



A chair is a chair, right? Actually, chairs can be quite different from each other. It's only our frame of reference—our mental map—that makes identifying something as a chair seem to be such a straightforward and natural event.

From the book *Chair* by Peter Bradford and Barbara Prete. The photos above are of one-quarter scale model entries in an International Chair Design Competition sponsored by the San Diego chapter of the American Institute of Architects. Photography by Michael Pateman.

PERSONAL TABLE OF CONTENTS

After you can admit what you don't know, you can focus on uncovering the table of contents that acts as a road map to understanding. This is what gives you a sense of the whole. Sometimes it is explicit, but too often it is implicit and requires attention. Trying to wade through information without a sense of its structure is like going to the Library of Congress and aimlessly combing the shelves for a particular book. Once you have a sense of how the whole is organized, you will reduce the frustration of searching for a needle in a haystack. Even if the needle is all that you need, it will behoove you to know how the hay is organized.

THE FIVE ULTIMATE HATRACKS

The ways of organizing information are finite. It can only be organized by (1) **category**, (2) **time**, (3) **location**, (4) **alphabet**, or (5) **continuum**. These modes are applicable to almost any endeavor—from your personal file cabinets to multinational corporations. They are the framework upon which annual reports, books, conversations, exhibitions, directories, conventions, and even warehouses are arranged.

While information may be infinite, the ways of structuring it are not. And once you have a place in which the information can be plugged, it becomes that much more useful. Your choice will be determined by the story you want to tell. Each way will permit a different understanding of the information. Within each are many variations, but recognizing that the main choices are finite and limited makes the process less intimidating.

If you were preparing a report on the automobile industry, you could organize cars by model (category), year (time), place of manufacture (location), or *Consumer Reports* rating (continuum). Within each, you might list them alphabetically. Your choice would depend on what

The five ways of organizing information:

| |
|-----------|
| Category |
| Time |
| Location |
| Alphabet |
| Continuum |

One of the most striking examples of organization by time is the book *10:56:20 PM EDT*, which is about the moments surrounding the landing on the moon. It describes a way of seeing by looking at the time leading up to this event. That focus is the framework that supports, sustains, and propels the book.

The book, put together by Frank Stanton, president emeritus of CBS, Inc., and Lou Dorfsman, senior vice president of CBS, Inc., leads up to a singular event, a particular second in our lives when a foot touches the surface of the moon. It slows the moment down—excruciatingly—so you can appreciate the complexity of the accomplishment.

you wanted to study or convey about the industry. If you wanted to describe the different types of cars, your primary organization would probably be by category, e.g. convertibles, sedans, four-wheel drive, etc. Then, you might want to organize by continuum, from the least expensive to the most. If you wanted to examine car dealerships, you would probably organize first by location, and then by the number or continuum of cars sold.

Once the categories are established, the information about the cars is easily retrievable. Each way of organizing will permit a different understanding; each lends itself to different kinds of information; and each has certain reassuring limitations that will help make the choices of how the information is presented easier.

Category. Category pertains to the organization of goods. Retail stores are usually organized in this way by different types of merchandise, e.g. kitchenware in one department, clothing in another. Category can mean different models, different types, or even different questions to be answered, such as in a brochure that is divided into questions about a company. This mode lends itself well to organizing items of similar importance. Category is well reinforced by color as opposed to numbers, which have inherent value.

Time. Time works best as an organizing principle for events that happen over fixed durations, such as conventions. Time has also been used creatively to organize a place, such as in the Day in the Life book series. It works with exhibitions, museums, and histories, be they of countries or companies. The designer Charles Eames created an exhibit on Thomas Jefferson and Benjamin Franklin that was done as a time line, where the viewers could see who was doing what when. Time is an easily understandable framework from which changes can be observed and comparisons made.

Location. Location is the natural form to choose when you are trying to examine and compare information that comes from diverse sources or locales. If you were examining an industry, for example, you might want to know

We are, I know not how,
double in ourselves, so that
what we believe, we disbelieve,
and cannot rid ourselves of what we condemn.

