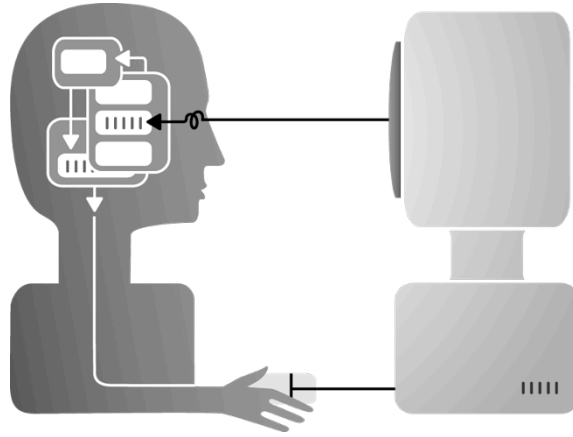
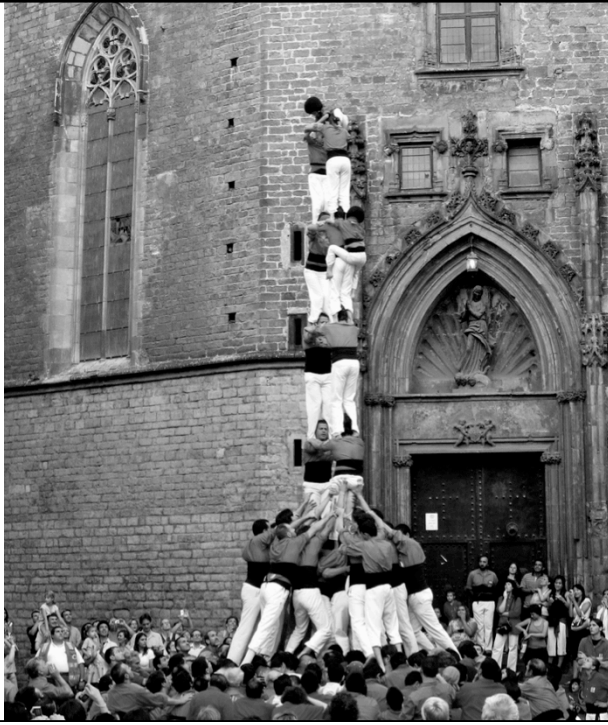
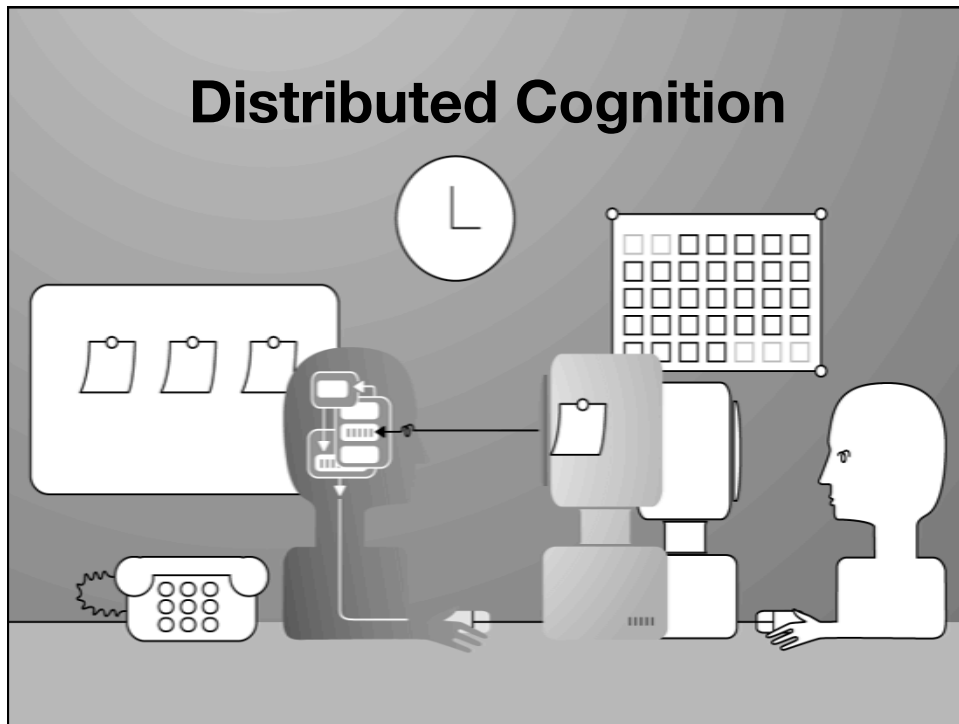


