

# Feedforward, Affordances and Feedback

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# Bridging the Gulf of Execution

- If we have done our job, then our users should be able to identify the key functionality they need – this is termed Feedforward
- Similarly, users should know if what they have done has had any kind of real impact on the system state – this is termed Feedback
- Mixed up in all of this is the term *affordance* which contributes to these things in different ways.

# Feedforward

- Feedforward it was cues users into what functionality is available on a page
- There are a huge number of factors that play into feedforward
  - Making features salient on the page (see Layout lecture)
  - Properly labelling controls
  - Consistency between pages and between sites

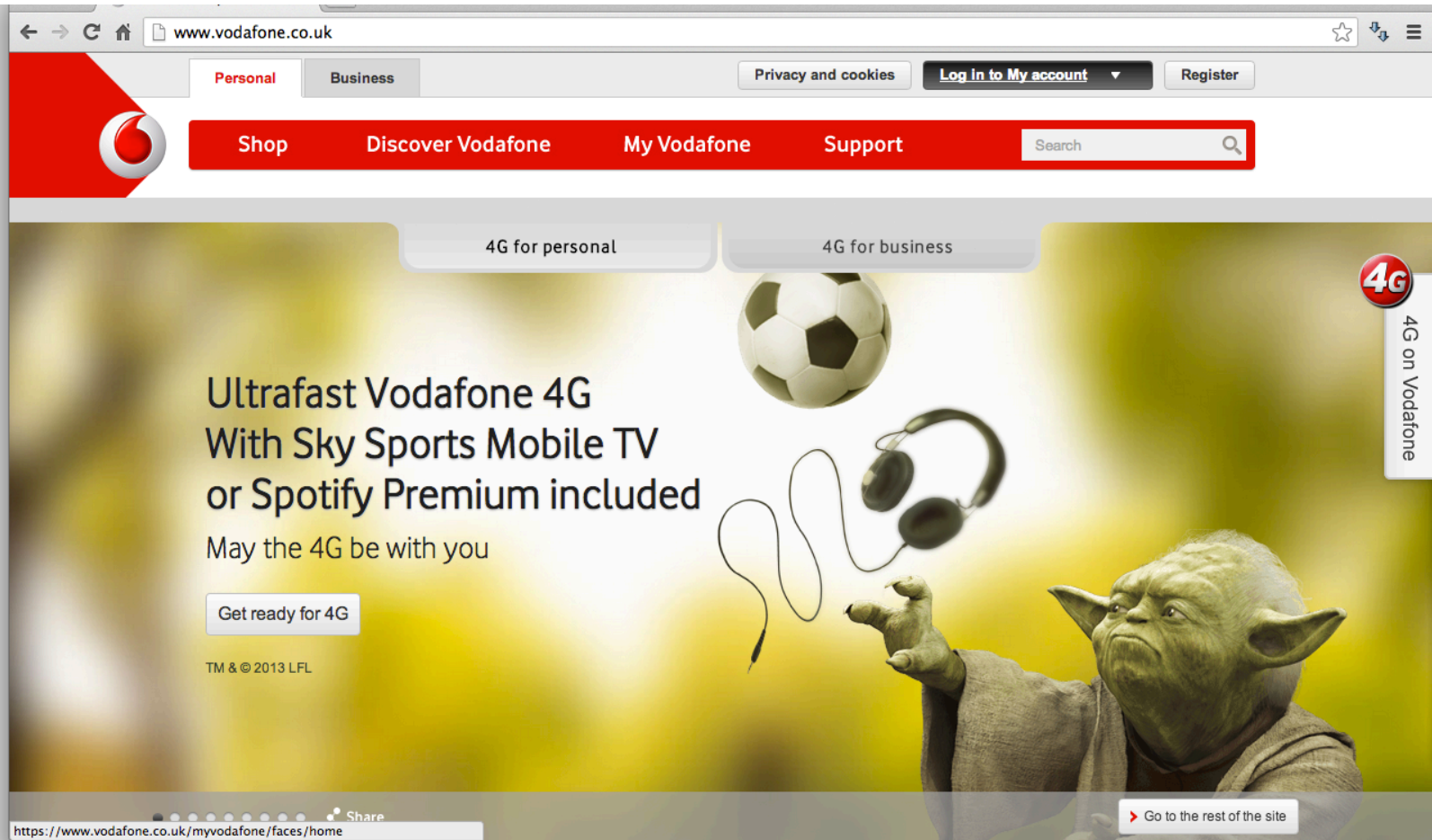
# Affordances

- One of the most contentious terms in HCI research and practice
- Originally Proposed by Gibson
  - Relationship between the world and actors
  - The world provokes specific actions because of the way it was formed