Montaigne

... Don't be too certain of learning the past from the lips of the present. Beware of the most honest broker. Remember that what you are told is really threefold: shaped by the teller, reshaped by the listener, concealed from both by the dead man of the tale.

Vladimir Nabokov, *The Real Life of Sebastian Knight*

how it is distributed around the world. Doctors use the different locations in the body as groupings to study medicine. (In China, doctors use mannequins in their offices so that patients can point to the particular location of their pain or problem.)

Alphabet. This method lends itself to organizing extraordinarily large bodies of information, such as words in a dictionary or names in a telephone directory. As most of us have already memorized the twenty-six letters of the alphabet, the organization of information by alphabet works when the audience or readership encompasses a broad spectrum of society that might not understand classification by another form such as category or location.

Continuum. This mode organizes items by magnitude from small to large, least expensive to most expensive, by order of importance, etc. It is the mode to use when you want to assign value or weight to the information, when you want to use it to study something like an industry or company. Which department had the highest rate of absenteeism; which had the least? What is the smallest company engaged in a certain business? What is the largest? Unlike category, magnitude can be illustrated with numbers or units.

We already employ these modes almost subconsciously in many ways. Most of us organize our checkbooks first by time, then by category when we figure our taxes. We organize our record collections, libraries, and even our laundry according to certain principles whether or not we are aware of them. But it is only the conscious awareness of these methods that will reduce the frustration of searching through information—especially new information. Uncovering the organizing principles is like having the ultimate hatrack. It is as essential when working with already existing bodies of information as it is in developing your own information programs. The time spent in comprehending someone else's method of organization will reduce the search time spent looking for individual components. When you arrange information, the structure you create will save you the frustration of

The ABCs are drummed into schoolchildren so early and in such a rigorous way that this system of organization sometimes seems as if it's God-given. But it isn't: only a cultural consensus puts L before M instead of the other way around.

Almost anything can be classified in terms of the way it's organized. Things that seem to be unfamiliar or confusing on the surface almost always share a simple organizational scheme with something that is more familiar and simpler. Knowing this is a key to alleviating anxiety—even if something seems overwhelming at first, you can have confidence that there does exist an organizational "handle" that can help you come to grips with the subject.

What follows are some informal snapshots of the organizational forms of some books, processes, things and ideas.

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| Yellow Pages Directories | These directories are organized by category and arranged alphabetically, with alphabetical listings within categories, e.g. <i>Attorneys</i> are listed alphabetically together under the heading "Attorneys" in the A's. |
| Pacific Bell SMART Yellow Pages® | Special nonalphabetical index of Yellow Pages directory category headings, organized by broad subject category like "Automobile" with alphabetical listings underneath. |
| Dictionary | Words, in alphabetical order. Definitions are organized by category of meaning; etymologies are organized by time. |
| Goode's World Atlas | The overall organization is by category, according to type of map (thematic, city, or regional). The information within these sections is then organized by location. |
| World Almanac | Organized by subjects (categories) and within these by all five ways as listed in the key, to varying levels of organization (some as many as three levels deep). |
| Books in Print Series | Each multi-volume set is organized alphabetically within a category (e.g., there is a three book set on authors, in which authors are listed alphabetically). |
| Sears Catalog | This catalog is organized by category, and within these, by continuum of either price or sophistication. The index is then organized alphabetically. |
| SPY Magazine | Most magazines are organized by category; features are secondarily organized by time, like a story. The features in <i>SPY</i> are in many cases organized in innovative ways—by location, continuum, time, or category. |
| USA TODAY | Like most newspapers and magazines, <i>USA TODAY</i> is grouped into categories and then organized along a continuum of importance as seen by the editors of the paper. Television news is grouped the same way, although the categories are very often the shows themselves (local news, evening news, 11:00 news, etc.). |