Cooperating Components

HCI Class 7. 19th March 2010



Mental Models



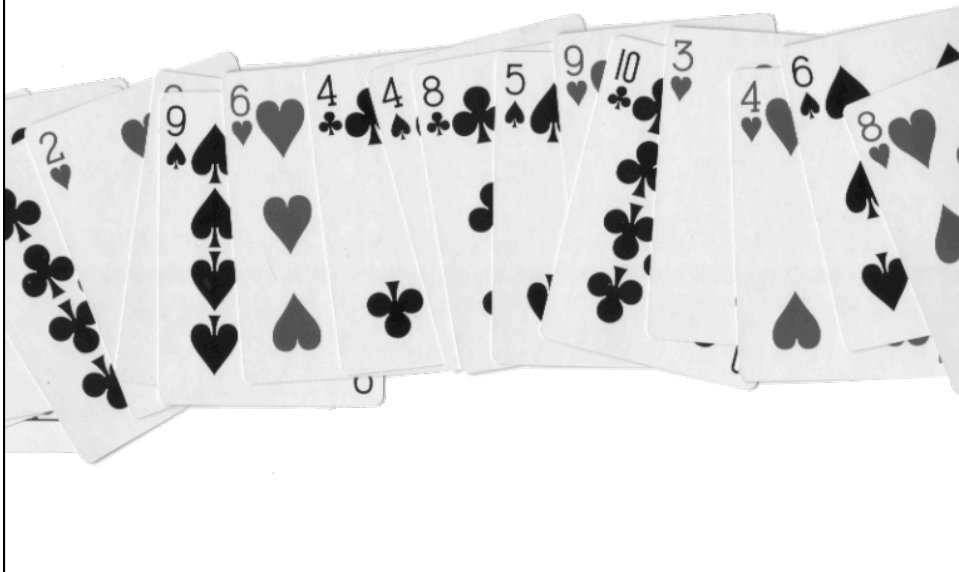
Two distinguishing principles

1. Boundaries of the unit of analysis for cognition
2. Range of mechanisms assumed to constitute cognitive processes

Work is more than the activity of a single individual working alone and without tools.



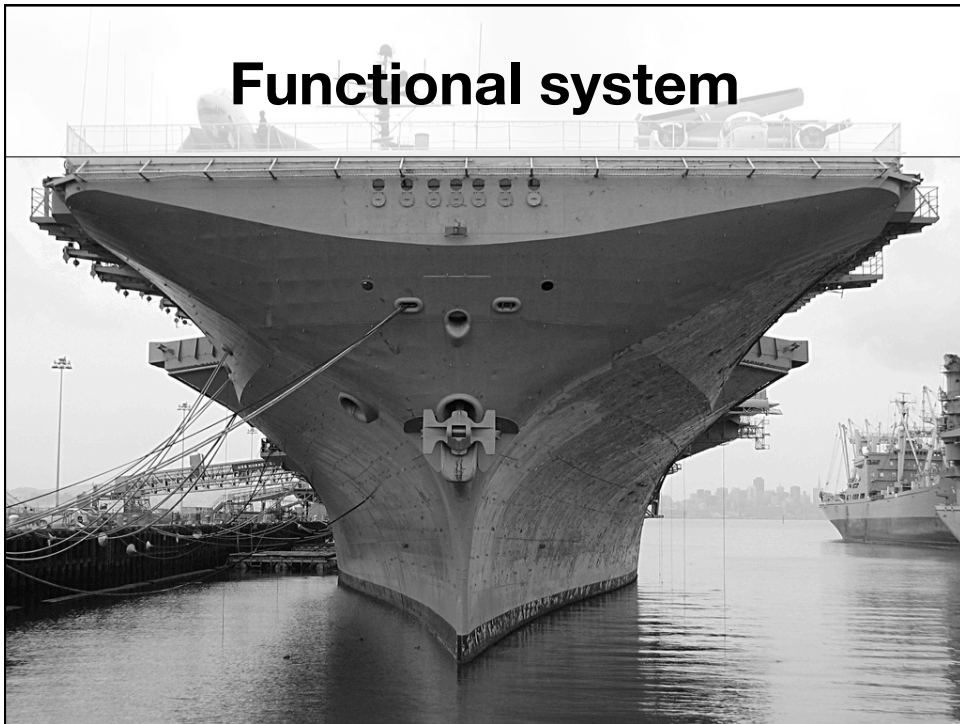
Task: Sorting a deck of cards



Three ways that cognition is 'distributed'

