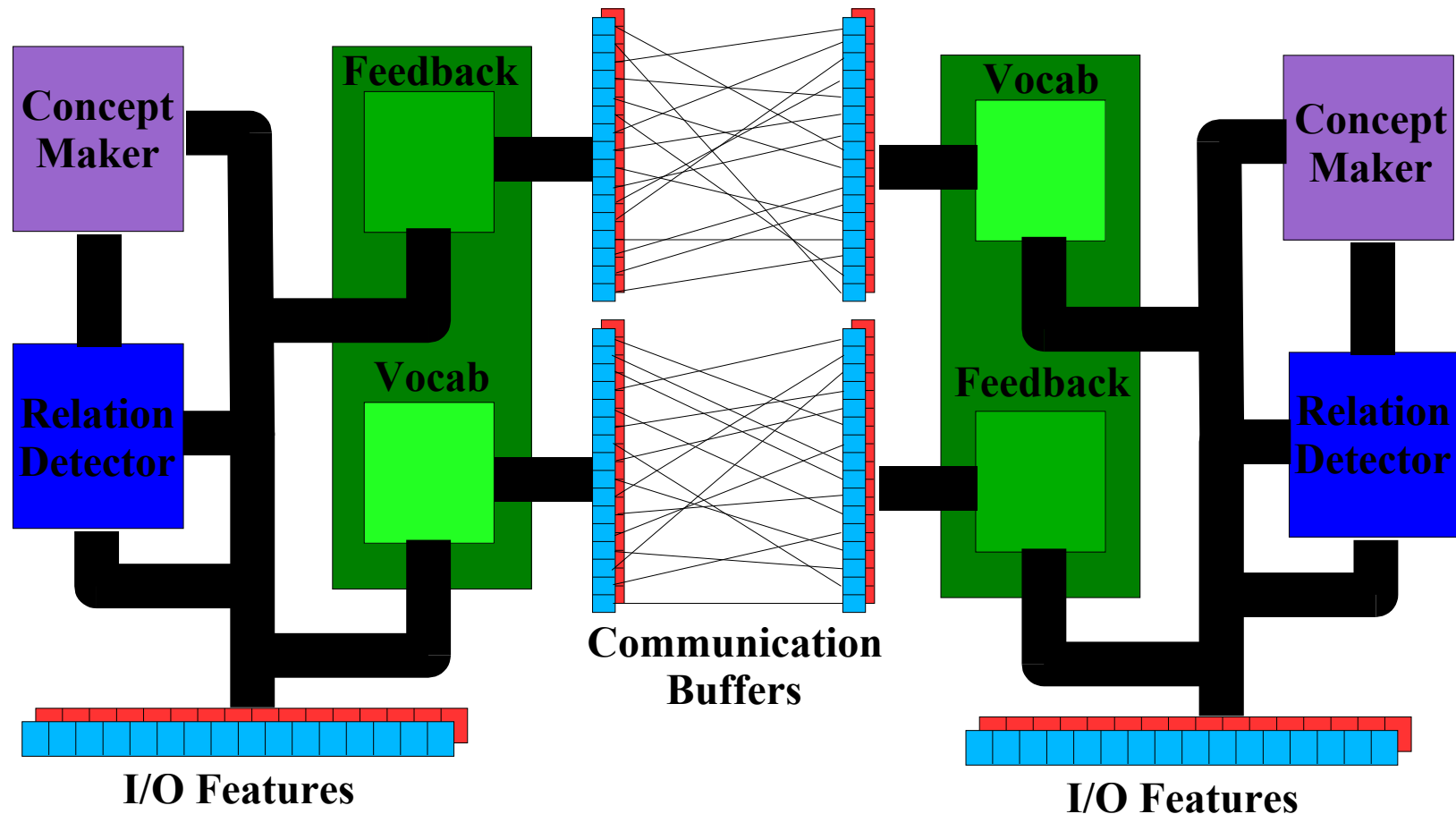


CogSci to AI: It's the Brainware Stupid!

