Heuristic Evaluation

Lecture 16, Week 9
March 4, 2015
CSC318H1S
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Announcements

- Assignment 4?
- No elevator pitch today!
- Your TA's are on strike
- This classroom is available Friday 11-12 for independent work
- New group grading components for P3, P4 and P5

Conceptual Models

Conceptual model components

A conceptual model is built from:

- **Affordances** (what things can do) and **signifiers** (what things look like they can do)

- **Constraints** (what things are made not to do)

- **Mappings** (how actions relate to results)

- **Metaphors** (how things relate to user's prior knowledge)

- **Standards** and **norms** (how things should be)

- **Instructions** (what users are told to do)

- **Interactions** (what users learn by interacting with the system)

Metaphors

Metaphors are ways of relating aspects of an interface to familiar objects or concepts.

In literature, a metaphor is "*a figure of speech in which a term or phrase is applied to something to which it is not literally applicable in order to suggest a resemblance*" [reference.com]

They make an interface easier to understand by relying on users' specific knowledge about other domains.

They are especially useful when your app's domain knowledge is too difficult to acquire or too complex to describe in simple terms.

Metaphors

Metaphors have great initial utility to get users to form conceptual models for new interfaces.

However, they lose potency over time by tethering rapidly changing digital interfaces to a rigid real-world definitions.

What are some metaphors that have outlived their original domains?



Idioms

"*Piece of cake*", "*herding cats*", "*when pigs fly*".

Idioms are learned conventions of interaction that do *not* have real-world equivalents.

They are less intuitive than metaphors, don't exploit prior knowledge, but also don't commit the user to an aging association.

In UI design, "*pinch to zoom*" is an idiom, but not a metaphor. It is a learned way of conceptualizing an interface which has no intuitive real-world equivalent.

Why Idioms?

1) More idioms to invent than metaphors to discover

2) Metaphors are predetermined, idioms can adapt

3) Metaphors can give users false expectations

4) Metaphors for physical objects limit digital interaction

7 Universal Deep Metaphors

Balance: creating or restoring justice/symmetry.

Transformation: change, typically for the better.

Journey: includes past, present and future.

Container: inclusion, collection, exclusion.

Connection: need to relate to oneself and others.

Resource: acquisition and growth.

Control: mastery and free will.

[Marketing Metaphoria, Zaltman & Zaltman 2008]

