

The engines of emotion:

towards a shared understanding of the work they do

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A single idea

Emotion is not a single thing,

- At least, what affective computing is about is not a single thing.

It involves multiple connected elements:

- Where each element is context for others

I am interested in finding revealing ways to describe those extended structures –

In ancient terminology, that means developing structural descriptions

I think there is an obvious way to approach the task:

- I will try to sketch it.

Why the framework isn't standard

Occam's razor says we shouldn't multiply entities unnecessarily.

- Hence, people are wary of saying things happen in our heads
- unless we have direct experience of them.

In the case of emotion, what do we have experience of?

- emotion words and emotional feelings;
- emotional expressions and communication;
- distinctively emotional behaviour.

Parsimony favours theories that focus on those entities and don't postulate others –

- but we know by now that they don't form a natural whole.
- Hence, it makes sense to tell Occam: in this case, more entities are necessary.

A natural model goes back to Plato – ‘the charioteer’

Thumos – emotion

Logos –
intellect



Eros –
amoral drives

A sensible way of thinking

A certain kind of short-lived state

- is something that we are aware of
- and have words for (Greek *patheia*, our 'passion', and many individual state words)

But what lies behind the state

- is a part of our makeup that is always there, and usually working for us;
- but we are not aware of in its own right – the horse

The key to making sense of the first (which is observed) is thinking about second (which is not):

- *patheia* makes sense as a state where the charioteer has lost control,
- and the horses are setting their own course.

Given that we need to relax Occam, that type of move seems a reasonable option – but 'horses' carries associations we don't want, so let's talk about 'engines'

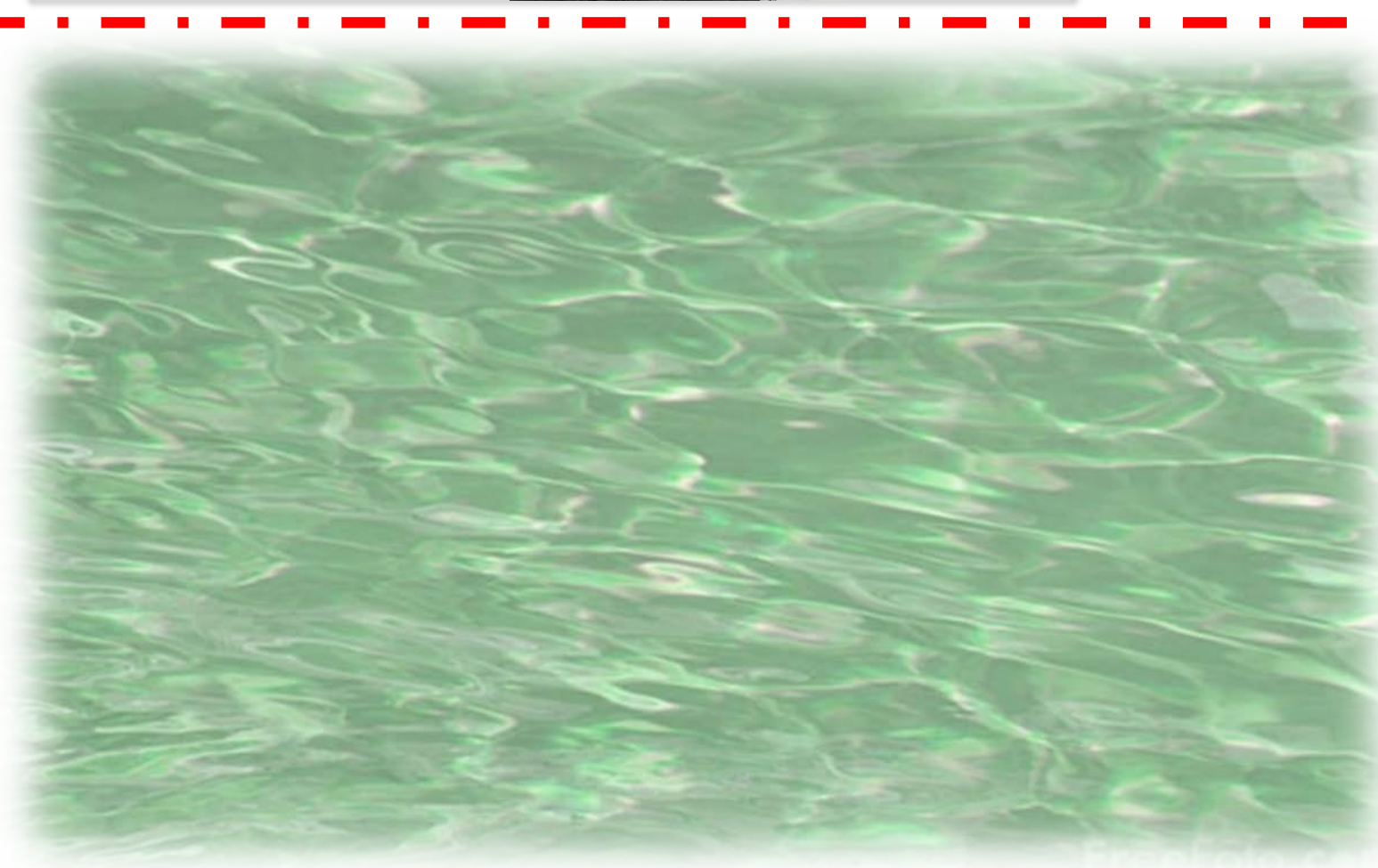
Rational awareness →

A very rough division



Decision

Quasi-fluid layer
(described as overflowing, surging, sweeping us along, being stirred up, draining away) →



Action



Rational awareness →



Decision

Quasi-fluid layer
(described as overflowing, surging, sweeping us along, being stirred up, draining away) →

The work the q-f layer does:

- evaluate states of affairs;
- prepare us to act on the evaluations;
- ensure that we learn from significant conjunctions;
- manage alignments with other people;
- if the evaluation demands, interrupt rational control

Action

Spelling out the options under each heading:

Evaluation

Appraisal (Magda Arnold, 1960)

- sums up what we are facing in terms of its potential for our 'weal or woe'
- and drives the other elements – preparation, &c

Slots to fill in (after Klaus Scherer)

- Novelty* something we should know more about?
- Pleasantness* intrinsically positive or negative?
- Goal significance* easier or harder to achieve our aims?
- Coping potential* in or beyond our power to handle?
- Compatibility* with norms – ours or other people's?

Rational awareness →



Decision

?



Evaluate

- ###
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Action



Yes, but ...

What are the evaluations about?

A famous example (William James, 1884)



Evaluate

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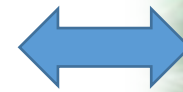
Responses to figure and ground may differ



Evaluate

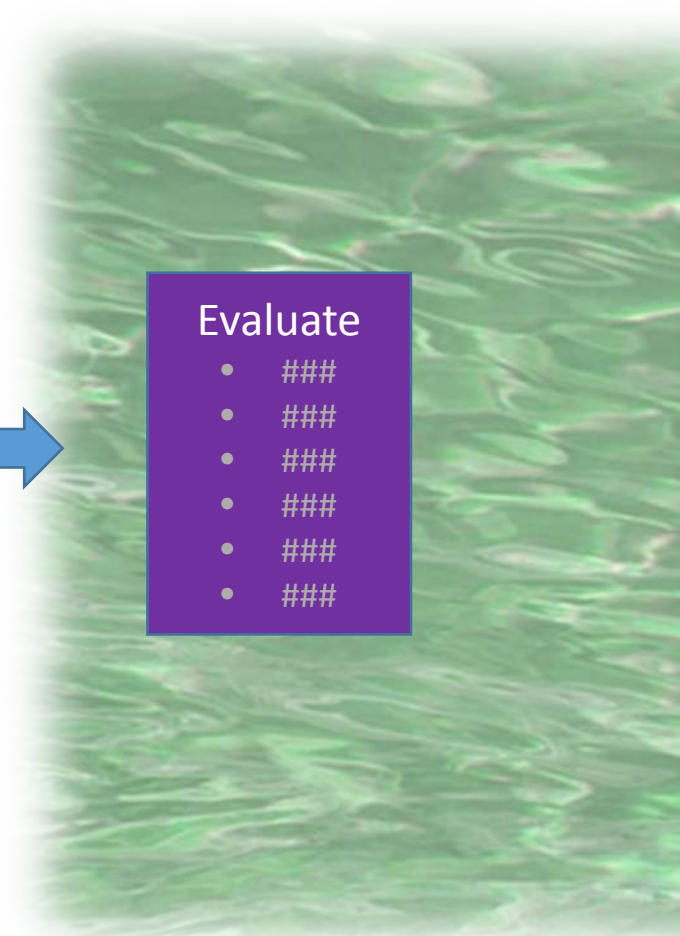
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We also evaluate mindscapes – past

