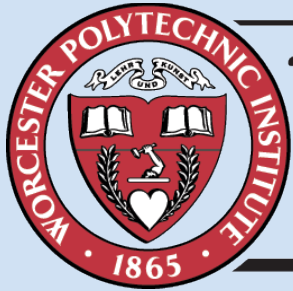


Ready?



WPI

CREATIVITY, SURPRISE & DESIGN: AN INTRODUCTION AND INVESTIGATION

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Creative Products

- Creative products are often surprising.
- Surprise needs to be understood.
- Computational Design Creativity systems will need to create and control surprise.

Milk Jug: “normal”



Milk Jug: less normal



Milk Jug: surprising



Milk Jug: surprising!



Expectations

- *Expectation*: description of, or proposition about, an artifact.
- Based on knowledge.
 - Can be generated at different times:
In advance *or* On demand.

Expectations correct?

- Expectations can be *satisfied* or *violated* when matched with generated artifact.
- *Expectation violation* produces surprise.

Mary...

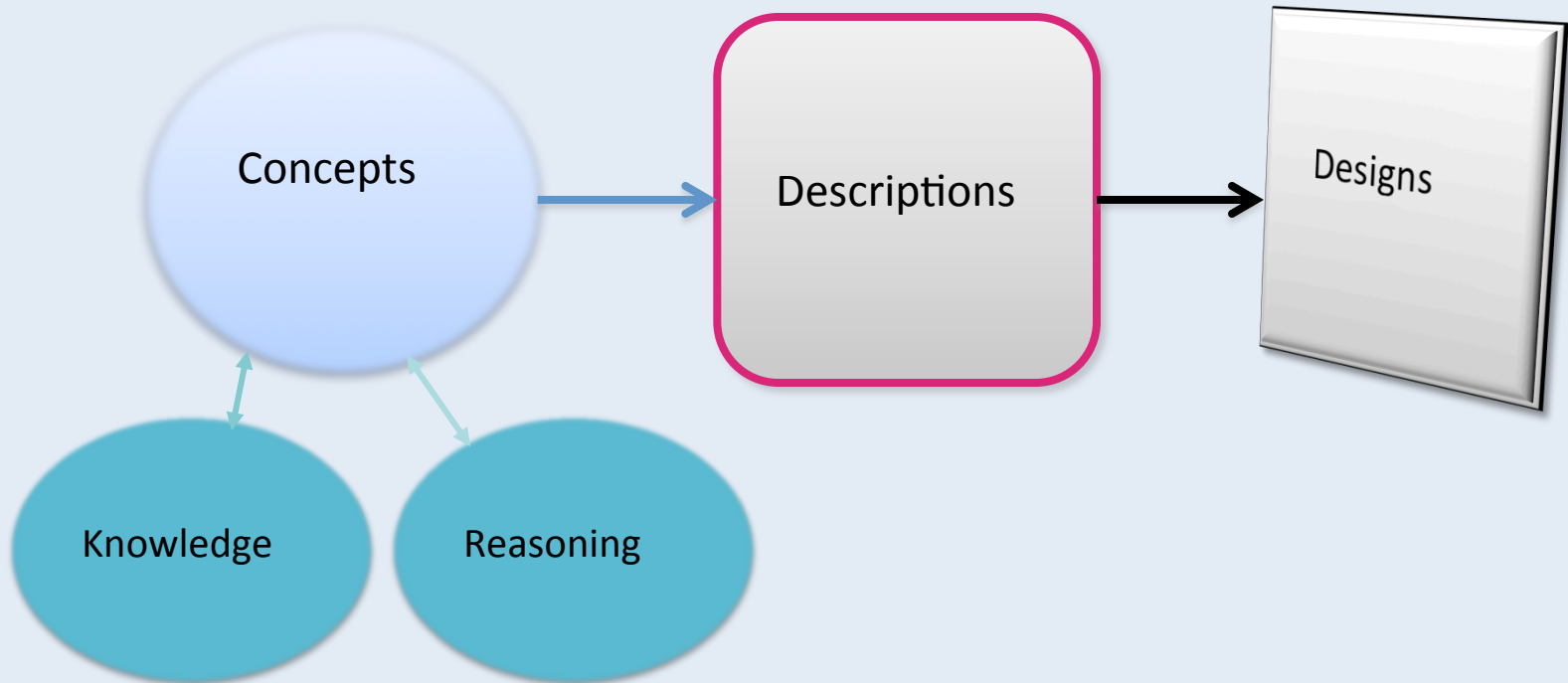
Mary had a little lamb...

