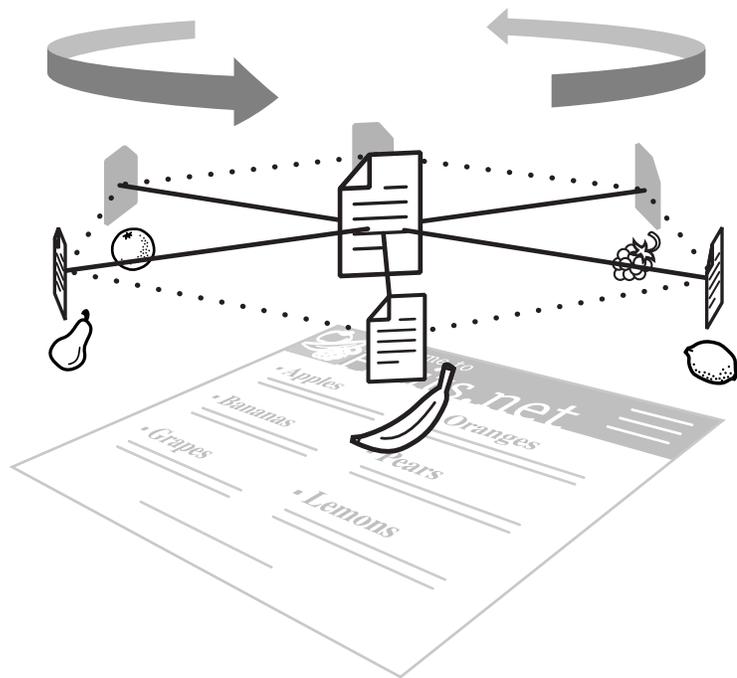


Barry Chudakov

Making the Page Think Like a Network



Illustrations by Eric Felberg

*This is the second in a series of articles
excerpted from*

A Blinding Glimpse of Everything:
Designing Information for
the Multidimensional Web

Introduction

The Web organizes information differently, but this fact is not obvious in our page-view formatting. Nonetheless, as we pinball around the digital landscape, we are effectively breaking down the page as an information container; we are changing information's *form*.

So, why isn't this new reality affecting the way we organize and design information? This series of articles explores the implications of the Web's nature, especially what networked technology is doing to our page-view handling of information.

This article covers some basic aspects of how the formatting of information determines information's value and explain how finding a unique vantage point can enhance its usability.

Form Rules

By abstracting the structure or form in which information comes to us, we gain considerable insight into the nature of information. Oddly enough, it's only when we question our adopted form or format—namely, the *alphabetic matrix* mentioned in the [first article of this series](#)—that this starts to become clear.

Once you look at information formally, observing the structure as well as the content, you start shaking the foundations of your certainties. Is it possible that we've been ignoring form or structure for so long, concentrating solely on content, that we've been missing something critical to using and understanding information?

Yes.

Here are a few formal rules regarding the use and management of information. Once you consider the architecture of information in this fashion, you'll see that it looks—and works—differently than you thought.

1. **Form swallows function. (The medium eats the message.)** We typically focus on information's content. Few of us today have a sense of how much the function of content is dependent on the form it comes in. Because the pervasiveness and movement of form shapes our perceptions of content, form "swallows" function; it takes it over in ways we rarely recognize.
2. **Form creates vision.** What you see depends on how you see it. The more you create multiple views of the same content, the more you see what you didn't see before.
3. **Form creates meaning.** What you understand depends on the form (structure) in which the content is presented.
4. **Structure that is hidden creates deception.** From Al Qaeda to shady corporate accounting, transparent structures bring integrity to content—and organizations, for that matter. Lack of transparency should raise suspicions.
5. **Form changes the meaning of content.** Meaning is not a fixed thing. Content is inherently variable; the same content can connote differently depending on how it is structured.
6. **Form that does not incorporate change and movement is fossilized and ultimately will disappoint.** Most of our information today is in motion; most of our information formats are not.

7. **Today structure is moving from forms that contain to forms that relate.** We are generating more information than our alphabetic matrix can hold. We need to devise new forms that aren't concerned solely with containing information, but rather that focus on how to relate bodies of information to each other.

Knowing that these are some of the structural behaviors of digital information, what are the implications of considering form in this way? And what does knowing this tell us about making information more useful?

There are three immediate consequences of this formal awareness:

1. **A new format or *map* of information changes the information.**
2. **Building *topsight* into information enhances usability.**
3. **The most effective way to organize complex information is to get *above* it.**

Now let's examine each of these in turn.

