

Chapter Four

The Design of Everyday Things

Knowledge

- in the world: perceived affordances and signifiers, mappings, physical constraints
- in the head: conceptual models, cultural, semantic, and logical constraints on behavior, analogies between the current situation and previous experiences



- **physical** constraints insufficient
- shape, color, physical constraints are a start
- **cultural** and **semantic** constraints help with the rest
- **logic** in the final piece

Constraints

- Powerful clues
- Limit the set of possible actions
- Thoughtful use of constraints in design lets people readily determine the proper course of action, even in a novel situation

Physical Constraints

- Constrain possible operations
- There should be only a limited number of possible actions
- More effective and useful if they are easy to see and interpret



<https://www.youtube.com/watch?v=3C-sYJmfeoE>

Persistence of Bad Design

- Legacy problem
- Too expensive to change
- Examples?



Humans are allergic to change. They love to say, "We've always done it this way." I try to fight that. That's why I have a clock on my wall that runs counter-clockwise.

— Grace Hopper —

AZ QUOTES



```
DISPLAY CUSTOMER INFORMATION

Credit Limit: $ 0 Finance Charge? Y Area: Sort C
      BILLING                               SHIPPING
Name: A CLEAN WELL LIGHTED PLACE FOR   Name: A CLEAN WELL LI
Address: 601 VAN NESS AVENUE           Address: 601 VAN NESS AV
:
City: SAN FRANCISCO                     City: SAN FRANCISCO
State: CA                               State: CA
Zip: 94102                              Zip: 94102
Country: U.S.A.                         Country:
Phone:                                  Phone:

COBOL
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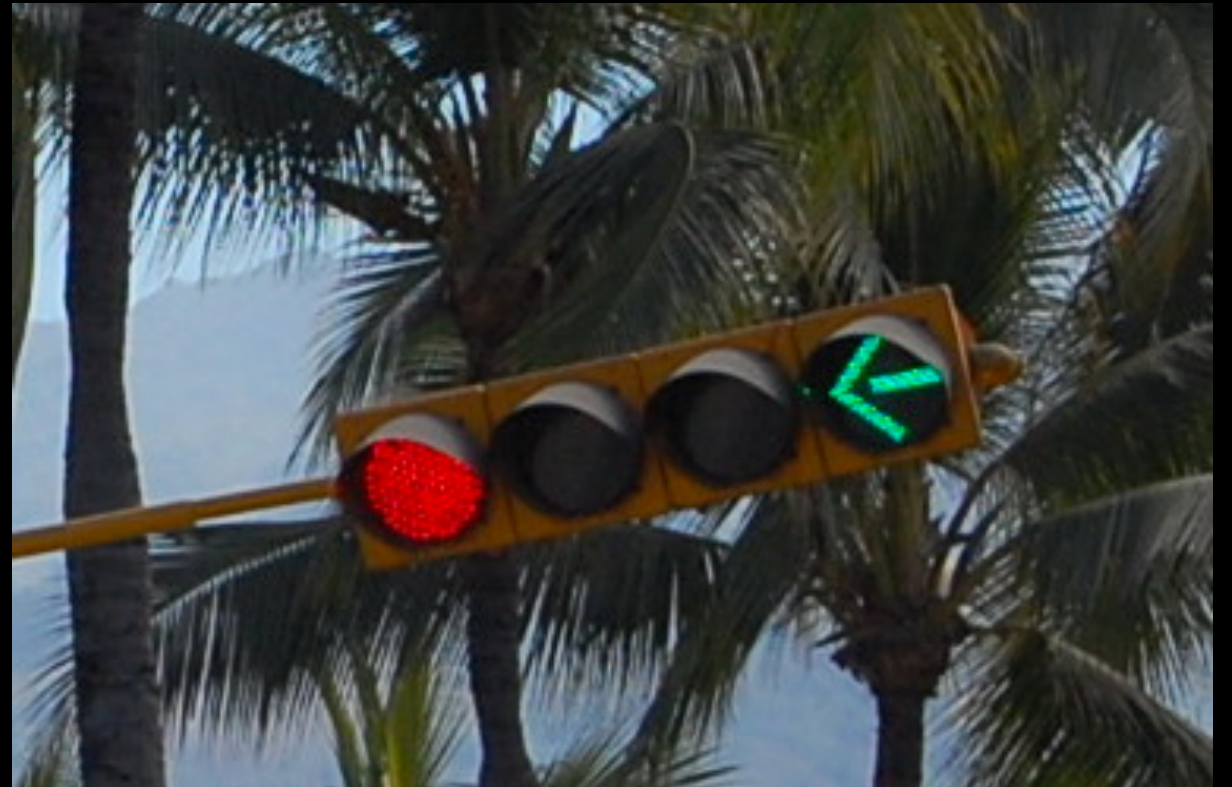