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| EPCOT Center | The organization of a place can be in any of the five ways—not just by location as is EPCOT Center but by national cultures, historical eras, etc. |
| Powers of Ten | Information and photographic plates range in scope from gigantic to microscopic. |
| Information Anxiety | Information arranged by topics (chapters). |
| State of the World Atlas | Pages arranged by topic with maps (location) and charts (continuum) related to specific topics. |
| A Conversation | A conversation has no determined flow or pattern and moves sequentially through different topics. |
| Romeo and Juliet | Like most stories, novels, and jokes, this book is organized by time. Most television shows and commercials are organized in the same way. |
| Disneyland | Unlike EPCOT Center, Disneyland is organized by category (Adventureland, Frontierland, etc.). These are categories and not locations because they are not based on real places, but on combinations of real places. |
| Roget's Thesaurus | Words are organized alphabetically, but the synonyms under each word are organized along a continuum based on proximity to the meaning of the base word. |
| TV Guide | Usually, television schedules are organized by time, and television movies are organized alphabetically. There are also indexes for children's programming and for sports events. |
| Sears Tablesaw Owner's Manual | The manual is broken into categories. Some of these are organized by time (the assembly and operation sections), some by location (the parts map), and others by still more categories. |
| Richard Scarry's Children's Books | Instead of being arranged by time, as a story is, many of these books are arranged by category, continuum, location, and alphabet. |
| A Hospital Emergency Room | Emergency rooms are usually organized along a continuum of importance or likelihood of need. Items most often needed are closer to doctor and patient. |

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|------------------------------------|--|
| ACCESS® City Guides | These are divided into regions. Entries are organized by location and color-coded by category. Ratings are organized by continua (price, quality, etc.). |
| DOGACCESS | Dogs are arranged in a continuum from smallest to largest. Each dog is further identified by category. |
| MEDICALACCESS | Diagnostic medical tests are listed alphabetically, then secondarily by category. A surgical procedures section is arranged by location (head to toe) and then by category. |
| MoMACCESS | Exhibit space is organized by curatorial department (category); each department is then organized along a continuum of time (a timeline). |
| Governments | Organized by location of authority and power, and then further by degree of authority and power. |
| Families | Also organized by degree of authority and power. |
| The Human Body | Organized by functional category (blood system, nervous system, etc.). Although location is important, location is not the fundamental basis by which humans as biological entities are organized. |
| A Living Cell | Cell organization is based on functional categories. In fact, most organelles and cell components move around freely within the cell without affecting the overall identity or activities of the cell at all. |
| DNA | With only four possible amino acids, it is the elaborate sequence of locations of these acids that creates the complex organization on which life as we know it is based. |
| A Factory or Assembly Plant | Factories that do not use assembly lines extensively can be organized by category, by time, or by continuum. Factories with assembly lines are organized by time. The assembly line itself is usually organized by time, beginning with the first things to be assembled. |
| A Product | Products with moving parts are organized by location because the parts need to associate with other parts based on where they are. Electronic products do not necessarily have this need and so the arrangement of these parts can be based on other attributes, such as size (continuum), need for access (continuum), assembly sequence (continuum), subassemblies (continuum or category), etc. |

juggling unconnected parts. Many people get into trouble when they mix the different methods of organization, trying to describe something simultaneously in terms of size, geography, and category without a clear understanding that these are all valid but separate means of structuring information. Understanding the structure and organization of information permits you to extract value and significance from it.

VANTAGE POINTS

Once you have a sense of organization, however casual, you can relax with that knowledge and begin to examine the information from different vantage points, which will enable you to understand the relationship between bodies of information. Ask yourself: How can I look at this information? Can I move back from it? Can it be made to look smaller? Can I see it in context? Can I get closer to it so it is not recognizable based on my previous image of the subject? Can I look at the detail?