  - Example: Doors -  
<http://www.youtube.com/watch?v=773G3lih4WM>
- HCI magpie Don Norman came along and applied it to interactive systems

# Affordances (2)

- If there had been an internet in the 1980s, Norman would have broken the internet
  - Norman claimed that we could perceive what we could interact with on the display and map it to known outcomes
  - This was completely misinterpreted and people started saying things like
    - “I designed this button with affordances”
- That is wrong – a button looking clickable is a convention, a piece of information that advertises “Hi I’m clickable”
- What the designer needs to ask is: “Can people work out what will happen when they act just from what they perceive?”
- Affordances are closely linked to Feedforward

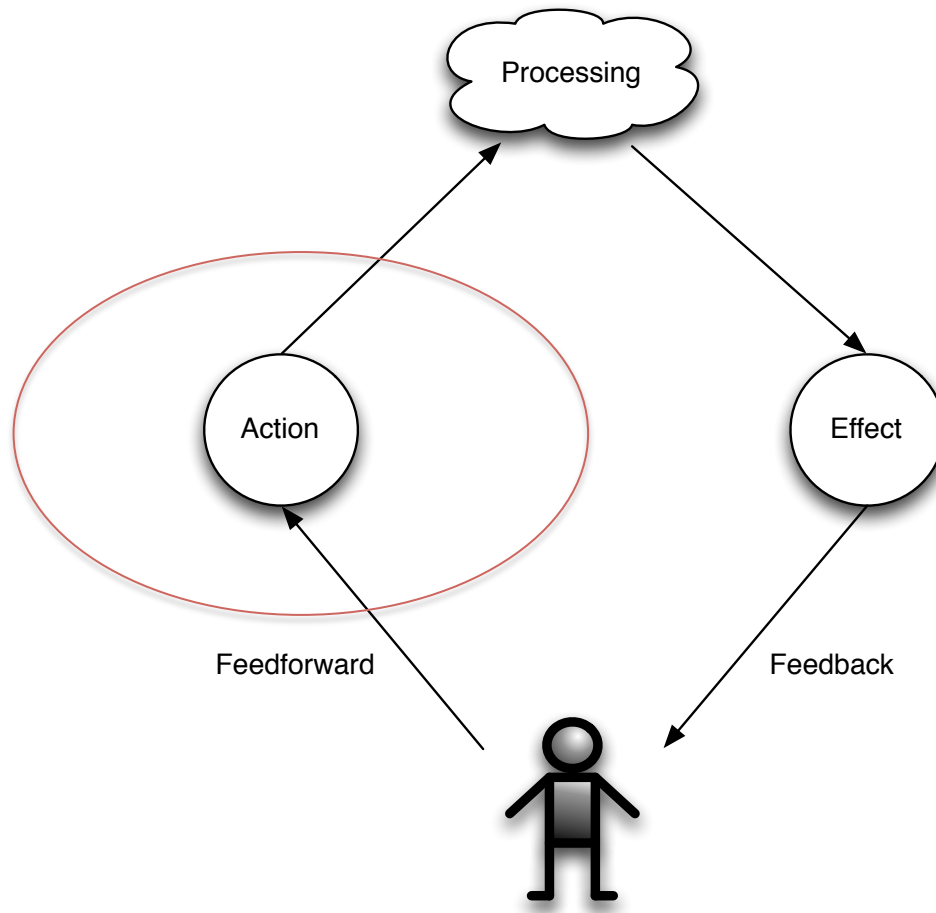
# What the \*\*\*\* do I do here?



# Let's think about a few systems ...

- What are the potential challenges with feedforward and feedback with:
  - Natural language interfaces?
  - Gesture based systems?
  - Web based systems?

