Towards affordance-based solving of object insight problems

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Practical object-related problem-solving with incomplete knowledge and incomplete toolset

Three levels

I. Simple object replacement creative problems
- Problem form – agent needs an object (for a specific affordance), object is not present
- Task – search for “creative” object replacement

II. Object composition problems
- Agent needs a certain object, but neither the object nor a direct replacement can be found in the environment
- Task: Compose object out of similar object parts
- Object part encoding and re-representation

III. Object composition insight problems (wrapped problems)
- Problem re-representation + Object re-representation
- String problem:
  - Elongate object/Move object towards self to Object should move towards self (insight) + Construct object capable of pendular motion

Humans can use knowledge about affordances creatively to solve problems
- Cognitively-inspired (creative) affordance inference mechanisms
- More robust, flexible, independent artificial systems
- Make new affordance hypotheses
- Construct new objects

The framework (Oltețeanu 2014)

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