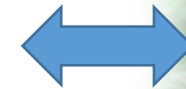


Evaluate

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... or the future



Evaluate

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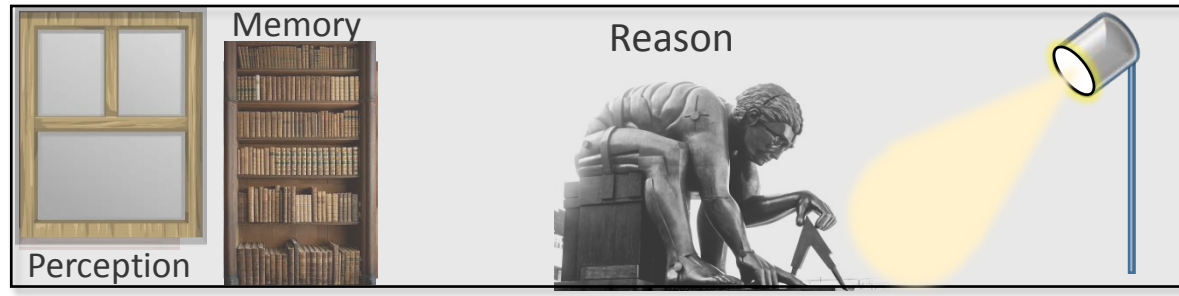
... fictional, or at least potentially real



← Various elements of 'mindscape'

← Immediate reality – 'landscape'

Rational awareness →

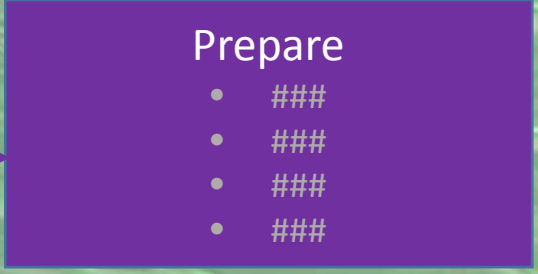
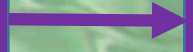
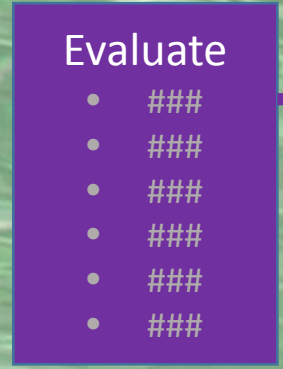


Decision



Action

< ----- immediacy



↑
Emotionally potent states of affairs -
in **landscape**
and **mindcape**

Spelling out the options under each heading:

Preparation

- Action readiness (Aristotle/Frijda)*
- Visceral (Augustine/James)*
- Hormones/immune*
- Cognition*
 - Access to memory*
 - Perception / exploration*
 - Risk evaluation*

Rational awareness →

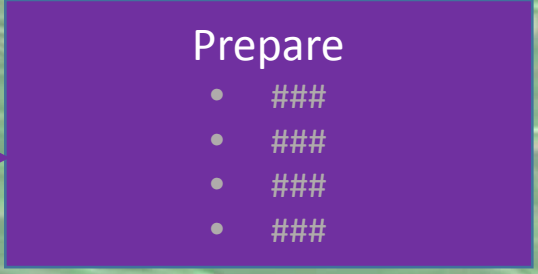
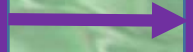


Decision



Action

< ----- immediacy



↑
Emotionally potent states of affairs -
in **landscape**
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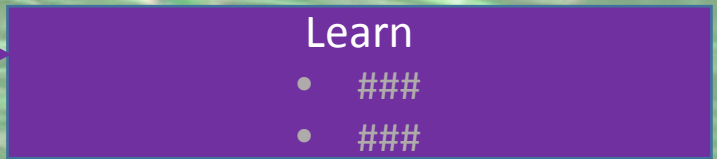
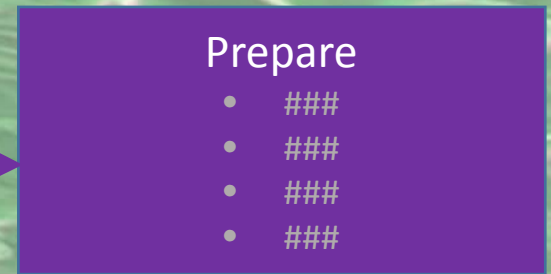
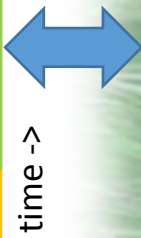
Rational awareness →



Decision



< ----- immediacy



↑
Emotionally potent
states of affairs -
in **landscape**
and **mindcape**

Spelling out the options under each heading: Learning (Tomkins 1962, Rolls 1999)

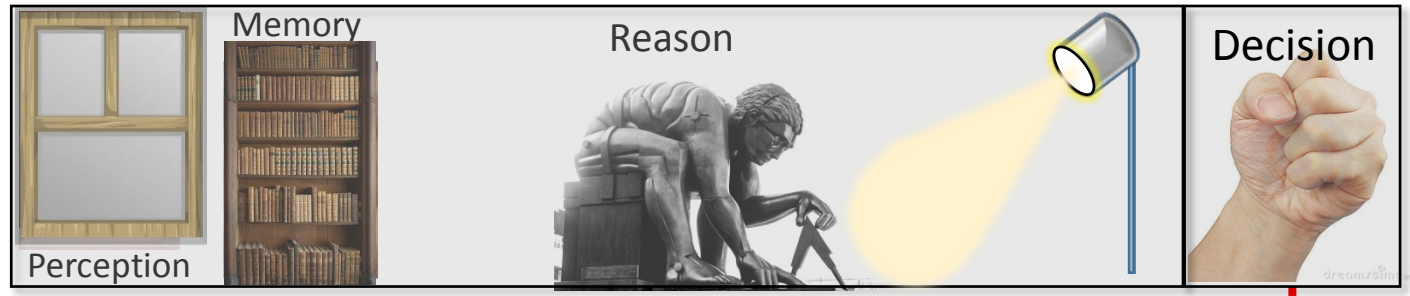
Emotion leads various kinds of connection to form:

- ❑ *Classical conditioning* links two stimuli, so the second comes to be evaluated in the way that the first originally was;
- ❑ *Operant conditioning* links a stimulus S to a response R, so that S comes to evoke R;
- ❑ *Higher order* (Tomkins 1978)
 - ❑ associated feelings are amplified by linking them into 'scripts'

Note that these feed into other components:

- Classical conditioning affects the evaluation of a stimulus
(it becomes aversive, pleasurable, etc)
- Operant conditioning changes the preparations that it evokes