The Map Changes the Territory

Today our world and technologies exhibit unprecedented complexity. It's a safe bet that within your organization, the injunction to keep it simple has never felt more right. Our collective turning to simplicity is, effectively, a management technique. We are trying to clarify and manage everything from multilevel families to snarled traffic flows and the moral mazes of cloning. ▶

With the volume of new information doubling every year, information design needs an analogous management technique. You can think of an information management solution—something that makes the page think like a network—as an *information map*. This is not a site map. Rather, visualize a map of the information on a site that would function like a home page while also providing user guidance.

Typically, a map describes a physical territory. It may even stand in for that territory in some instances when the territory cannot be seen (for example, when a militia is about to go somewhere it has never been before). Map commentators have noted this phenomenon and have described it as “the map becomes the territory.” ▶

But, as always, the Web behaves differently. Preparing our information maps, we stumbled upon a surprise. Given digital information, the map not only describes and becomes the territory. The map *changes* the territory.

The implication here is that as we free our formatting from the alphabetic matrix in order to make our information as simple as possible but not simpler, the information map that guides us has its own logic. The formal logic of the map changes what we see, changes the meaning of the information, and builds new meaning into the information. This was the original inspiration for the Form Rules above. And some users intuitively sense this because they can see that the Web is changing the logic of the pages it hosts.

In short, we must prepare our information-management structures for a new reality: the advent of dynamic information, or information in motion. The first step in this preparation is adopting a new vantage point from which to view both the form and the content of the information.

Topsight and Information

What is *topsight* and why does it matter?

Topsight is what comes from a far-overhead vantage point, from a bird's-eye view that reveals the whole—the big picture; how the parts fit together.¹

Topsight

The unique, enhanced perception of something that comes from an overhead vantage point.

- ▶ Yet, simplicity has its limits, too: The more complexity information exhibits, the more we must guard against oversimplification.

Einstein said it succinctly: “Everything as simple as possible, but not simpler.”

- ▶ Ideally, the map works with but does not hide or interfere with the information on the page. See the discussion later regarding transparency: seeing both the information and the management of the information at a glance.

¹ David Gelerntner, *Mirror Worlds*.

The word seems almost to explain itself. That's because you can *see* what it means. And that's hugely important because seeing information is basic to understanding it. Topsisight, as defined by David Gelernter, is the thing most often missing from our information.

Presentation does not equal comprehension. As Jakob Nielsen said, "Web content is intellectually bankrupt and almost never designed to comply with the way users behave online."² Comprehension is far from automatic. The way users behave online is to create intentional and accidental connections via movement. Much of this movement creates superficial topical connectivity, but that superficiality is also the result of present formatting protocols. The fact is, users *pinball* around information, bouncing off one fact or topic onto another.

In this context, then, topsight means ensuring that information is designed for the bounce. This is one way of turning presentation into comprehension. In other words, if information has topsight, it takes into account possible pathways and overviews of the information—what we often call seeing the big picture. Elsewhere I describe our typical use of information as *cultural agnosia*, seeing the discrete parts but never seeing how they work together to create the whole. Topsisight is actually seeing the parts in context of the whole, and the whole in context of the parts. Topsisight matters because without it comprehension is incomplete. With the info-waters rising daily, people are not only inundated; incomprehension also creates frustration and confusion. ▶

Even on the Web, a notoriously unphysical environment, physically locating perception above content lets you see the larger picture. The starting point for making the page think like a network is to get *above* the information. (This dynamic applies to managing and organizing almost any kind of complex information.) So how do you do that?

By building an information map that provides topsight. I call this tool the *Information Balcony*.

Building the Information Balcony

Here is a step-by-step explanation of the process of changing how we think about and use the page, getting above the information in order to manage information more effectively.

Far from being merely an intriguing design technique, building a site to see more than one viewpoint at once enhances our ability to use information. Multiple points of view are critical to a full comprehension of a wide variety of issues in a world where complexity is increasing exponentially. Designing a Web site to incorporate an Information Balcony is useful for many industries, especially those facing such issues as these:

- Conflict resolution: personal and corporate
- Conflict resolution: geopolitical
(*seeing the issue from all combatants' viewpoints*)
- Global currency exchange
- Medical imaging
- Large quantities of medical information: conditions, therapies, treatments, drugs, and drug interactions
- Corporate structuring
(*seeing the corporation from Finance, IT, Sales, Marketing, etc.*)
- Investment scenarios

² Jakob Nielsen, *Jakob Nielsen's AlertBox*.

