

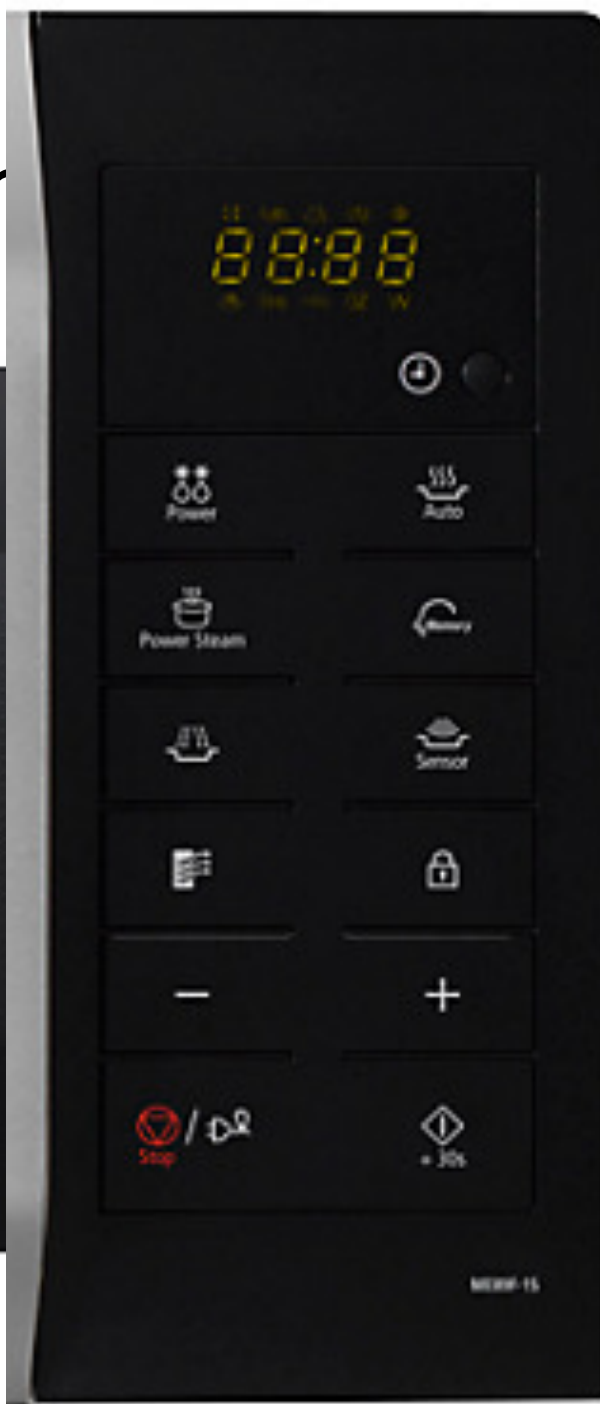
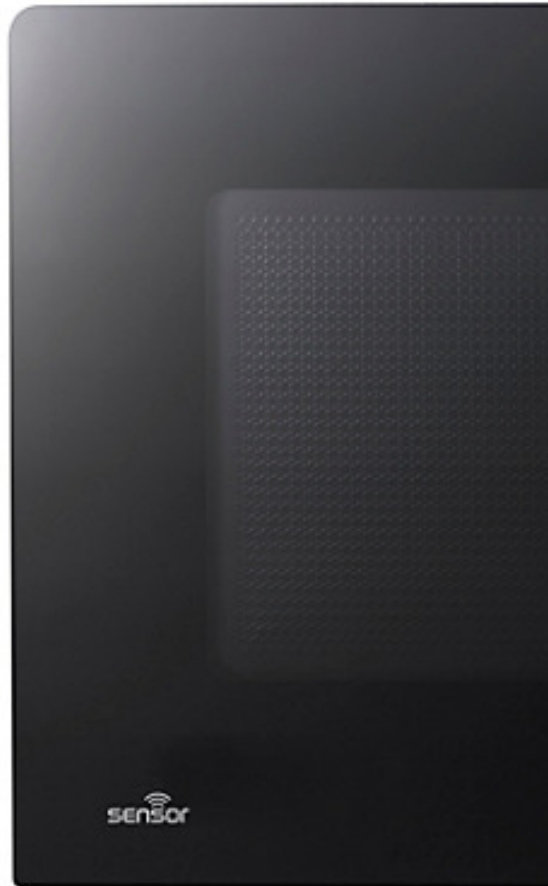
# User Interaction

Human Computer Interaction Research Group  
Department of Computer Science

# Why is life so hard with technology?

- Largely because we make it hard. We build systems that are rude.
- There are lots of things that we do/don't do as designers and programmers that can make things easier for our users
- Consider the following interface ...