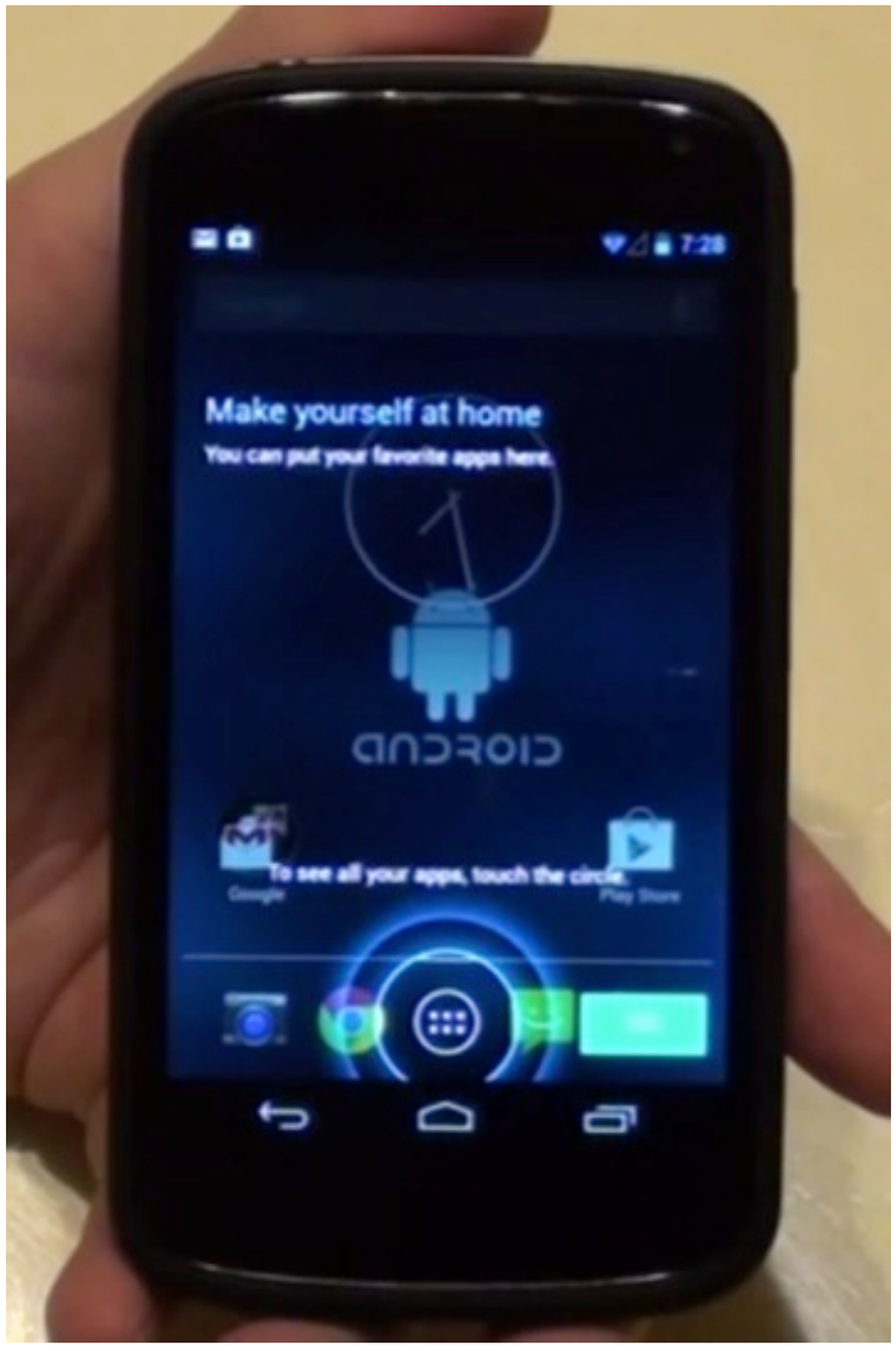
Instructions

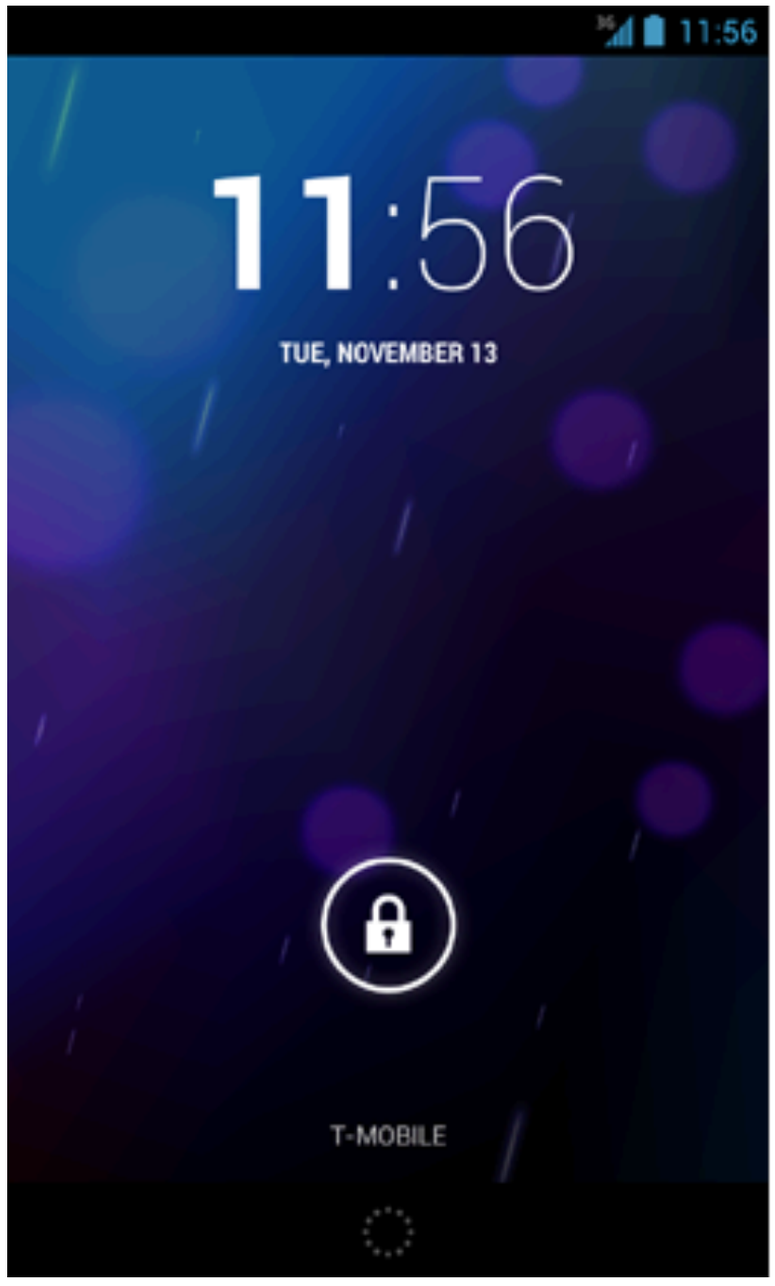
Instructions are the only explicit way for a designer to communicate a model to the user.

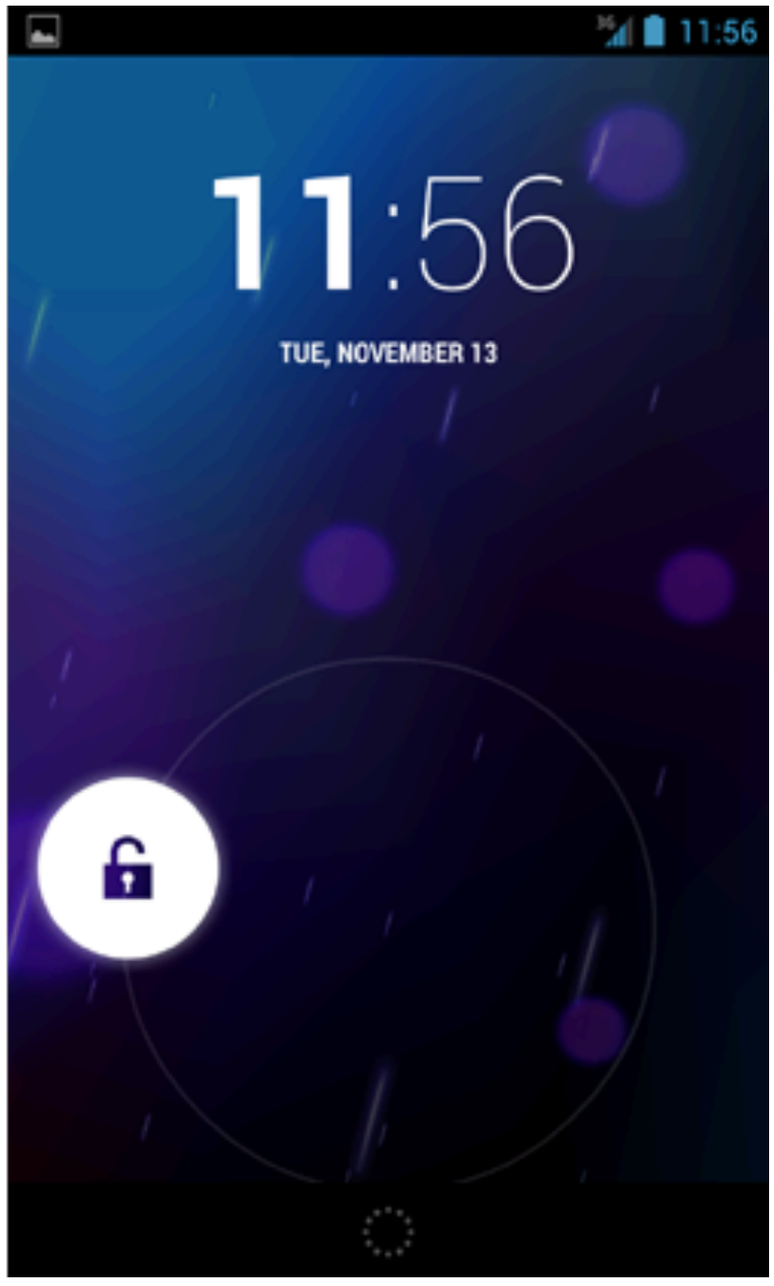
They are used to guide a user when first approaching a system.