What's the real
solution?

Cultural Constraints

- Set of allowable actions for social situations
- Any examples from travels of different cultural norms?
- What do you do when presented with new technology? How do you react?
- Elevator etiquette





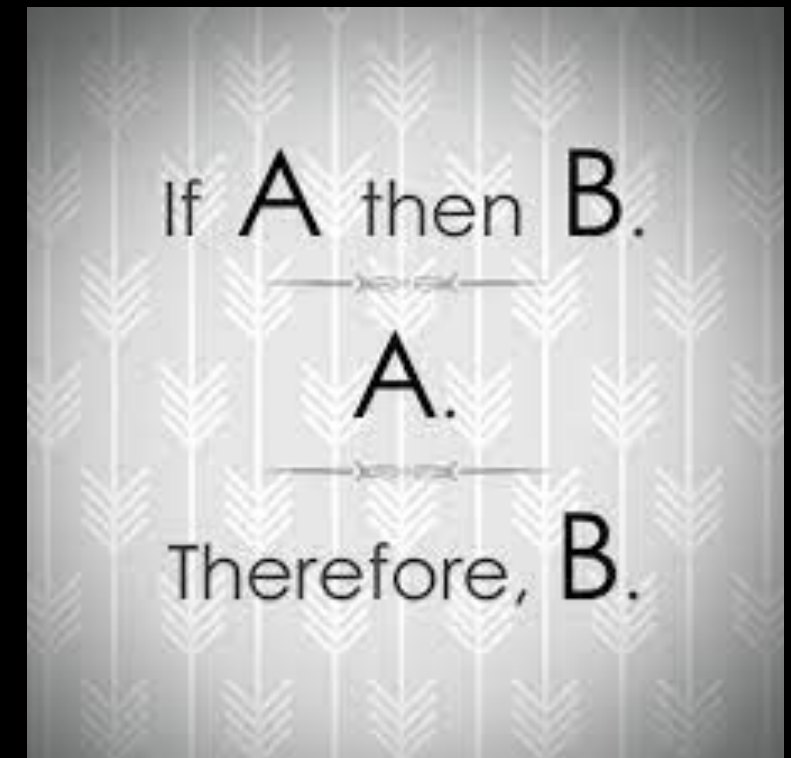
Semantic Constraints

- Study of meaning
- Self-driving cars...would brake lights be necessary?



Logical Constraints

- What is a logical constraint?
- Give me an example



Cultural Conventions

- What conventions do you have or have experienced?
- How do you feel when those conventions are violated?
- How do we prevent misunderstandings (the headlight example, dinner party)?



Signifiers



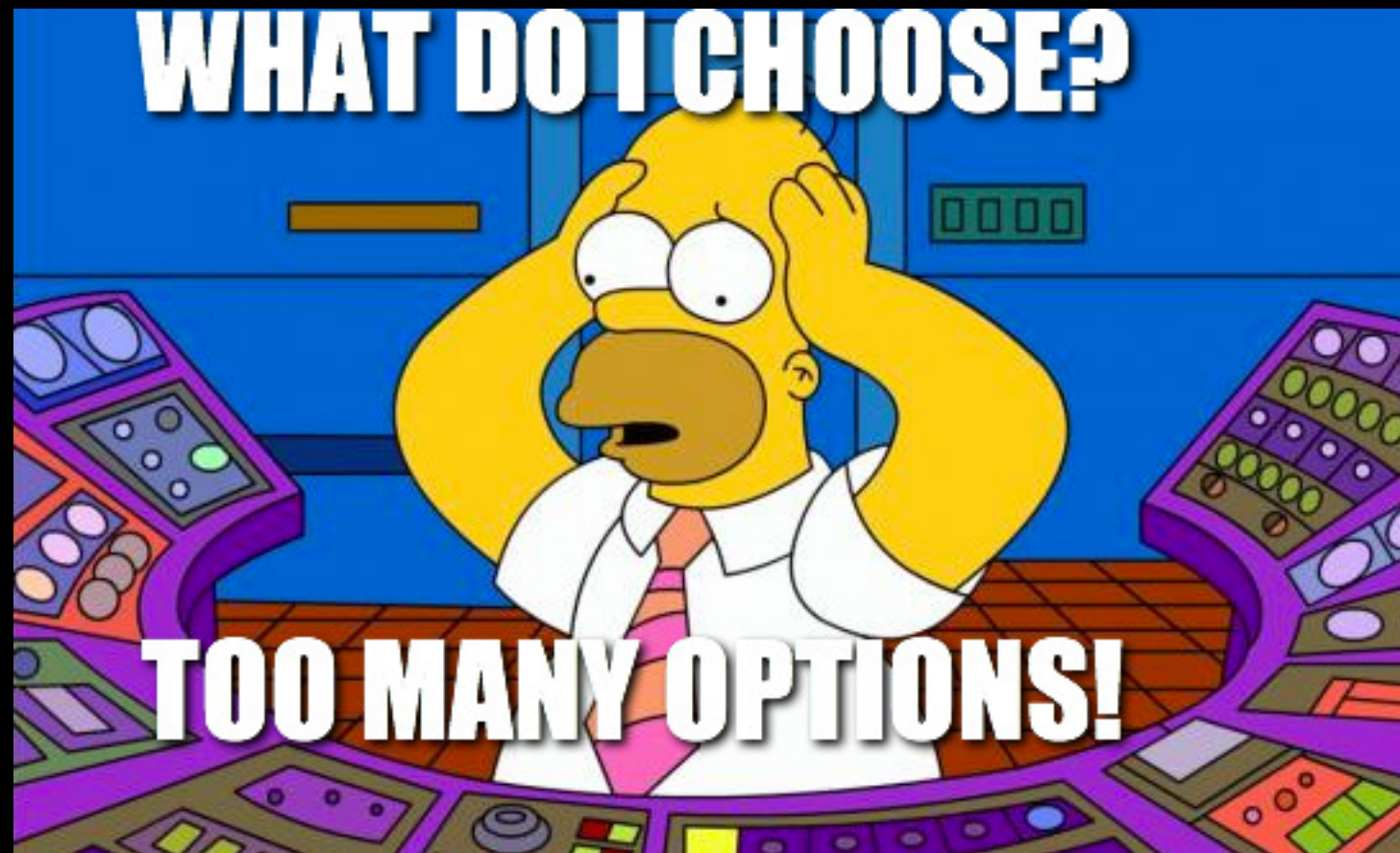
alamy stock photo



freedigitalphotos.net



Switches





https://www.nts.gov/SAFETY/SAFETY-RECS/_layouts/nts.recsearch/Recommendation.aspx?Rec=A-80-057



Usable Design