Rational awareness →

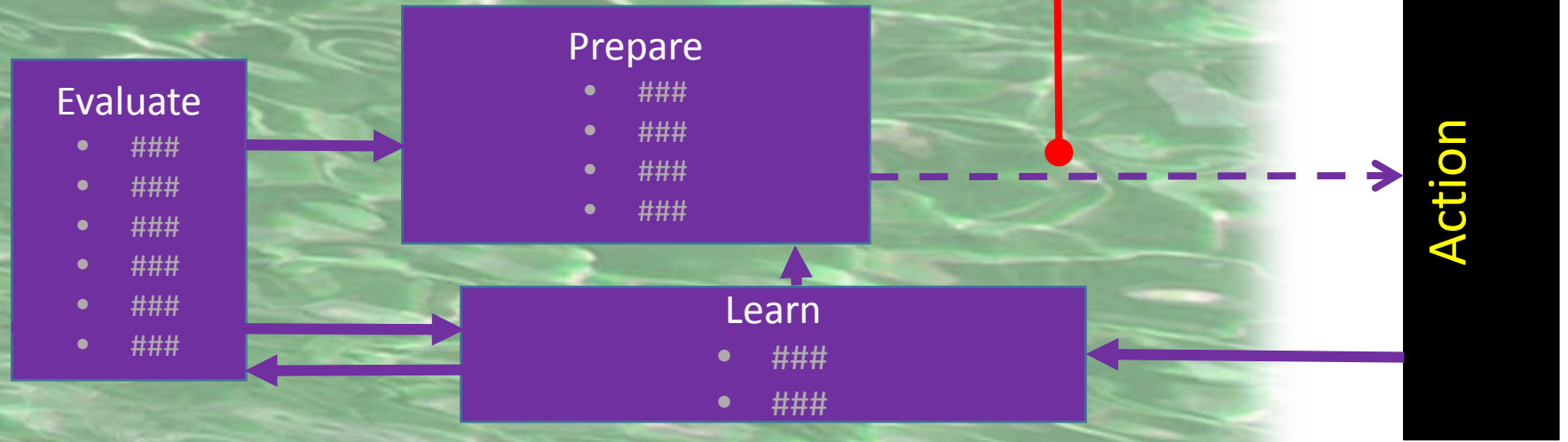


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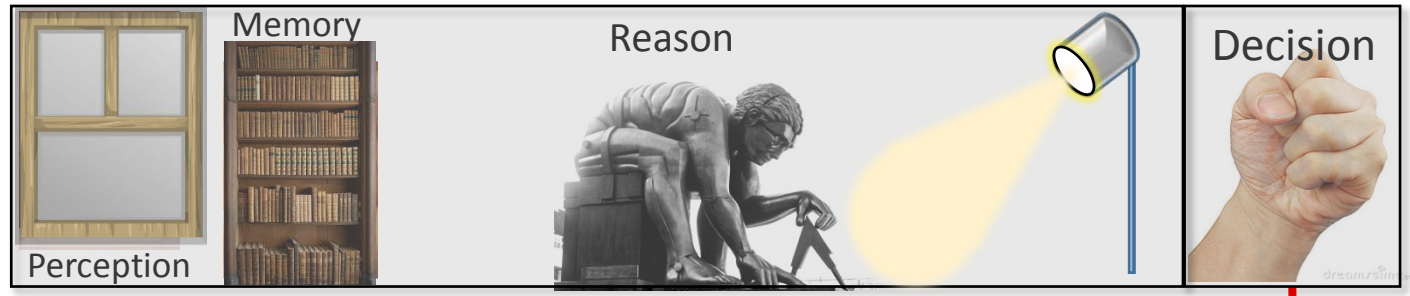


time ->

Emotionally potent states of affairs - in **landscape** and **mindcape**



Rational awareness →



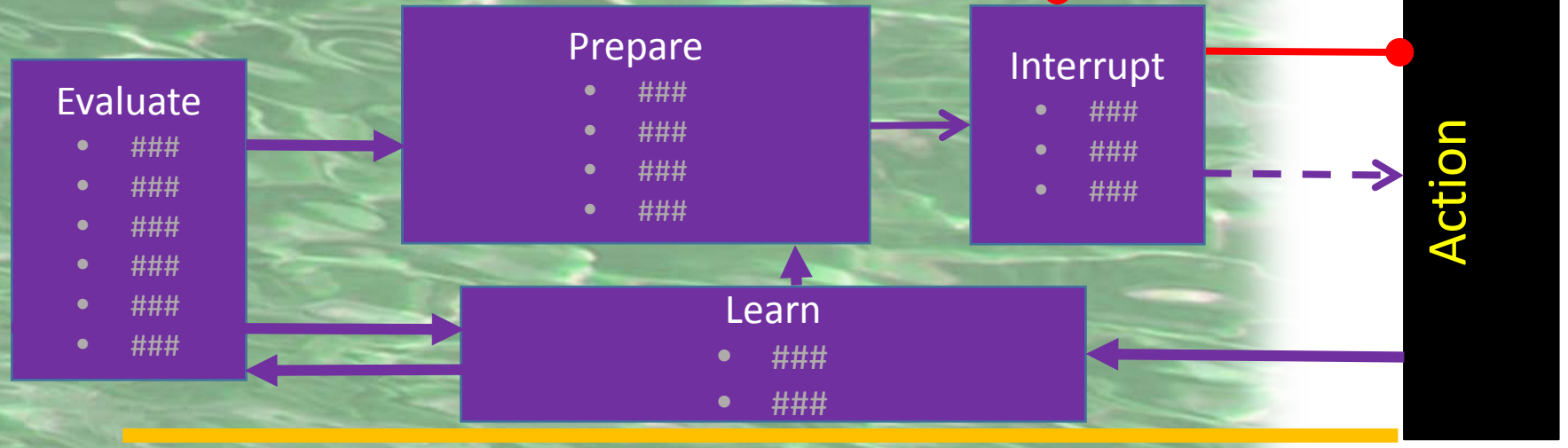
● = inhibition

< ----- immediacy



time ->

↑
Emotionally potent states of affairs -
in **landscape**
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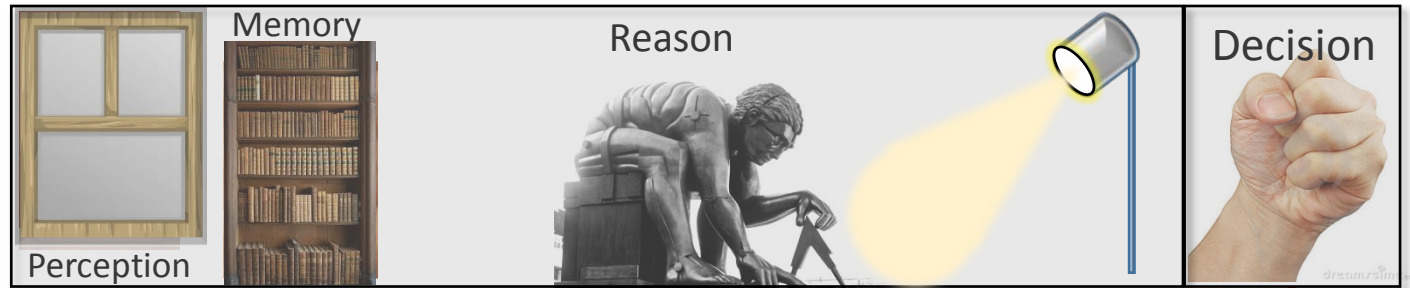
Spelling out the options under each heading:

Interrupt (Oatley 1992)

Emotion can wrest control from conscious decision in

- Emergencies* (e.g. the bear in the woods);
- Breakdown of long term plans*;
- Perturbations/affects* (Augustine)

Rational awareness →



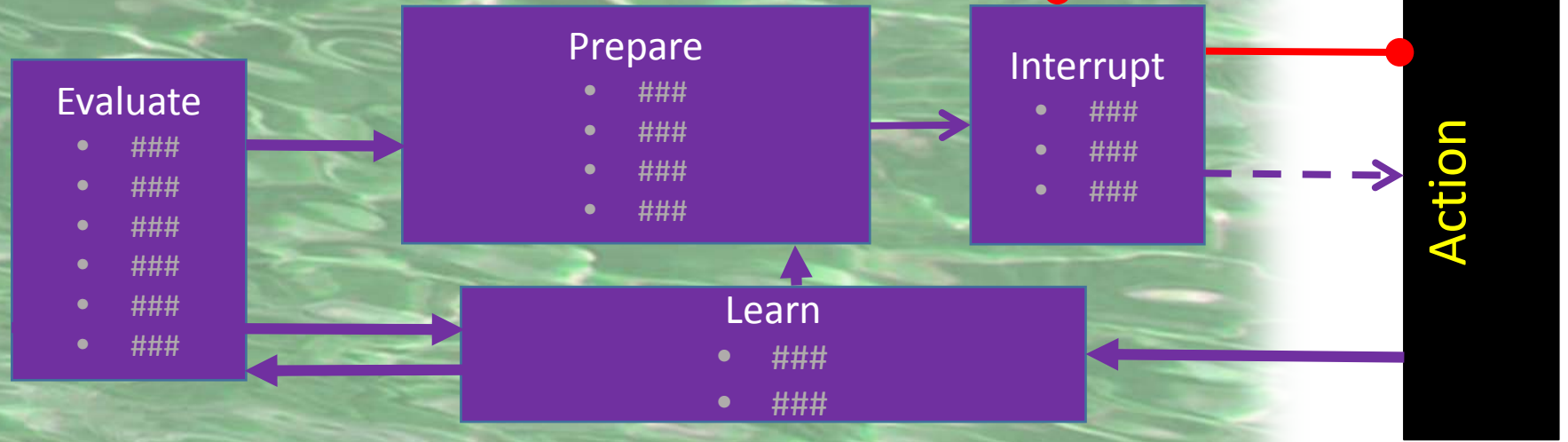
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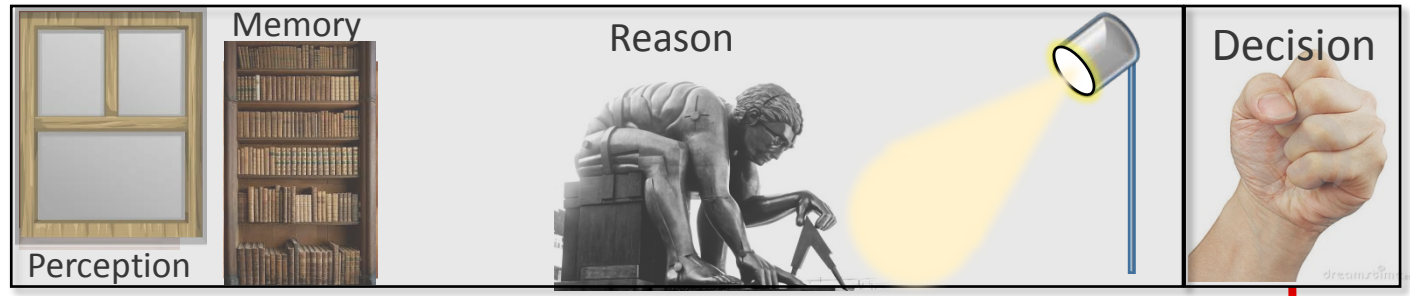