Cultural Agnosia

The tendency of a society to see the discrete parts of something without comprehending the whole.

- ▶ Agnosia: (literally, without knowledge) Associational brain disorder that prevents correct interpretation of sensations despite functioning sense organs. In the book *The Man Who Mis-took His Wife for a Hat*, Dr. Oliver Sacks brilliantly describes first meeting a patient he would later diagnose as having agnosia, the inability to create a whole picture out of discreet sensory impressions:

"It was obvious within a few seconds of meeting him that there was no trace of dementia in the ordinary sense... And yet there was something a bit odd. He faced me as he spoke, was oriented towards me, and yet there was something the matter—it was difficult to formulate. He faced me with his ears, I came to think, but not with his eyes. These, instead of looking, gazing, at me, 'taking me in,' in the normal way, made sudden strange fixations—on my nose, on my right ear, down to my chin, up to my right eye—as if noting (even studying) these individual features, but not seeing my whole face, its changing expressions, 'me,' as a whole."

This is it exactly! This is precisely what we do with our information. We catch a sound byte here, a stock quote there, a headline about the correctness of bombing Iraq, an op-ed about its folly—but not seeing the whole picture, its changing expressions, me or it, as a whole. Could we all be suffering from cultural agnosia?

Step 1

Start with any Web home page (see FIGURE 01).

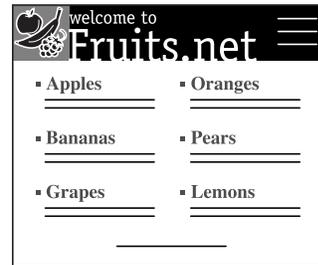


Figure 01

A sample Web site.

Step 2

Change the plane of the information, turning it flat like a table top (see FIGURE 02).

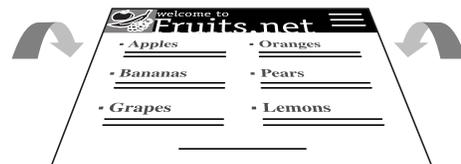


Figure 02

Turn the home page flat, like a table top.

Step 3

Lift the key information discriminators—that is, key visuals and page subheads—off the information plane, creating an exploded view of the information (see FIGURE 03).

Lifting key information discriminators off the page creates an exploded view of the information. The exploded view also creates another layer. This layer is the Information Balcony.

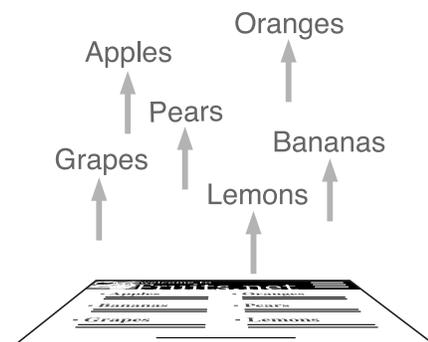


Figure 03

Lift the key information elements off of the page.

Abstract the text elements to simple referents. These should be, as you might have guessed, as simple as possible but not simpler. Use what you need to understand the elements in the map format. Sometimes iconographic representations will suffice. Often the map will be a combination of words, symbols, thumbnail photos, thumbnail graphs, etc. (see FIGURE 04).

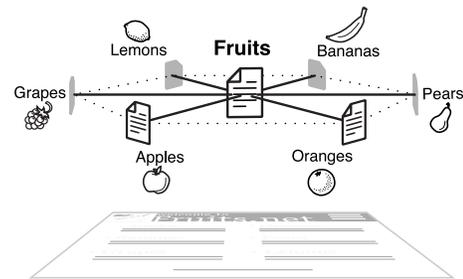


Figure 04

The Information Balcony. Note that there are many ways to configure this tool.

Step 4

The Information Balcony effectively creates a gyroscopic view of the information (see FIGURE 05).

Now any discriminator or subhead becomes a point (or object) in any categorical or conceptual plane (or orbit).

Abstract enough elements so you can stay in the Balcony without having to run downstairs all the time. You know you have enough elements when you:

- Can free the elements from the confines of text and especially the behavioral grammar of text.
- Have the option of assigning placements or groupings of abstracted elements. For example, you may group grapefruits and oranges together because they're both citrus fruits, but you also may group apples and tomatoes together because they're cancer-fighters.