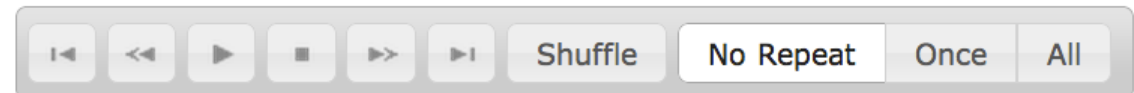
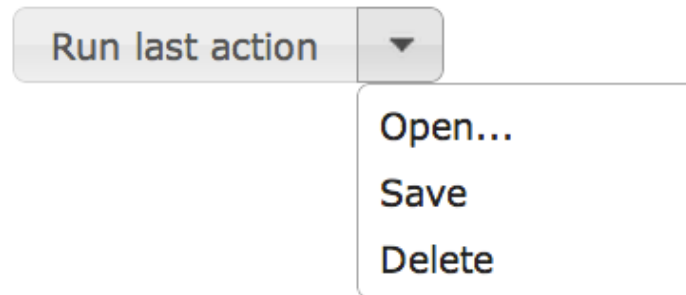
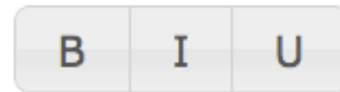
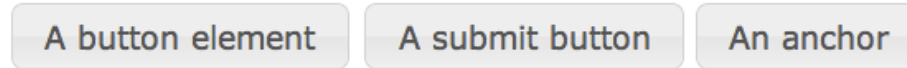
# Widgets and Controls