- Socially
- Internal / External
- Through time



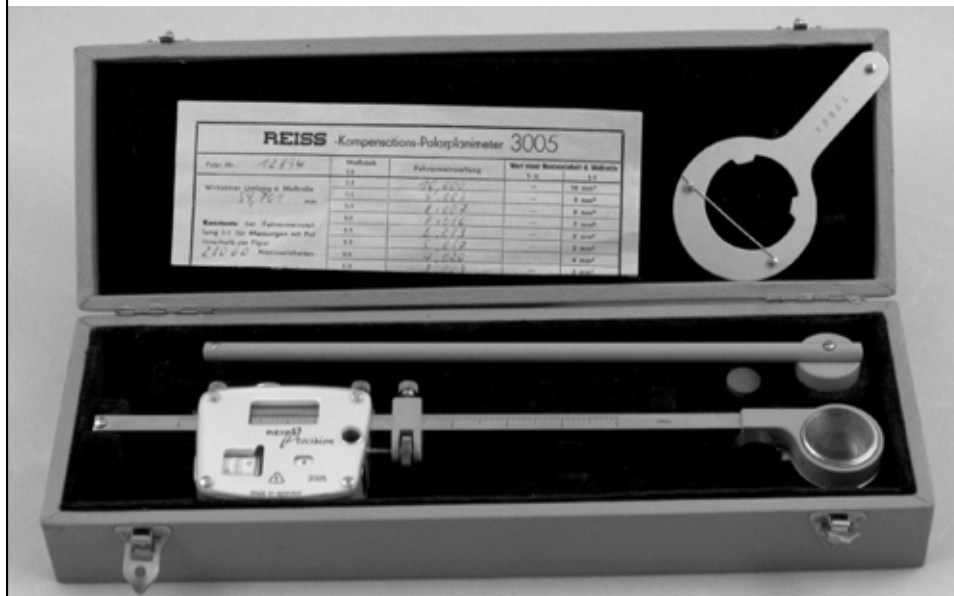


Functional system

- The system is constrained by the set of resources appropriated into the resolution of the problem.

- The system, not the individuals performs the task.

Cognitive artefacts



Cognitive artefacts

- Reduce memory load
- Simplify cognitive effort
- Trace changes
- Transform the task into a different one



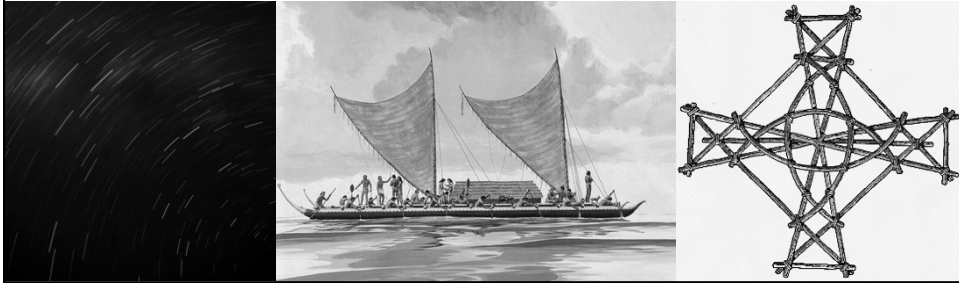
Embodied Cognition

Embodied Cognition

Minds are not passive representational engines, whose primary function is to create internal models of the external world. The relations between internal processes and external ones are far more complex, involving coordination at many different time scales between internal resources—memory, attention, executive function—and external resources—the objects, artifacts, and at-hand materials constantly surrounding us.



Culture and Cognition



Culture and Cognition

- The organisation of mind is an emergent property of interactions among internal and external resources.
- The study of cognition is not separate from the study of culture.
- Culture is not 'contextual knowledge', but a process that accumulates partial solutions to recurring problems.

Critical Questions

- Is *computation* an appropriate metaphor for all activities?
- Is *cognition*?

Practical Task: Distributed Cognition at Work

- In groups, see if you can identify cognitive processes at play in an authentic work setting. Some examples of settings that could be worth looking at are, the library, a cashier's desk, a mechanic's workshop.
- Map out the information flows through these processes.
- How is the information represented and transformed.
- Can you find examples of 'cognitive artefacts' or other concepts presented in this week's lecture and readings?
- For the discussion next week, prepare a presentation to show to the rest of the class.

Readings

- Y. Rogers, "A Brief Introduction to Distributed Cognition", Discussion Paper Interact Lab, School of Cognitive and Computing Sciences, University of Sussex, 1997
- Hollan, J., Hutchins, E., and Kirsh, D. "Distributed Cognition: Toward a New Foundation for Human-Computer Interaction", ACM Transactions on Human-Computer Interaction, Vol. 7, No. 2, June 2000, pp 174-196.

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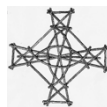
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