This is my microwave



# Goal Driven Interactive Systems

- Interactive systems do not occur in a vacuum!
- People have goals that they want to achieve with these things:
  - Shopping
  - Writing/Reading
  - Participation (voting, petitions)
  - Communication (IM, SNS, Twitter)
  - Fun (Games)
  - And a whole lot more ...

100



100

# Human Goal Decomposition

- Humans will have a top level goal they want to achieve, and will refine it into a series of tasks they need to accomplish
- So if the goal is to “Buy tickets to the theatre” there are a set of steps they will take to try to get there

# Task Decomposition

- Assume you want to take that special someone on a date next Tuesday to the theatre to show them what a sophisticated person you are ...
- What do you have to do to achieve that goal?

# How do I achieve those in this interface?

The screenshot shows the Ticketmaster UK website with several red annotations. A red circle highlights the search bar, which contains the text "Enter Artist, Team, or Venue" and a "SEARCH" button. Another red circle highlights the "Music" category in the top navigation bar. A third red circle highlights the "Music" sidebar menu, which lists various artists and categories. A fourth red circle highlights the "On sale today" section, which features a large image of a woman in a white hat and the text "On sale today Casting a spell over the UK with a tour starting next month." The "Find Tickets" button is also highlighted. The "Top Recommended Events" section is also visible, featuring three event cards: "Greater Than", "V Festival", and "Disney On Ice: Dare To Dream".

tm Tickets for concerts, theatre & more

www.ticketmaster.co.uk

My Ticketmaster | Gift Cards | Customer Service |

**ticketmaster®**

United Kingdom

Welcome. (Sign In)

Home Music Sport Arts, Theatre & Comedy Family and Attractions tm deals My Basket (0)

**Music**

- The Cibs
- Blue
- Stereophonics
- Pentatonix
- Greater Than
- Barenaked Ladies
- All Music »

**Sport**

- Danone Nations Cup
- London Double Header
- Barbarians v Fiji
- RLWC 2013
- Masters Snooker
- T20 Cricket
- All Sport »

**Arts, Theatre & Comedy**

- Jack Whitehall
- Carnaby Street
- Alan Davies
- Book of Mormon

**On sale today**

Casting a spell over the UK with a tour starting next month.

**Find Tickets**

**myTICKETMASTER**

Hello.  
Update your list of favourites and never miss an event!

[Sign In or Create Account](#)

**tm blog**

Check out the new Ticketmaster blog now!

**Top Recommended Events**

[Sign in](#) to get personalised recommendations.

- Greater Than
- V Festival
- Disney On Ice: Dare To Dream

**Google play**

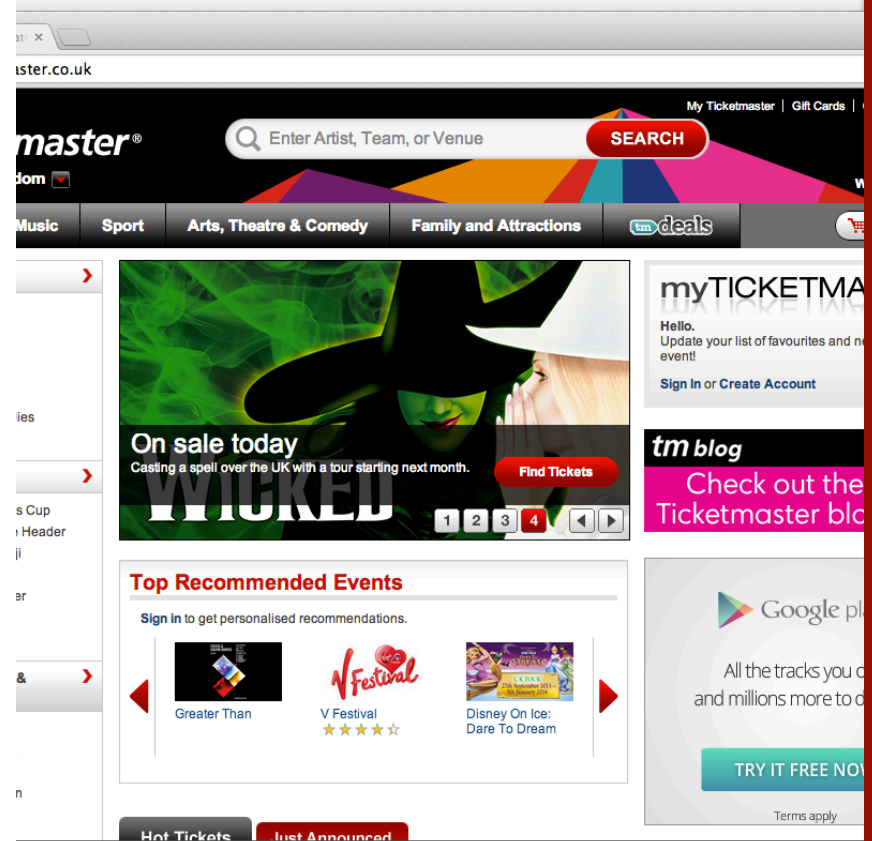
All the tracks you own and millions more to discover

