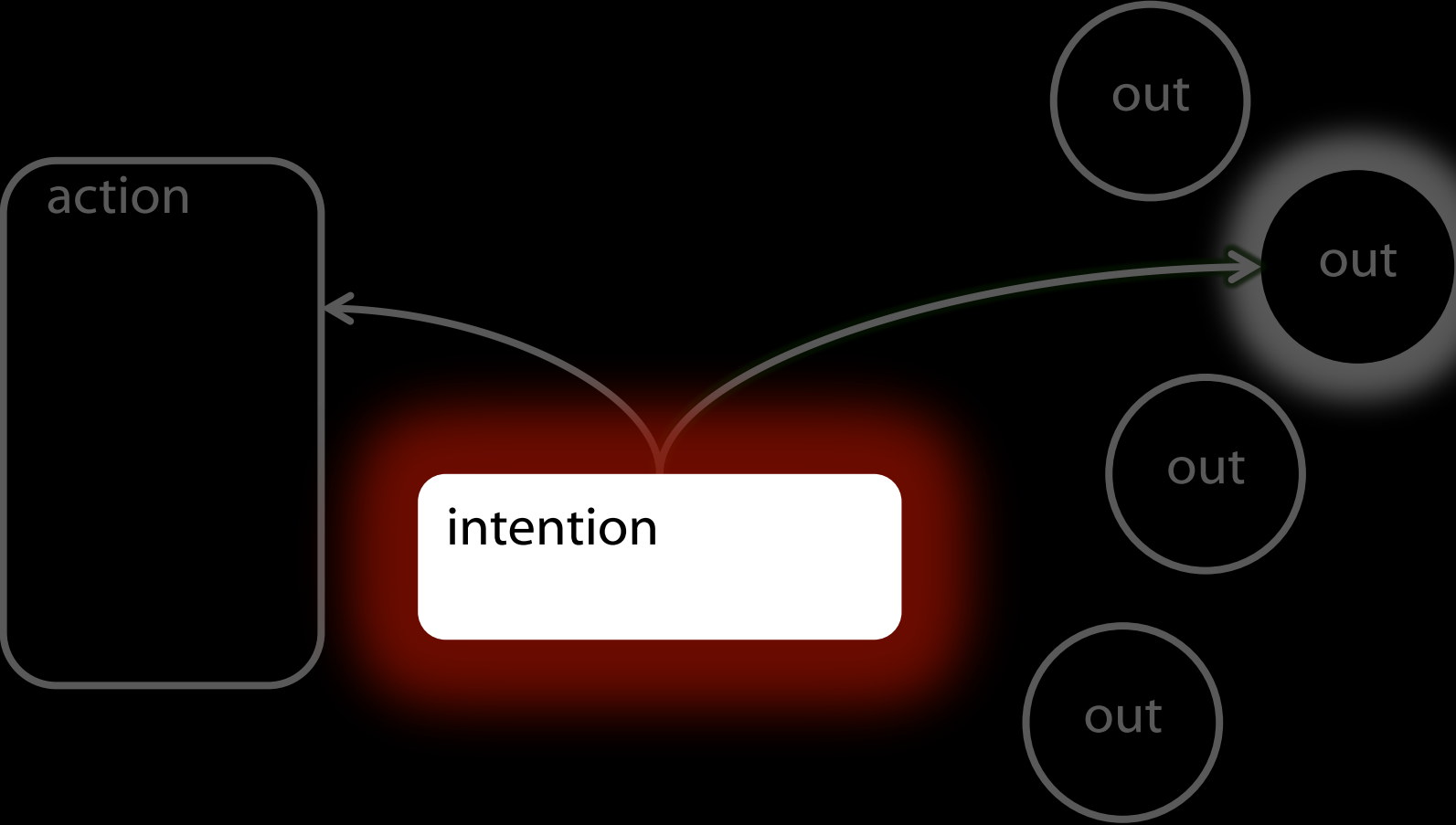
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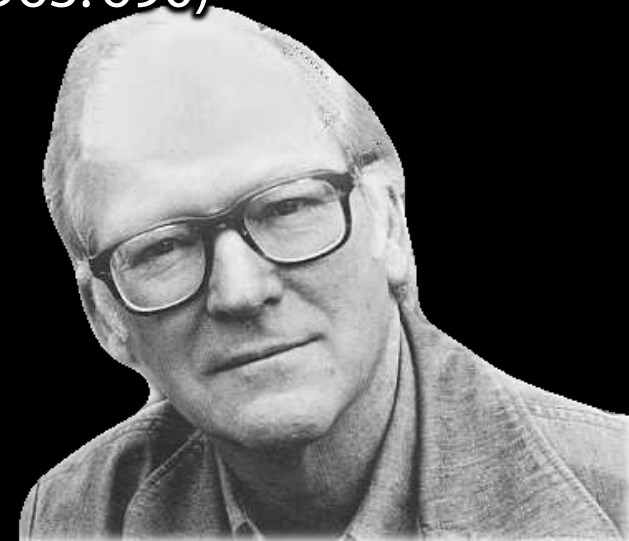
What is the relation between an action and the outcome or outcomes to which it is directed?



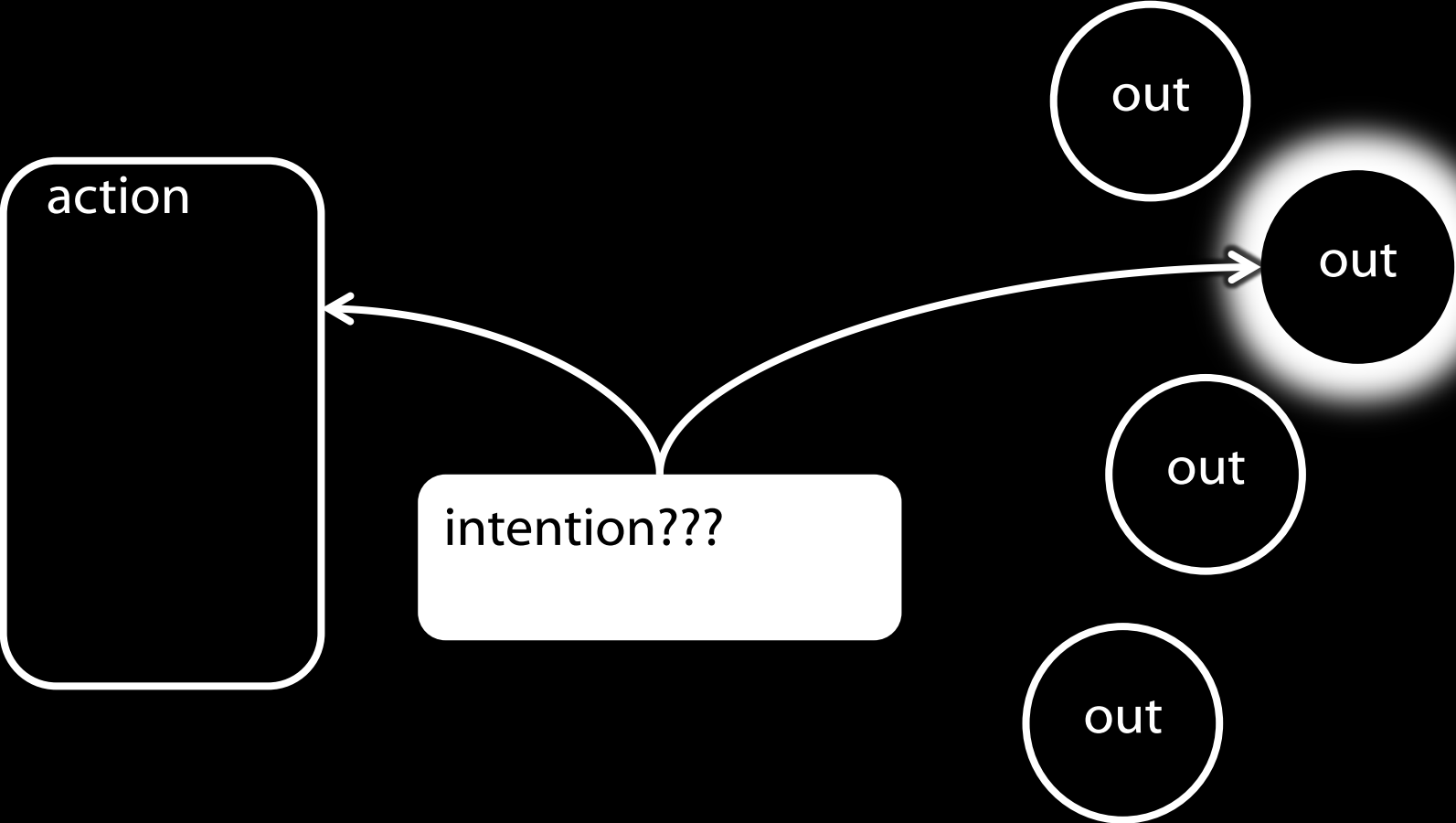
The expression 'the intention with which James went to church' ... cannot be taken to refer to a ... state ...

Its function ... is to generate new descriptions of actions in terms of their reasons; thus 'James went to church with the intention of pleasing his mother' yields a new, and fuller, description of the action described in 'James went to church.'

(Davidson 1963:690)



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



The expression 'the intention with which James went to church' ... cannot be taken to refer to a ... state ...

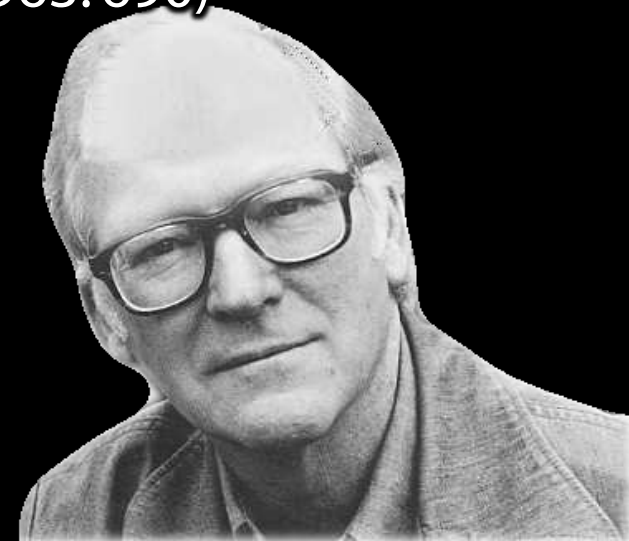
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(Davidson 1963:690)

