

Thinking with Representations

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Representations for thinking

- When do representations influence our thinking?
- A few examples

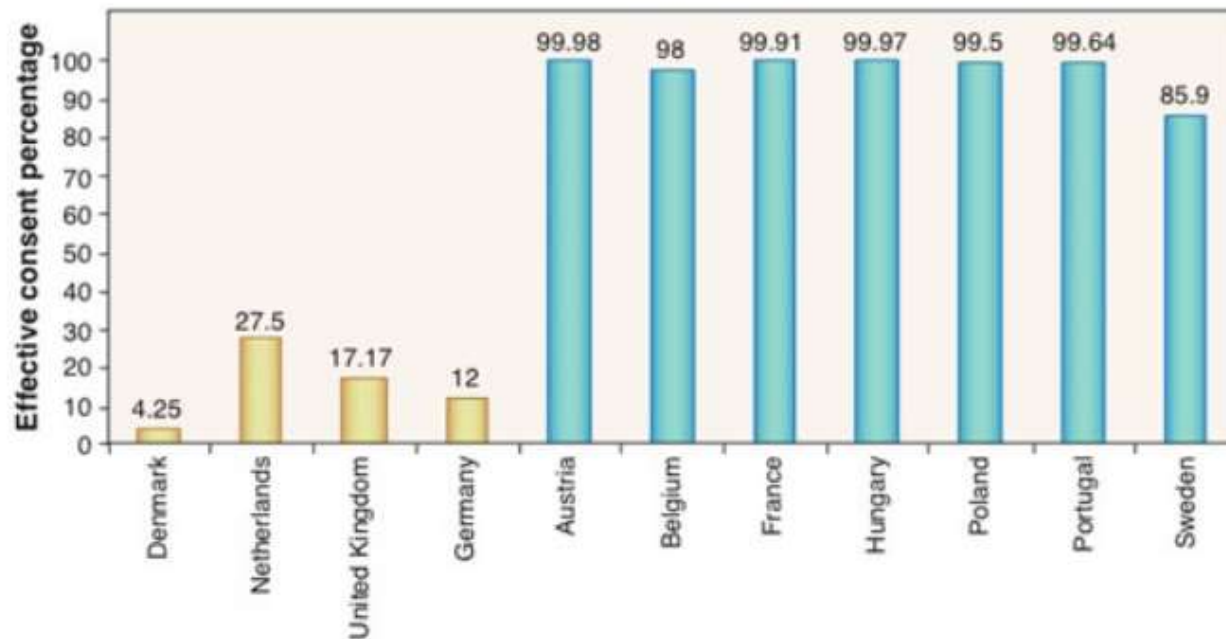
Making decisions

- Choosing alternatives without external representations
- Options
- Statement: the more options we have the better decision we can make

- The more options we have the less likely we are to make a choice.
- We can keep around 5 options in our heads at the same time

Making decisions

- Willingness to donate organs after death



Effective consent rates, by country.

Making decisions



- Text 1: check this box if you want to participate in the organ donation program
- Text 2: check this box if you don't want to participate in the organ donation program

Mental models

Four statements

1.

C P S

2.

F K

3.

4.

– What is the relationship between F and K?

5. F is to the left of K

Mental models

Four statements

1.

2.

3.

4.

– What is the relationship between P and S?

Mental models

Four statements

1.

F P S or F S P

2.

or

3.

K C K C

4.

– What is the relationship between P and S?

5. P is to the left of S

6. P is to the right of S

Mental models

Four statements

1.

K P S

2.

C F

3.

4.

– What is the relationship between C and F?

5. C is to the left of F

Fork
Knife
Spoon
Cup
Plate

Mental models

Four statements

1.

F K

2.

3.

C P S

4.

– What is the relationship between C and F?

5. C is in front of F

Mental models

Fork
Knife
Spoon
Cup
Plate

Four statements

1. P is to the right of C

2. K is to the right of F

3. S is in front of K

4. C is in front of F

F	K	?	F	K	
C	P	S	C	S	P

– What is the relationship between C and F?

5. S is to the right of C

F	K
C	P
	S

Mental models

“two modes of encoding: mental models, which are easier to remember but contain no information about the specific sentences on which they are based, and propositional representations, which are harder to remember but do distinguish between such assertions as "A is to the right of B" and "B is to the left of A.””

”the only practical way to discover that a description is indeterminate (or determinate) is to try to build a model of it.”
(Mani & Johnson-Laird, 1982, pp. 181)

- Now let's say each letter is a stakeholder?
- Each stakeholder can have n relations to other stakeholders.

