

5.2 Graphic Design; Visual Interfaces

1 Introduction

I am a new “MAC convert”. Being used to using only Windows and to it’s user interface, did not make much problems for me. Even my prejudices against Apple ergonomics did not influence on my experience. In this essay, I am going to focus on three examples that show how perceptual mechanisms support effective visual design for design and provide examples from MAC OS X interface that made me 24/7 Apple user lately.

2 Perceptual Mechanisms

2.1 Lightness and Brightness Perception: Search in System Preferences

The current knowledge of perceptual mechanisms helped us define some basic principles for graphic design. One of them is Simplicity (also known as K.I.S.S.) principle. It is important to keep design simple and avoid visual clutter, because: “the most powerful designs are always the result of a continuous process of simplification and refinement” [4]. Even without going into complexities of color application, knowledge of lightness and brightness perception may help with achieving simplicity: the most important elements should be salient and non-critical elements should be de-emphasized [3].

According to Theeuwes’ study users are good with noticing abrupt luminance change [6]. Fig. 1 shows how instant change of luminance helps with visual search. The hierarchy of high lighted, neutral, and low lighted states for all areas of the visual display is used to maximize simplicity and clarity. The most relevant element is emphasized with the lightest and the sharpest circle, others options are highlighted with blurry and darker circle and all background area is dimmed.

2.2 Motion Perception: Notifications via Growl

Studies in motion perception show that people are very sensitive to motion in vision periphery and it is even very difficult to ignore it [2]. This knowledge can provide useful application in graphical user interfaces, when it is important to guide users’ visual attention to different locations of interest. Fig. 2 displays an example of how MAC interface implements this idea to provide users with notifications via Growl (Fig. 2). Notifications are a way for applications to provide users with new information that user deems important, without switching from the application users are working in. [1]

Fig. 1: Search in System Preferences in MAC OS X.

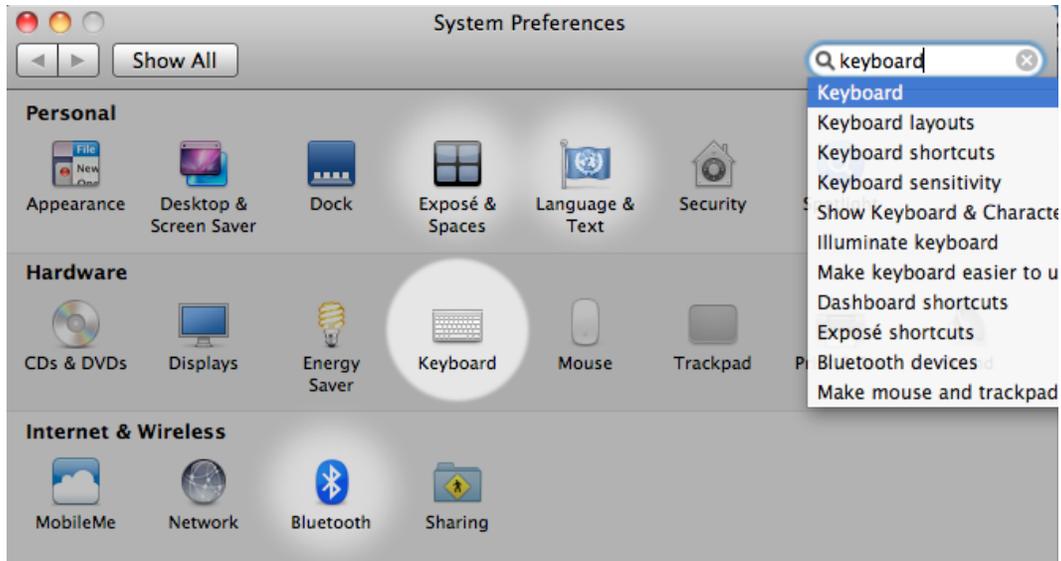
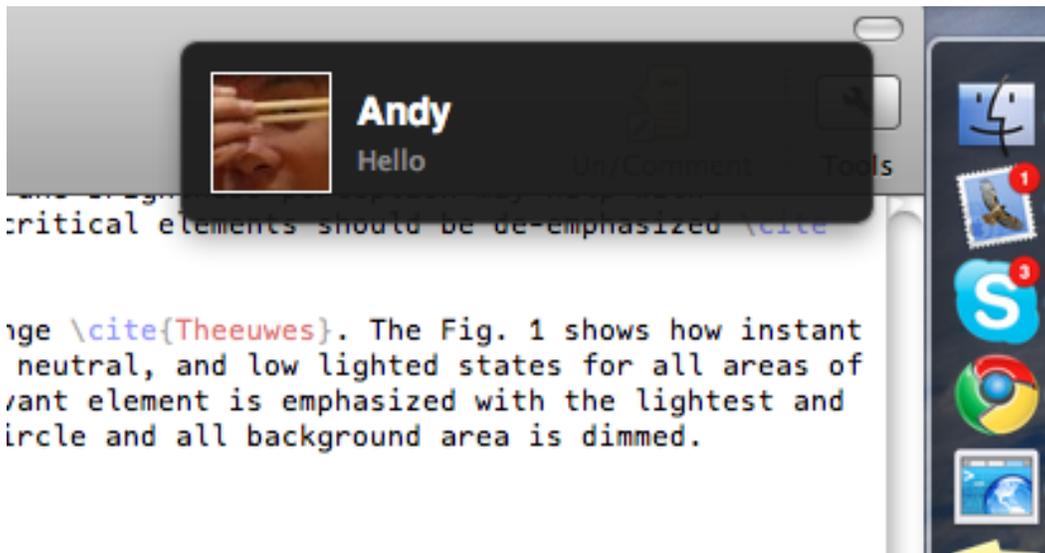