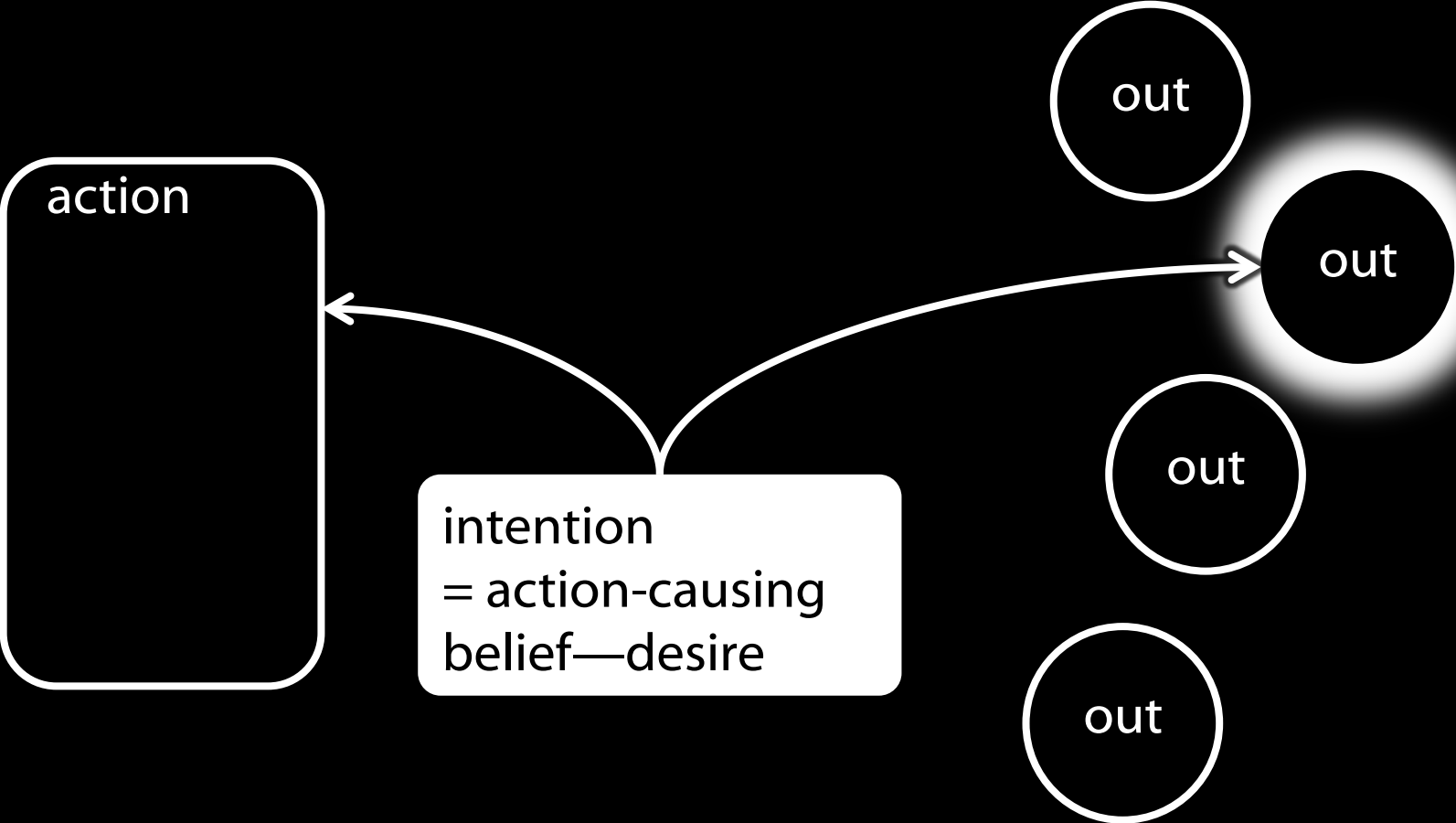
Desire: to please my mother

Belief: I can please my mother by going to church.

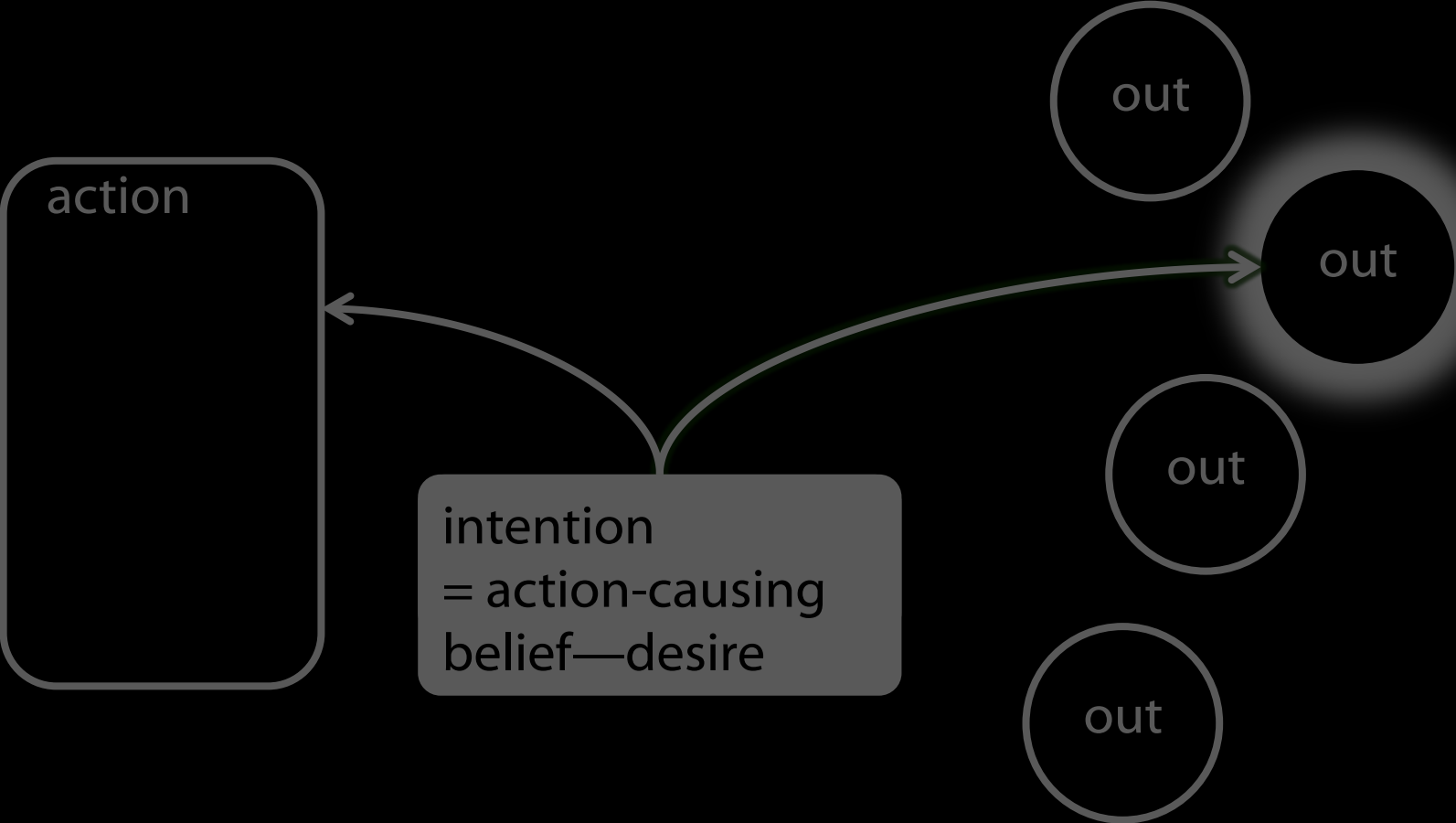
Action: Go to church.



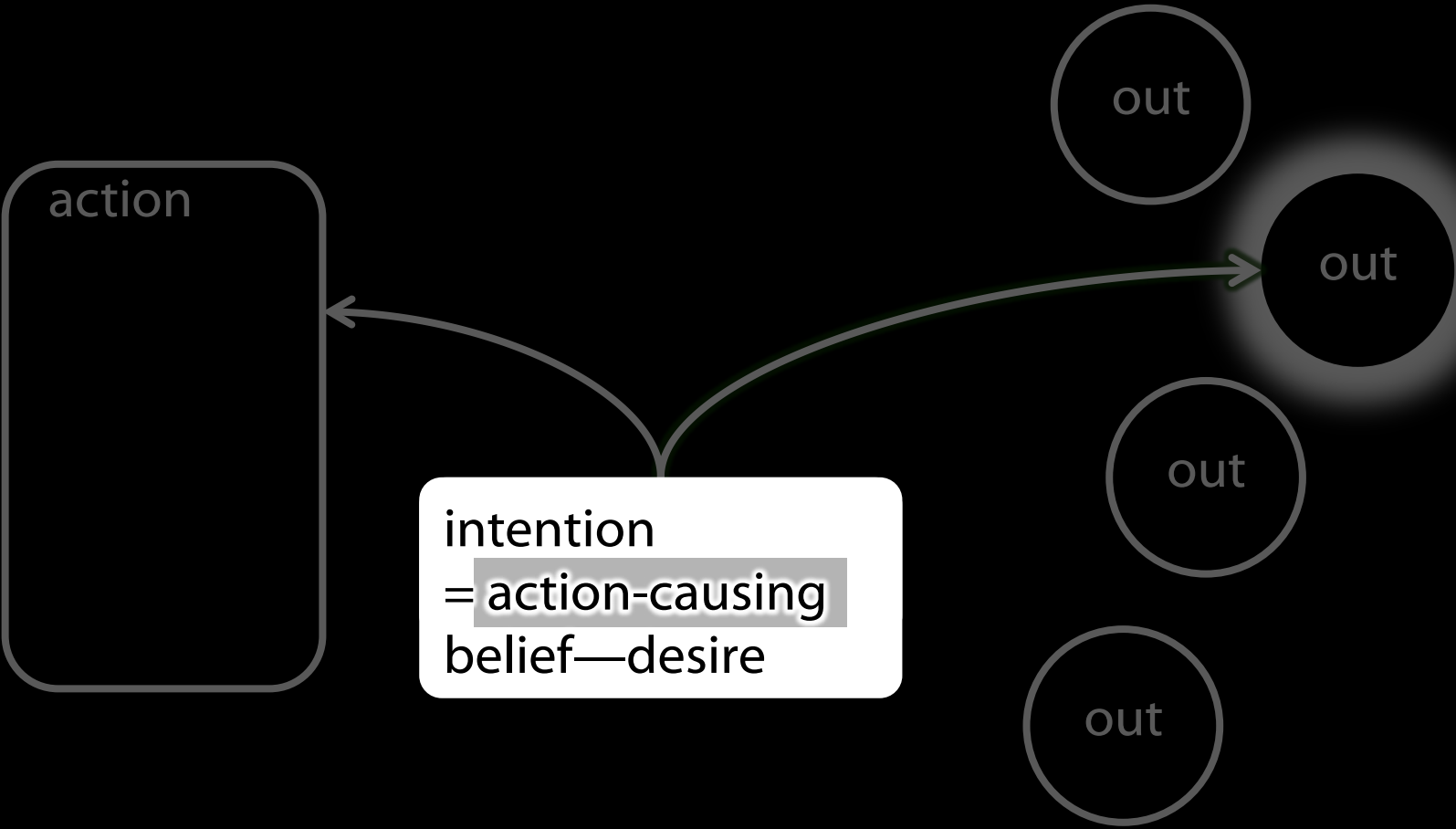
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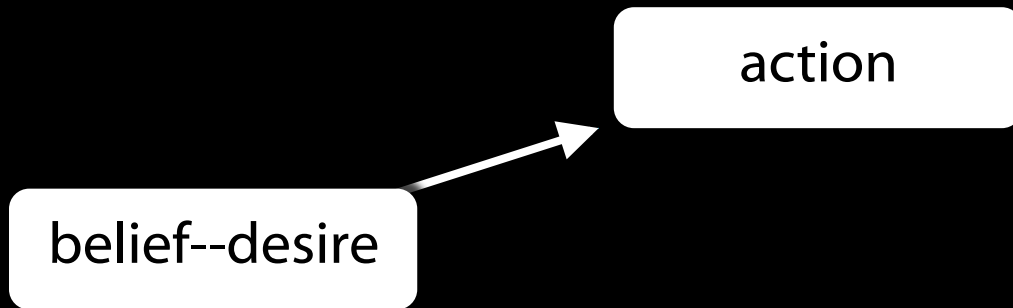


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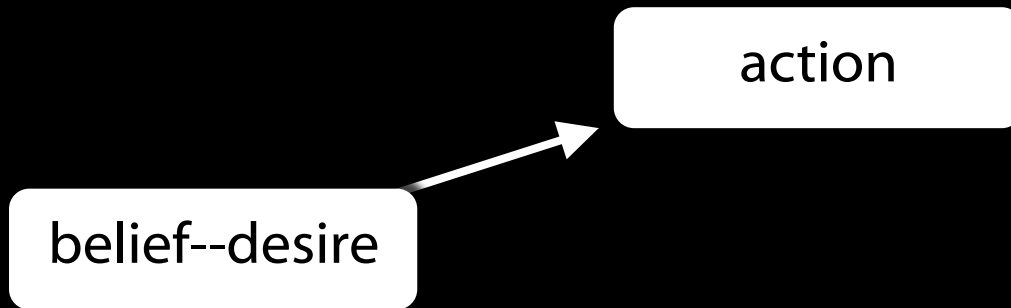




Desire: to nurture squirrels

Belief: I can nurture squirrels
by building a squirrel house.