- Design "situations" are complex



Where will x be in 2,5 secs?

Where will all be in 2,5 secs?

Could a human run the simulation in the head?

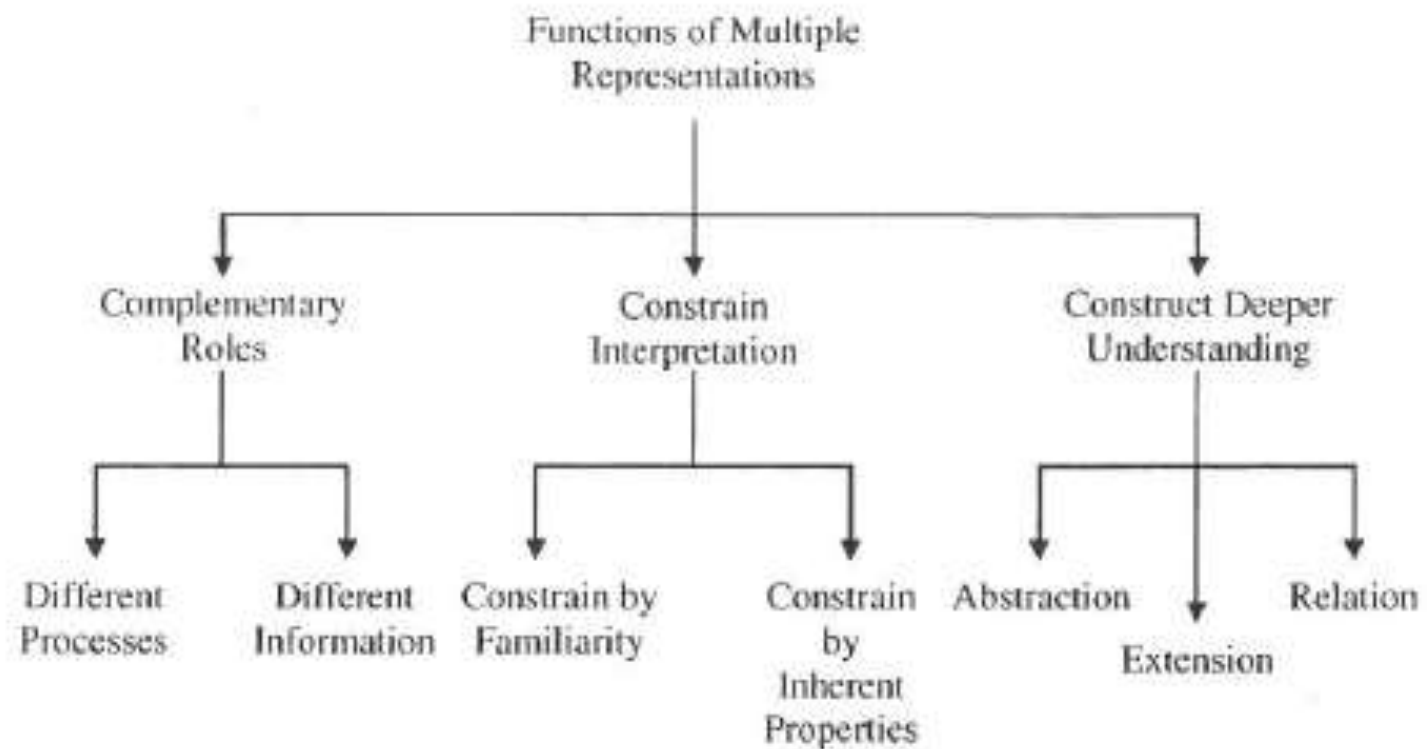
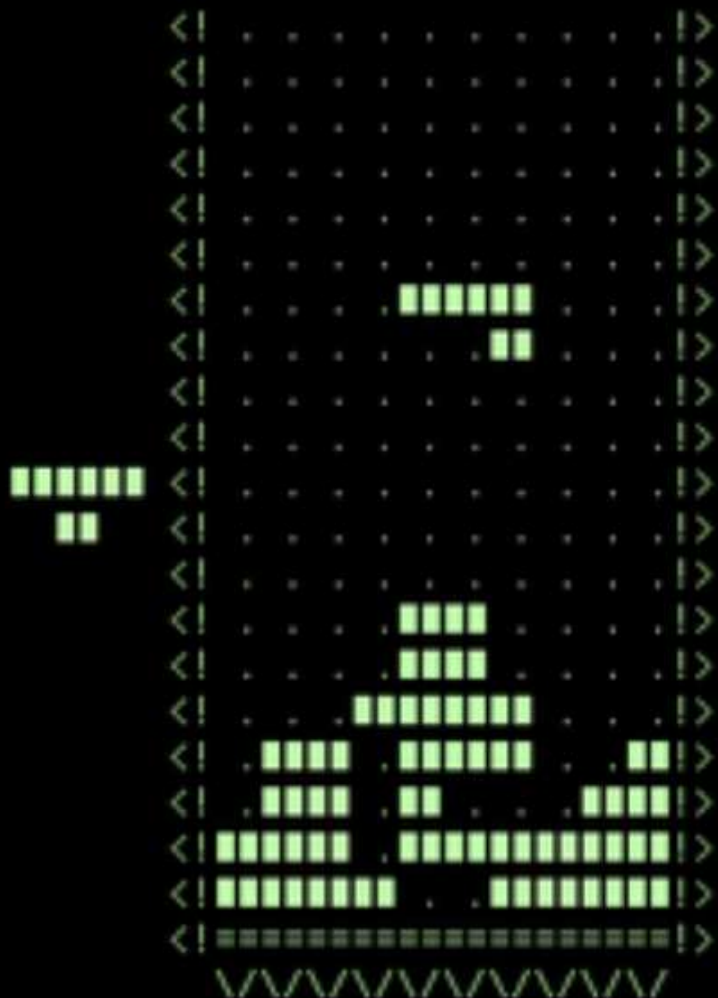