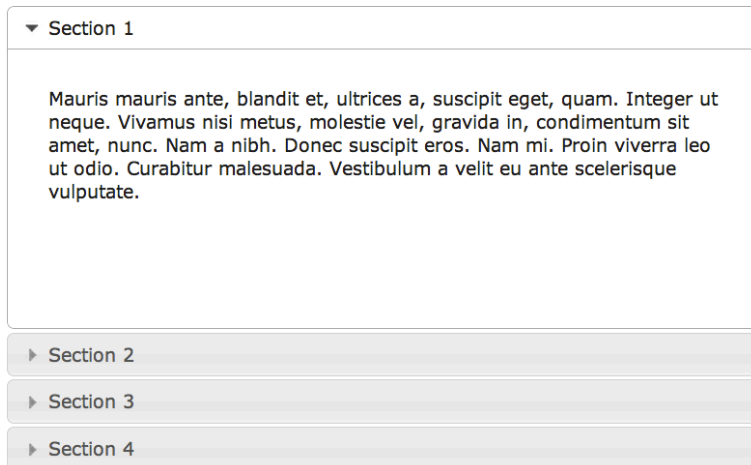
# Simple Widgets

- Buttons
- Options
- Selectors
- Split control
- Toolbars

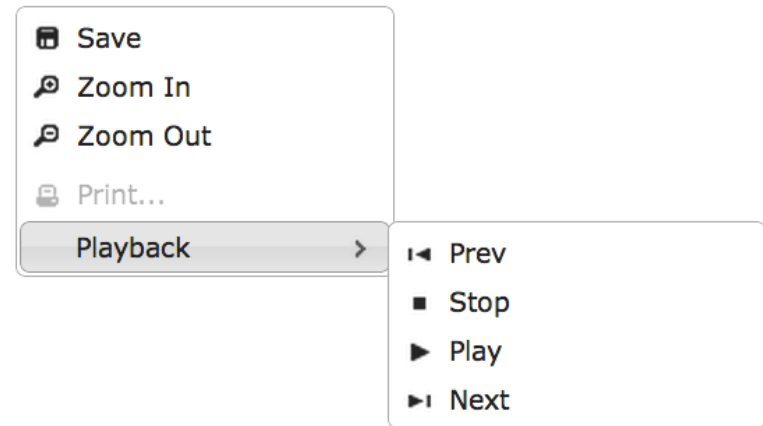


# Container Widgets

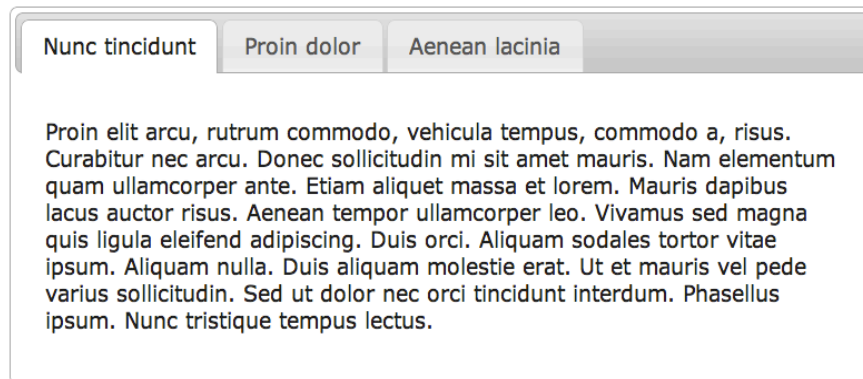
## Accordion



## Menus



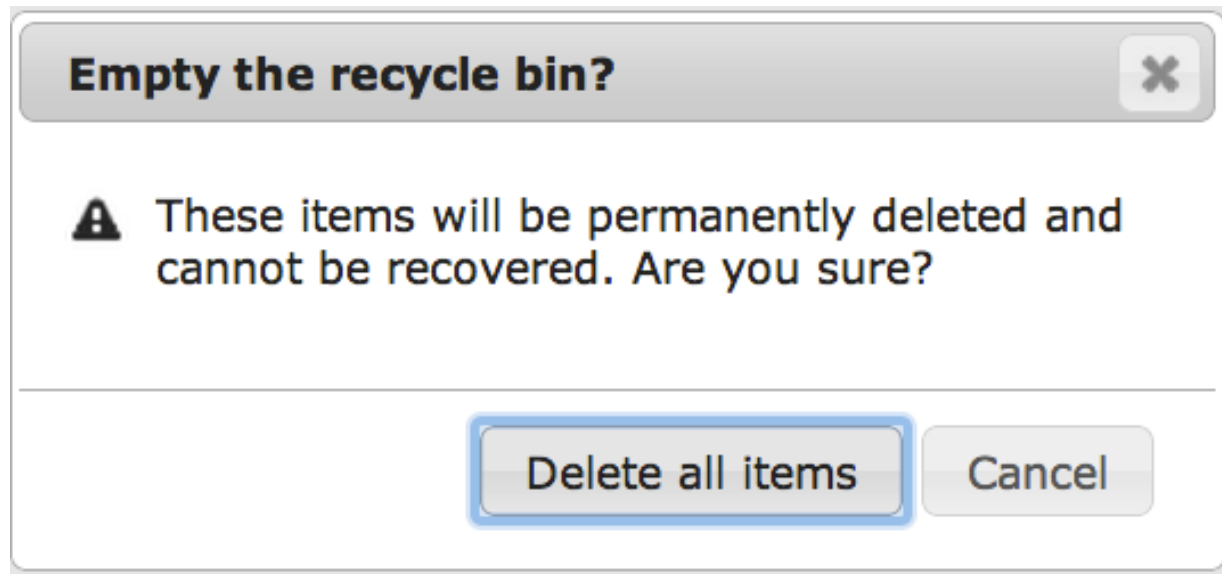
## Tabs



## Scrollable Pane

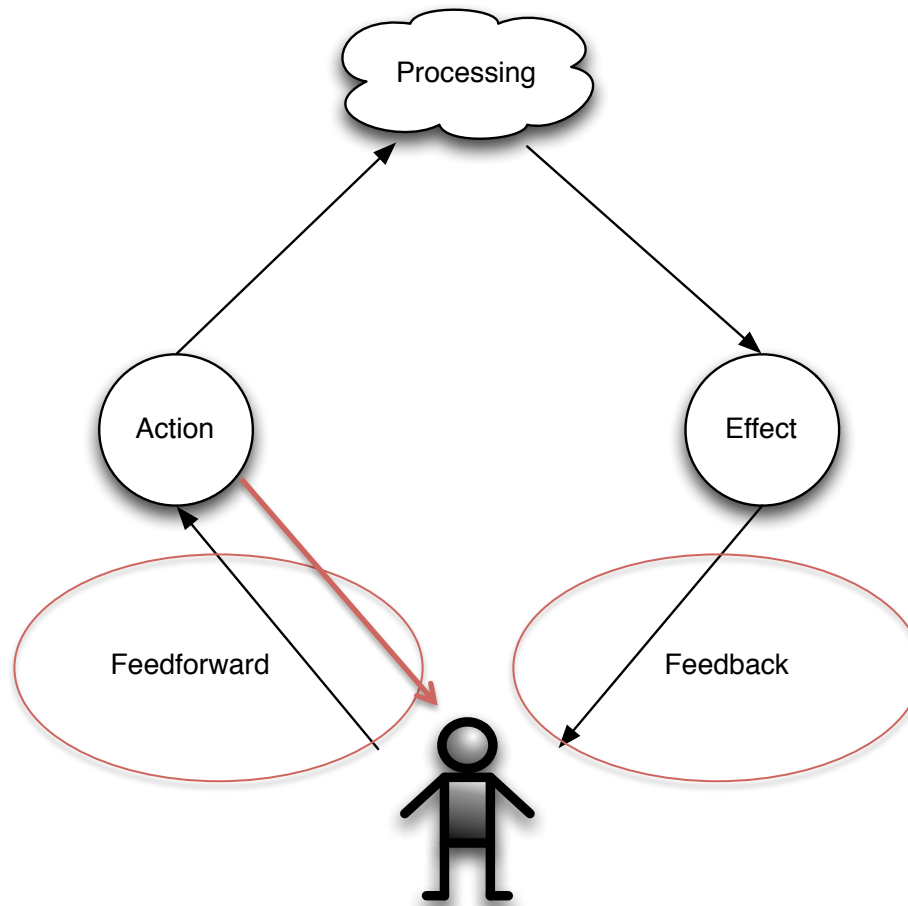


# Dialogs



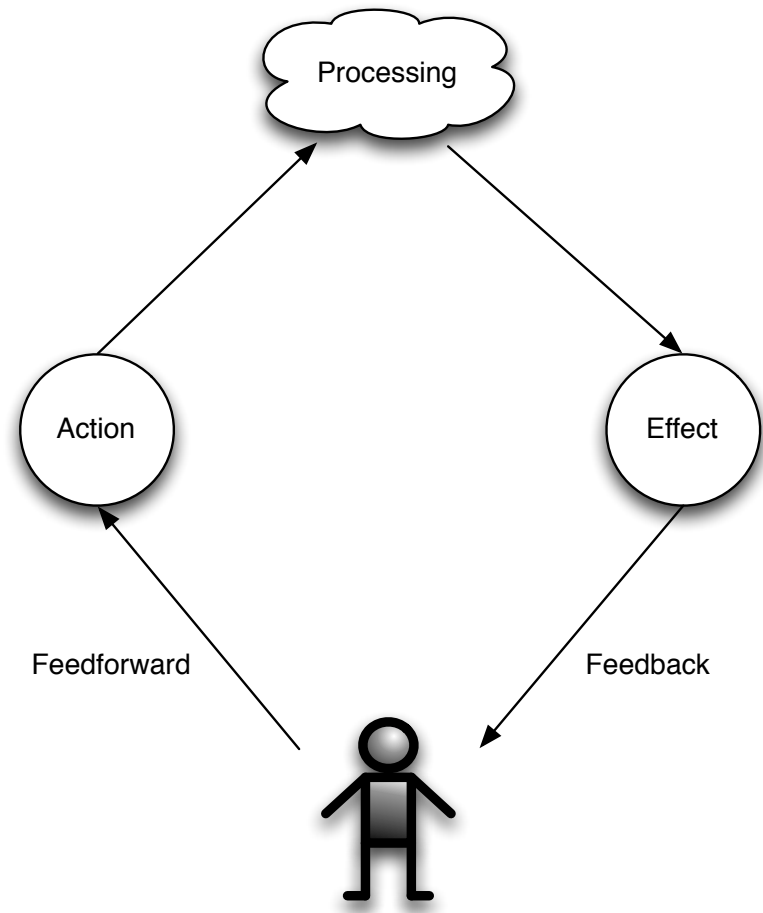
- NB: Dialog – a little window that tells you some information; Dialogue – the pattern of conversation between actors

# Feedback



# Feedback

- This is (in my opinion) the single most important and most poorly done aspect of our interactive systems
- Feedback is confirmation to the user that something in the world has changed
  - Feedback that their actions have been accepted to the system
  - Feedback that the system is doing something useful



# Feedback: Users in error



Some information was missing. Please see below for details.