Action: I build a squirrel
house.



Desire: to nurture squirrels

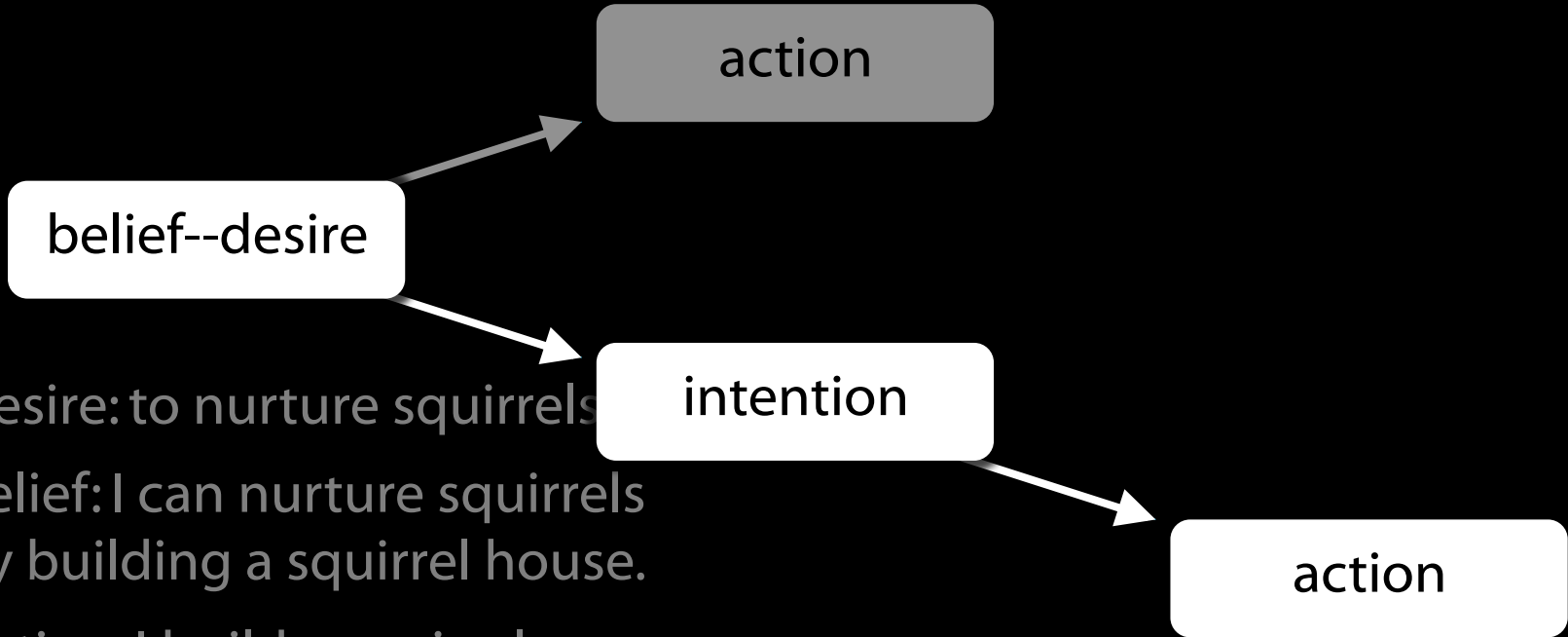
Belief: I can nurture squirrels
by building a squirrel house.

Action: I build a squirrel
house.

Desire: to nurture squirrels

Belief: I can nurture squirrels
by building a squirrel house.

Intention: that I build a
squirrel house.



Desire: to nurture squirrels

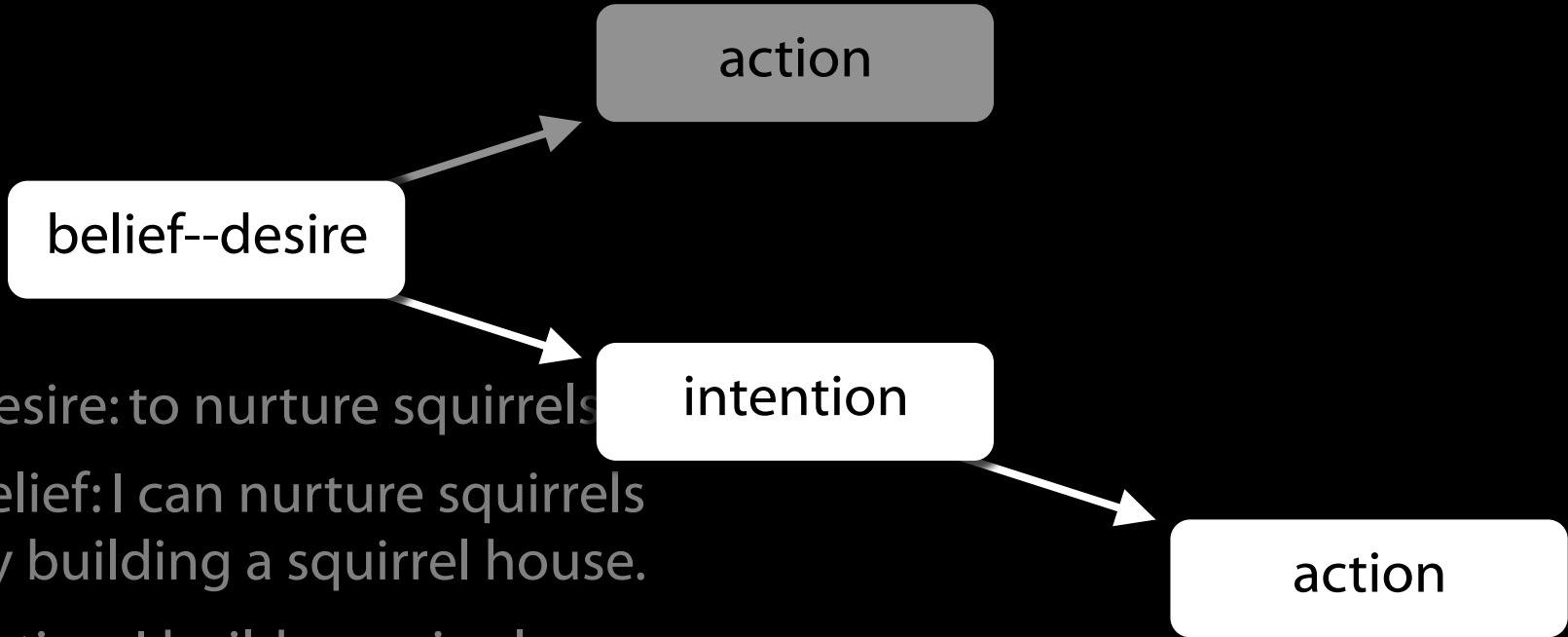
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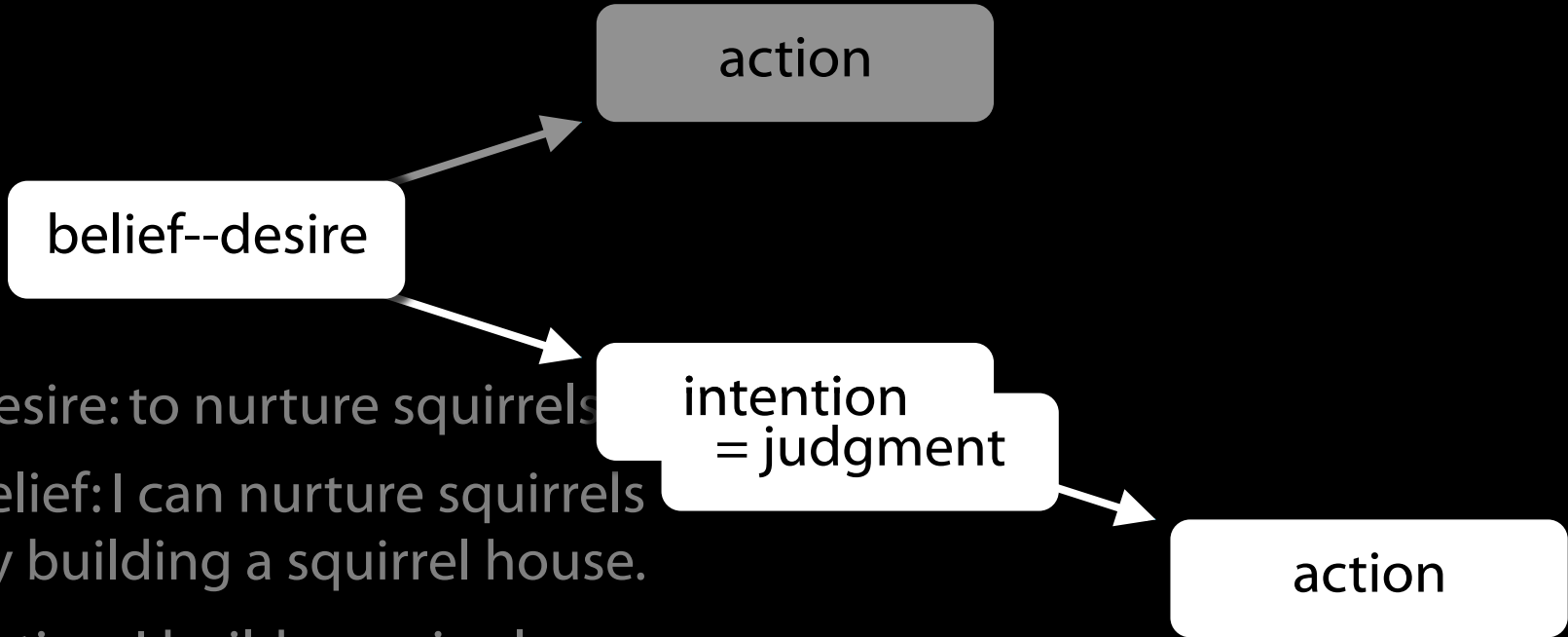
Intention: that I build a squirrel house.