Fig. 9.6 Functions of multiple representations (Ainsworth, 1999, 2006)

Полных строк: 2
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Счет: 304



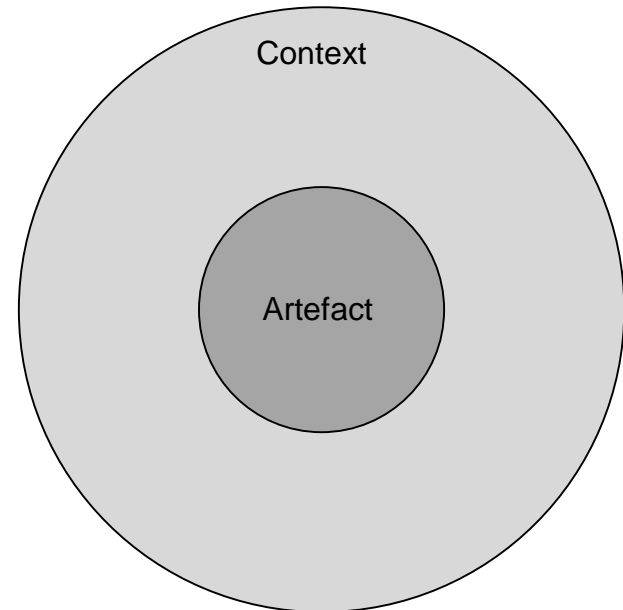
7: НАЛЕВО 9: НАПРАВО
8: ПОВОРОТ
4: УСКОРИТЬ 5: СБРОСИТЬ
1: ПОКАЗАТЬ СЛЕДУЮЩЮЮ
0: СТЕРЕТЬ ЭТОТ ТЕКСТ
ПРОБЕЛ - СБРОСИТЬ