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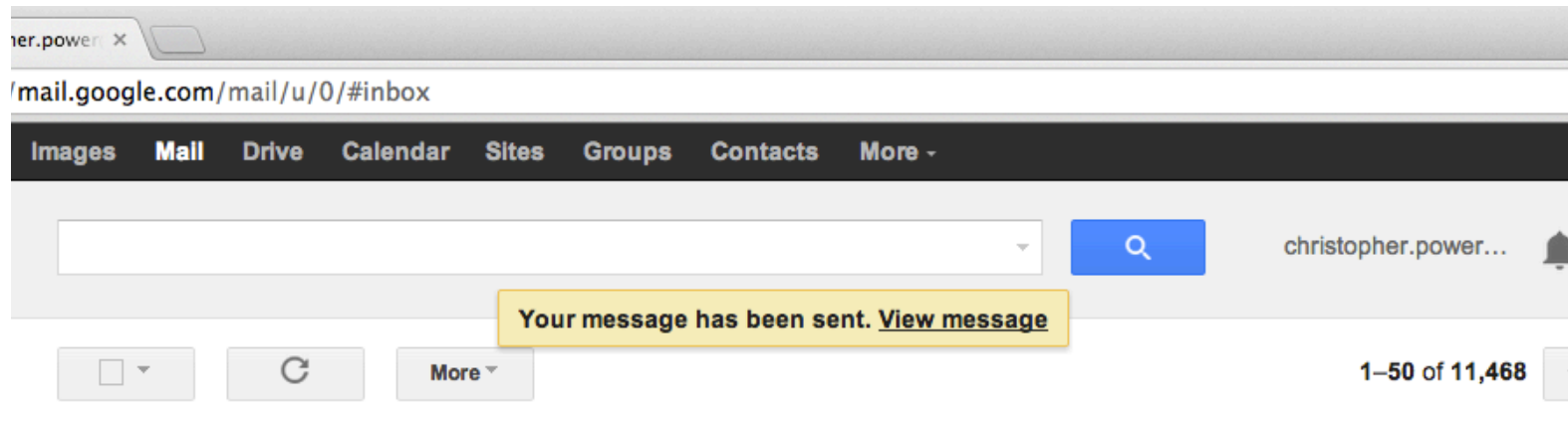
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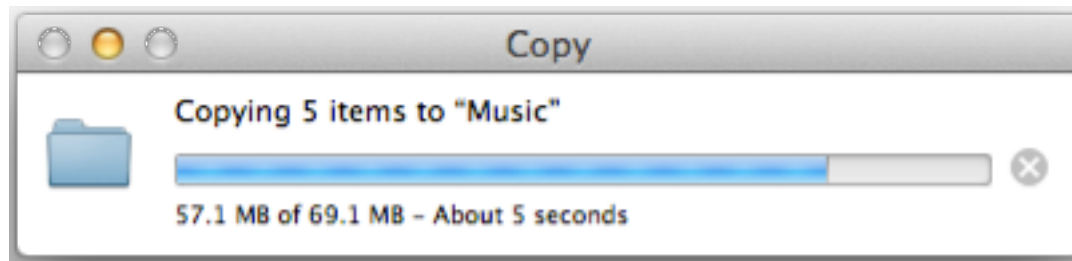
- + 148,000 executives sign in everyday
- + 23 professionals join every minute
- + More people have joined LinkedIn than live in Sweden

# Feedback: Users successful



# Feedback: Processing will take a while

- Processing is going to take longer than 1 second = you need to tell someone about it