They should be clear and concise, they should appear without prompting for novice users, but they should also be easy to dismiss as the user gains experience.

Instructions







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Instructions

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Heuristics and Heuristic Evaluation

Heuristic Evaluation

A **heuristic** is an experience-based "rule of thumb" that helps find a workable, but not necessarily perfect or proven, solution to a problem at hand.

In interface design, it is one of a set of well-established usability principles that usability experts are familiar with.

Heuristic evaluation is a technique for identifying usability issues in which experts review new interfaces and judge them based on their compliance with a set of heuristics.

Nielsen's Heuristics (1994)

1. Visibility of system status
2. Match between system and real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

Heuristic Evaluation: Windows 8

KEY CONSIDERATIONS WHEN DEVELOPING A UI:

CONTROL

CONVEYANCE

CONTINUITY

CONTEXT

Nielsen: Control

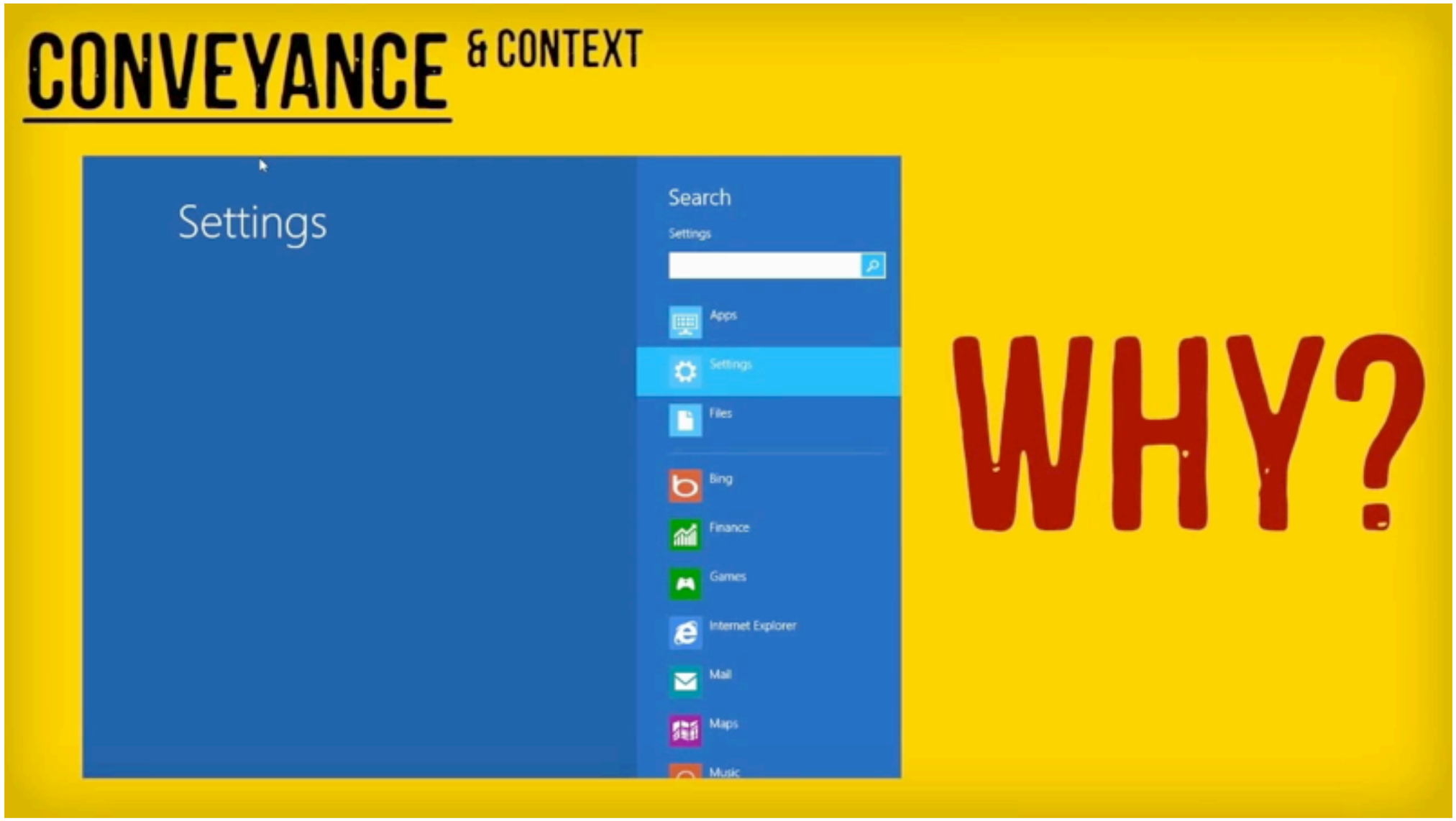
Control: *user is in control of the system at all times*