time ->

Emotionally potent states of affairs - in **landscape** and **mindcape**



Rational awareness →



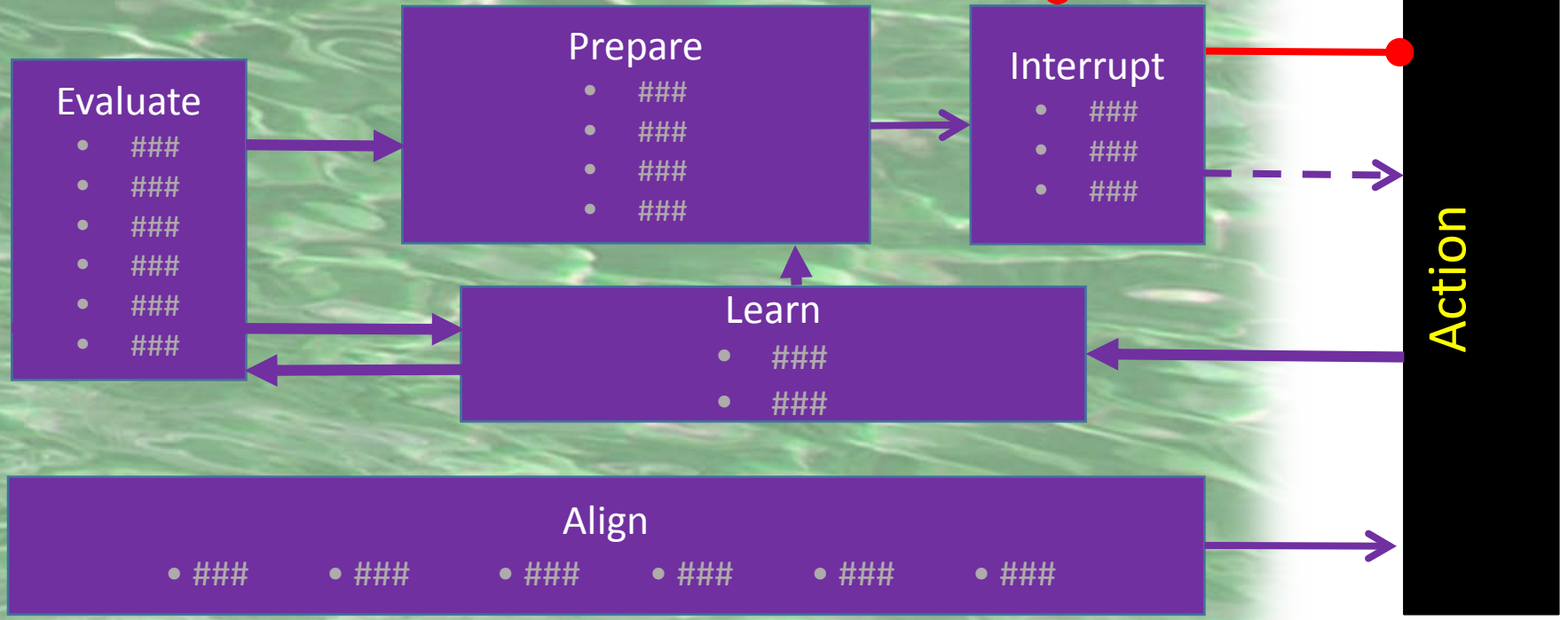
● = inhibition

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time ->

Emotionally potent states of affairs - in **landscape** and **mindcape**



Spelling out the options under each heading:

Alignment

The term is from linguistics via Garrod et al. (2004)

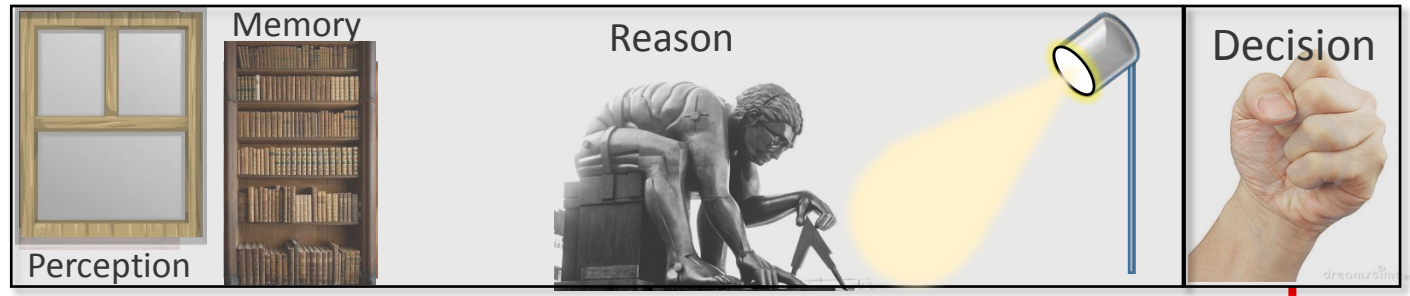
The function was noted by Darwin (1872) and stressed by, e.g. Parkinson (2008)

Effectively, the engines of emotion in different people 'talk' to each other

- permission from rational awareness is not required

- Specialised signs* are given (often without interrupting other actions),
 - and *specialised appraisal* decodes them
- Correspondence* with another person is pervasive
- Contagion* is linked to strong emotions and groups
- Learning* has far-reaching effects – hence cultural differences

Rational awareness →



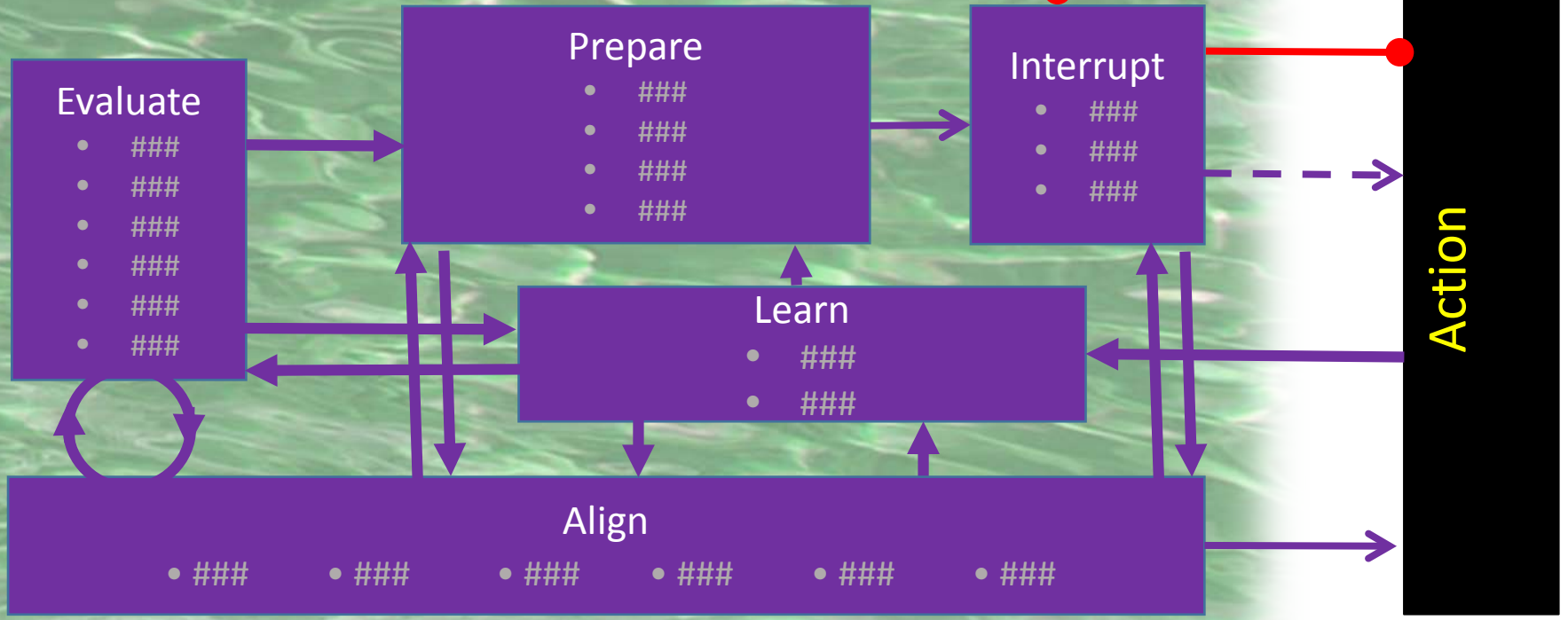
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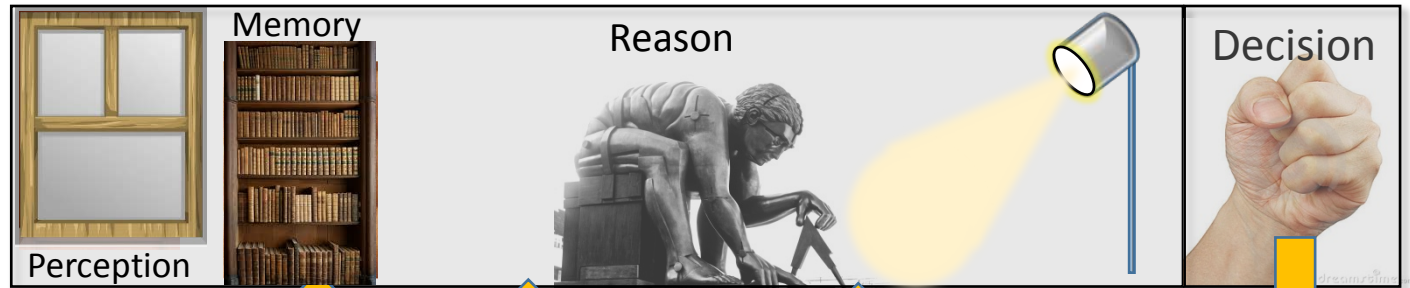
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Emotionally potent states of affairs - in **landscape** and **mindcape**