Desire: to nurture squirrels
 Belief: I can nurture squirrels
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Desire: to nurture squirrels
 Belief: I can nurture squirrels
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 Intention: that I build a
 squirrel house.

P1. I desire to nurture squirrels
 P2. I can nurture squirrels by
 building a squirrel house.
 C. My building a squirrel house
 would be desirable.



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P1. I desire to nurture squirrels
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 would be desirable.

desire: to earn more money

belief: I can earn more
money by getting a new job.

judgement: My getting a
new job would be desirable.

desire: to take it easy today

belief: I can take it easy today
by not getting a new job
today.

judgement: My not getting a
new job today would be
desirable.

desire: to earn more money

belief: I can earn more
money by getting a new job.

judgement: My getting a
new job would be desirable.

intention: That I get a new
job.

desire: to take it easy today

belief: I can take it easy today
by not getting a new job
today.

judgement: My not getting a
new job today would be
desirable.

intention: That I do not get a
new job today.

intention

≠ goal

≠ action-causing belief—desire pair

≠ judgment that it would be desirable

intention

≠ goal

≠ action-causing belief—desire pair

≠ judgment that it would be desirable

So what are intentions?

desire: to earn more money

belief: I can earn more
money by getting a new job.

judgement: My getting a
new job would be desirable.

intention: That I get a new
job.

desire: to take it easy today

belief: I can take it easy today
by not getting a new job
today.

judgement: My not getting a
new job today would be
desirable.

intention: That I do not get a
new job today.

judgement: My getting a
new job would be desirable.

intention: That I get a new
job.

agglomeration

today.

judgement: My not getting a
new job today would be
desirable.

intention: That I do not get a
new job today.

judgement: My getting a
new job would be desirable.

intention: That I get a new
job.

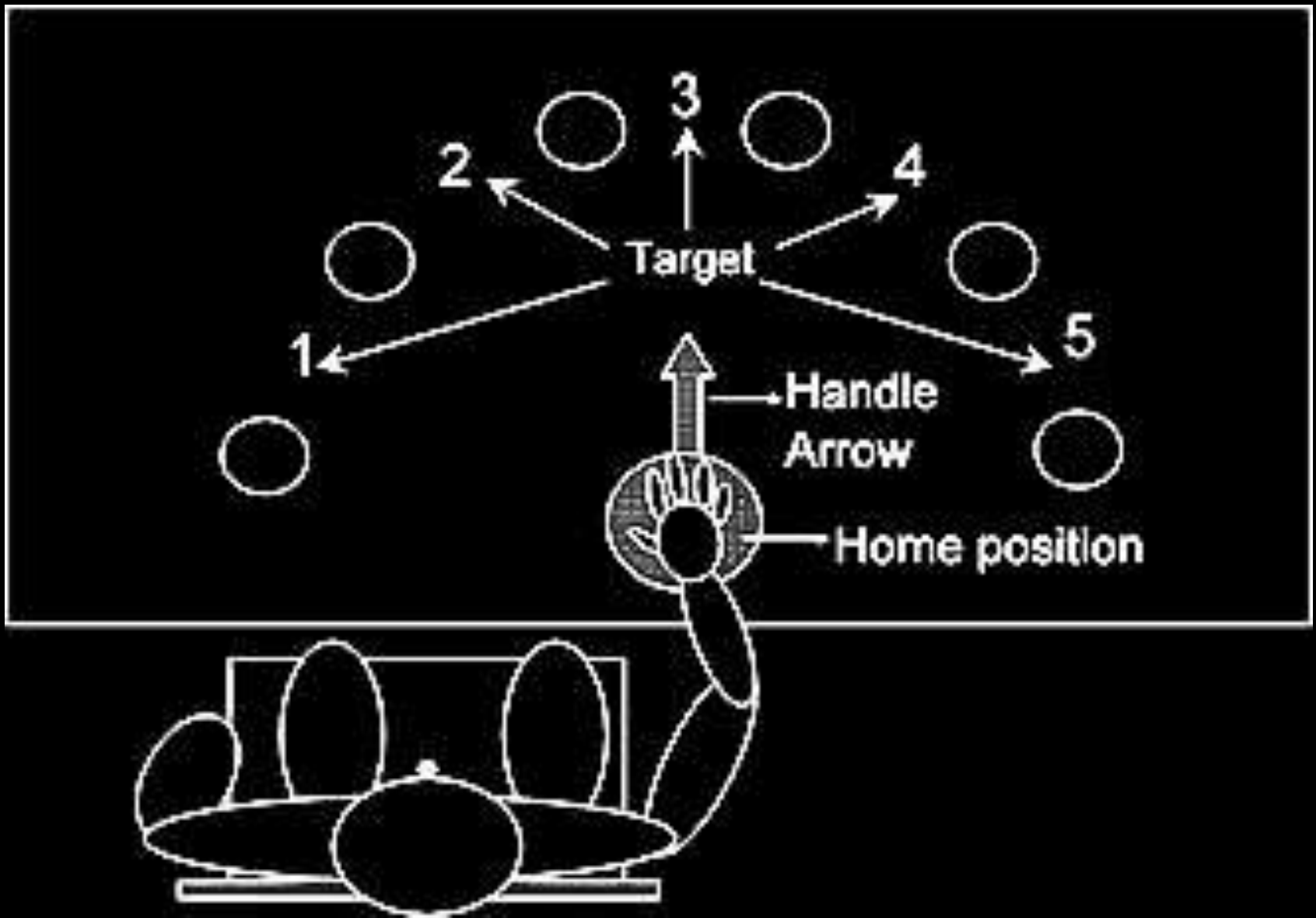
agglomeration

today.

judgement: My not getting a
new job today would be
desirable.

intention: That I do not get a
new job today.

What are intentions for?



(Zhang and Rosenbaum 2007)

desire: to earn more money

belief: I can earn more
money by getting a new job.

judgement: My getting a
new job would be desirable.

intention: That I get a new
job

desire: to take it easy today

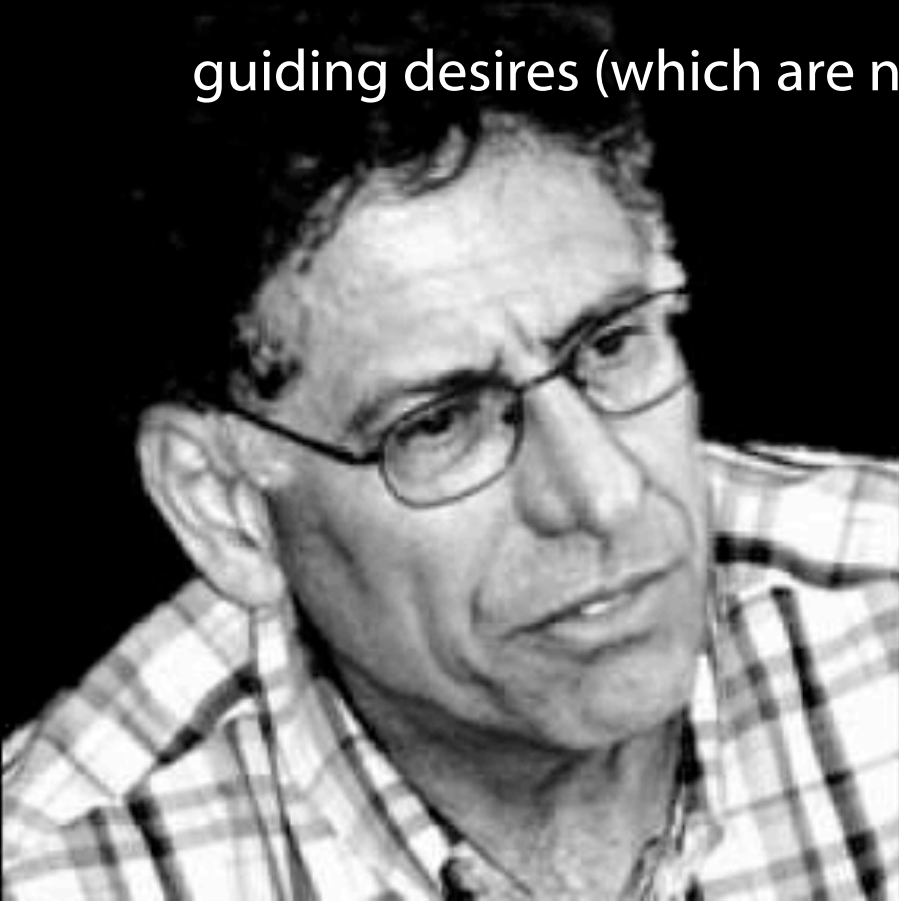
belief: I can take it easy today
by not getting a new job
today.

judgement: My not getting a
new job today would be
desirable.

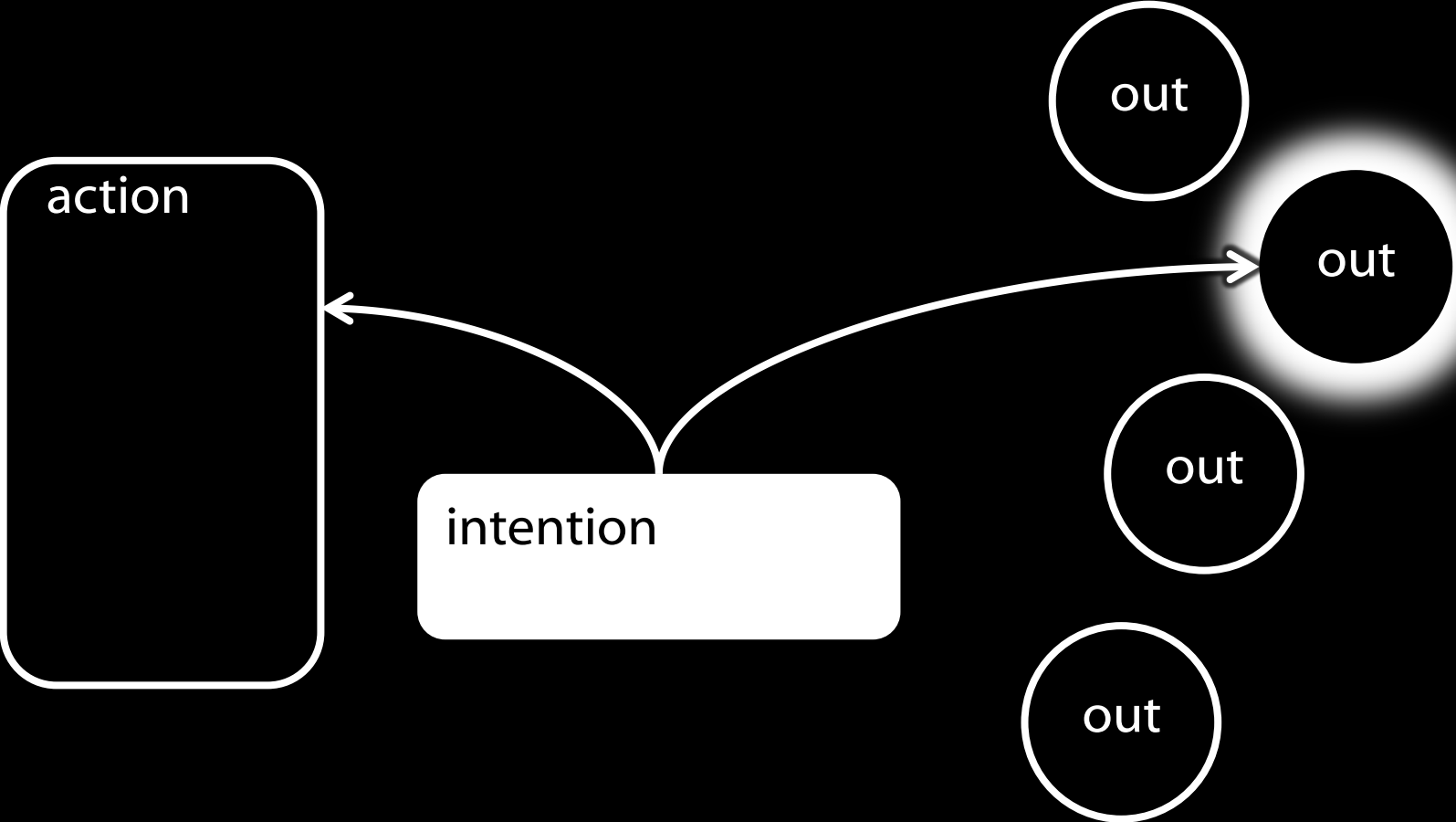
intention: That I do not get a
new job today

'why should rational agents like us have the capacity to have both ordinary intentions (subject to demands for consistency and agglomeration) and guiding desires (which are not subject to these demands)?'