lamb...

Mary had a little lamb...
...wasn't the doctor surprised.

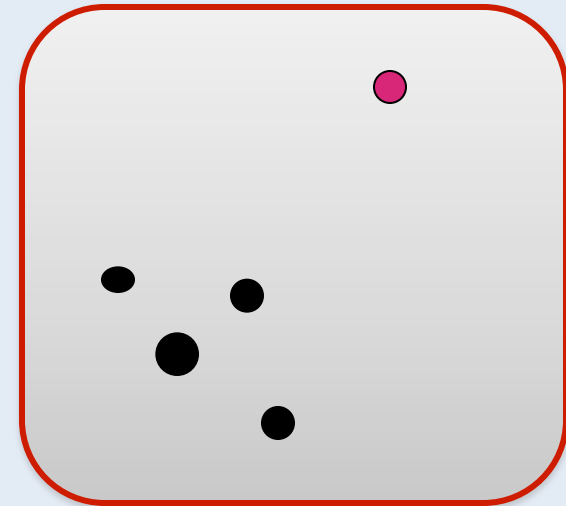
Boden's Model of Creativity

- Designs from a *Conceptual space*.
 - Collection of artifact descriptions.



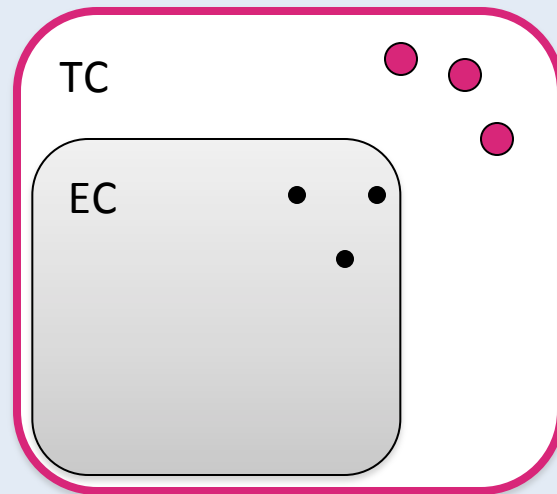
Exploratory Creativity

- *Exploratory Creativity (EC)*.
 - Explore the conceptual space.
- *First-time Newness*.
 - New, from exploration.
 - Not “truly creative”.
 - But can still be surprising.



“Radical Originality”

- Need to transform the conceptual space.
- *Transformational Creativity (TC)*
 - Designs from transformed space.



TC: structure



TC: structure



TC: analogy



TC: cross-domain analogy



How?

- How can an evaluator be surprised by a design?
- How can a designer be surprised by their own design?

Evaluator's Surprise

- Assume designer produces a TC design and the evaluator has EC expectations.
- For example...

TC: structure



Evaluator's Surprise

- External evaluator needs *TC expectations* in order *not* to be surprised.
- So External evaluator can be surprised.

Designer's Surprise

- *EC expectations* apply to old EC space.
- TC designs violate EC expectations.
- Designer is more likely to have familiar EC expectations.
- So designer can be surprised by their own design.

Benefits

Studying a combination of

- types of surprise
- types of creativity
- how surprise occurs

can provide information to help us build
Computational Design Creativity systems.

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