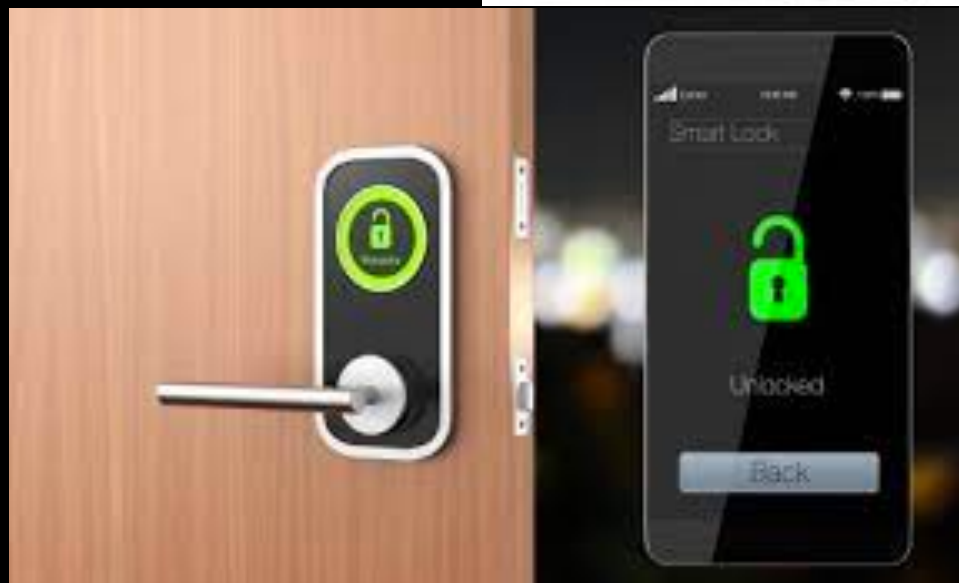
- Starts with careful observations of how the tasks being supported are actually performed, followed by a design process that results in a good fit to the actual ways the tasks get performed
 - Called *task analysis*
 - Part of *human-centered design*

Is Technology the Answer?



Is Technology the Answer?

IOT



Activity-Centered Design

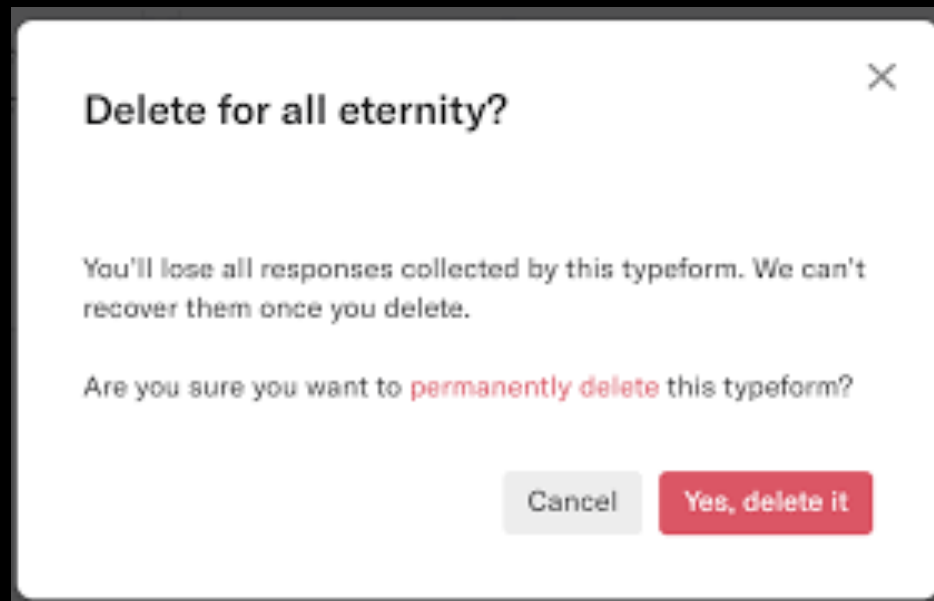
- What is the difference between activity-centered design and spatial mapping?
- Advantages?
- Disadvantages?

Forcing Behaviors

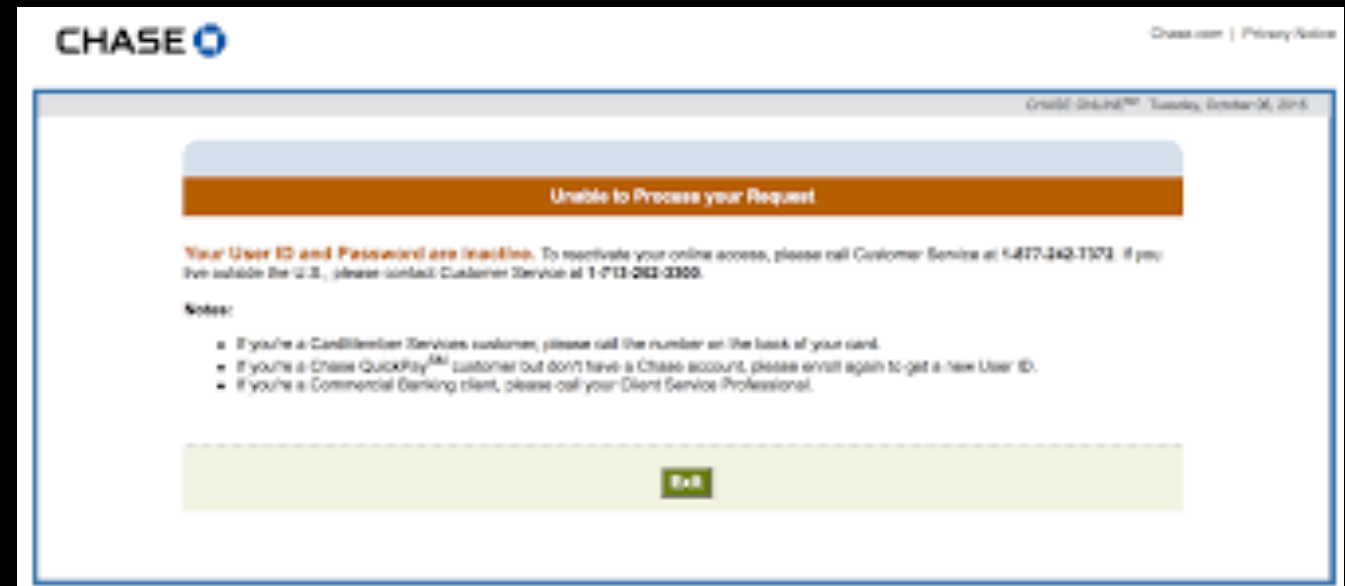
- Is this a good approach?
- Can you think of technology that does this?



Lock-In



Lockout



Changing Conventions



Simple Design



Sound Signifiers



What sound signifiers are familiar to you?

[https://newatlas.com/soundracer-ev-engine-sound-eveess/
54140/](https://newatlas.com/soundracer-ev-engine-sound-eveess/54140/)