3. User control and freedom
7. Flexibility and efficiency of use

Nielsen: Conveyance

Conveyance: *where to go, what to do?*

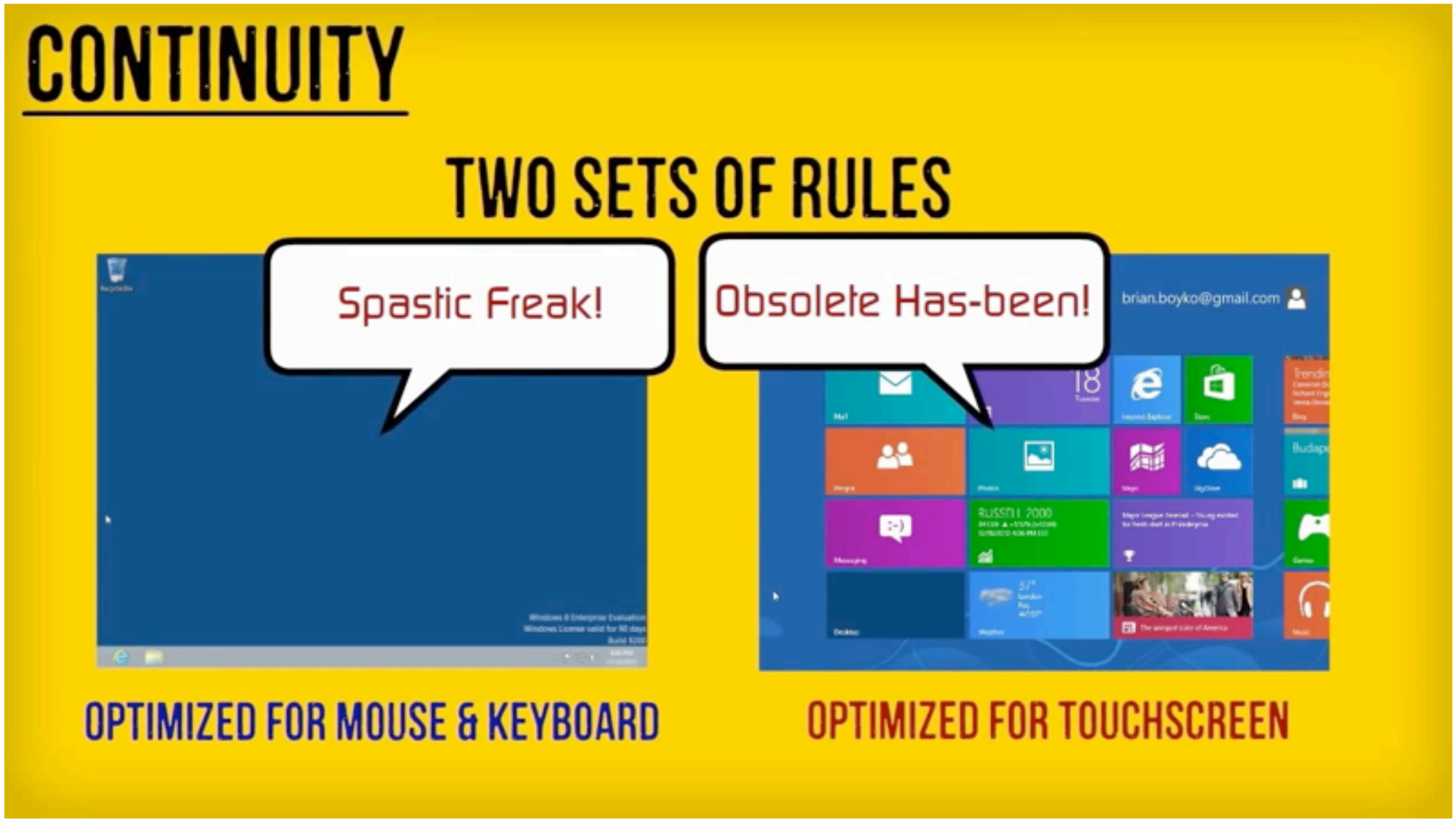
1. Visibility of system status
6. Recognition rather than recall
10. Help and documentation



Nielsen: Continuity

Continuity: *similar results from similar actions*

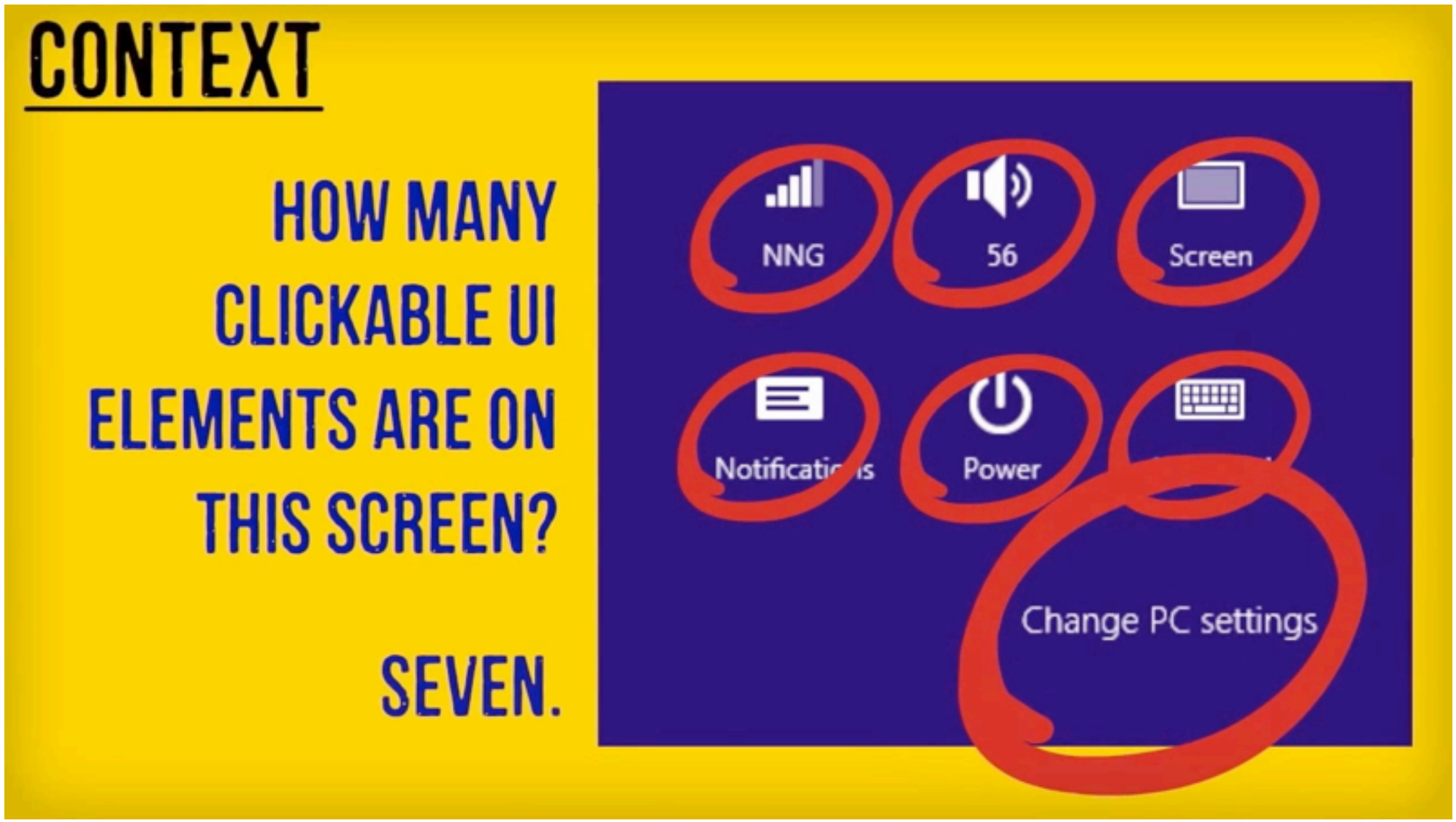
2. Match between system and real world
4. Consistency and standards