(Bratman 1987, pp. 137–8)



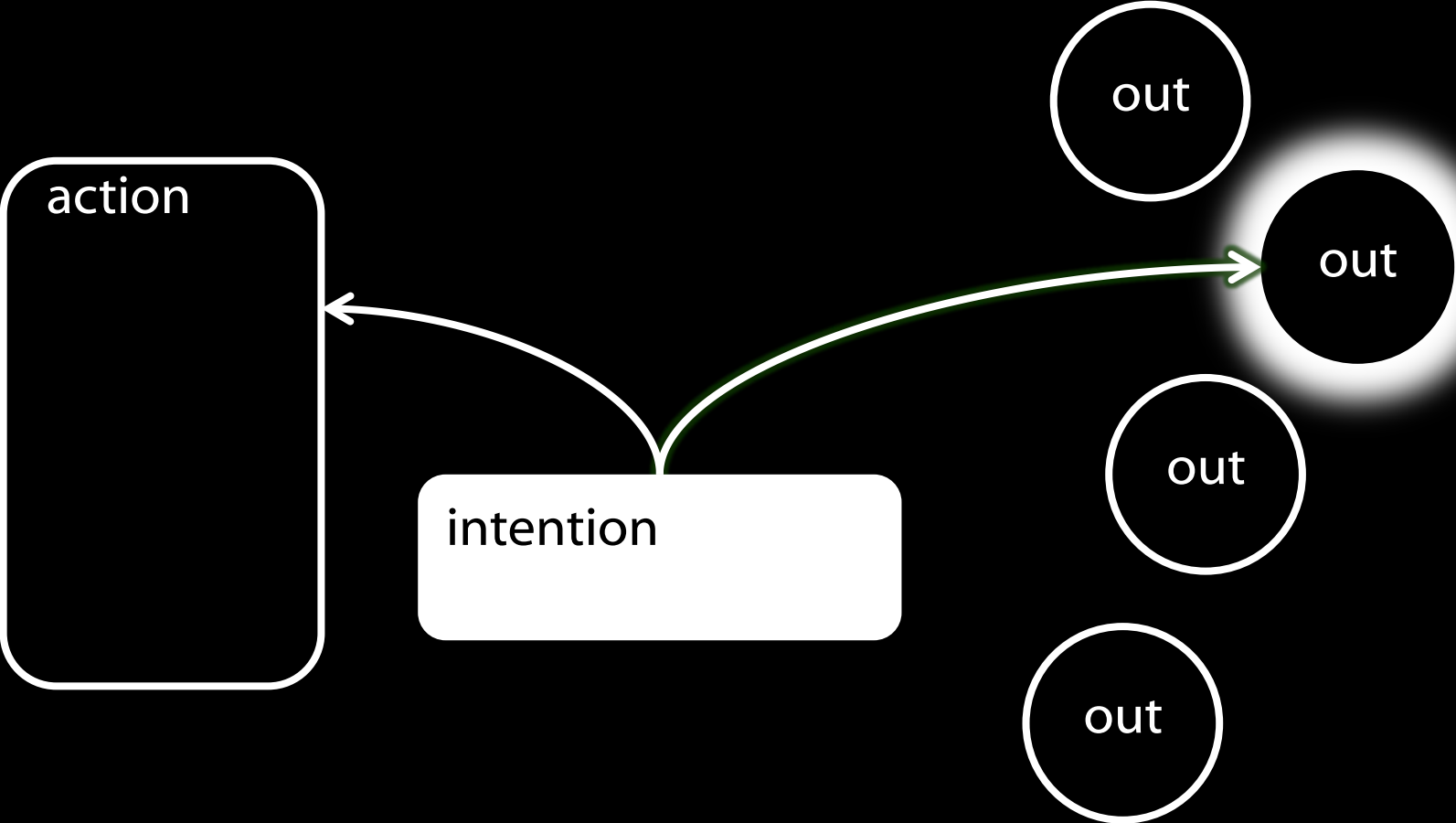
What is the relation between an action and the outcome or outcomes to which it is directed?



“chimpanzees understand ... intentions ...
perception and knowledge ... Moreover, they
understand how these psychological states
work together to produce intentional action”
(Call & Tomasello 2008:191)



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



Some motor representations carry information about outcomes.

Some motor representations carry information about outcomes.



...



...

same
effector

different
effector



same outcome

Cattaneo et al (2010)

Some motor representations carry information about outcomes.



same effector

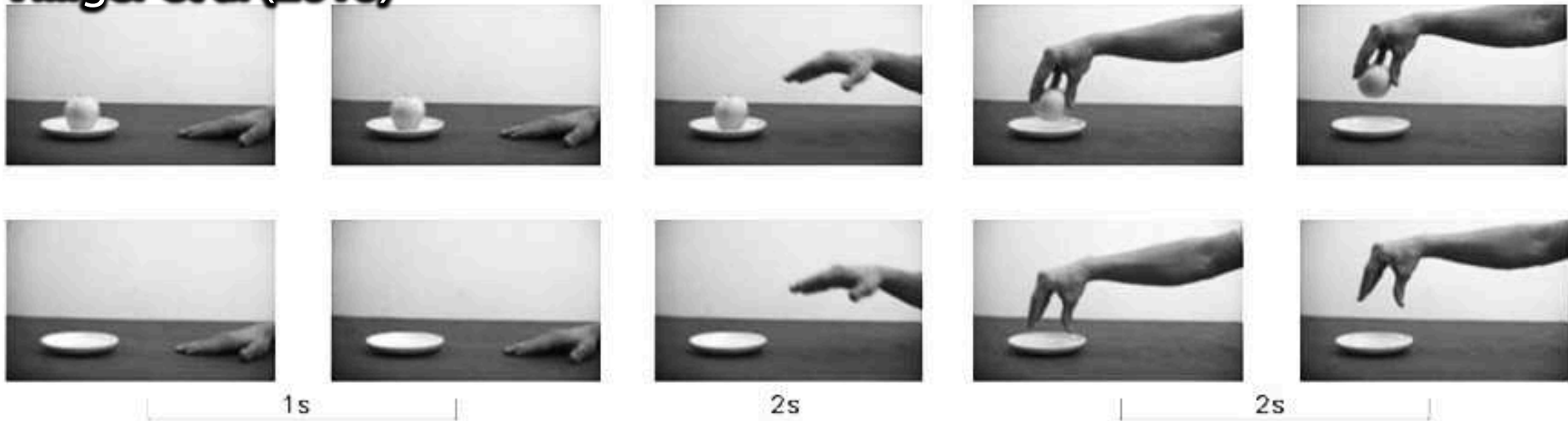
different effector



same outcome

Cattaneo et al (2010)

Villiger et al (2010)



Some motor representations carry information about outcomes.



same effector

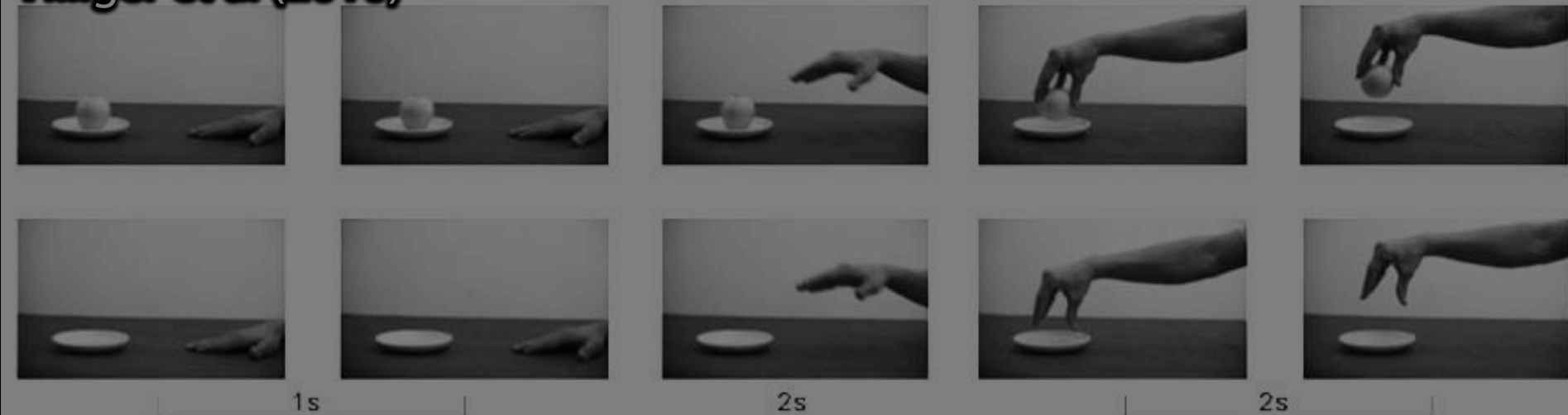
different effector



same outcome

Cattaneo et al (2010)

Villiger et al (2010)

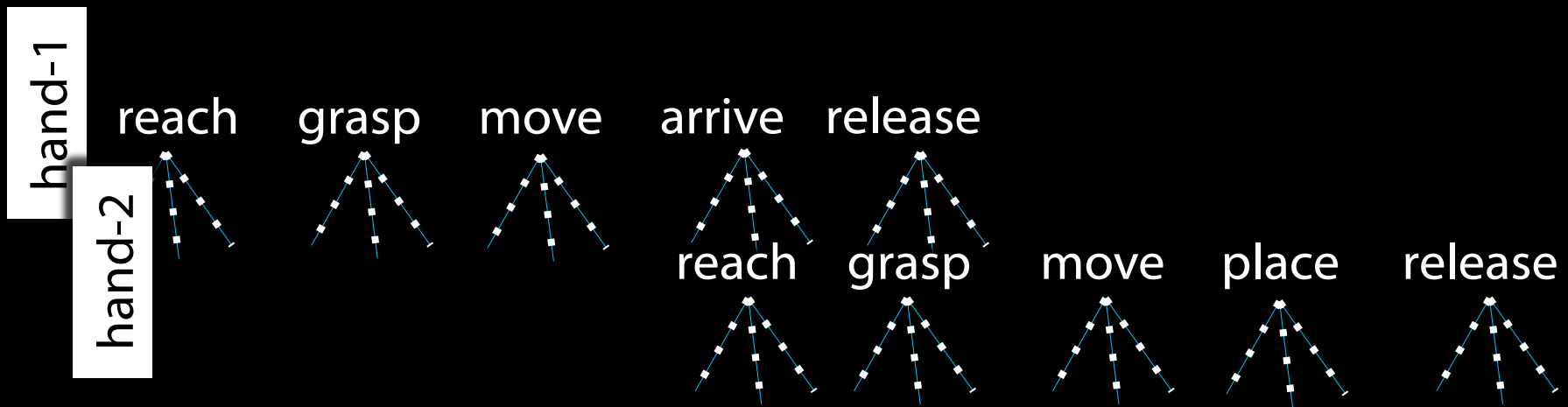


Some motor representations carry information about outcomes.

