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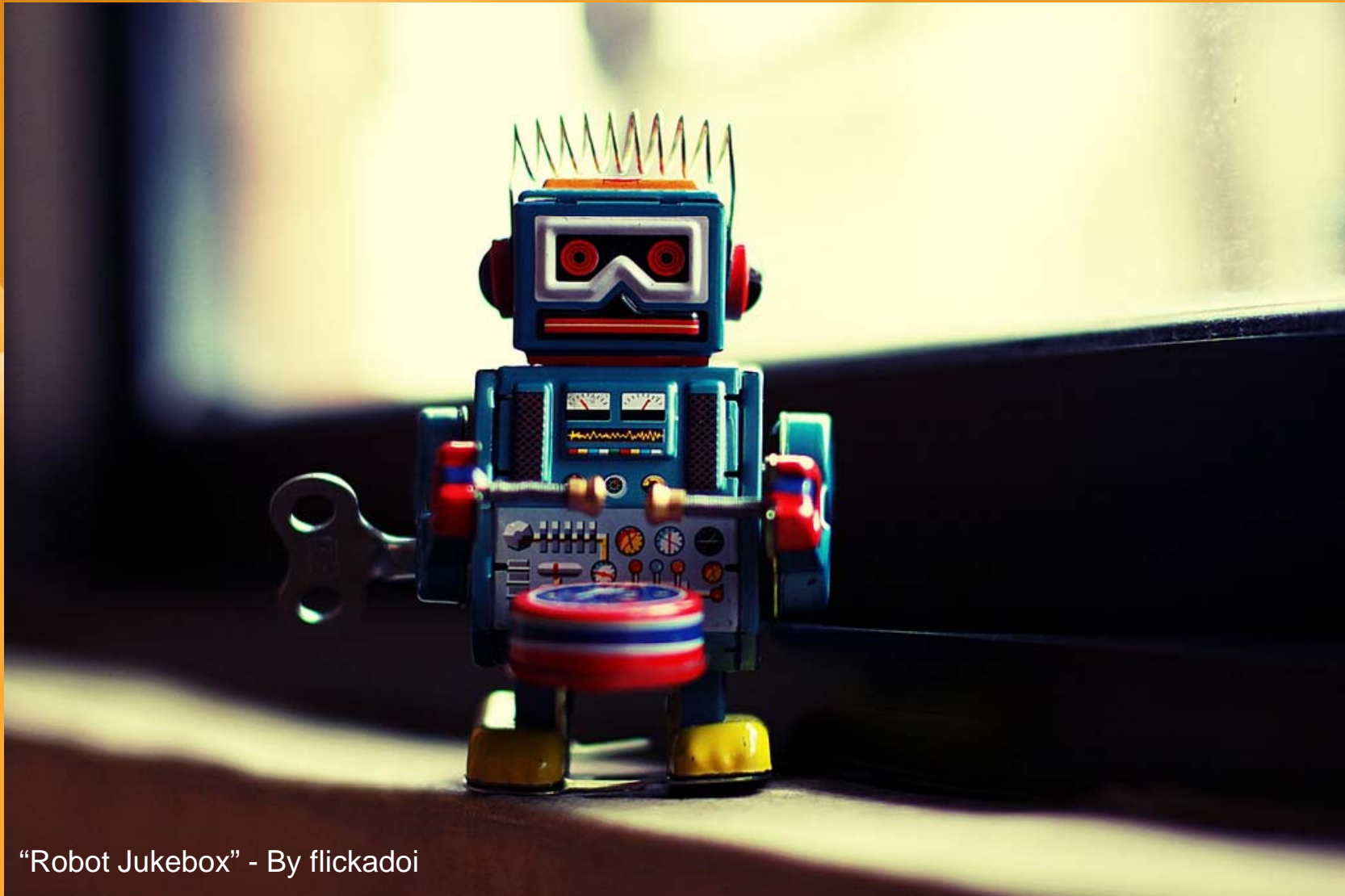