Nielsen: Context

Context: *clear and efficient presentation of information*

5. Error prevention
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors



Nielsen's Heuristics as the 4 C's

Control: *user is in control of the system at all times*

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7. Flexibility and efficiency of use

Conveyance: *where to go, what to do?*

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Continuity: *similar results from similar actions*

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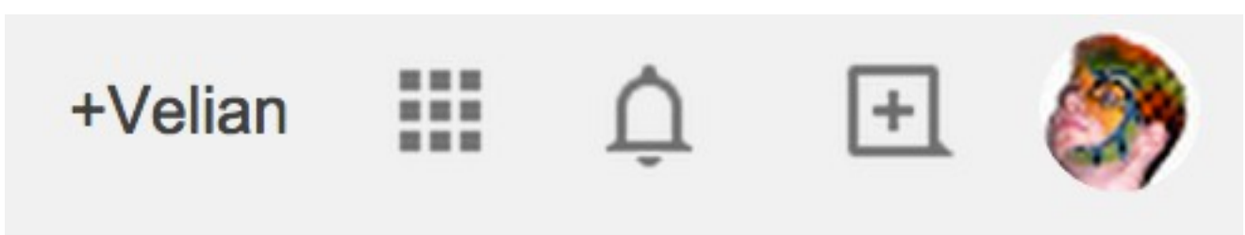
Weinschenk and Barker (2000)

User-focused	System-focused
User control	Simplicity
Human limitations	Precision
Forgiveness	Accuracy
Flexibility	Consistency
User support	Predictability
Interpretation	Responsiveness
Linguistic clarity	Technical clarity
Aesthetic integrity	Modal integrity
Cultural propriety	Fulfillment
Suitable tempo	Accommodation