Distributed and situated perspectives

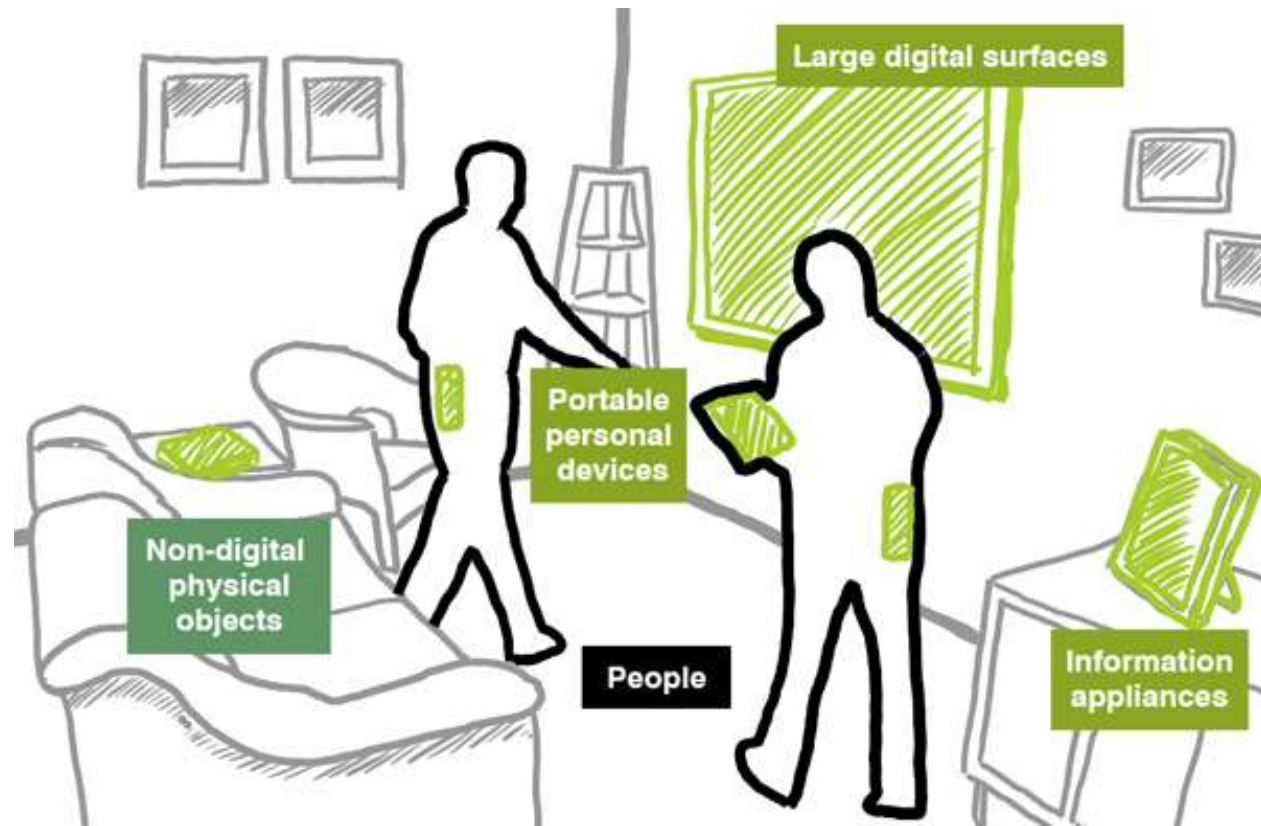
- Pragmatic and epistemic actions
 - Expert tetris players "fiddle" more than novice players
 - Why?
 - Manual rotations quicker than mental
 - Manual rotations allow players to "see" the best orientation and placement
 - Similar pattern for Scrabble when allowed vs. not allowed to manipulate the words (produce more words)
-

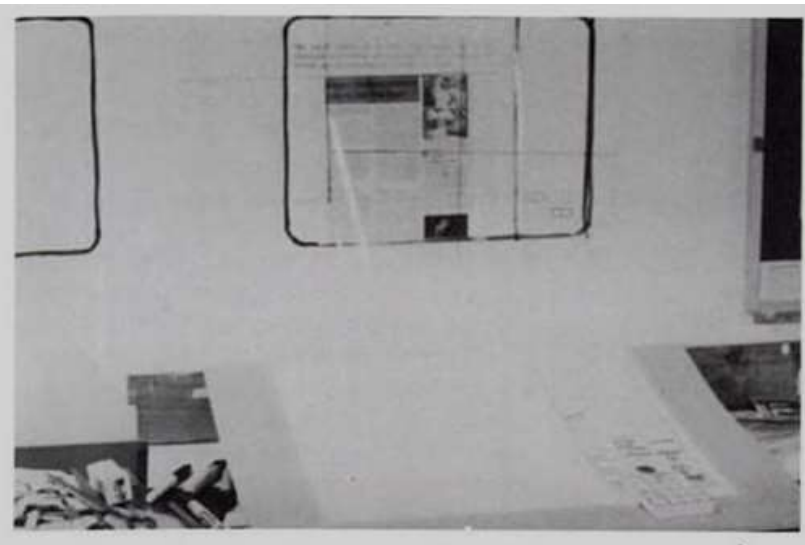
Group work

- Three stages:
 1. Prototype an artefact
 2. Prototype a context with artefact(s)