Whatever problems you have in life—personal relationships, putting together a business deal, designing a house—can be illuminated by asking these questions. How can I pull myself out of the situation? How do I see it by changing scale? How can I look at the problem from different vantage points? How do I divide it into smaller pieces? How can I arrange and rearrange these pieces to shed new light on the problem?

In Holland telephone directories were recently reorganized to reflect different geographical areas. The country, which has a population of about ten million people, used to have twenty-nine directories; the number was then raised to forty. Now, the number is being reduced to ten. Essentially, this rewrites the “chapters of the country,” for that is what a phone book is. The restructuring will change the way advertising dollars are spent throughout the country. Where it was once feasible for a shoe repair store

Mozart was once criticized by his patron, the Emperor of Austria, who told him that his music contained too many notes. The Emperor suggested that a few of them could be cut. Mozart responded by asking which few did he have in mind . . .

THE GREAT DIVIDE

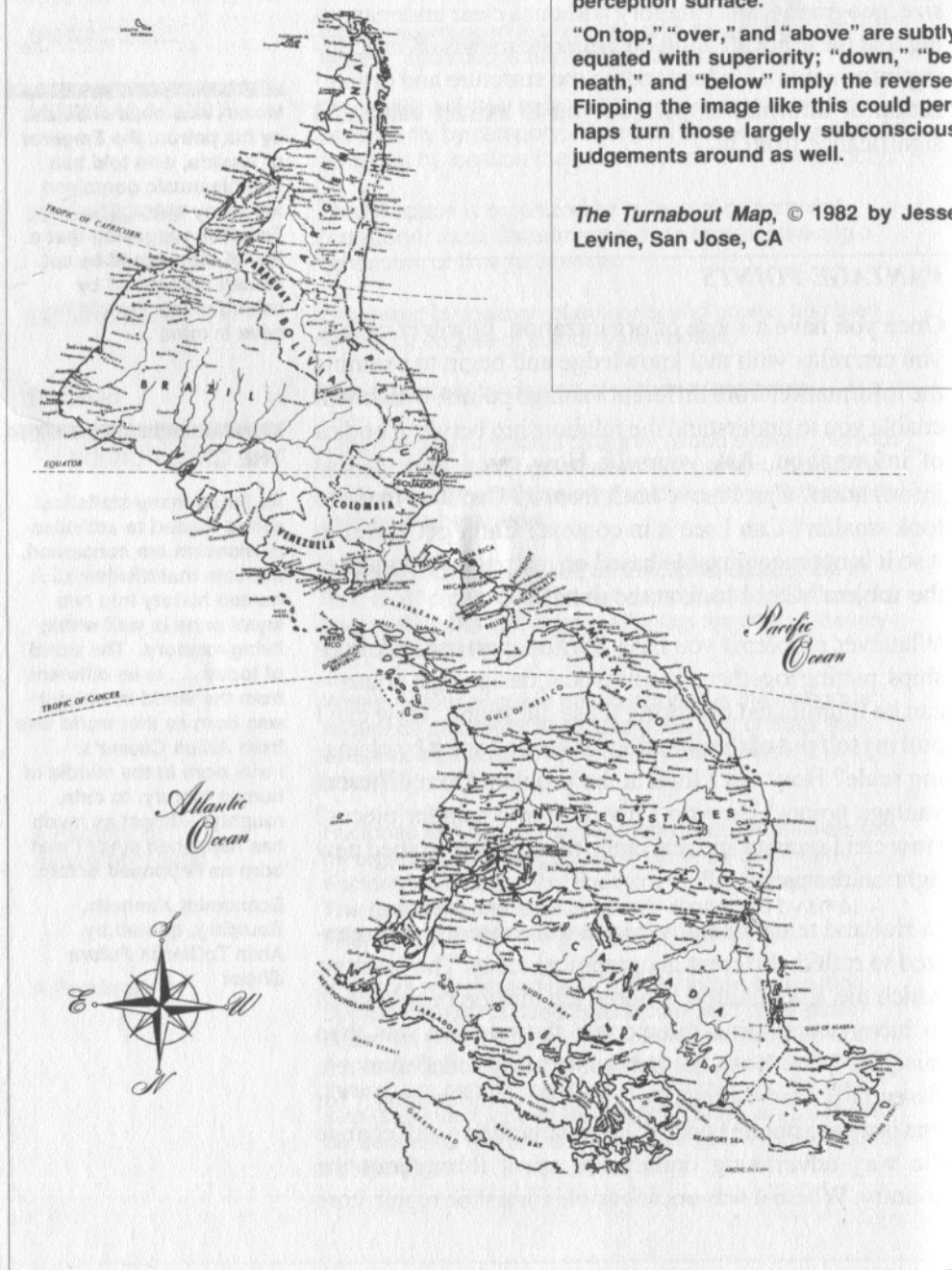
As far as many statistical series related to activities of mankind are concerned, the date that divides human history into two equal parts is well within living memory. The world of today . . . is as different from the world in which I was born as that world was from Julius Caesar's. I was born in the middle of human history, to date, roughly. Almost as much has happened since I was born as happened before.

