Ready?
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...
Mary had a little lamb...
...wasn't the doctor surprised.
Boden’s Model of Creativity

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

![Diagram showing the process from concepts to designs](image)
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.