Jacob Beal
AAAI 2006 Spring Symposia

Communication Bootstrapping

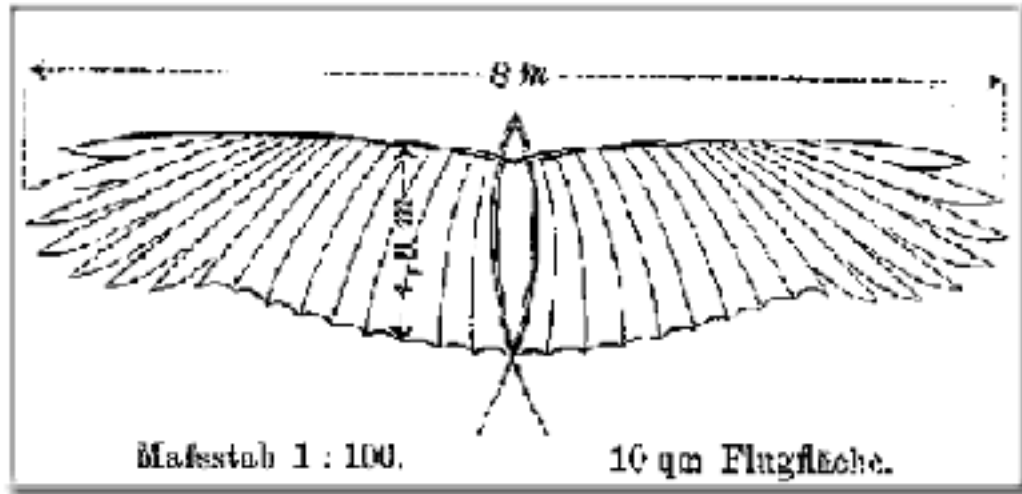


Properties of C.B. Architecture

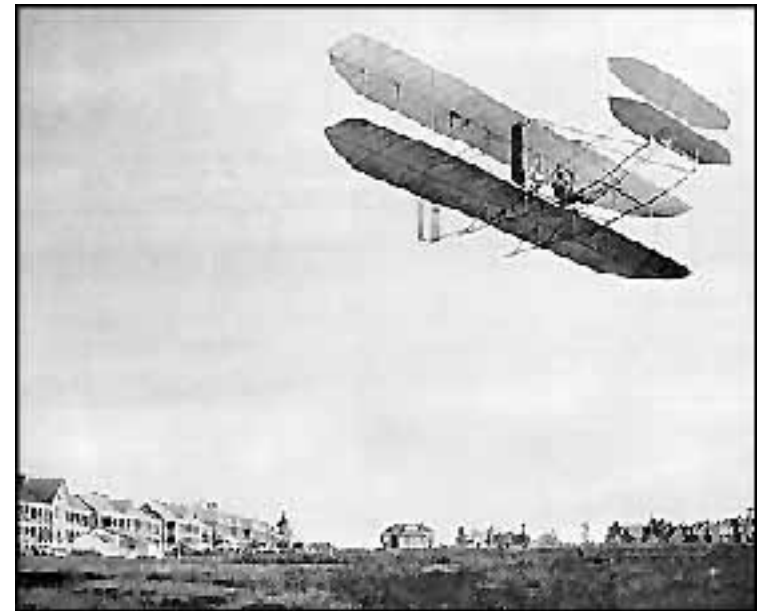
- Intermodular communication
- Learned vocabulary
- Prediction and hallucination
- Robustness through non-stop repair
- Invention as a byproduct of communication

How did Cognitive Science shape its development?

Two biologically inspired designs...