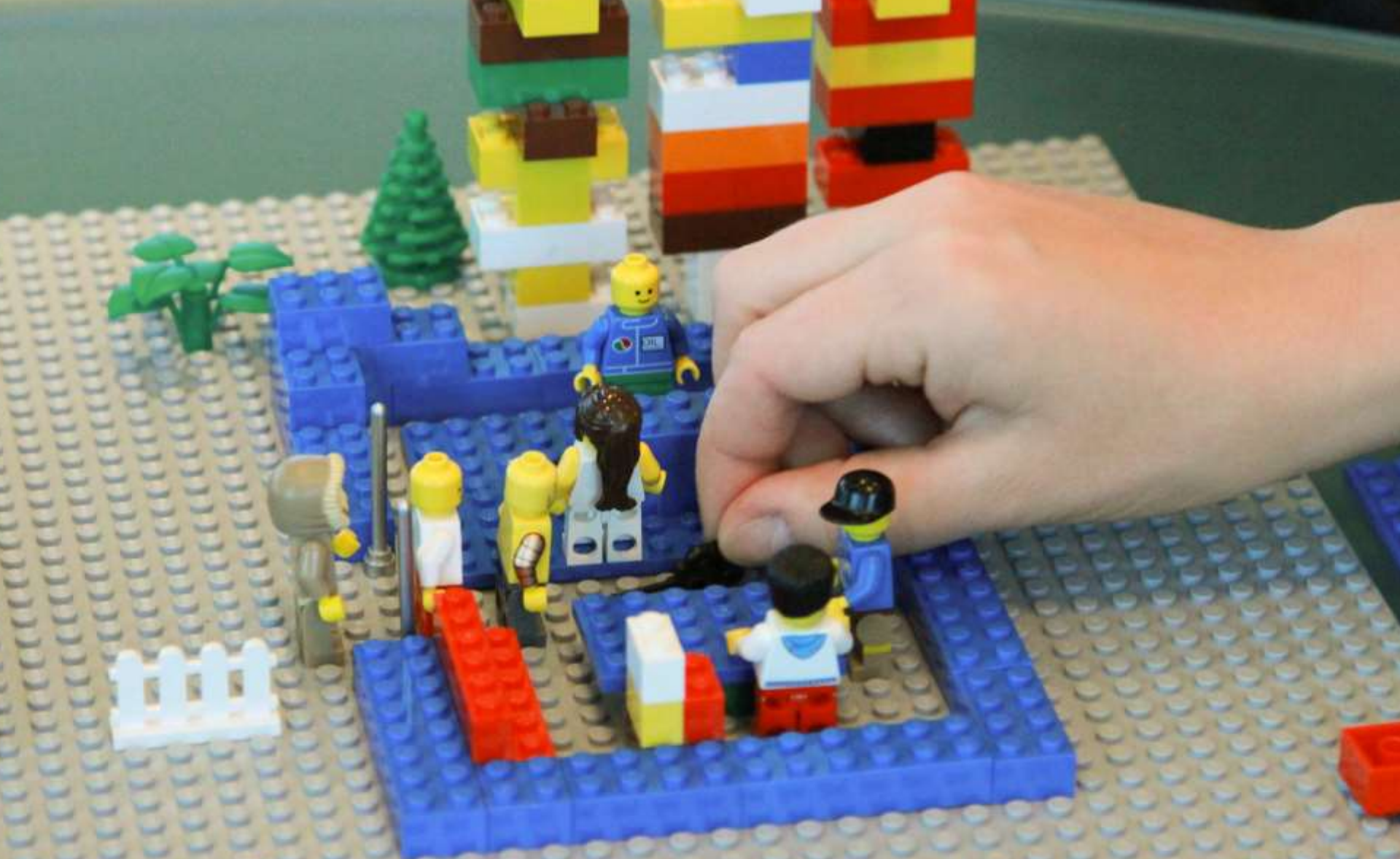
What is a context?





What is a context?

- For us – the store
 - Includes a lot
 - What and how to represent?
 - Must apply a frame



desktop walkthrough is considered as a *collaboratively* constructed miniature of a service, and of which a set of artefacts is used in the construction.

Exercises and looking ahead

Looking ahead

- This week – make shopping lists for each other and plan bodystorming
 - (to be conducted this or next week)
- Friday – next part of the first iteration of your individual project

Looking ahead

- Next week
 - Evaluate the alternatives from bodystorming (and from today)
 - Work on coming up with a process for picking and packing food
- Week after that
 - Desktop walkthrough

Thinking and design

- Different purposes for using representations
 - Explore
 - Evaluate

Thinking and design

- **Gaver:** Design creates the spaces in which it acts. The spaces do not exist as undiscovered ideas or abstract rational parameters.
- The spaces are created (partly) by externalisations.

Thinking and design

- Each idea opens up a conceptual space, or metaphorical room (Gaver, 2011)
- Openness

- Openness



Figure 1. The Objective View proposal from the first, in-house Alternatives workbook.

End

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