**TRY IT FREE NOW**



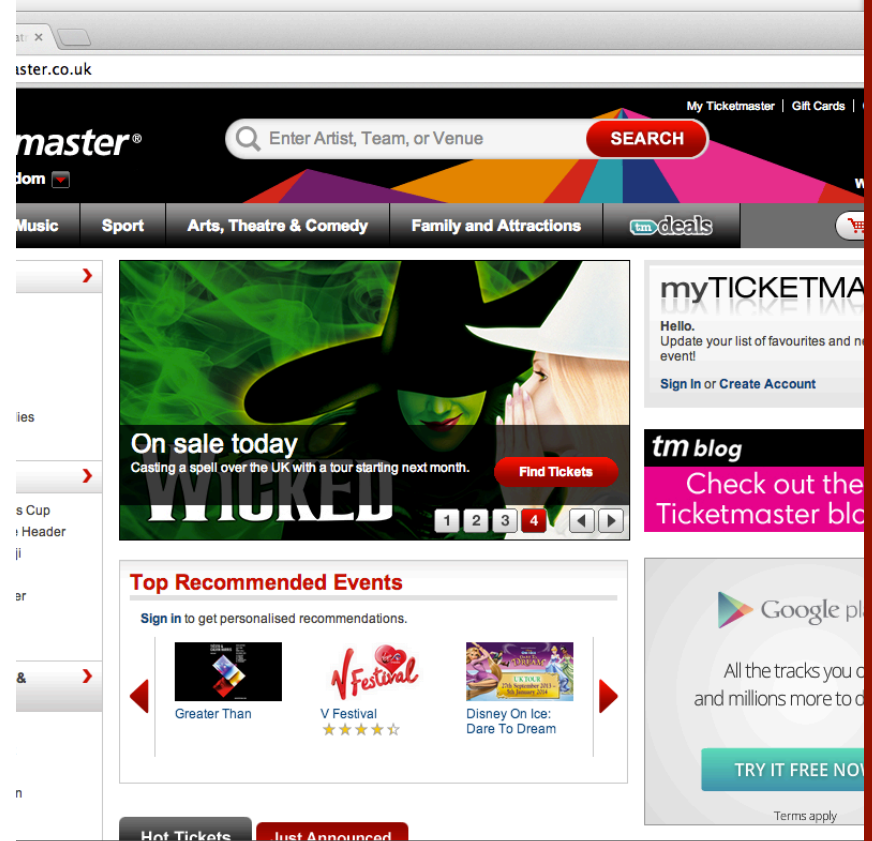
# What did the site do right?

- Layout information together in groups
- Speaks the users' language
- Has some interface cues (if they are found)