Rational awareness →

Interface constructs →



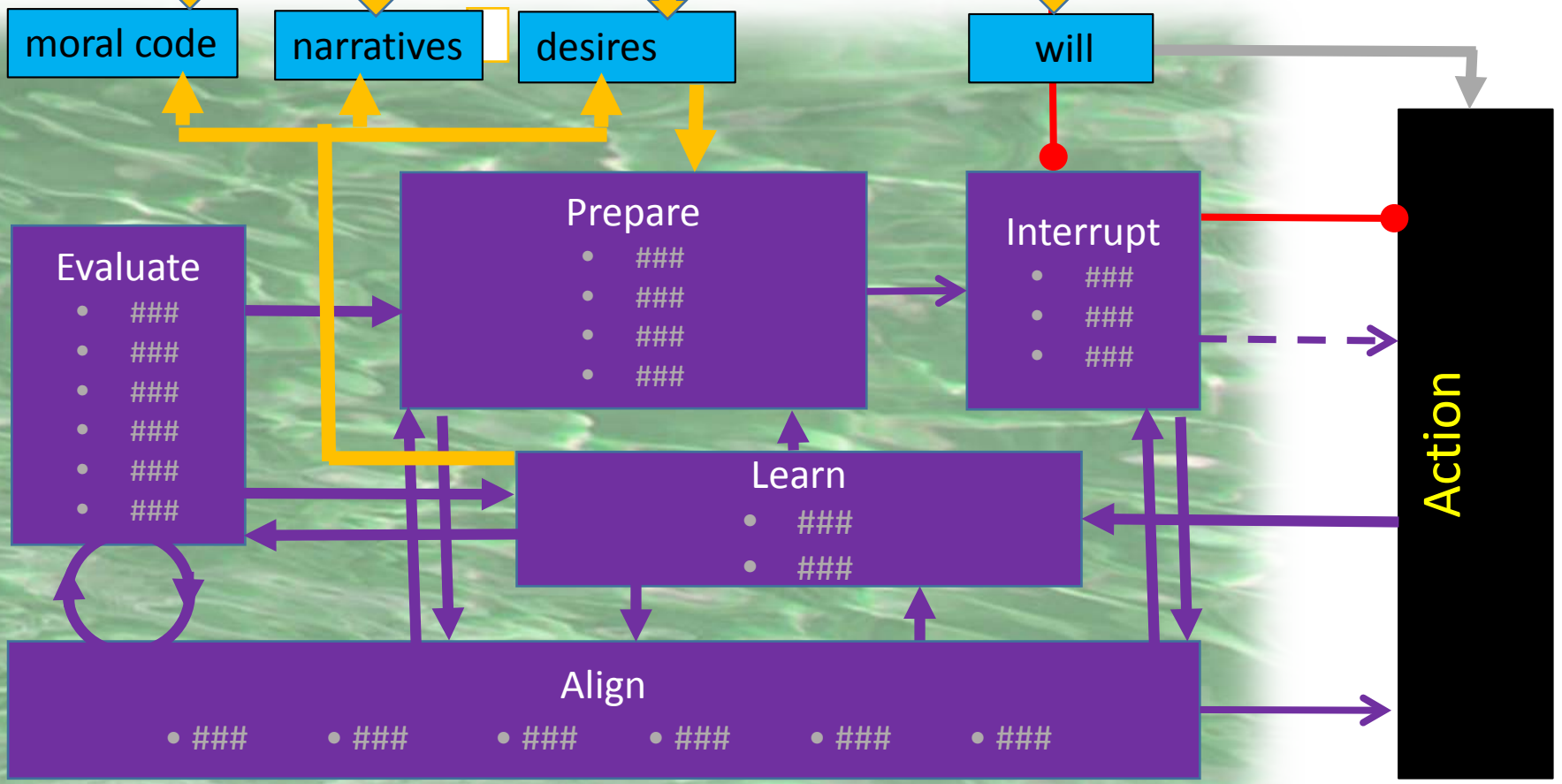
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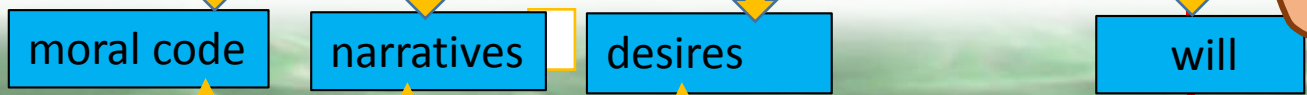
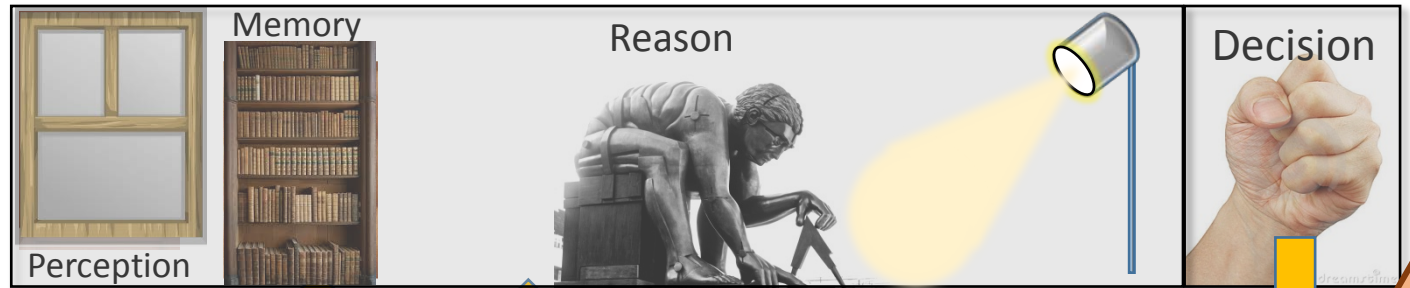
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Emotionally potent states of affairs - in **landscape** and **mindscape**