Economist Kenneth Boulding, quoted by Alvin Toffler in *Future Shock*

The tradition of showing north at the top of maps and south at the bottom is a strong one in our culture. When the perspective is turned end-to-end, as it is in this otherwise geographically accurate map, hidden aspects of a cultural perception surface.

"On top," "over," and "above" are subtly equated with superiority; "down," "beneath," and "below" imply the reverse. Flipping the image like this could perhaps turn those largely subconscious judgements around as well.

The Turnabout Map, © 1982 by Jesse Levine, San Jose, CA



to advertise in a directory that covered only one city, it becomes impractical in a directory that covers several cities.

In Portugal, where the postal and phone systems are run as one entity, there is both a conventional yellow pages directory organized by subject headings and one organized by postal codes, where you can look up a particular street and find out all the businesses on it. This gives you a new way to look at cities and provides invaluable information to anyone contemplating the new location of a company or residence.

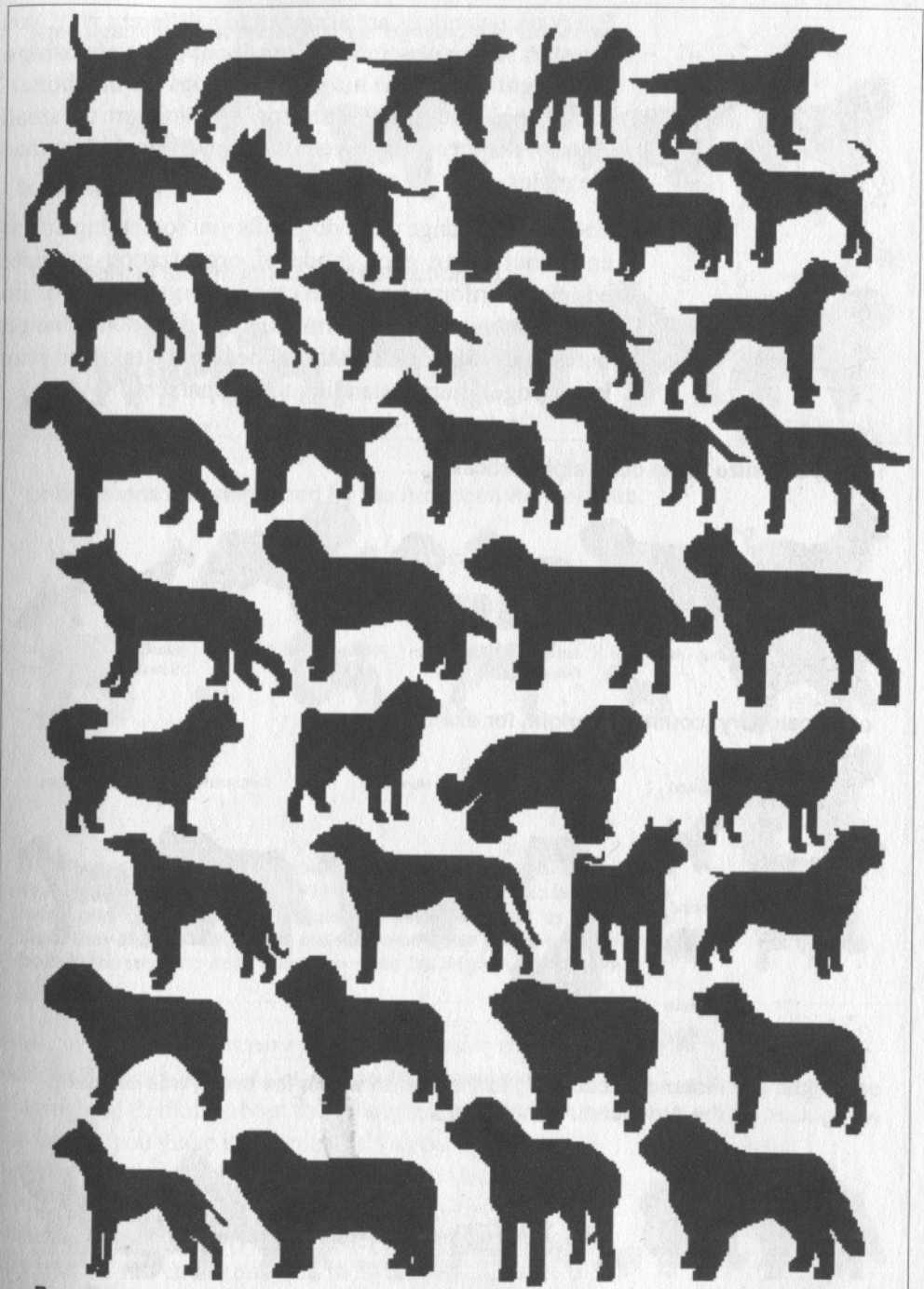
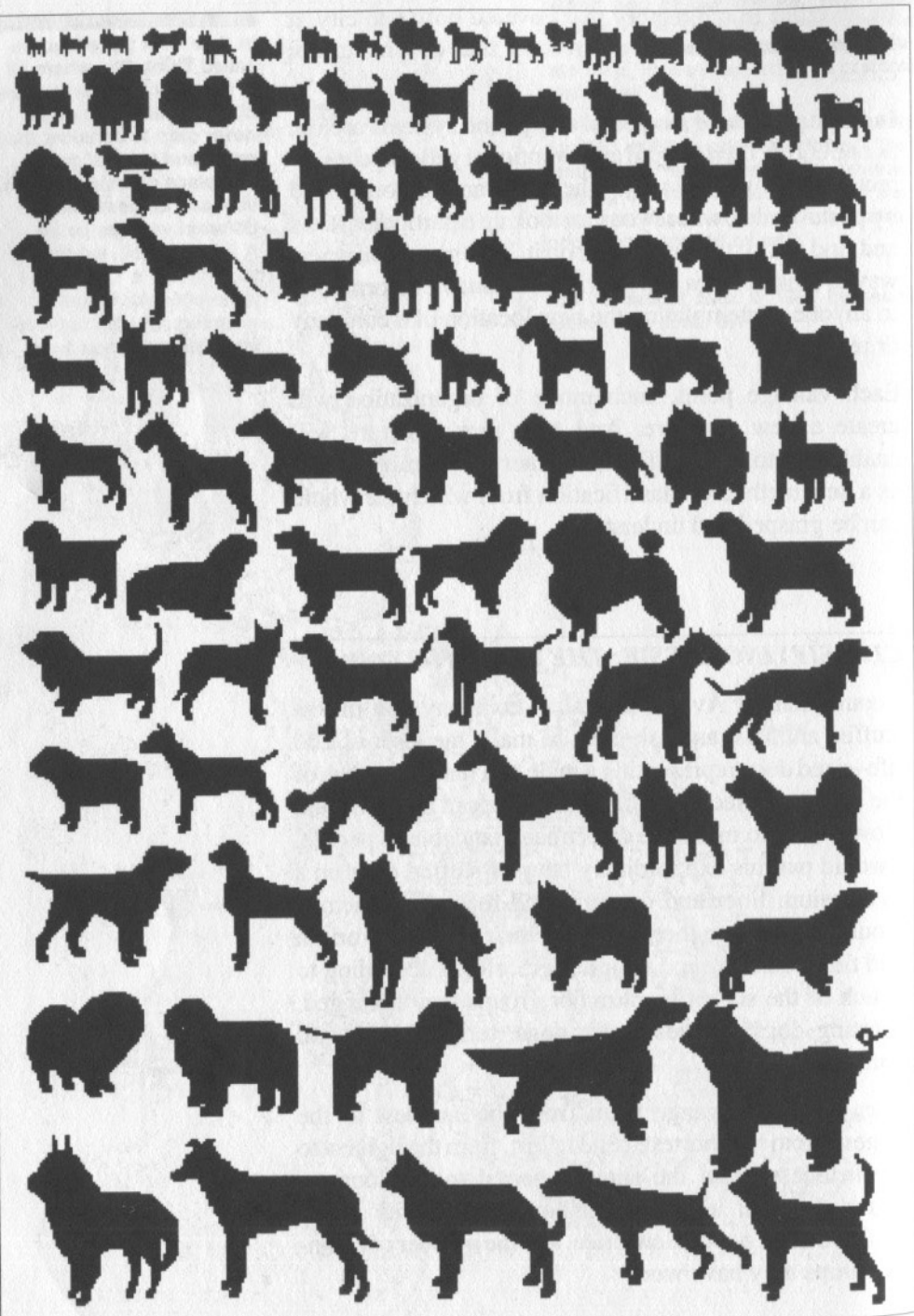
Each vantage point, each mode of organization will create a new structure. And each new structure will enable you to see a different manner of meaning, acting as a new method of classification from which the whole can be grasped and understood.