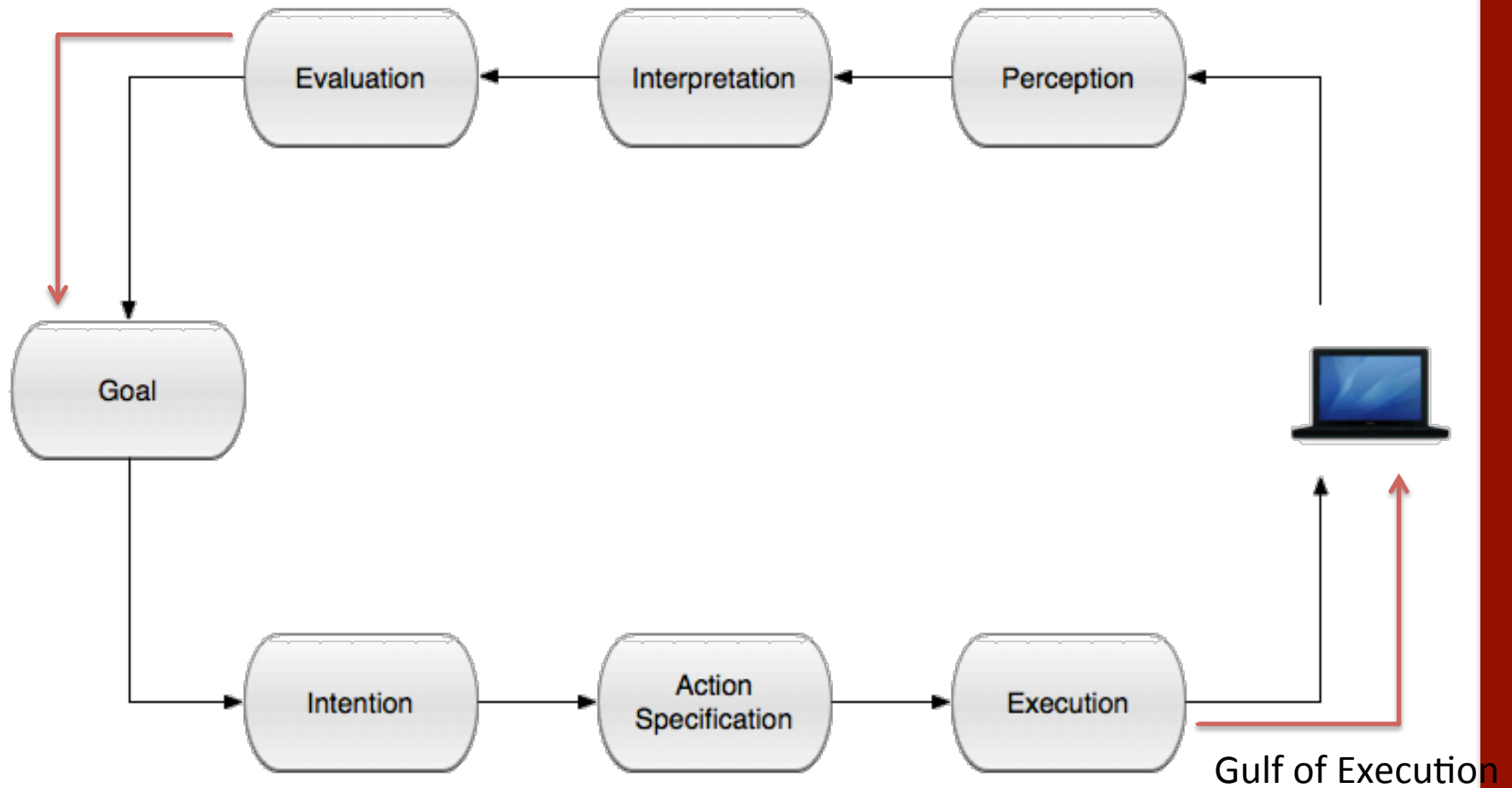
# What did the site do wrong?

- Not clear what clicking on certain links will do
- No overt support for common tasks
- In some cases it isn't clear that things are interactive