	Windows 7	Windows XP	Mac OS X	Ubuntu Linux
Firefox				
Chrome				
IE7-9 (polyfill)		N/A		
IE10		N/A		
Safari 5.1+ (polyfill)				N/A
Opera				

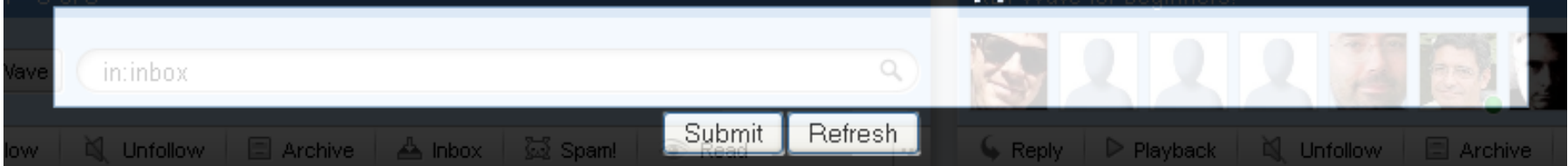


# Feedback: System error

- Worst errors ever – all over the world, all over the web, they break every possible design rules we have



"Everything's shiny, Cap'n. Not to fret!" Unfortunately, you'll need to *refresh*.  
Wanna tell Dr. Wave what happened?

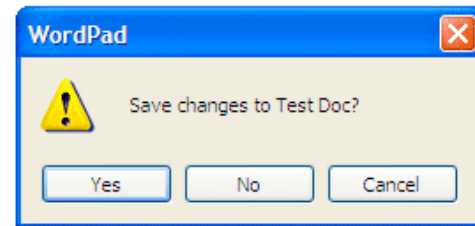




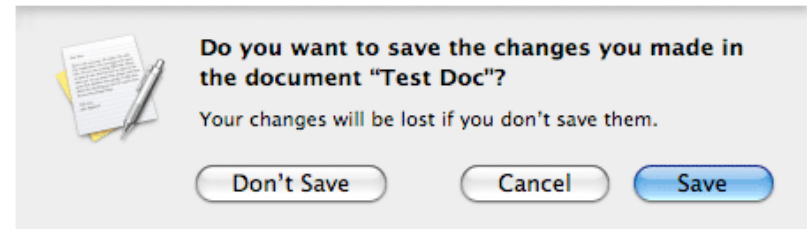
# Feedback Tips

- Should always be timely - < 1 sec for actions, < 10 sec for processing
- Should always be in clear, readable text that speaks the users' language (Shneiderman principle!)
- Should provide users with information on how to solve the problem or options on what to do next
- Should provide users with buttons that make sense

Windows XP WordPad save dialog:



OS X TextEdit save dialog:



# Summary

- It does not matter what modality people are working in, the pattern of interaction is the same
- We often use the metaphor of a dialogue to describe interactions – think about how dialogues work between humans and it provides an insight into how we need to work with computers
- Feedforward to prompt actions and Feedback to respond to actions is absolutely key for users

# Reading

- Feedforward

- Vermeulen, J., Luyten, K., van den Hoven, E., & Coninx, K. (2013, April). Crossing the bridge over Norman's gulf of execution: revealing feedforward's true identity. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 1931-1940). ACM.

- Affordances

- Gibson, J. J. (1977). The concept of affordances. Perceiving, acting, and knowing, 67-82.
- Norman, D. A. (1999). Affordance, conventions, and design. interactions, 6(3), 38-43.
- Norman, D. A. (2008). THE WAY I SEE IT Signifiers, not affordances. interactions, 15(6), 18-19.
- Kaptelinin, V., & Nardi, B. (2012, May). Affordances in HCI: toward a mediated action perspective. In Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems (pp. 967-976). ACM.

- Feedback

- Norman, D. A. (1990). The 'problem' with automation: inappropriate feedback and interaction, not 'over-automation'. Philosophical Transactions of the Royal Society of London. B, Biological Sciences, 327(1241), 585-593.

# Reading (2)

- Cooper et al. About Face 3
  - Chapter 13 – pg. 280 on Affordances to end of chapter
  - Chapter 21 – Controls
  - Chapter 24 – Dialogs
  - Chapter 25 – Errors, Alerts and Confirmation