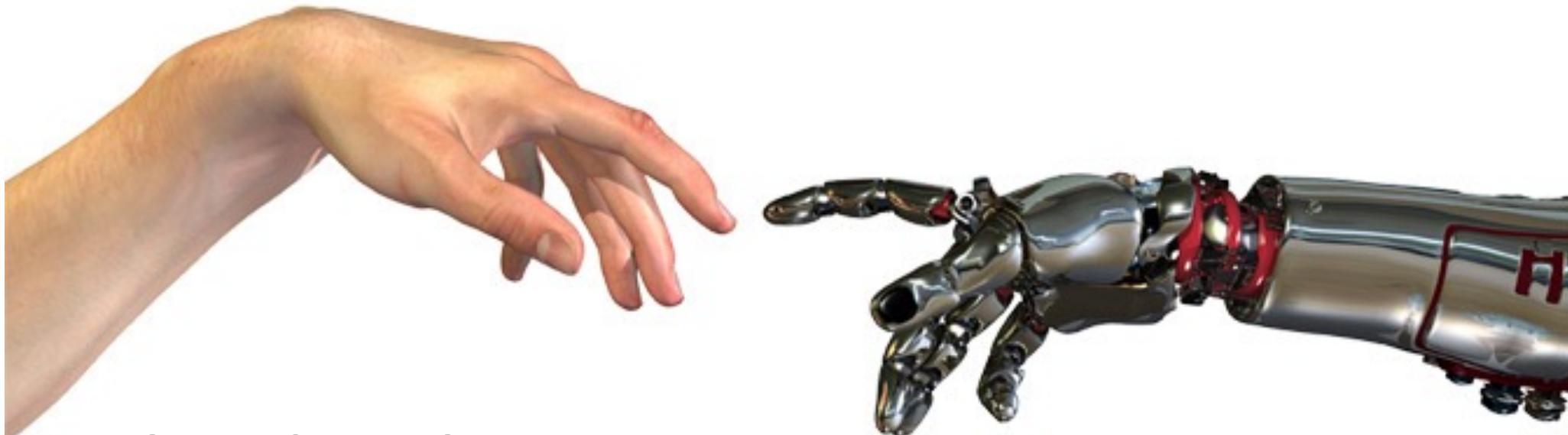


HUMAN-COMPUTER INTERACTION

UNIVERSAL PRINCIPLES OF HUMAN-COMPUTER INTERACTION DESIGN

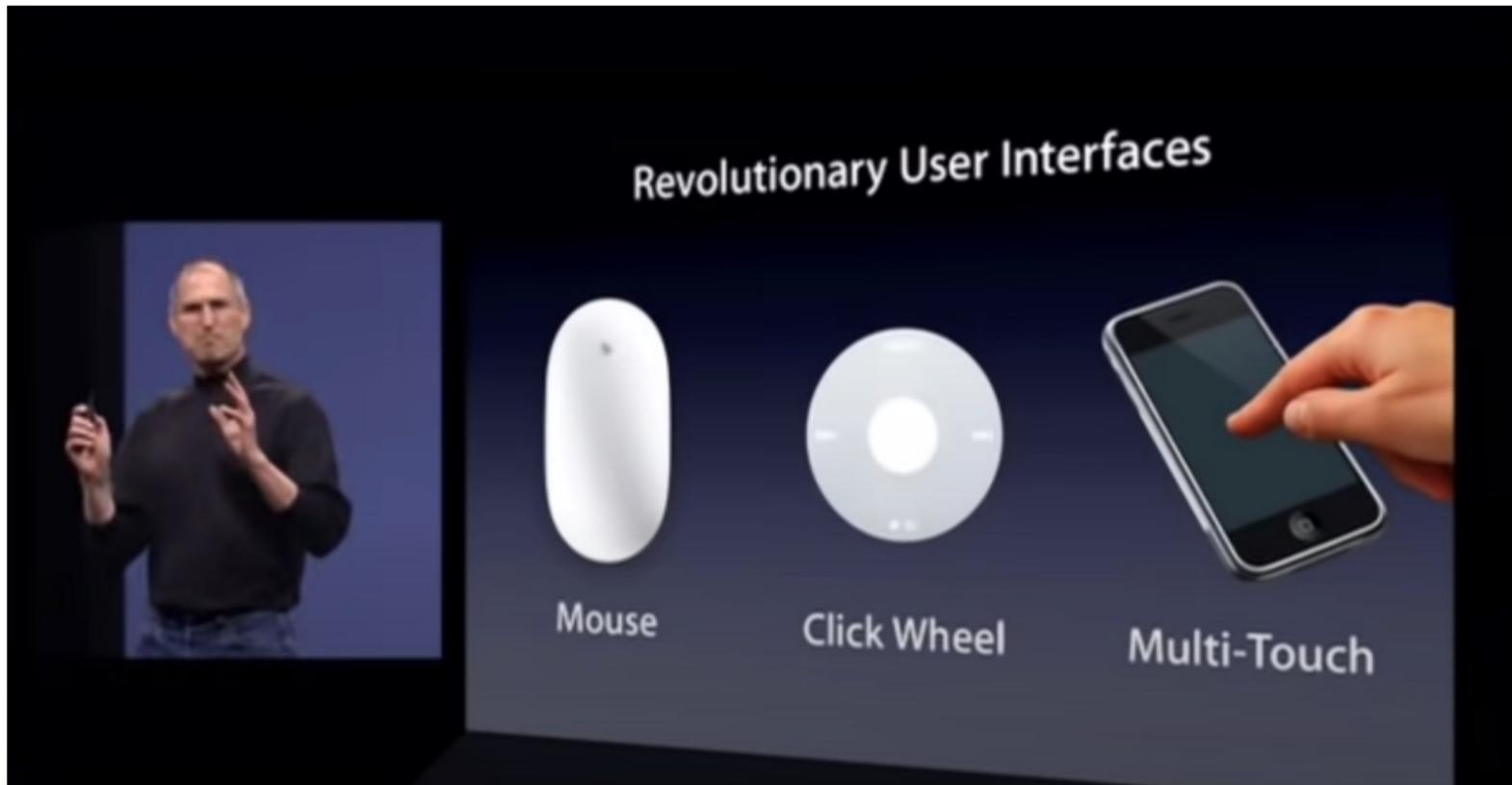


OBJECTIVES

- 1.) *Color Psychology*,
- 2.) *Common Fate*,
- 3.) *Consistency*

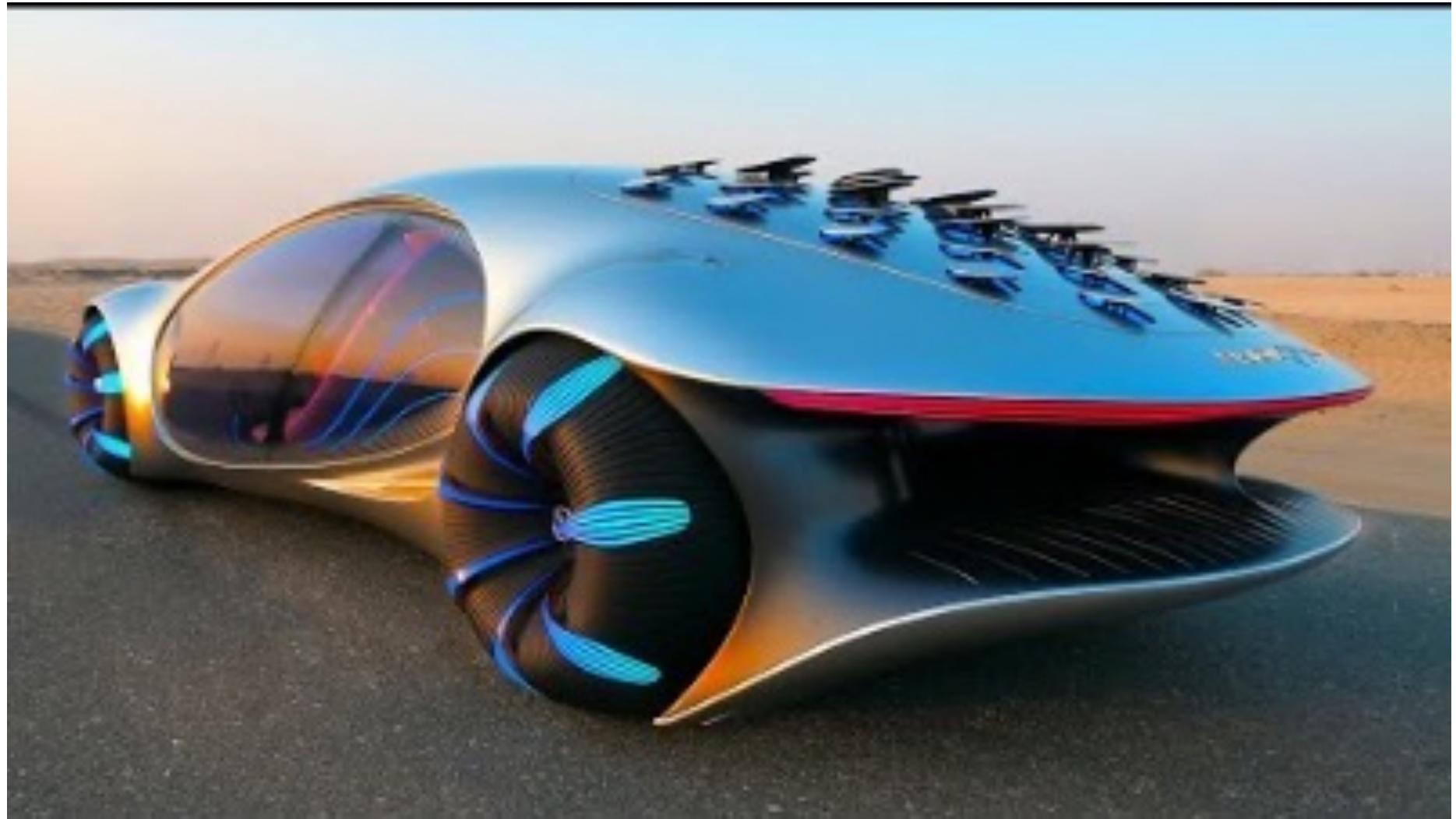


A NEW, REVOLUTIONARY UI IS JUST AROUND THE CORNER — HERE ARE THE SIGNS ...



Steve Jobs presenting Apple's history of revolutionary UIs in 2007 (Source: Apple)

USER INTERACTIONS OF THE FUTURE?



What's in a color?