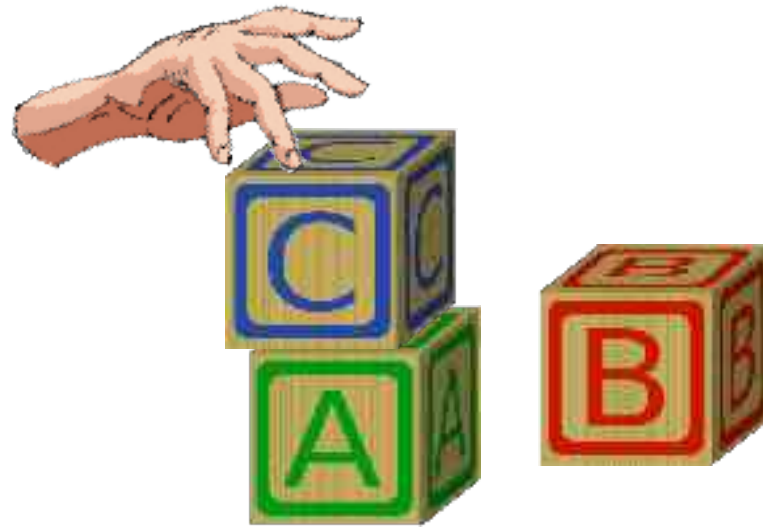


“Seagull” glider from Lillenthal museum



Wright Model A at Fort Myers

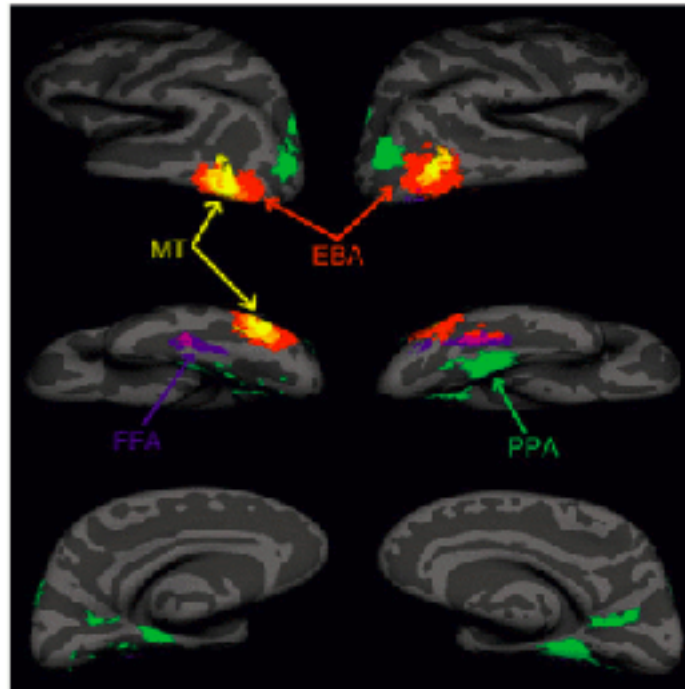
Problem: Cross-Modal Integration



Vision provides **where**, motor provides **how**

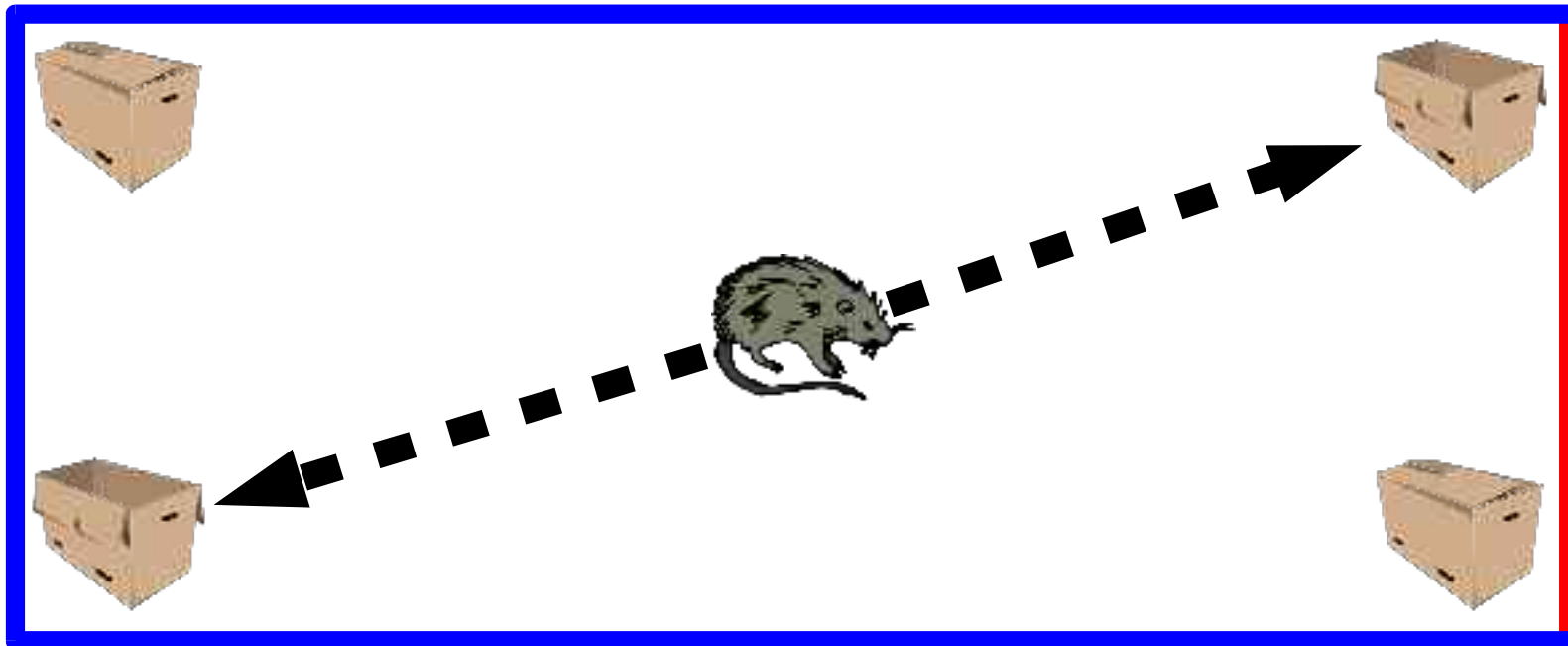