Model-Driven Adaptation

Deriving Adaptive Behaviour from i^* Models

Introduction

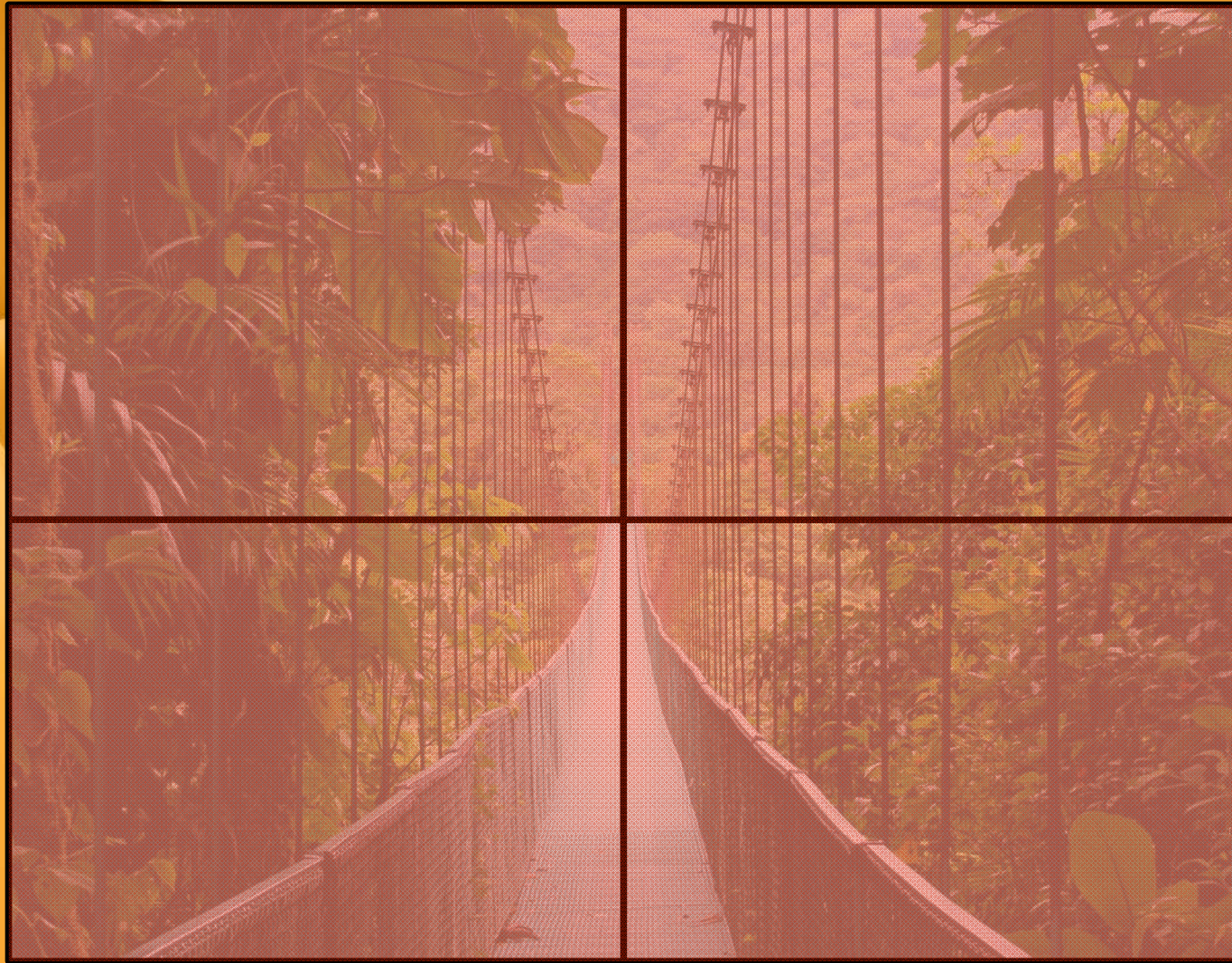
➤ RE for self-adaptive systems



"Robot Jukebox" - By flickadoi

Divide and Conquer

- Berry, Cheng and Zhang: The four levels of requirements engineering for and in dynamic adaptive systems