Rational awareness →

Interface constructs →

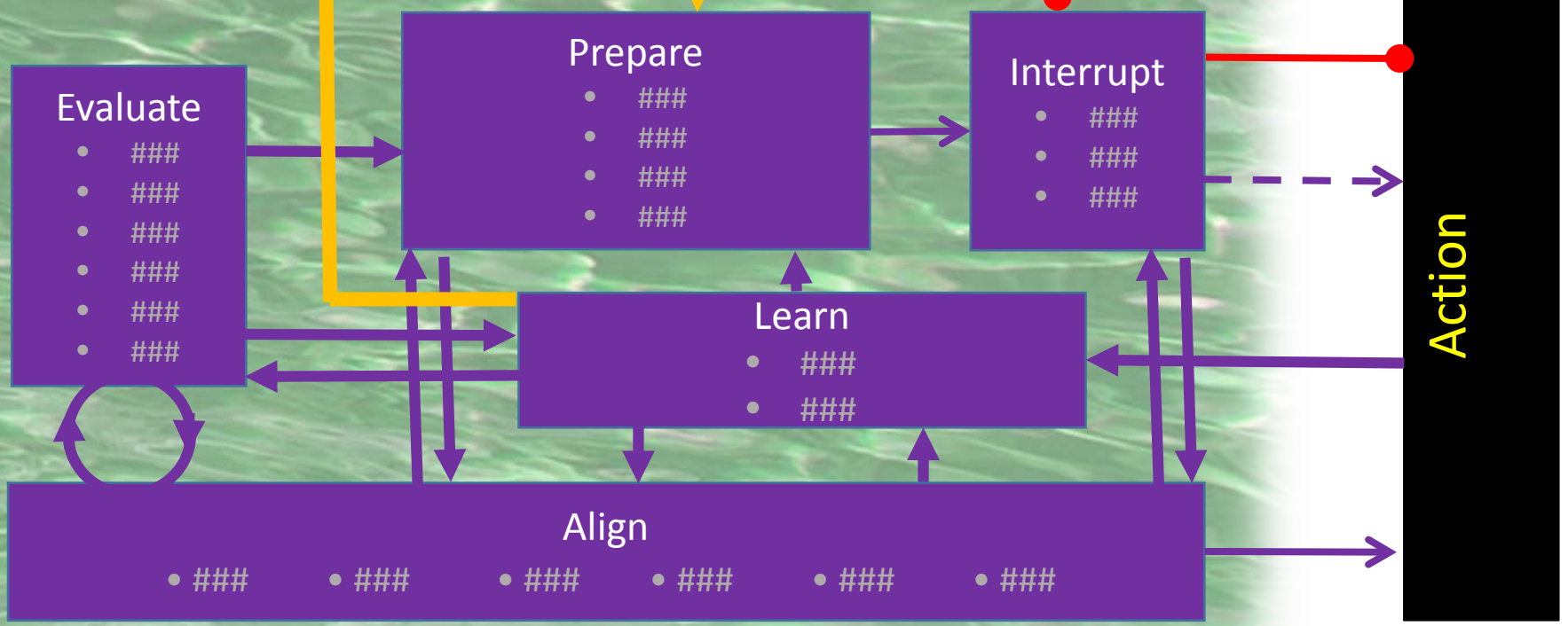


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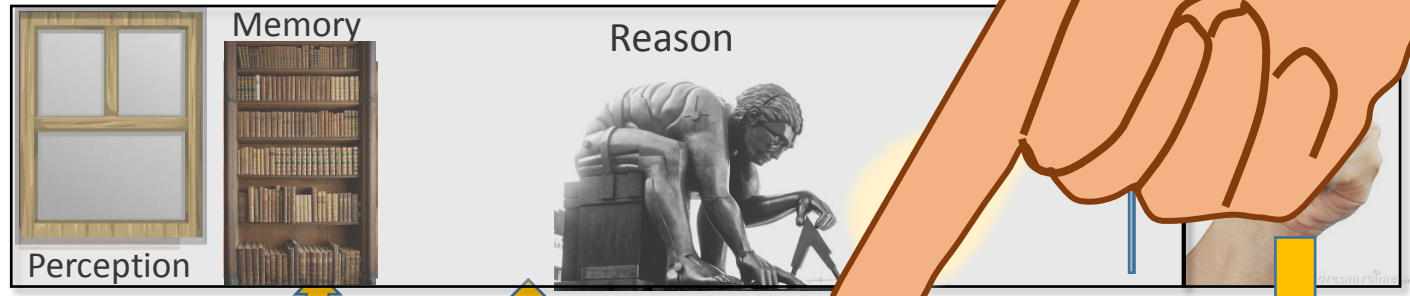
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Emotionally potent states of affairs - in **landscape** and **mindcape**