Information about outcomes guides planning.

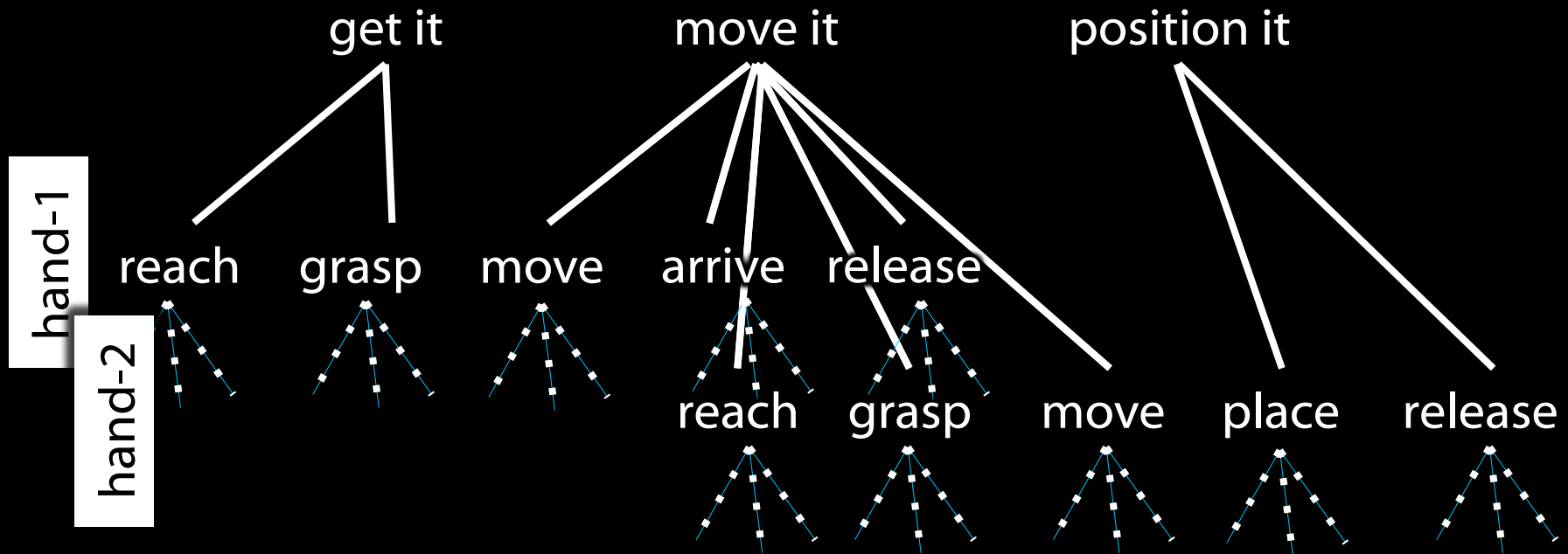
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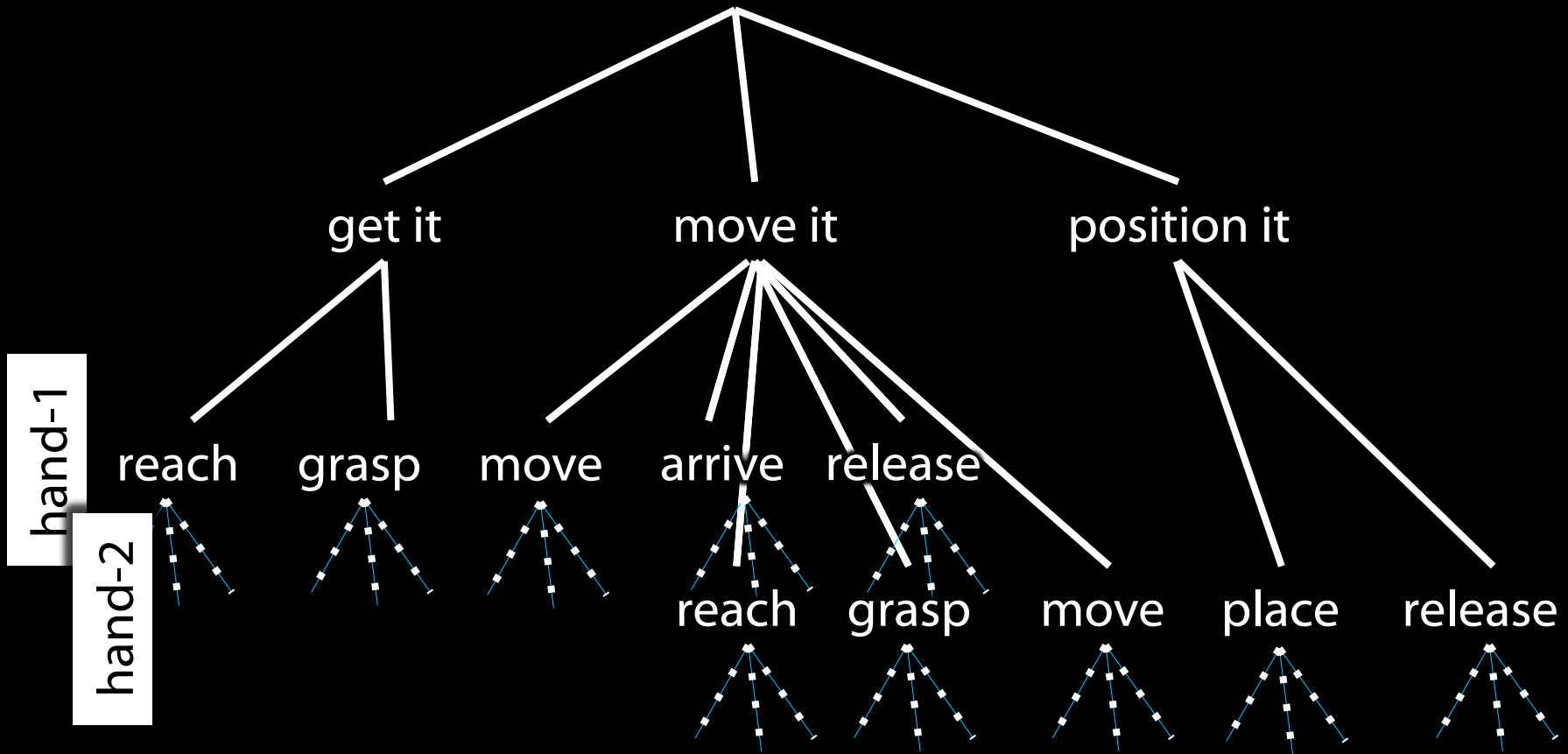
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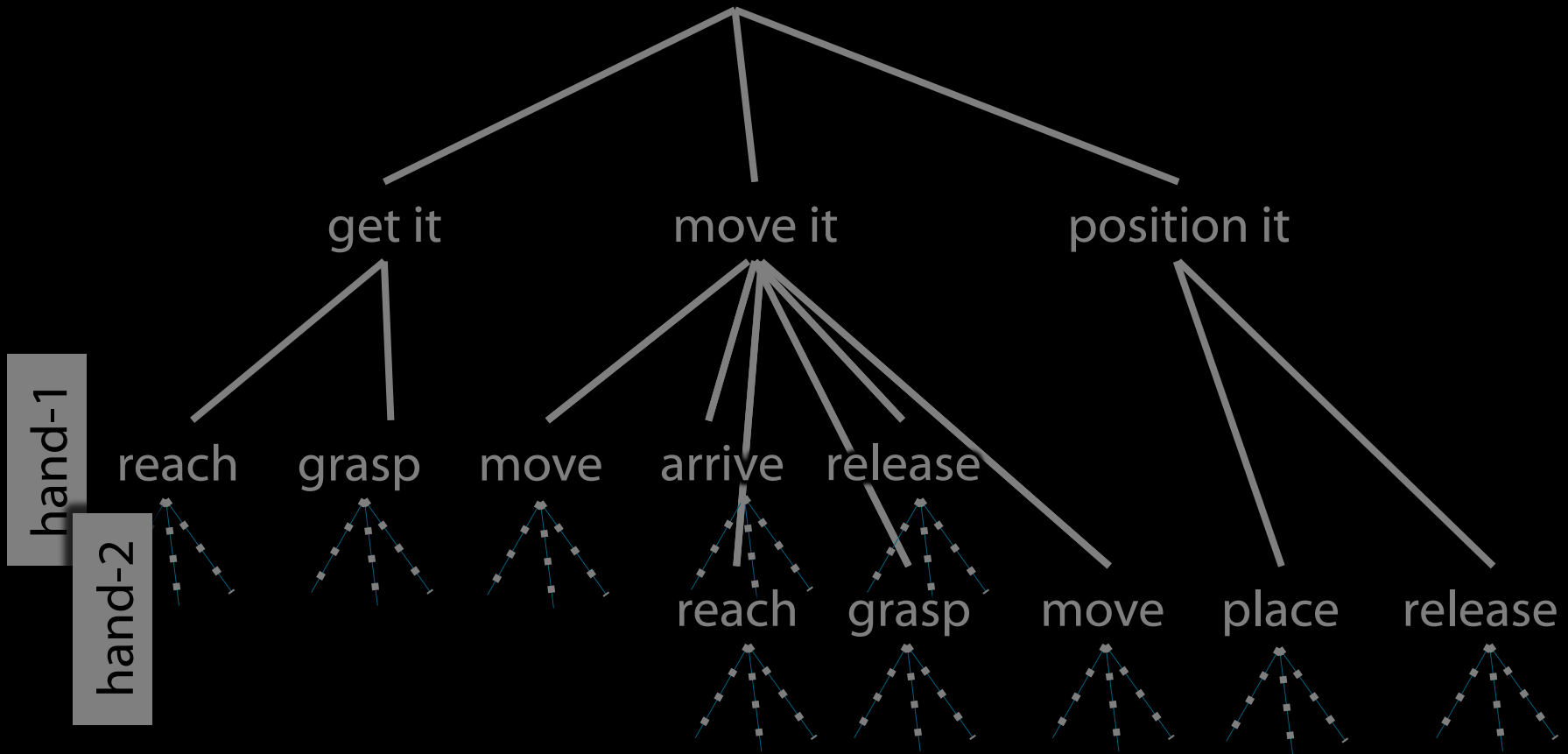
Move it from there to here



Some motor representations carry information about outcomes.