“monteverde” - By
baxterclaus

Claims

- ▶ ...A little extra rationale



“Ambulance in Motion” - By Benjamin Ellis

Policies

- A Way of Specifying Adaptive Behaviour



Policy Derivation

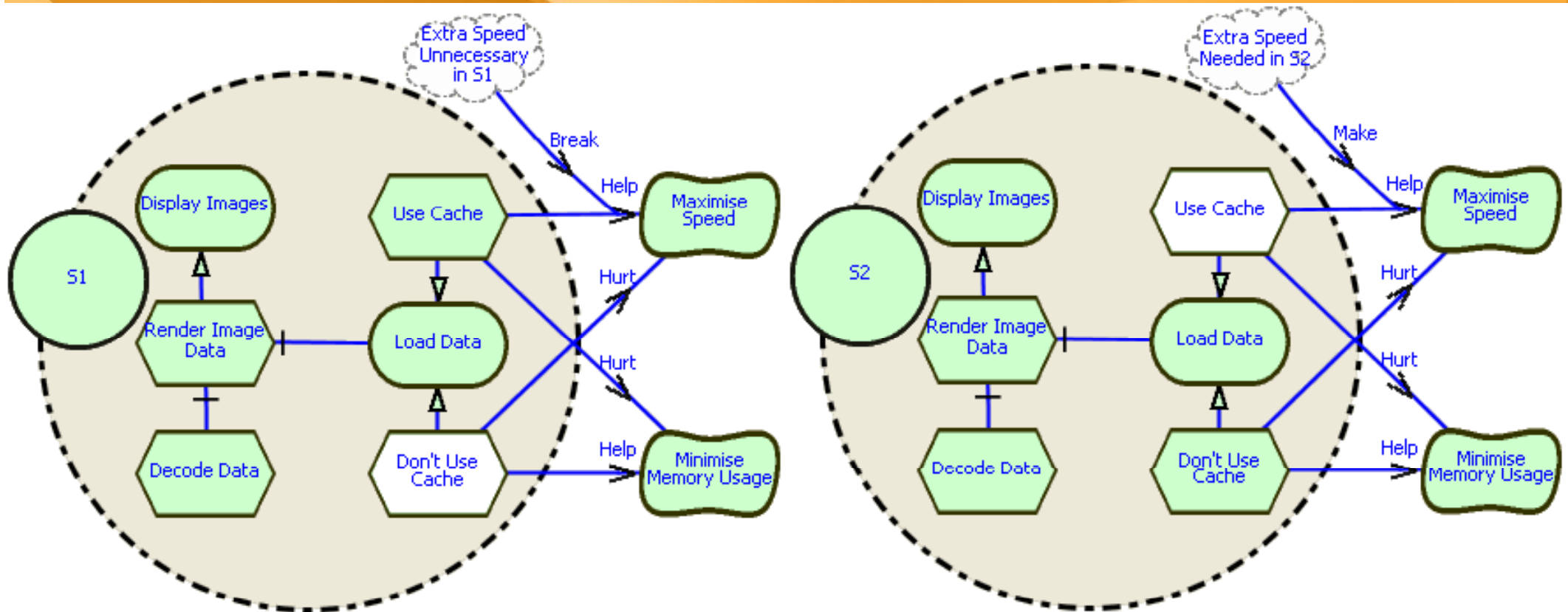
- ▶ A Model Transform, yielding adaptation policies