Rational awareness →

Interface constructs →



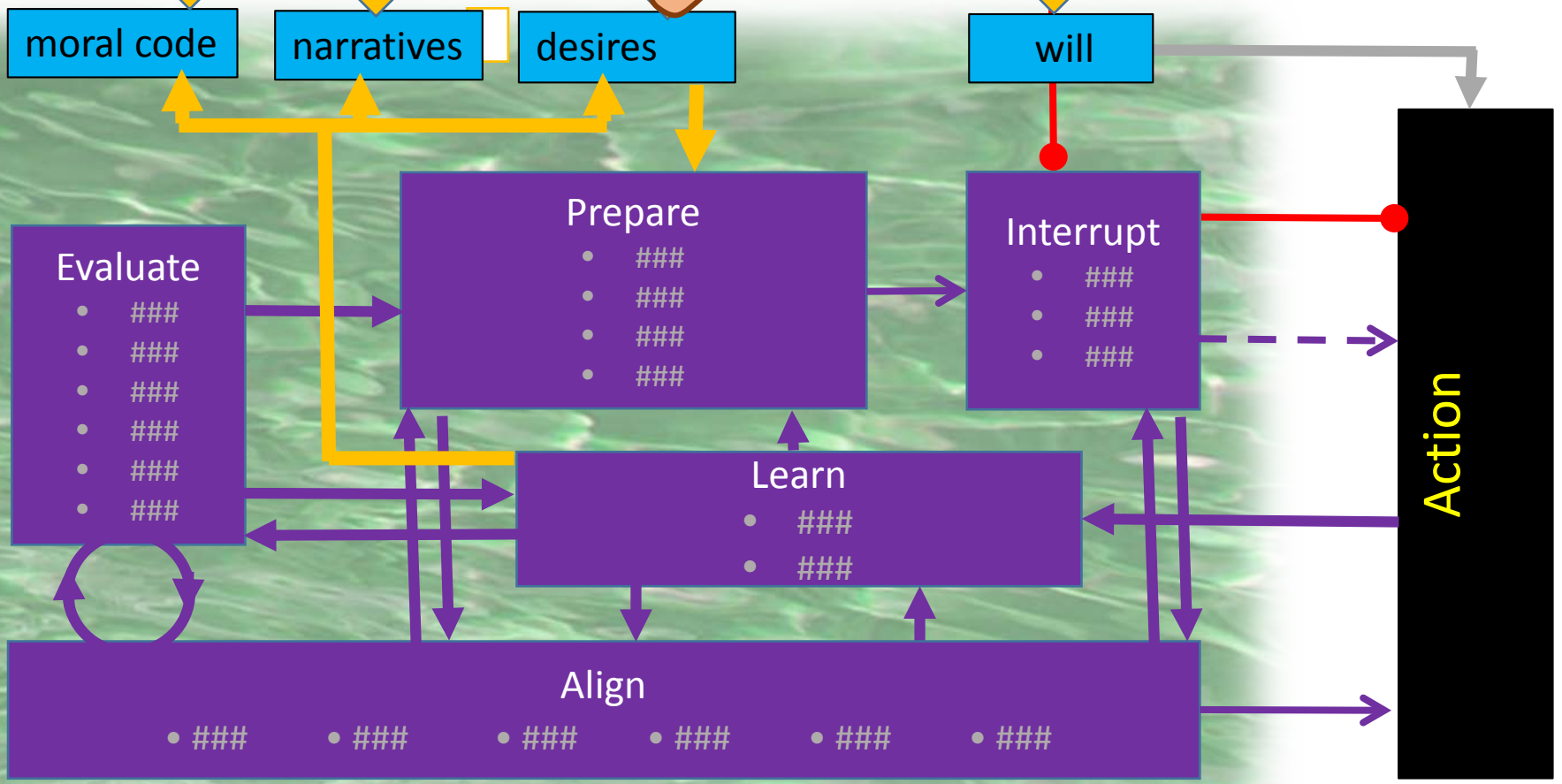
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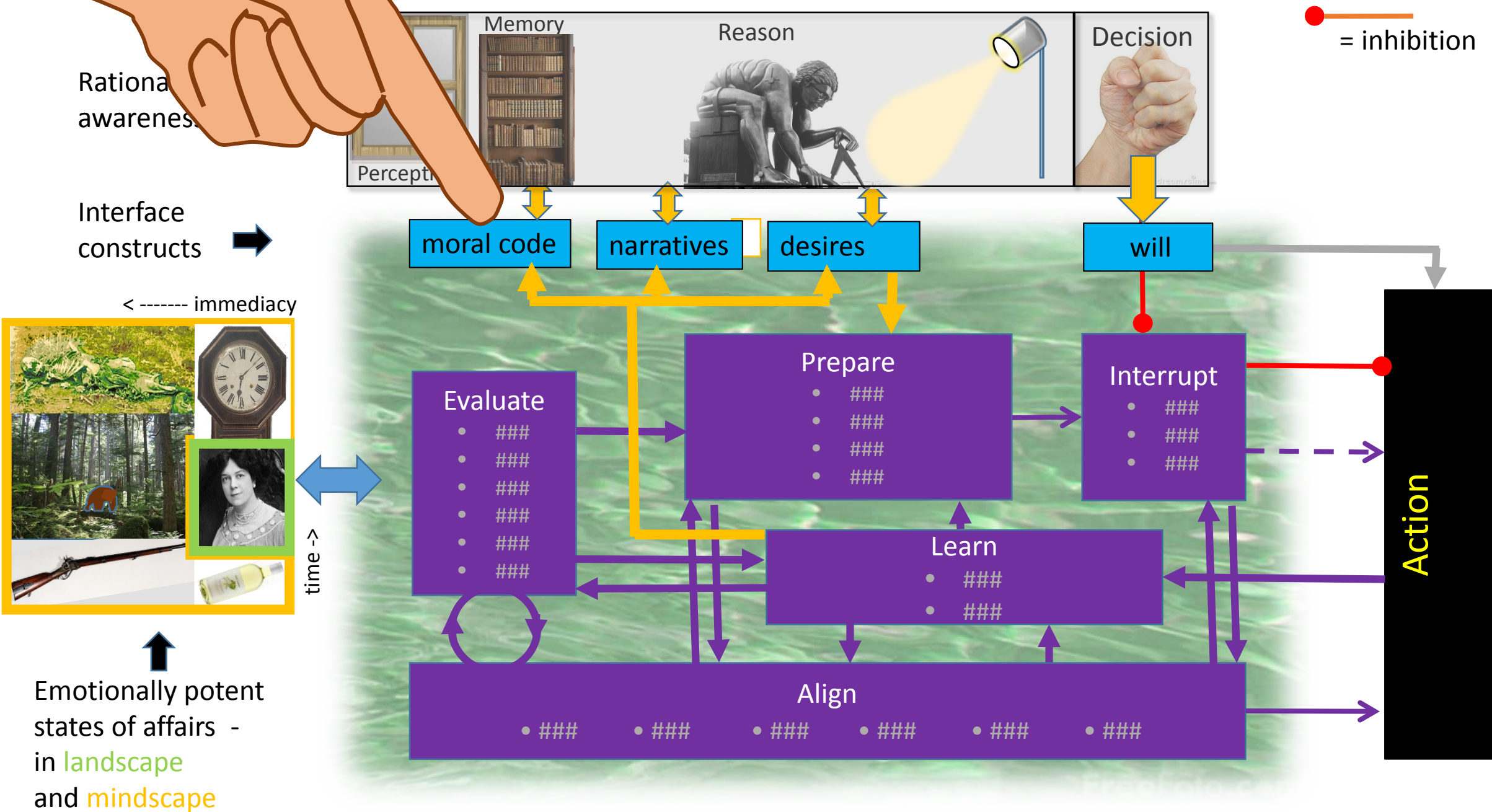
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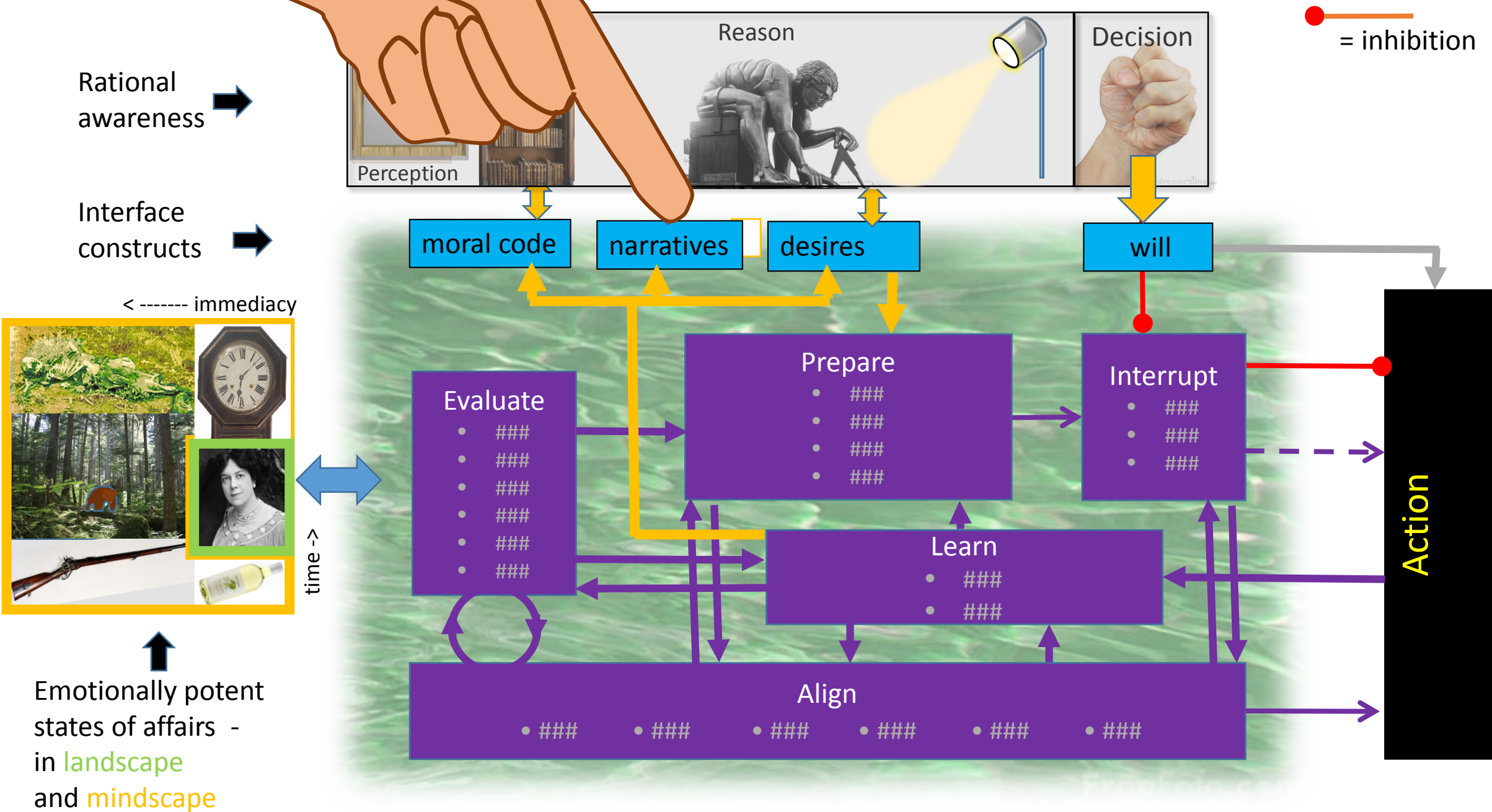


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Emotionally potent states of affairs - in **landscape** and **mindcape**