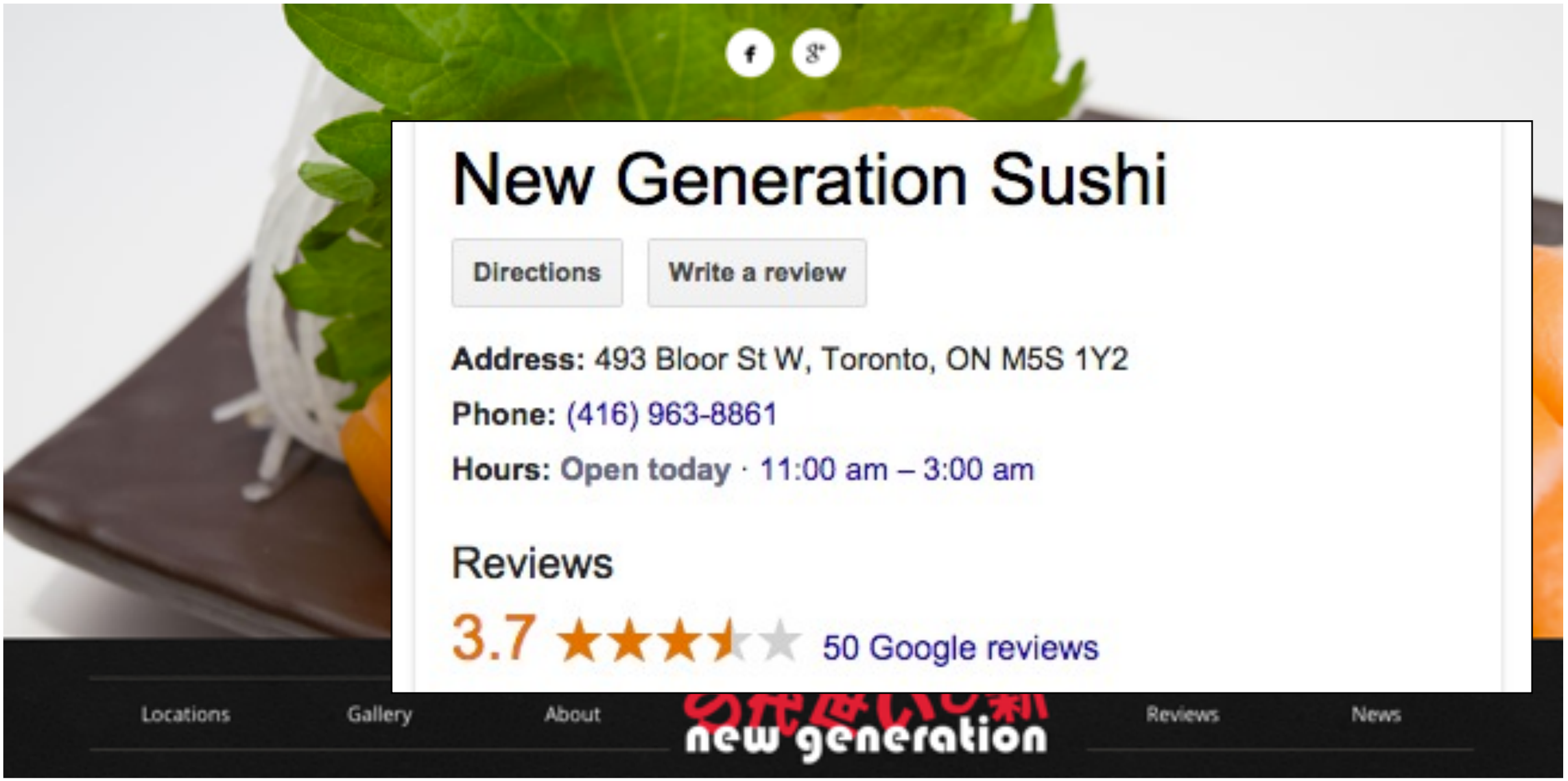
7 "Laws" of UI Design

1. Law of clarity: convey purpose clearly.



7 "Laws" of UI Design

2. Law of preferred action: make preferred action prominent ad well supported.



7 "Laws" of UI Design

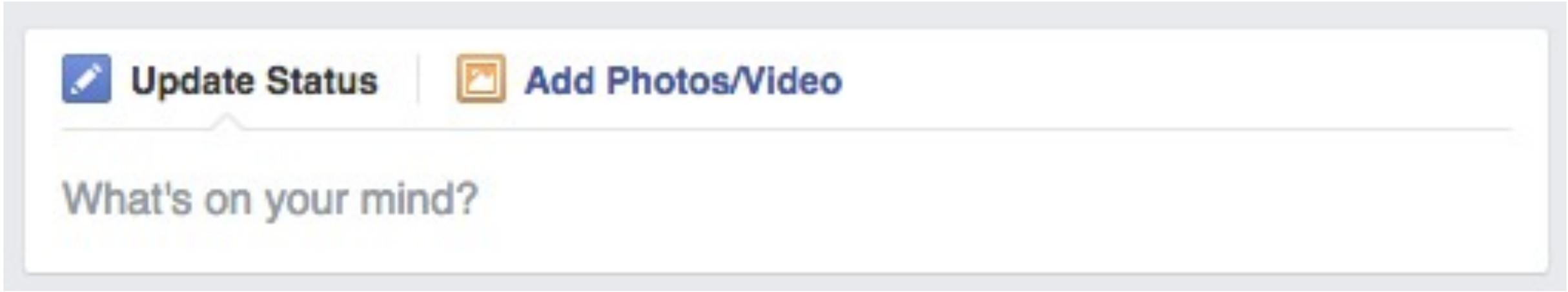
3. Law of context: put controls near targets.

7 "Laws" of UI Design

4. Law of defaults: make defaults usable.

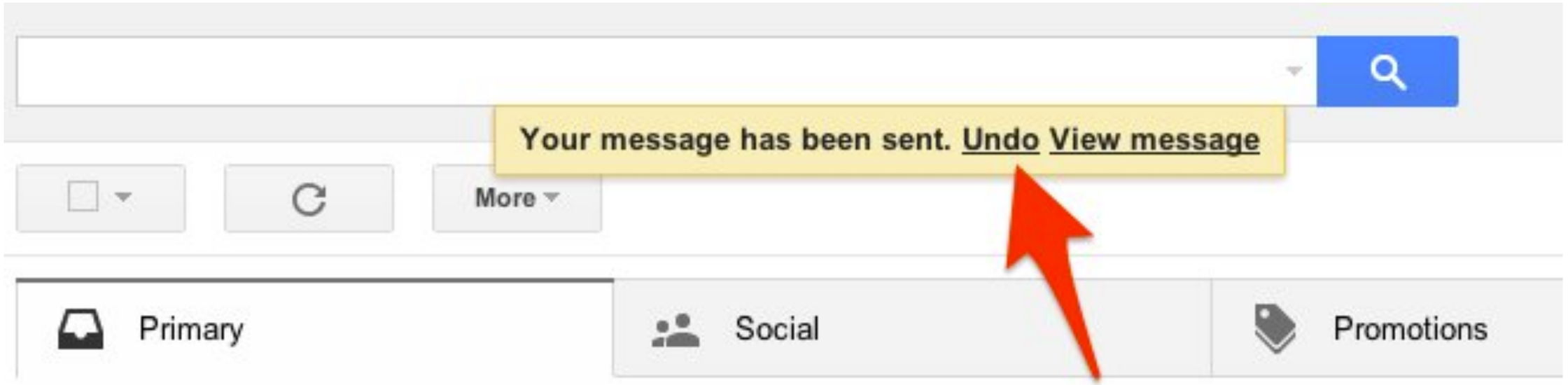
7 "Laws" of UI Design

5. Law of guided action: ask the user to do things.



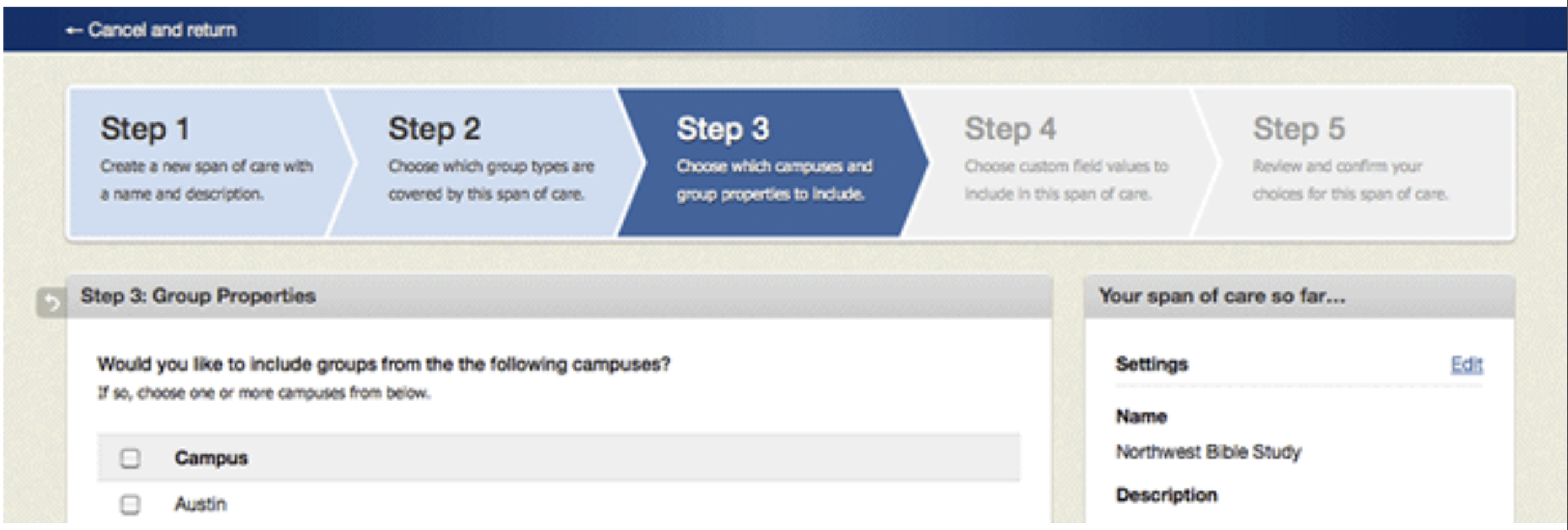
7 "Laws" of UI Design

6. Law of feedback: provide clear and concise feedback.



7 "Laws" of UI Design

7. Law of easing: break complex actions into simpler steps.



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[Source: 99designs.com]

C.R.A.P. Design Principles

1. Contrast

Difference that makes a difference.

2. Repetition

Consistent branding, learning something once is useful on multiple occasions.