- ▶ For example, if you've recently been to a fast food restaurant, you might notice that there's a lot of red-red chairs and red signs, red trays, and red cups.
- ▶ When, on the other hand, was the last time you ate in a blue restaurant? There's a reason for this: Red, it turns out, has been shown to stimulate the appetite. Blue, on the other hand, has been shown to be an appetite suppressant.



<https://www.psychologytoday.com/us/blog/beyond-pink-and-blue/201403/the-way-we-talk-about-gender-can-make-big-difference>



<https://www.smithsonianmag.com/arts-culture/when-did-girls-start-wearing-pink-1370097/>

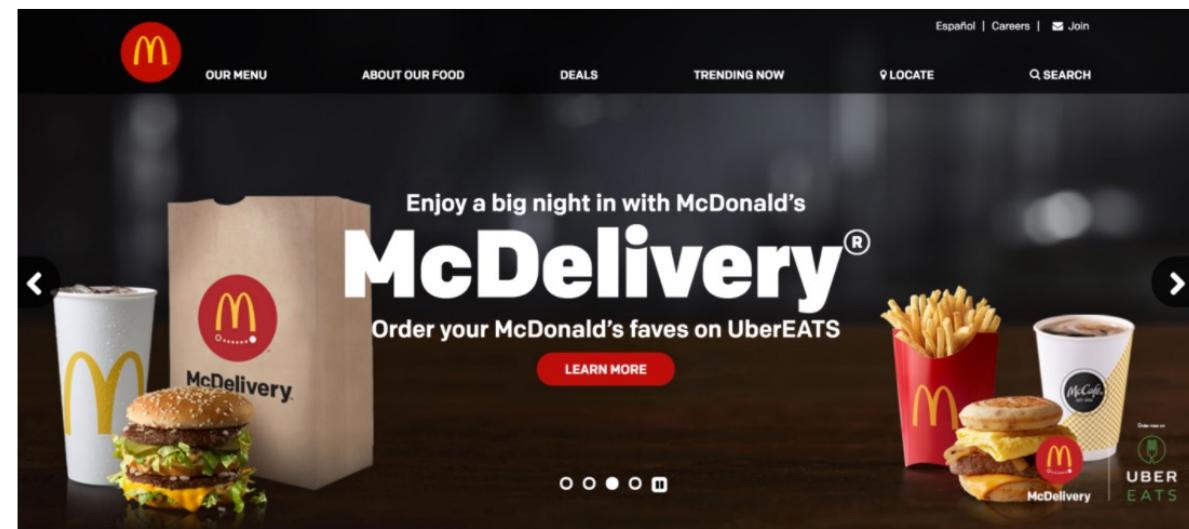
Pink's Controversy

- ▶ After some psychologists were able to show that certain shades of pink reduced aggression, it was famously used in prison cells to limit aggression in inmates.
- ▶ Yet pink toes a shaky line. Is it a benign means of subtle manipulation? A tool to humiliate? An outgrowth of gender stereotyping? Or some combination of the three?