In New York there is store called Think Big, where all of the merchandise is oversized. While most of us never stop to consider the grace and form of commonplace objects, here we can look at them from a different vantage point. A 6-foot pencil, a 4-foot toothbrush, a 1.5-foot paperclip take on new meaning. We can appreciate their grace and form.

CLASSIFYING LASSIE: THE DOG STORY

I could contact Avanti, an Italian company that makes stuffed animals, and ask them to make me a set of 260 life-sized dogs representing a male and female of each of the 130 breeds recognized by the American Kennel Club. Now I want to make the dogs understandable to people. I would put this extraordinary bevy of stuffed dogs on a gymnasium floor and organize and reorganize them. I would put flags on them denoting their country of origin and tie ribbons around their necks, colored according to which of the six different major groups they belonged: sporting dogs, hounds, work dogs, terriers, toys, and nonsporting dogs.

Then I would arrange them from the smallest to the largest, from the shortest to the tallest, from the lightest to the heaviest, from the shortest-haired to the longest-haired, by their level of viciousness, popularity in the United States, population, price, and the number of championships they have won.



Every breed recognized by the American Kennel Club, from the smallest to the largest.

Every time the dogs are arranged in a different way, you can start seeing new information about the relationships. You might see that the most popular dogs are the shorter-haired ones, or that the most expensive dogs are the small dogs, or that in certain breeds the females are bigger than the males, etc.

Each way I arrange these dogs tells you something different about them; each mode of organization provides additional information. The creative organization of information creates new information. The dogs don't change, but the information about them does. And it takes no prior knowledge or understanding to comprehend.

I could organize these dogs alphabetically . . .