Information about outcomes guides planning.

Move it from there to here

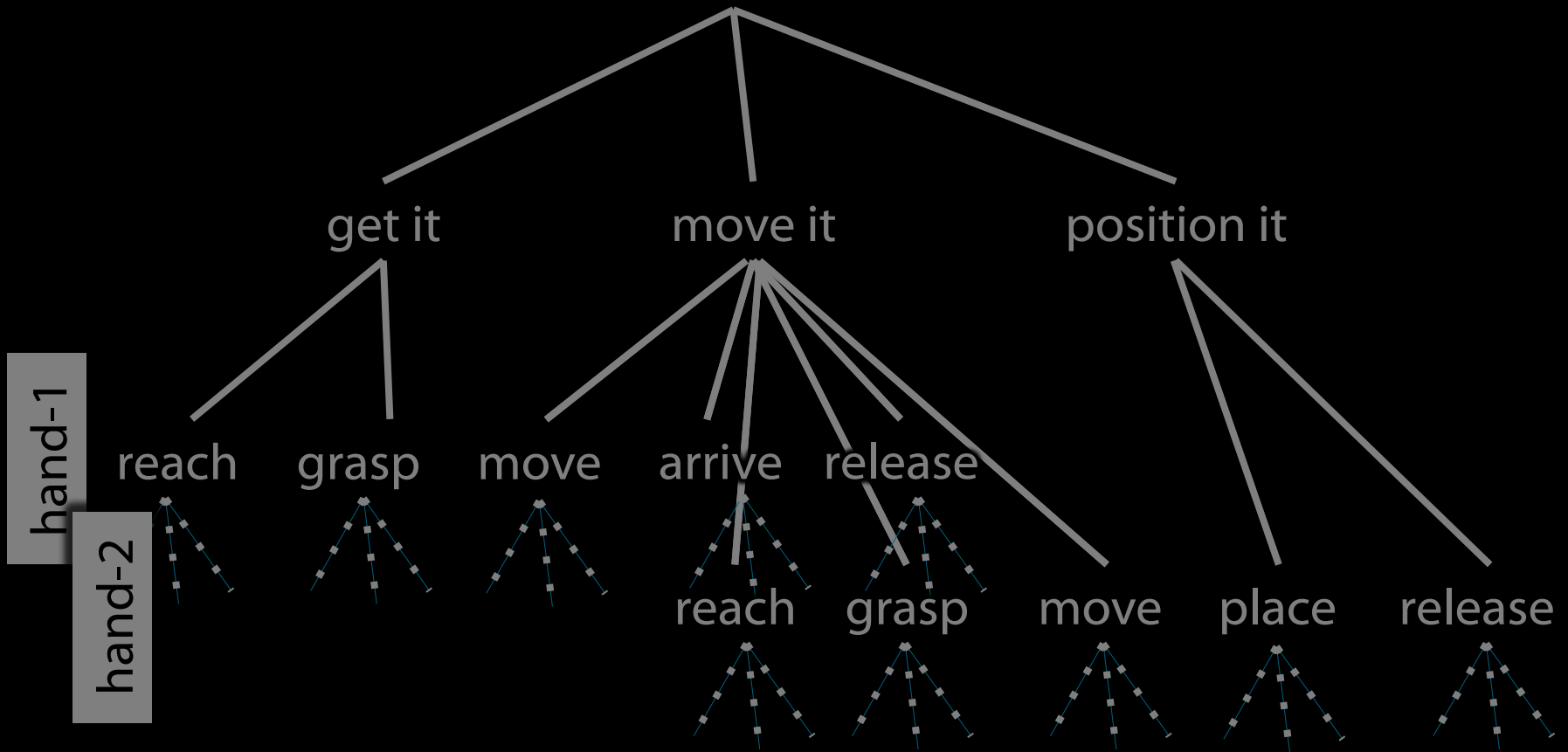


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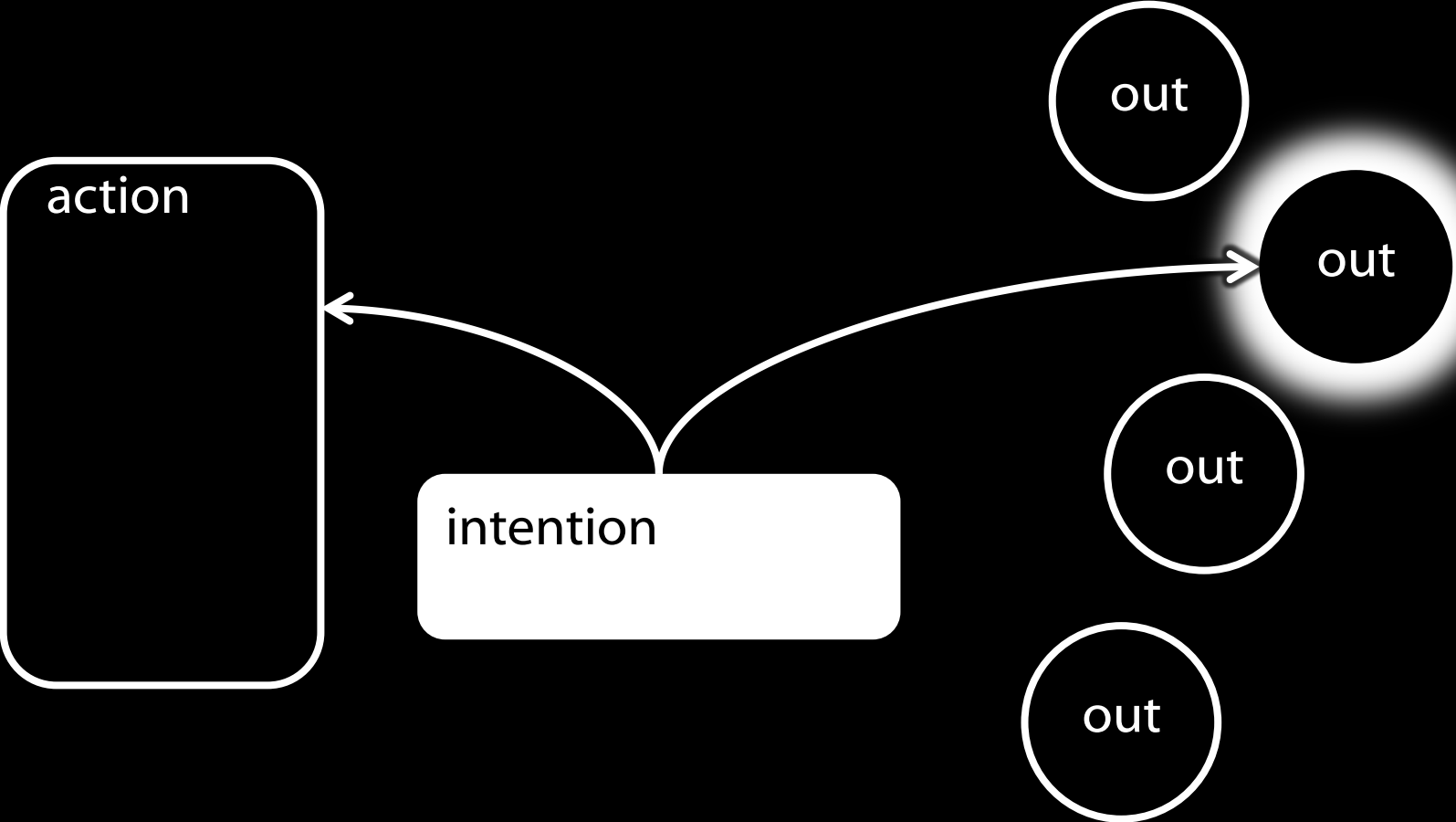
Information about outcomes guides planning.

Some motor representations represent outcomes

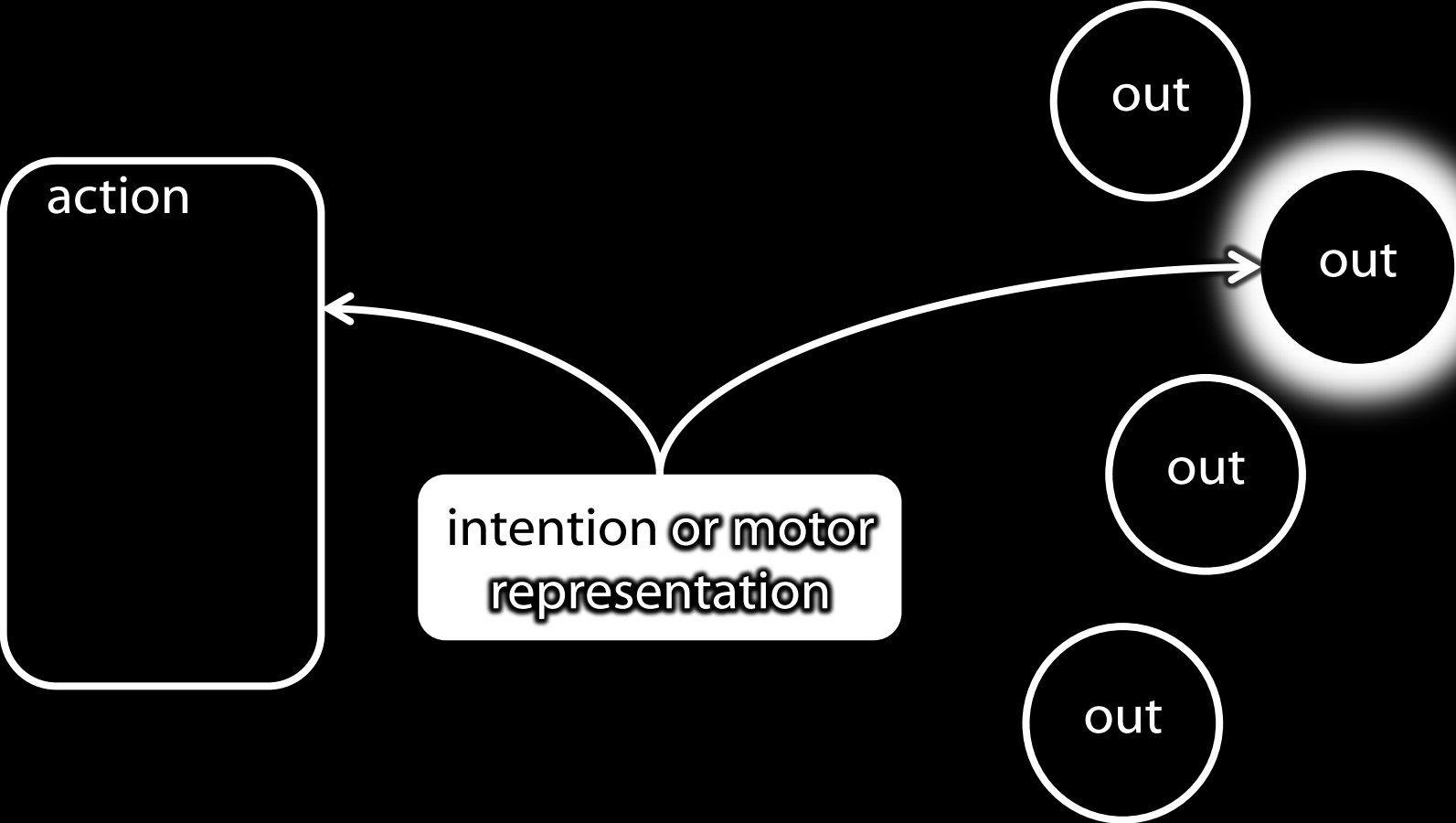
Move it from there to here



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



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



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... =



?