Read more here:
<https://www.fastcompany.com/90243505/the-surprisingly-dark-history-of-the-color-pink>



RED





BAD IDEA ;-)?

BLACK EFFECTS

A set of cognitive and behavioral effects triggered by exposure to the color black.

- Black is universally associated with evil and foreboding, likely due to an evolved association with darkness and vulnerability to nocturnal predators.
- Black signals aggression, dominance, and dirtiness.
- Sports teams wearing predominately black uniforms are perceived to be more aggressive and more likely to cheat than those wearing light colors. Accordingly, they incur more penalties.
- Black products are generally perceived to be classy, high value, and timeless.
- Use black to increase perceived value in products and perceived authority in people. Consider using black to signal aggression and intimidate adversaries.

Black effects make black dogs less adoptable than lighter-colored dogs. Animal shelters call this "black dog syndrome".



COMMON FATE

Things that move in similar directions are perceived to be related.

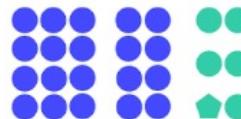
- One of the Gestalt principles of perception.
- Things that move together in common directions are perceived as a single unit or chunk, and are interpreted to be more related than things that move at different times or in different directions.
- Perceived relatedness is strongest when motion occurs at the same time, velocity, and direction. As these factors vary, perceived relatedness decreases.
- Common fate influences whether things are perceived as figures or ground: moving elements are perceived as figures, and stationary elements as ground.
- Consider common fate when displaying information with moving or flickering elements. Related elements should move at the same time, velocity, and direction, or flicker at the same time, frequency, and intensity.

Gestalt principle-naturally perceive objects as organized patterns and objects.