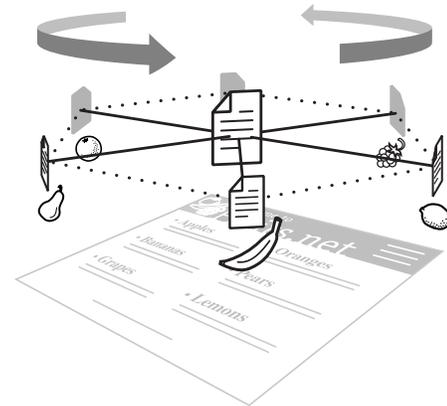


Figure 05

Gyroscopic view of the Information Balcony.

Step 5

Once the information is in a gyroscopic configuration, it is no longer restricted by the limitations of the alphabetic matrix (see FIGURE 06).

Information in a gyroscopic configuration can be turned, manipulated, and viewed from various angles.

The information then can be turned, manipulated, viewed from various angles, coordinated, cross-referenced, ordered—a myriad of options—for better utility and ultimate comprehension.

Think elementally or in an object-oriented fashion. Note that at the earliest conceptual stages, you are already changing the alphabetic or text patterns. This is because you're not using those patterns; you're using the logic of objects or elements. (The map is beginning to change the territory.)

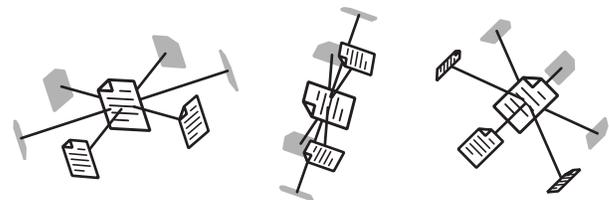


Figure 06

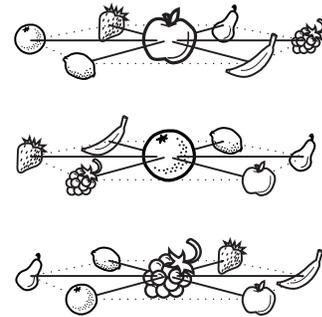
Information is no longer confined by the Alphabetic Matrix.

Step 6

The Information Balcony allows us to see information from multiple viewpoints simultaneously (see FIGURE 07).

The Information Balcony allows you to choose and change your point of view—that is, the perceptive center from which you consider other information. This is seeing multiple viewpoints simultaneously.

Note that as you view information from another point of view, that POV becomes the perceptive center of the information. Realize that you have changed the locale of what we might describe as the editor drivers or levers. This is because objects are easier to manipulate than text. Text-based editing, essentially cut and paste, is no longer the place where the drivers of comprehension and information management are located. You're up a level looking down. The drivers are now upstairs, above the information. This is a huge perceptual shift.

**Figure 07**

Information can be seen from multiple viewpoints.

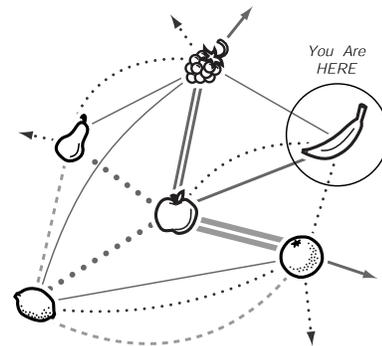
Step 7

To enhance navigation, incorporate map views of the information (see FIGURE 08).

Map views of information highlight ways of seeing, relating, and understanding content. Connecting information in this way provides depth and focus.

Study where you are. Because you are above the text, by studying the map you will see patterns, configurations, gaps, styles, etc., that are not readily visible otherwise.

Here, too, you can change your point of view. The benefit of moving objects is the creation of multiple, dynamically changing perspectives. Now you are designing information for the Web.

**Figure 08**

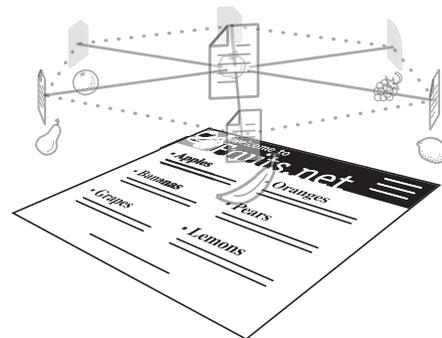
Incorporate map views of the information.

Step 8

Retain transparency (see FIGURE 09).

Transparency means being able to see both the page view and the Information Balcony overview (topside) at the same time. Note that the balcony may appear transparent until highlighted.

It's useful to see both the information and the management of that information at a glance. Often you will not want to completely hide the original information

**Figure 09**

Retain transparency.

formatting. The value of a balcony is to be able to look down below and see the original as well as see the guidance the balcony provides. Move back and forth between the Information Balcony and text.