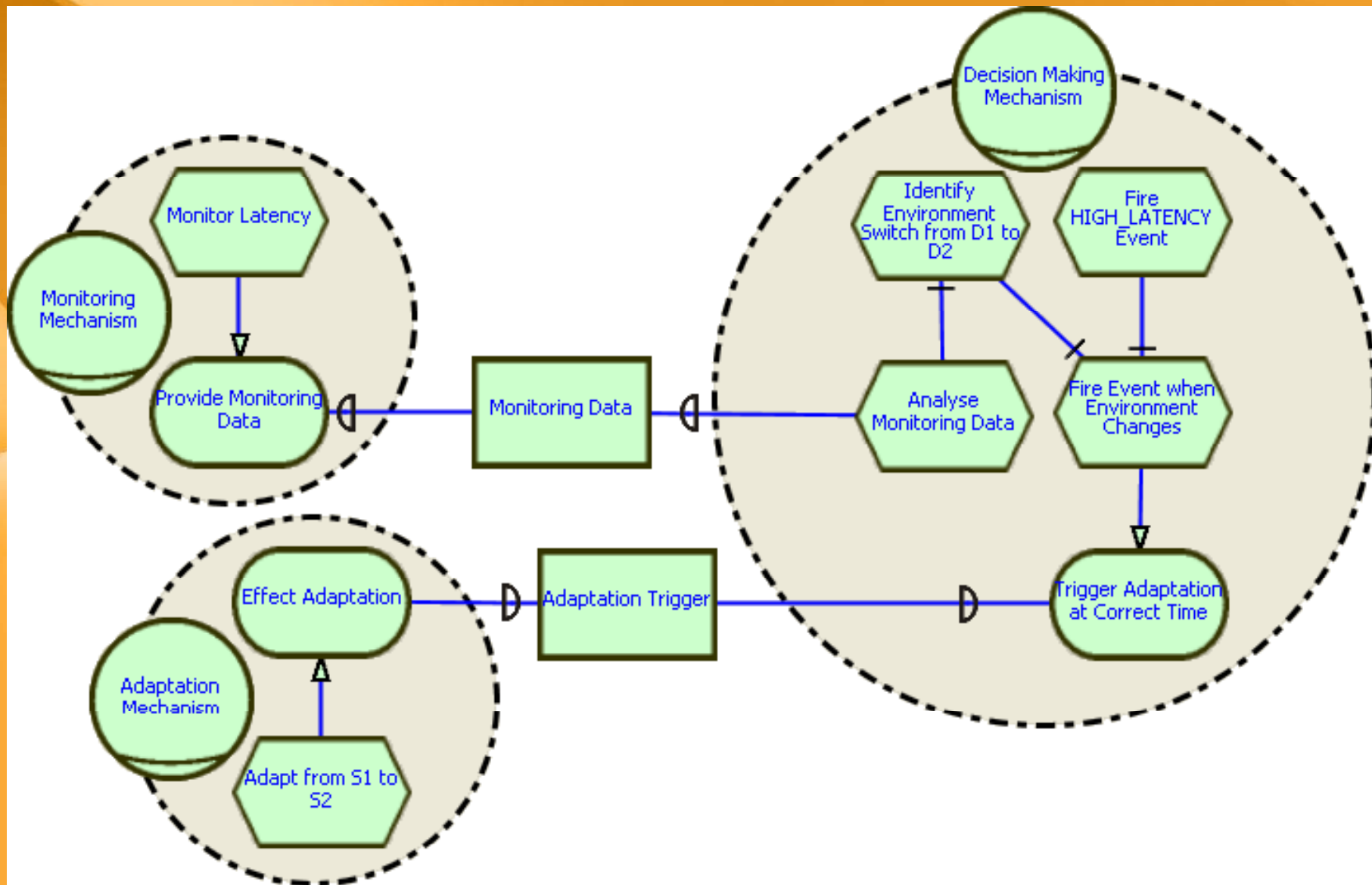
"27.365 - You
Wouldn't Like Me
When I'm Angry.." -
By josh.liba

...On to the i*

Two Target Systems for an Adaptive Image Viewer



Transitions



The Method

- For each valid transition:
 - Identify the changes from one target to the other, looking the tasks up against a table of component names
 - Find the trigger for the transition from the level 2 model
 - Write an Event-Condition-Action rule into the adaptation policy

Tool Support

Two Tools, Different Purposes



"Spanners" - By Elsie Esq.

Future Work



“Ajar” - By butler.corey

Wrapping Up

- Its possible to derive lower level system artefacts from i^* models
- We're generating adaptation polices to control DAS adaptive behaviour, optionally via a DSL
- Having the ability to reason with requirements (or at least a model) at run-time offers some interesting possibilities
- Next, we'll modify models in-memory, re-deriving new adaptive behaviour



All done!