1. PROXIMITY

Elements which are close together seem to be a group



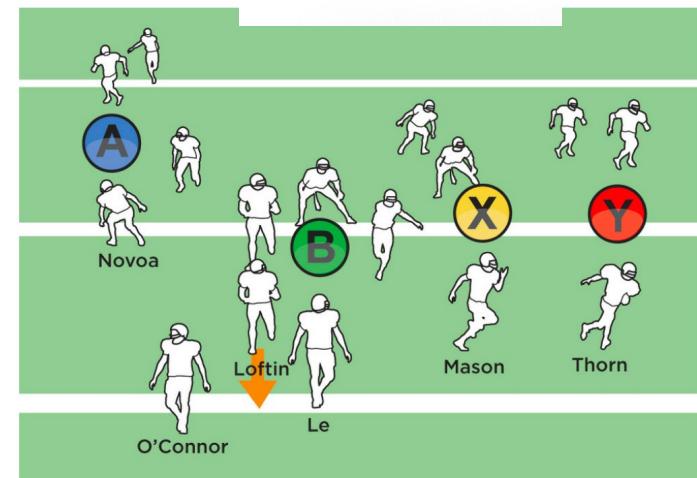
2. CLOSURE

The human brain ignores gaps and tries to understand the bigger context



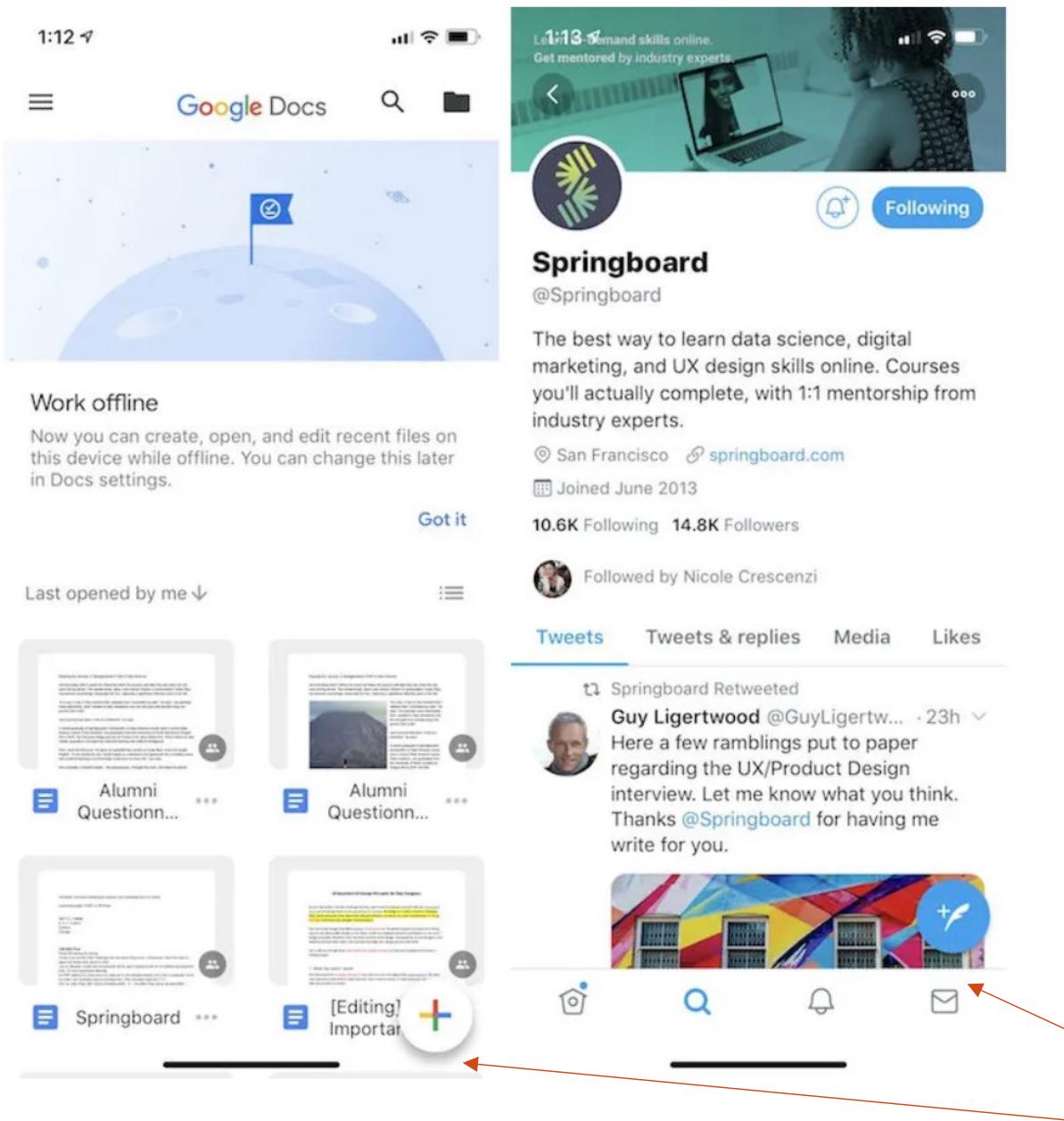
8. COMMON FATE

Elements which move in the same direction seem to be a group



In video games, making the names and controller icons move with the players groups them, simplifying playability by making it clear who is being controlled and how to control them.

CONSISTENCY



- Users expect products to share some similarities with other products they regularly use.
- It may sound a little counterintuitive, but the more familiar your design is to others, the faster users can learn to use it, which enhances their experience.
- Such consistency also makes the design process easier for the designers, as they don't have to reinvent the wheel every time they take on a new project.
- A case in point is the floating action button that has become common among apps, as seen in the Twitter and Google Docs.



CONSISTENCY (MORE ON THIS...) -- *DESIGN LANGUAGE*

- So how do you make your product consistent with other products?
- Do you call up other designers and coordinate your designs?
 - Well, you could try, but since consistency is so important, designers typically turn to design languages.
 - A design language is a formal set of guidelines for how to design products for a particular device or format.
 - For instance, if you're designing apps for iOS, you'll want to follow Apple's [Human Interface Guidelines](#). If you're designing apps for Android, you might want to refer to Google's [Material Design guidelines](#) (as in the example above) or Android's guidelines.

Human Interface Guidelines

[Overview](#) [Resources](#) [Videos](#) [What's New](#)

ios

Themes

[Mac Catalyst](#)
[Interface Essentials](#)

- [App Architecture](#)
- [User Interaction](#)
- [System Capabilities](#)
- [Visual Design](#)
- [Icons and Images](#)
- [Bars](#)
- [Views](#)
- [Controls](#)
- [Extensions](#)

macOS

tvOS



GOOGLE'S MATERIAL DESIGN GUIDELINES

The screenshot shows the 'Design' section of the Google Material Design Guidelines website. At the top, there is a navigation bar with icons for menu, search, and orientation, followed by links for 'Design', 'Components', 'Develop', 'Resources', and a magnifying glass icon. Below the navigation, the word 'Design' is prominently displayed in large white letters. A sub-headline reads 'Create intuitive and beautiful products with Material Design'. To the right, under the heading 'POPULAR', are links to 'Material Theming', 'Iconography', and 'Text fields', each accompanied by a small purple icon. The main content area features two large images: one on the left showing a grid pattern and abstract shapes, and one on the right showing a purple background with a music note icon and sound waves.

<https://material.io/design/>