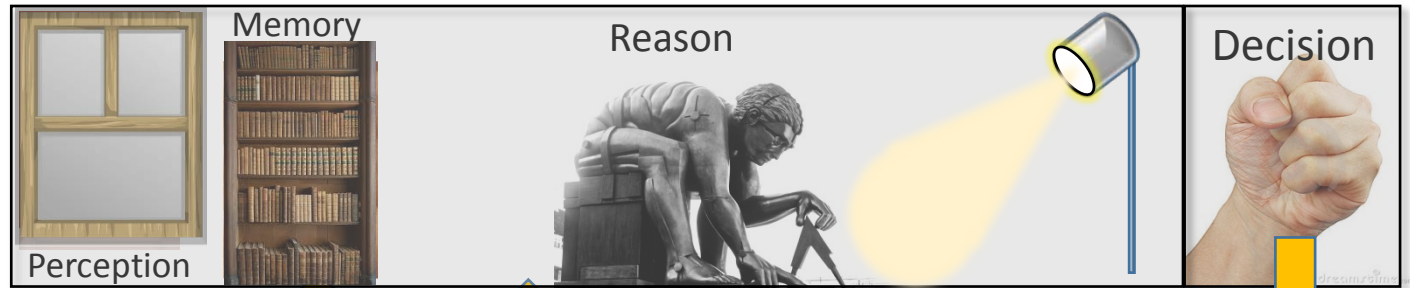






Rational awareness →

Interface constructs →



● = inhibition

< ----- immediacy



time ->

Emotionally potent states of affairs - in **landscape** and **mindcape**

moral code

narratives

desires

will

Evaluate

- ###
- ###
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- ###

Prepare

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- ###
- ###

Interrupt

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- ###
- ###

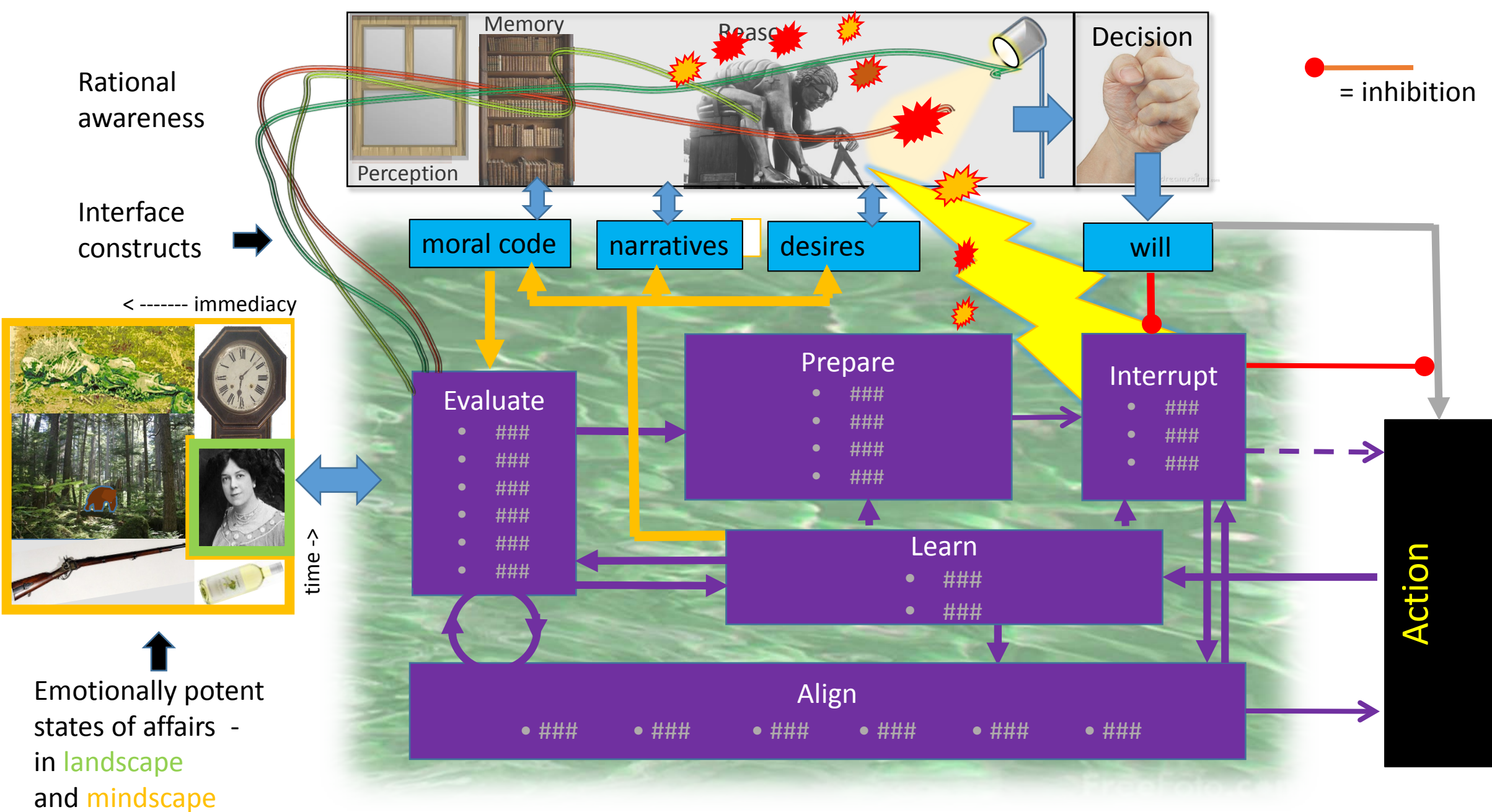
Learn

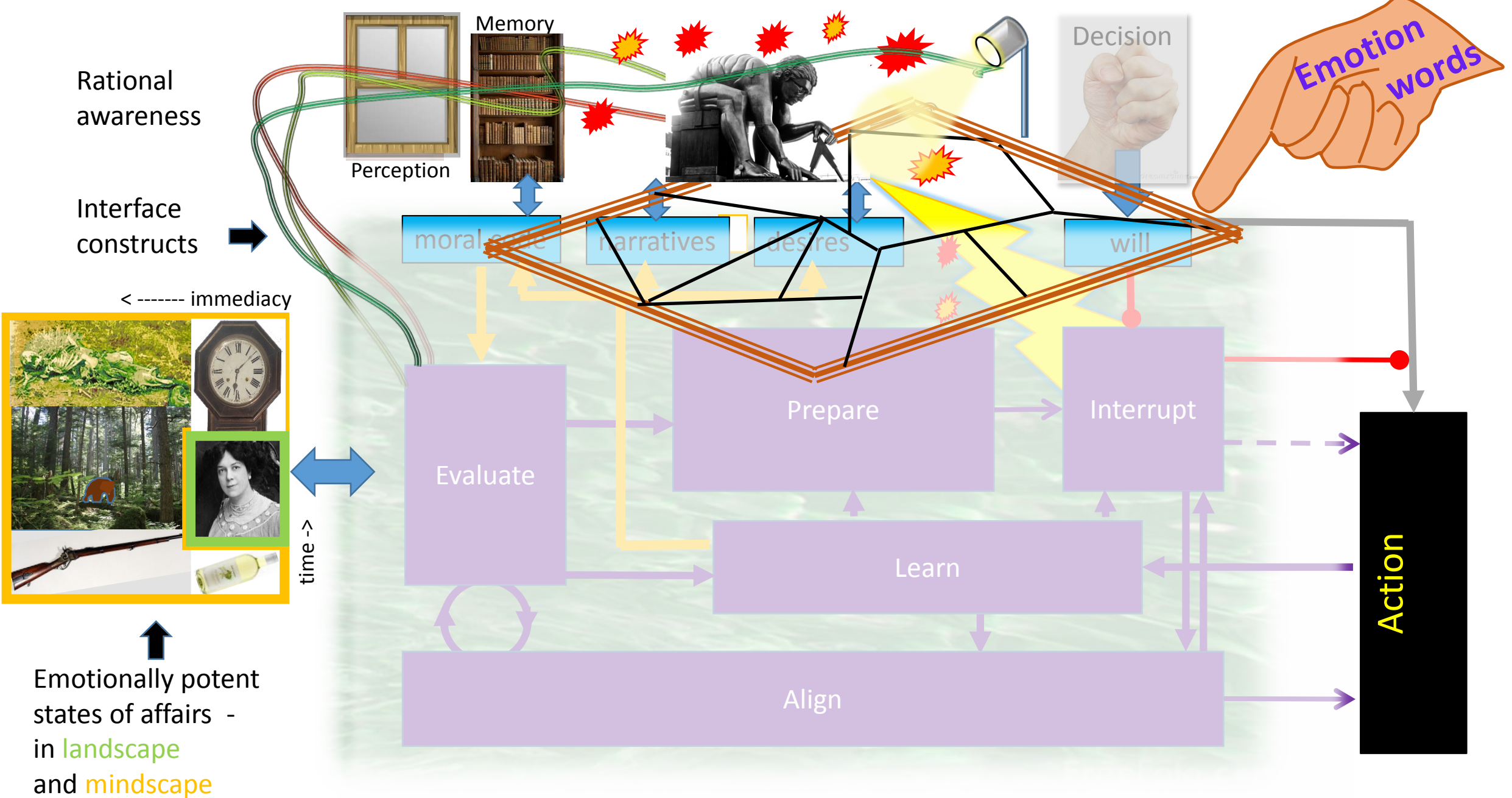
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Align

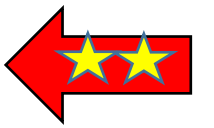
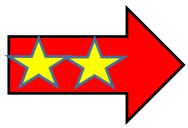
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Action





SO: if we want a shared understanding of the machinery underlying emotion, the starting point should be at least as complicated as this.



Rational awareness

Interface constructs

< ----- immediacy



Emotionally potent states of affairs - in **landscape** and **mindscapes**