Human brains have modules

- Kanwisher's fMRI data



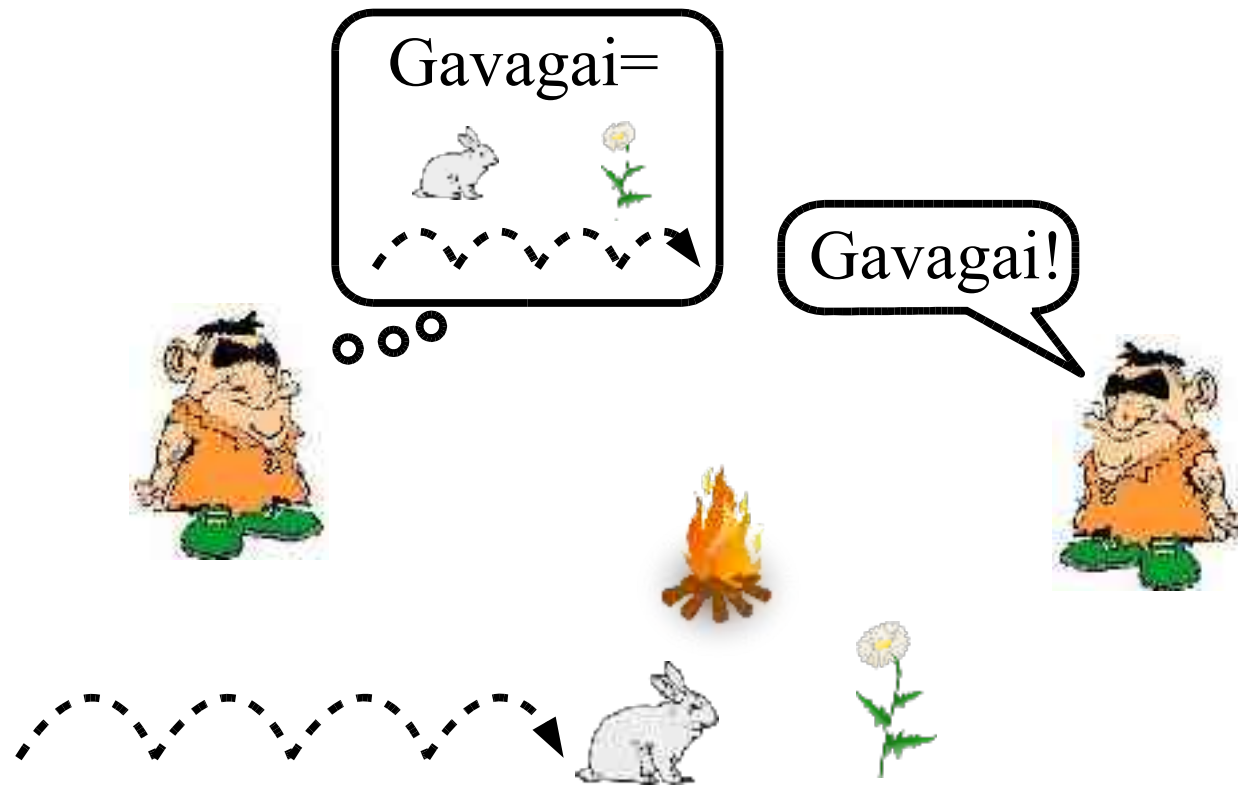
Modules integrate through language

- Spelke's rectangular room



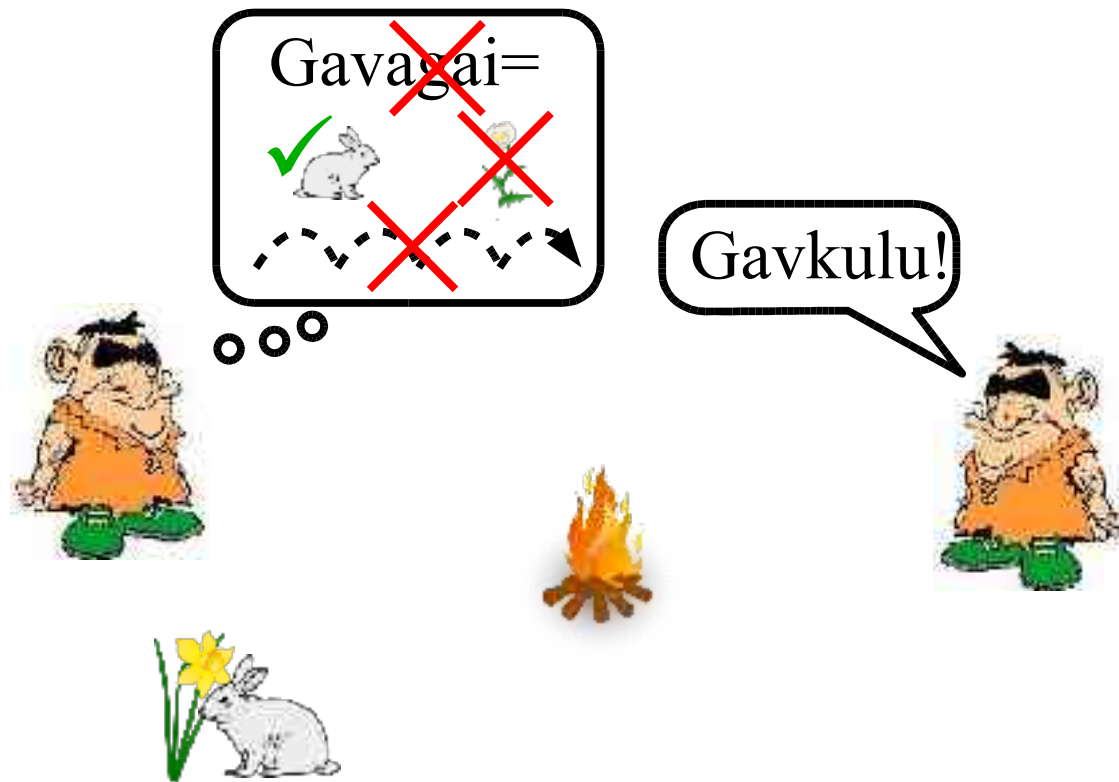
Language can arise from coincidence

- Kirby's language evolution



Language can arise from coincidence

- Kirby's language evolution



Neural Hardware Constraints

- Fixed and finite set of parts
- Mostly homogenous: duplicate and differentiate
- Serial expensive, parallel cheap
- Bidirectional flow

Communication Bootstrapping