3. Alignment

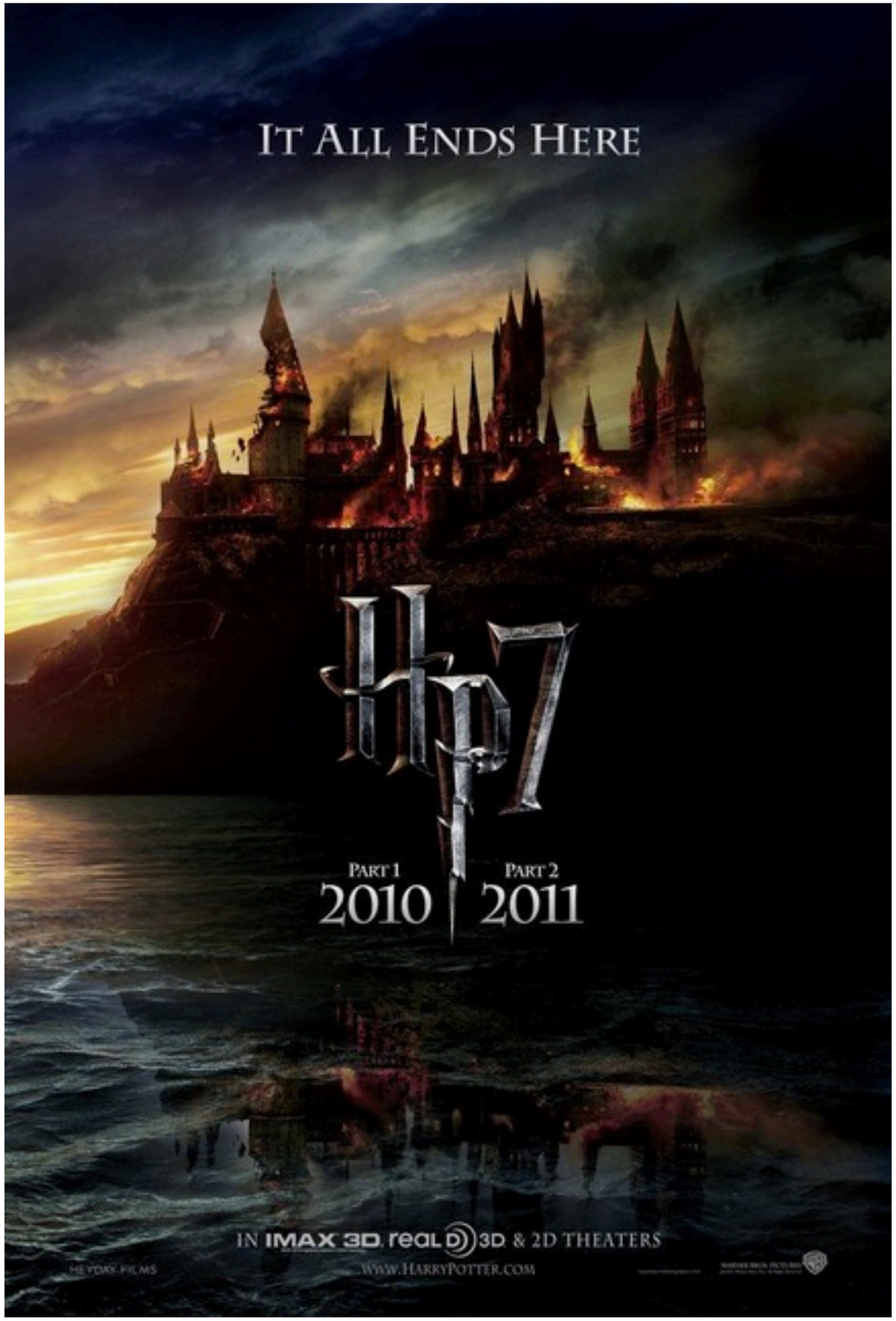
All elements should be visually connected to other elements in the interface.

4. Proximity (also Balance)

Put similar things close together. Put controls and objects close together.

[**Source:** *The Non-Designer's Design Book. Williams, R. 2004*]

Contrast


IT ALL ENDS HERE
HP7
PART 1
2010
PART 2
2011
IN IMAX 3D, real D 3D & 2D THEATERS
WWW.HARRYPOTTER.COM
HEYDAY FILMS


THE
PRINCE
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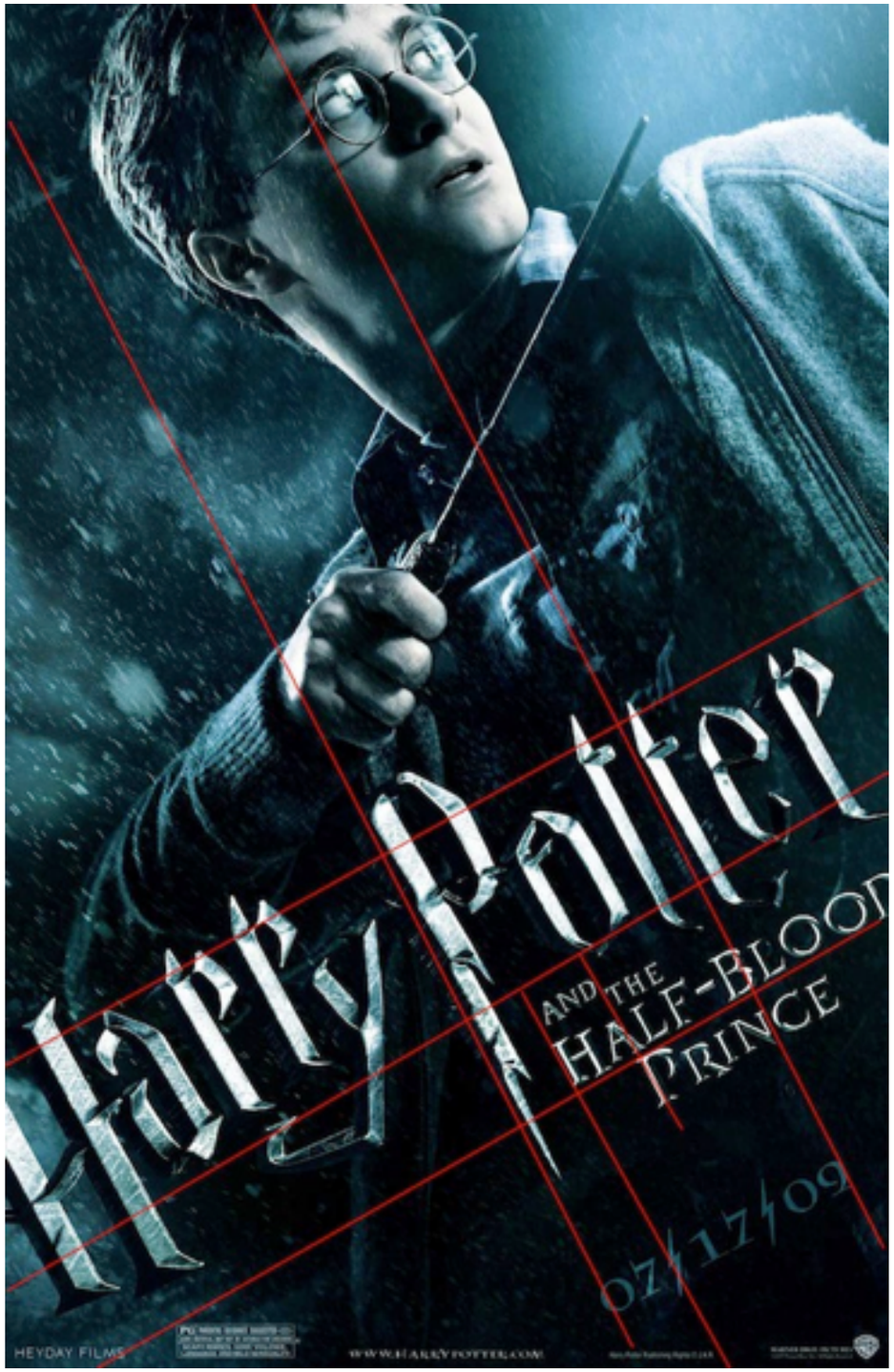
Repetition