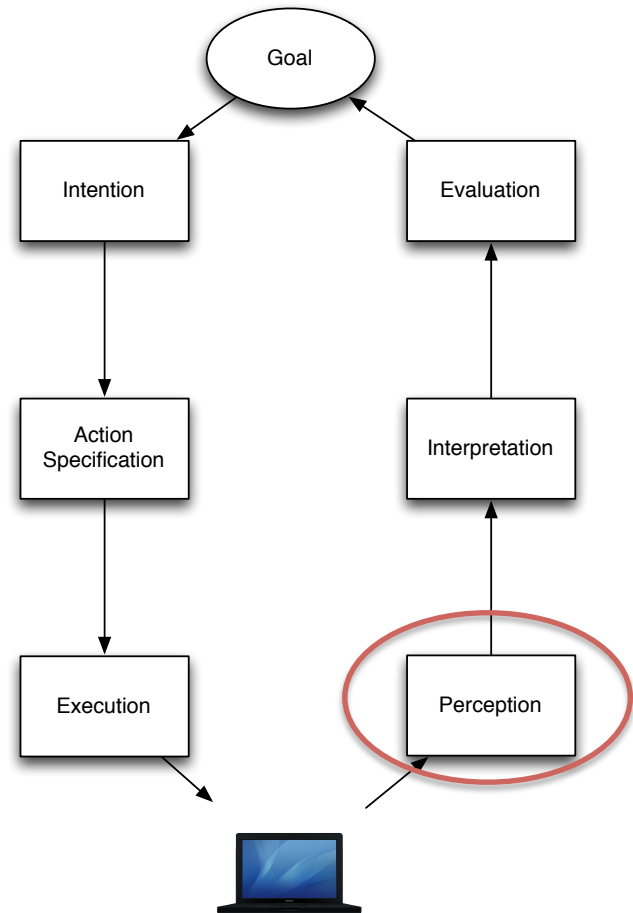
# What happens to the users?

Gulf of Evaluation



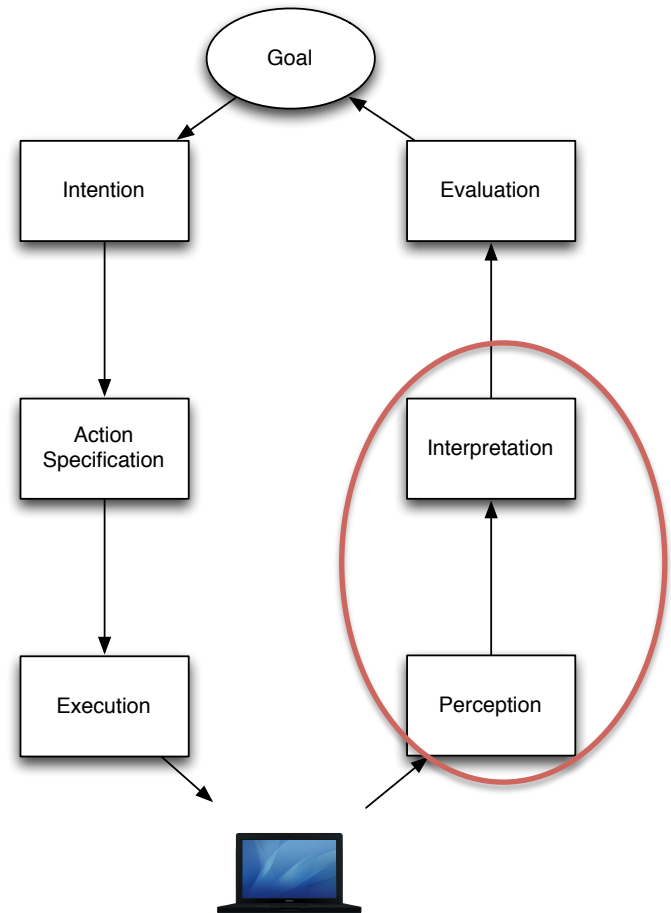
# So what do we need to do to support users: Perception

- Visual
  - Boundaries
  - Distinguishable features
  - Colour
- Audio
  - Volume
  - Pitch
  - Rhythm
- Haptic
  - Vibration
  - Stiffness
  - Texture