Finally, the balcony creates interactivity between text and map, between insight and topsight, between local and global views. Like a marriage, both parties are changed by this interaction.

Showing Simplicity and Complexity at Once

The Information Balcony sparks a question basic to information design: How do you simplify complexity without losing something important? And then, recognizing that both simplicity and complexity are important: Where should I put my focus? Which is more important to zero in on, the simplicity or the complexity?

The answer is both.

There is no intrinsic value in mirroring complexity when presenting information, except when an attempt at simplicity distorts the information itself. Almost all information can benefit from simple guidance. Despite a law of increasing complexity in most things, there is a countervailing need for simplicity that grows out of the complexity itself, as though both were somehow part of the same process. Yet often complexity is necessary to understanding something crucial—for example, complex adaptive systems such as ant colonies or corporations. This leads to another Form Rule:

The goal of structure is not to simplify complexity, but to manage it.

The best way to understand this process—because it is the process inherent in much of the information we need and use—is to see both things at once. What we need, then, are tools that allow us to see both things. This topsight is what leads to *aperçus*.

Aperçu

A French word meaning “sudden intuitive insight.” We have no equivalent word in English. Seeing the same information in different ways creates *aperçus*: We see many things differently. I’ll explain this in greater detail in the [third article in this series](#), discussing orbital information-management maps.

Demo Site Showing Enhanced Information Utility

Existing site: www.agilent.com

Enhanced Information Utility: www.agilent.com

While this demo site comparison is deliberately simplistic in order to easily contrast the two designs, the Information Balcony does certain things that don’t happen on the typical home page (see [FIGURE 10](#)): These basically recapitulate the steps outlined above.

1. With the Balcony, you can see both the information and the management of the information at a glance (see FIGURE 11).
2. The Balcony allows you to look at information from various centers of perception: first from Semiconductor Products, then from Communications Solutions, etc.
3. By moving around the Balcony, you see intuitively that information is in motion.
4. Once you see the same information from a different perceptive center, you see things differently; the information may reconfigure as you change your POV.
5. All of the above demonstrate how the map changes the territory.

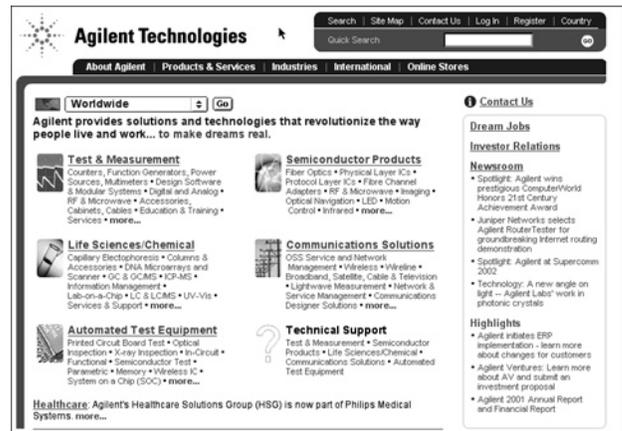


Figure 10

A typical copy-blocked Web site. It uses subhead-and-list information management.

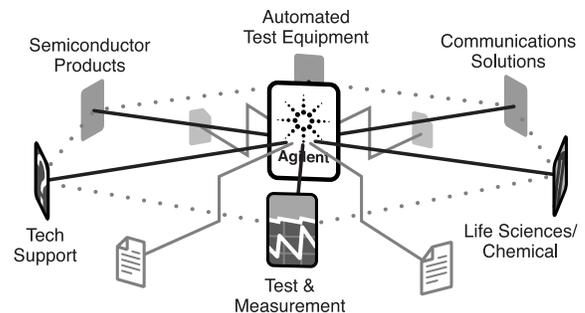


Figure 11

The Information Balcony gives you both information and information management at a glance.

Summary

A new way to consider the management of growing amounts of information is to study the form or structure of that information. Now that more of our information is in motion—and users are seeing this motion and it is changing their information experience and expectations—we need management tools that take motion and dynamically changing perspectives into account. Once we build these tools, we lift our perceptions above the static confines of the printed page to a networked overview of the digital landscape. These tools and the accompanying shifts in our perception provide topsight, the ability to see how salient pieces and parts fit together. This makes our information much more useful.

The third article in this series introduces another formal alternative to static page views: *Orbital Information Management Maps, or OIM²*, that provide orbital ways of configuring and mapping information.