Fig. 2: Growl notification system for Mac OS X and “the badge” on icons.



34 **2.3 Color Perception: “The Badges”**

35 Color perception is a huge research area and careful application of it can produce
36 very effective designs. First of all, it is very important to follow Simplicity principle
37 - “color is a good example of an area where people can go wild using more features
38 than necessary to get the message across” [5]. When too many colors compete for

39 the viewer’s attention, confusion may arise.

40 One of the examples that is consistent to topics addressed in this essay is capturing
41 user attention via color perception. As Marcus states, “the use of bright colors
42 for danger signals, attention getters, reminders, and cursors is entirely appropriate”
43 [3].

44 In the previous example (Fig. 2), red colored “badge” on Skype and Mail icons
45 is used for notification of a change for the programs. This symbol creates different
46 “state” for an icon and it stays attached to it till the users’ action. The icon is
47 animated in the begining and stays still after that. Thus, even in motionless state,
48 strong color contrast and high saturation of the symbol may make the icons stand
49 out. This effect, of course depends upon the background colors. [3]

50 3 Conclusion

51 Knowledge of human visual perceptual mechanisms can provide an effective im-
52 plementation in graphic design and visual interfaces. In this essay, I have presented
53 how understanding of lightness, motion and color perception can guide user atten-
54 tion in graphical user interface.

55 References

- 56 [1] Growl documentation. <http://growl.info>.
- 57 [2] Douglas J. Gillan. The psychology of multimedia: principles of perception
58 and cognition. In *CHI 98 conference summary on Human factors in computing*
59 *systems*, CHI ’98, pages 143–144, New York, NY, USA, 1998. ACM.
- 60 [3] Aaron Marcus. Human-computer interaction. chapter Principles of effective
61 visual communication for graphical user interface design, pages 425–441. Mor-
62 gan Kaufmann Publishers Inc., San Francisco, CA, USA, 1995.
- 63 [4] Kevin Mullet and Darrell Sano. *Designing visual interfaces: communication*
64 *oriented techniques*. Prentice-Hall, Inc., Upper Saddle River, NJ, USA, 1995.
- 65 [5] MY Rabb. *The Presentation Design Book*. Ventana Press, 1993.
- 66 [6] Jan Theeuwes. Abrupt luminance change pops out; abrupt color change
67 does not. *Attention, Perception, Psychophysics*, 57:637–644, 1995.
68 10.3758/BF03213269.