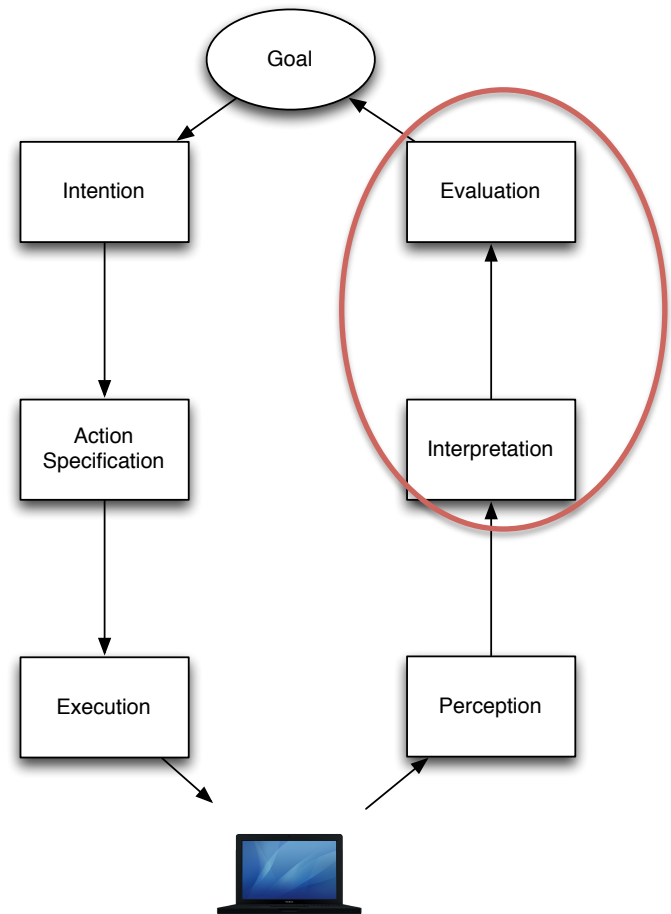
# So what do we need to do to support users: Interpretation

- Groupings of controls
- Information architecture
- Layout of information
- Consistency (internal and external)
- Speaking in user language



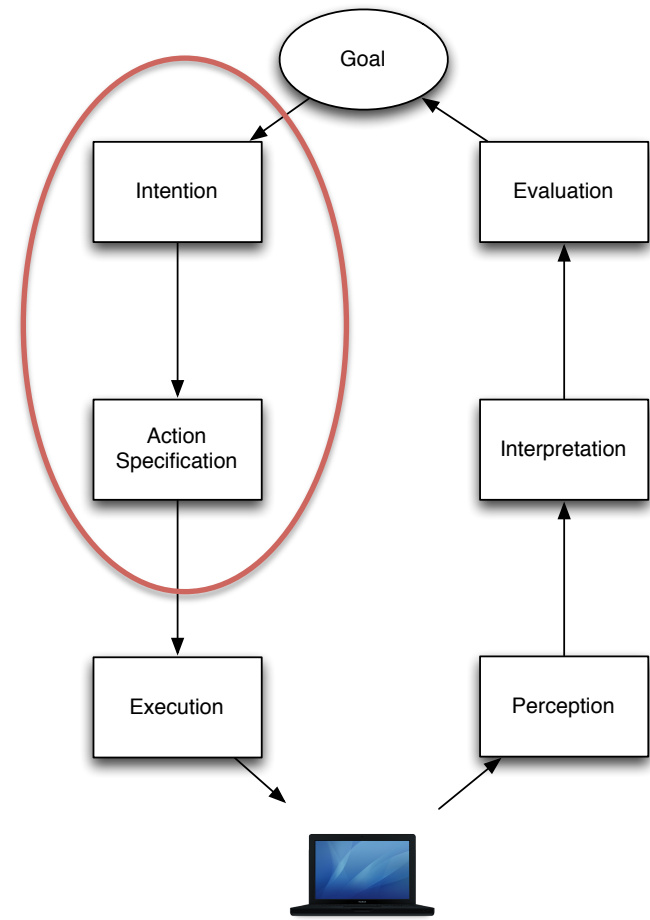
# So what do we need to do to support users: Interpretation - Evaluation

- Metaphors
- User conceptual models
  - What do users understand?
  - What do users not have to understand?



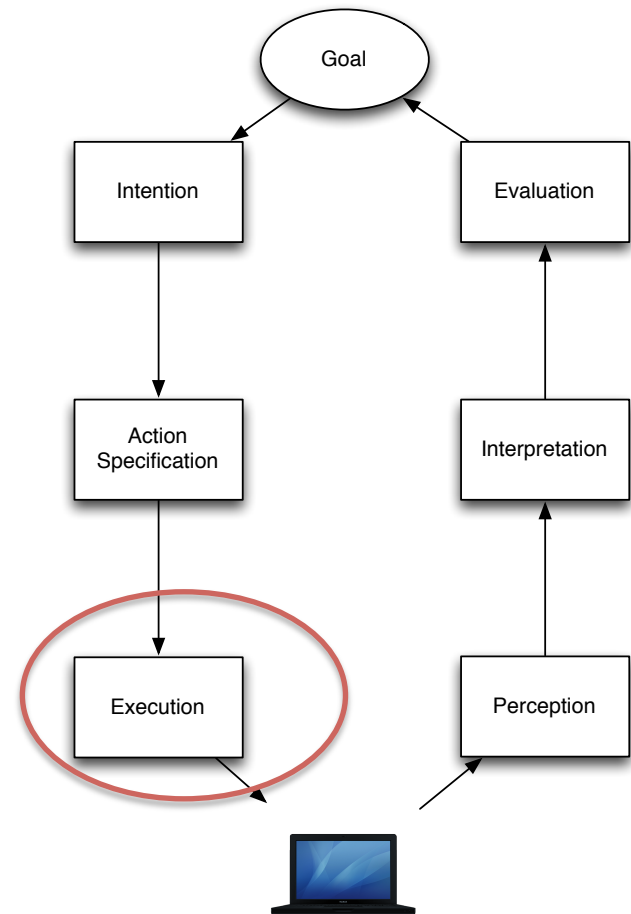
# So what do we need to do to support users: Intention-Action Specification