Alignment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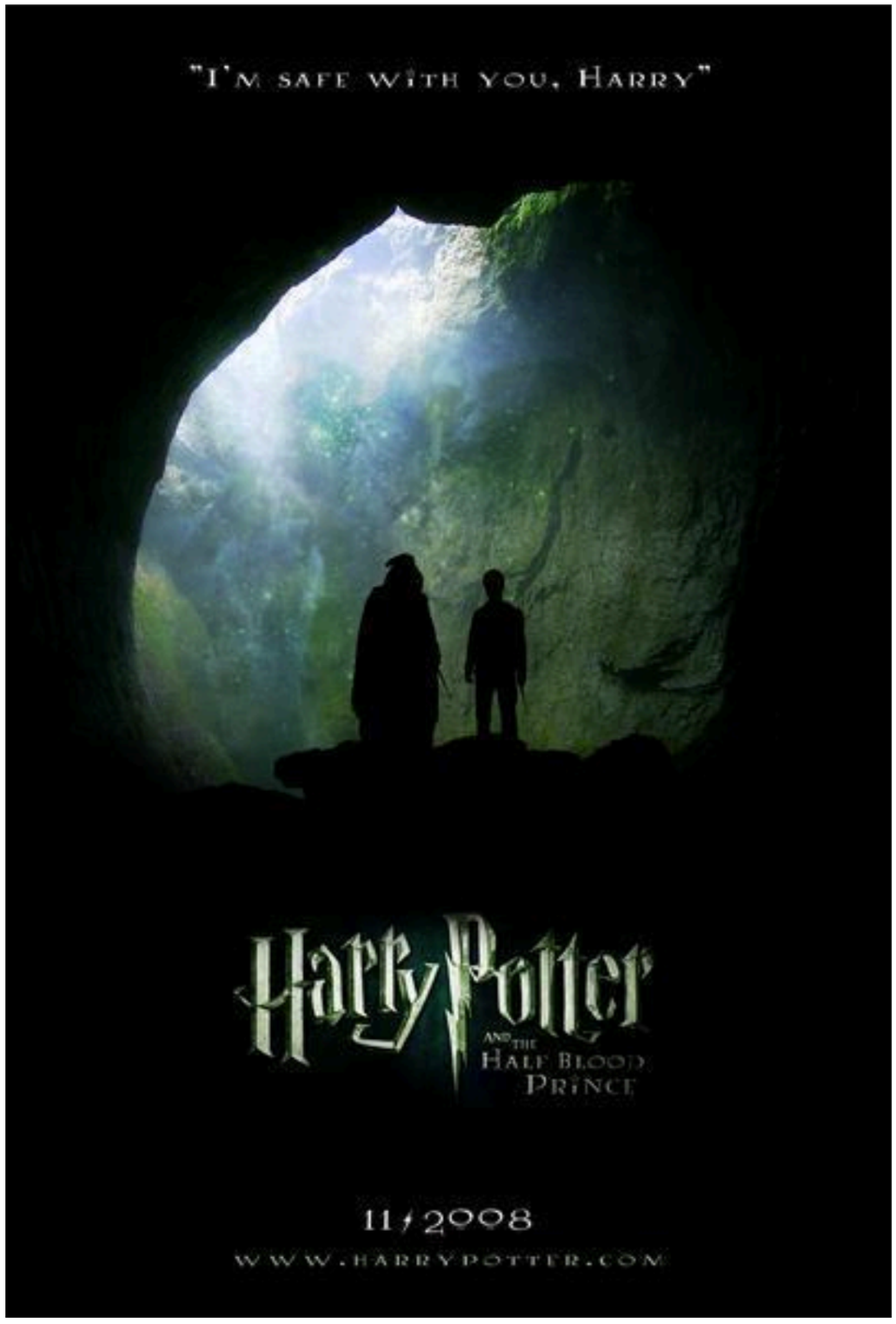
Proximity/Balance



Questions?

This lecture is based on slides and content by:
ILONA POSNER
Materials from:
Interaction Design: Beyond Human-Computer Interaction. Rogers, Sharp and Preece. 2011

References:

7 Unbreakable laws of UI design. http://99designs.com/designer-blog/2014/01/15/7-unbreakable-laws-of-user-interface-design/

Johnson & Henderson 2002

Marketing Metaphoria. Zaltman & Zaltman, 2008.

Non-Designer's Design Book. Williams, 2004.

Heuristic evaluation. Nielsen, 1994. In *Usability inspection methods*, (pp. 25-62). New York: John Wiley & Sons, Inc.

Designing Effective Speech Interfaces. Weinschenk and Barker, 2000.