< different format >

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



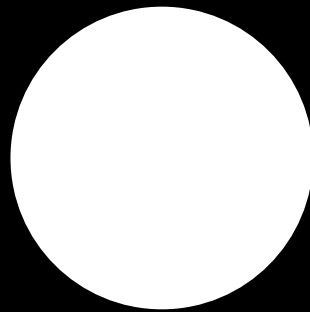
e.g. rapid identification of key landmarks; slow translation into compass directions

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

> different performance <

imagine

seeing

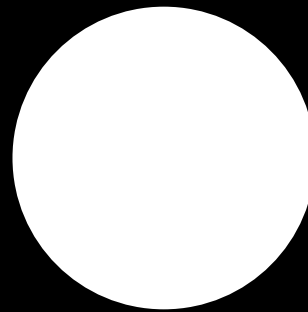


imagine

actually

seeing

seeing



imagine

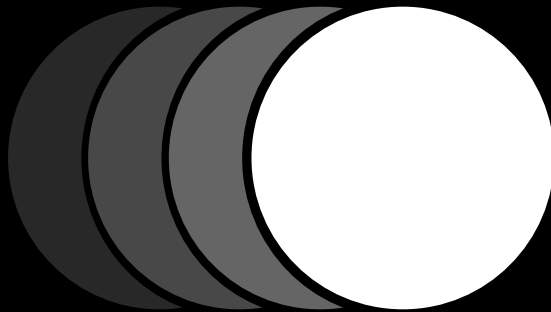
actually

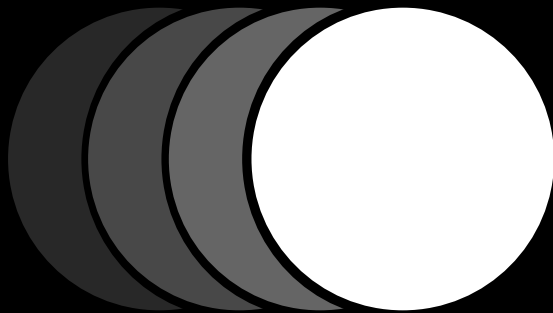
seeing

acting

seeing

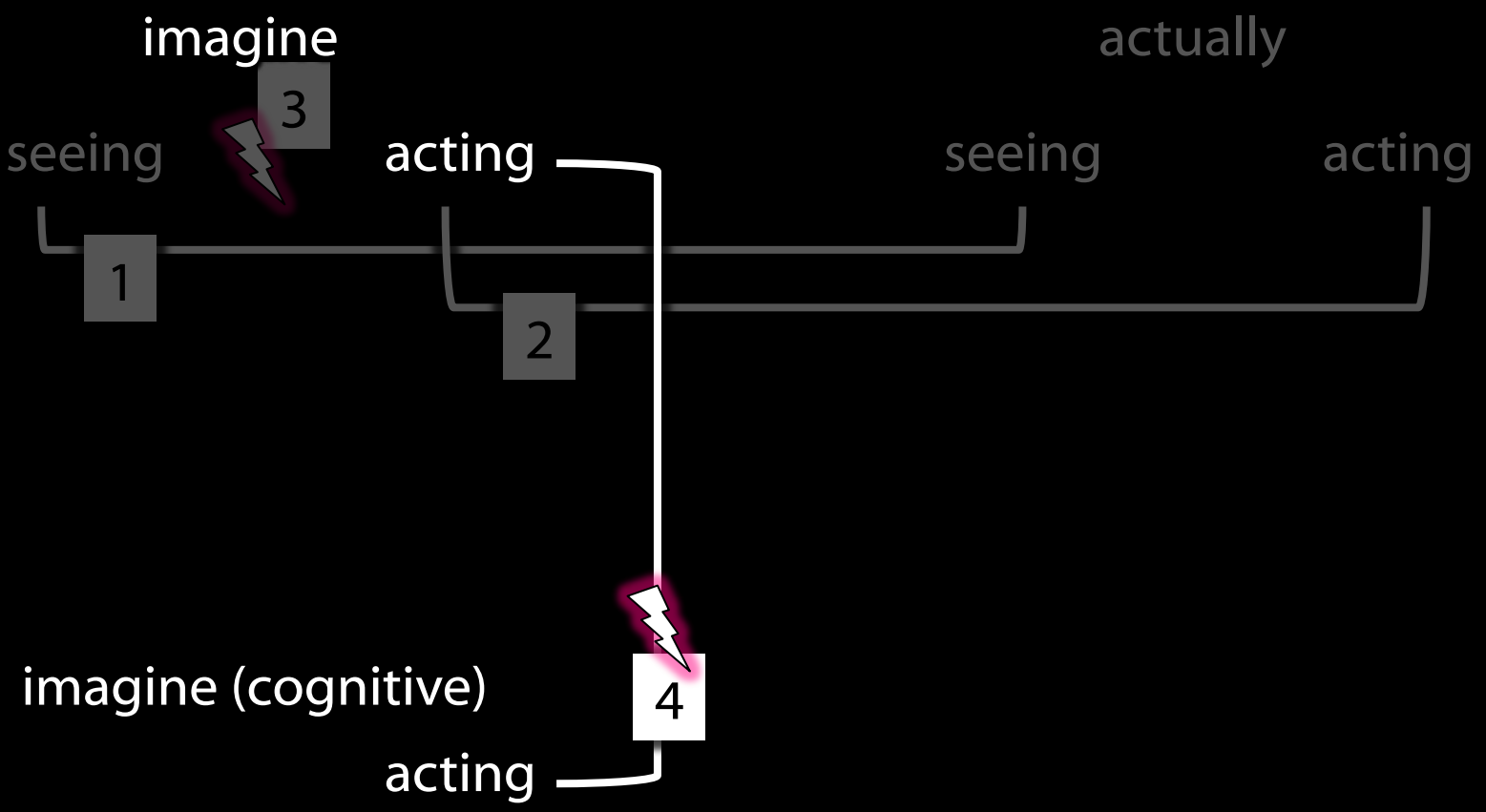
acting







Fiori et al (submitted)



No motor representations are propositional attitudes.

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.

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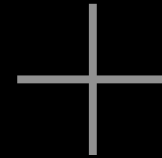
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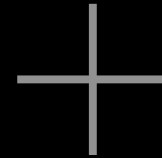
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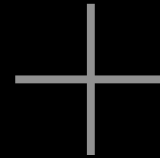
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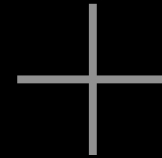
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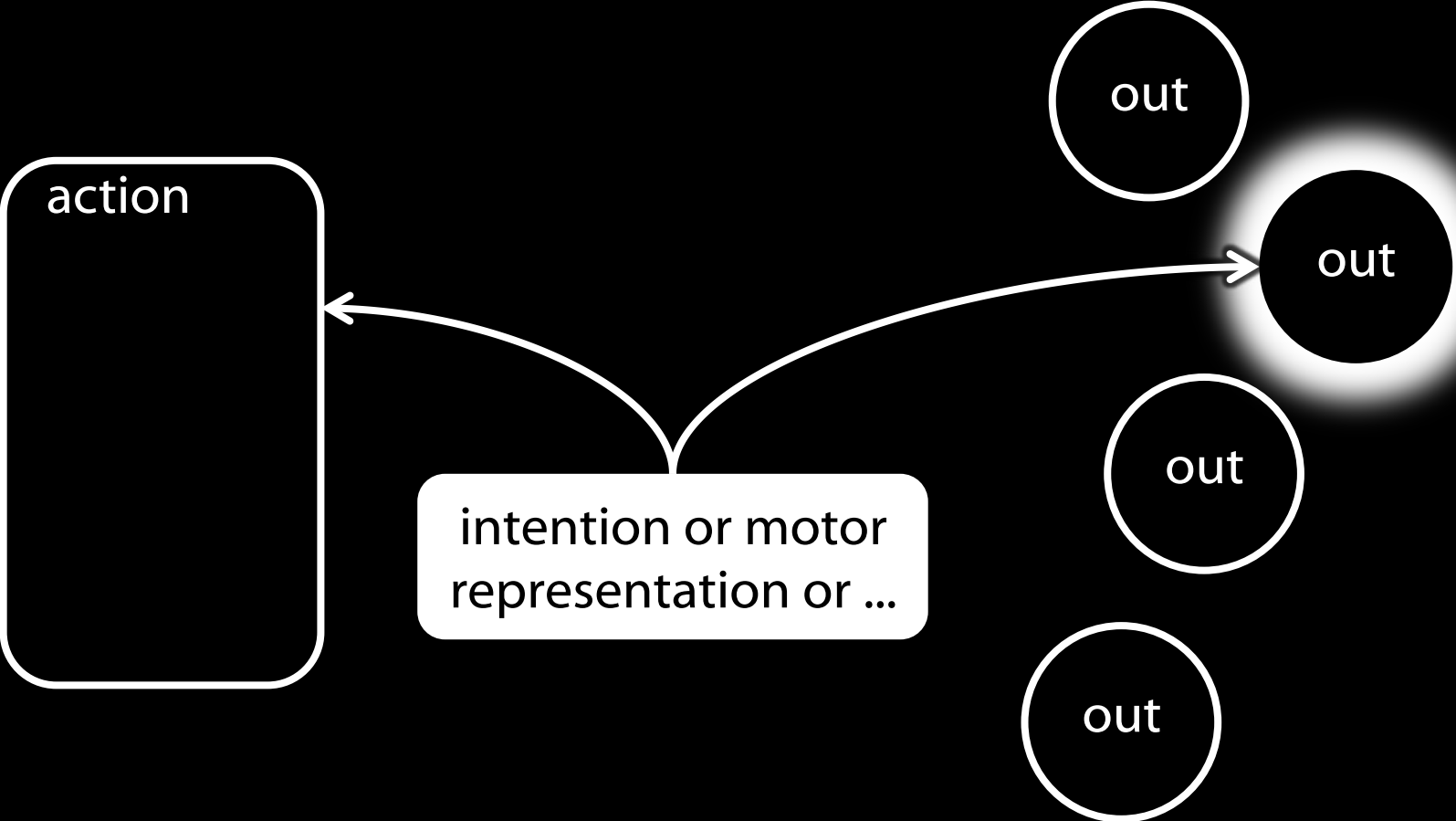
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No motor representations are propositional attitudes.

No motor representations are intentions

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





The Interface Problem

The Interface Problem

Some actions involve both
intention and motor
representation

The Interface Problem

motor representations:

i. represent outcomes;

ii. ground the
purposiveness of some
actions

Some actions involve both
intention and motor
representation

The Interface Problem

motor representations:

i. represent outcomes;

ii. ground the
purposiveness of some
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.

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
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iii. differ in format from
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Some actions involve both
intention and motor
representation

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

?