- Functional Feedforward
  - Signposting of what actions will do
- Instructions and help
- Explicit ordering (e.g. 1..2..3)
- Implicit ordering (through layout)
- Widgets and control labelling



# So what do we need to do to support users: Execution

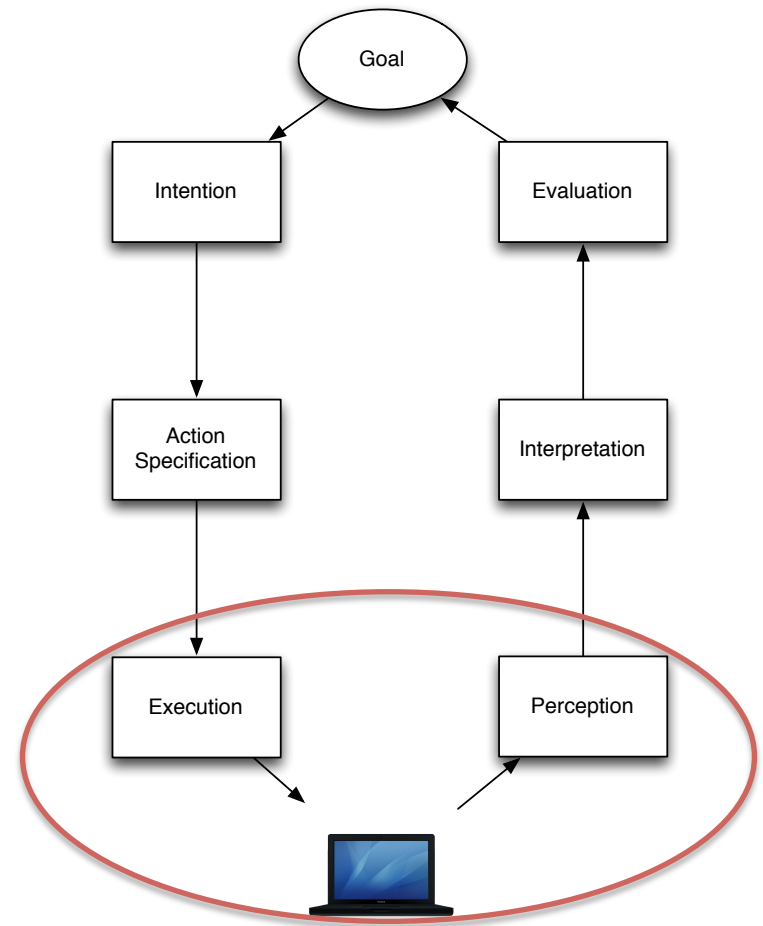
- Perceived Affordances of Widgets
  - “This looks like I can push it”
- Clearly indicating mandatory interaction





# So what do we need to do to support users: Action in the System

- Most importantly we need Feedback
- When a user takes an action – it will trigger an *event* in the system that needs to be processed
- We need to signal to a user that events have happened and the result



# Summary

- Users aren't an abstraction that we need to just put in the corner
- Their goals drive the system – we need to support users at every point of their action cycle

# Resources: How users act

- Literature
  - Norman, D. The Design of Everyday Things
    - A very good book for understanding how humans act with systems
  - Norman, D. A. (1983). Design rules based on analyses of human error. Communications of the ACM, 26(4), 254-258.
  - Norman, D. A. (1984). Stages and levels in human-machine interaction. International Journal of Man-Machine Studies, 21(4), 365-375.