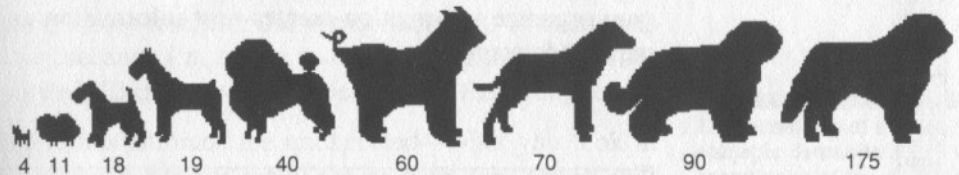
or by category (country of origin, for example)



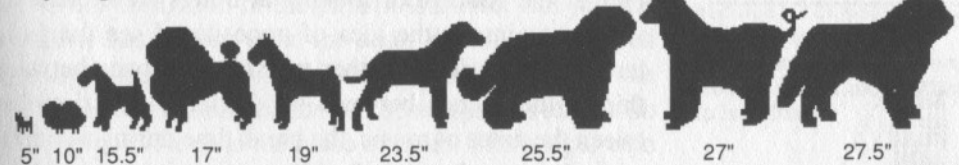
or by time (for instance, according to the year in which the breed was officially recognized by the American Kennel Club).



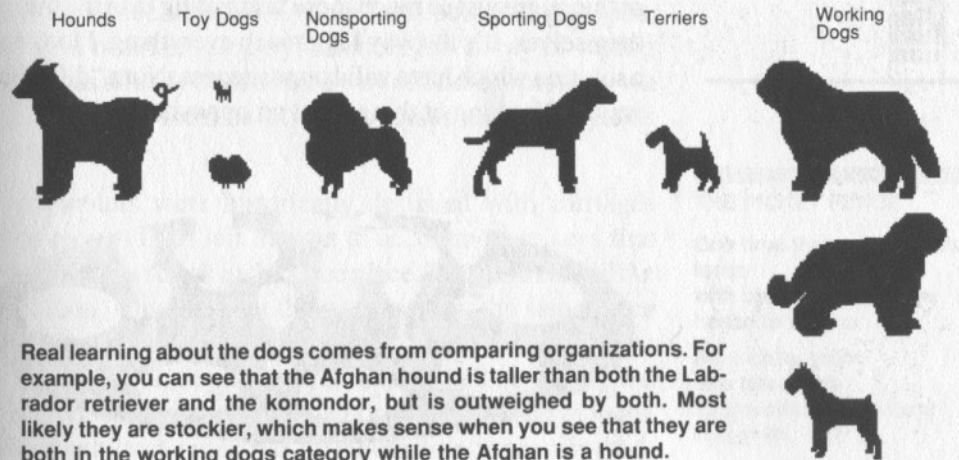
Then again, I might arrange them by weight in pounds,



by height in inches (other kinds of continua),



or by breeds as categorized by the American Kennel Club.



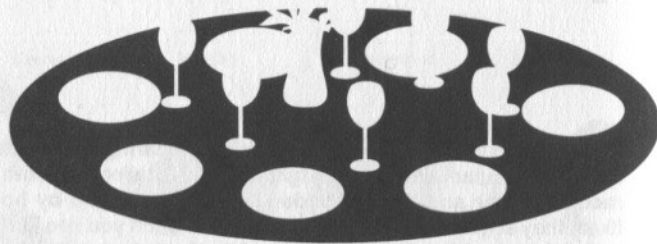
Real learning about the dogs comes from comparing organizations. For example, you can see that the Afghan hound is taller than both the Labrador retriever and the komondor, but is outweighed by both. Most likely they are stockier, which makes sense when you see that they are both in the working dogs category while the Afghan is a hound.

You can do this with many things; it makes your mind work differently because it shows the importance of relaxing and thinking about the arrangement of information before you make it complex. It's a process of simplification, not complication. And you realize that by simplifying, by taking one point of view, one slice, you can make something terribly clear. Whereas if you tried to say this dog is the most popular in Wisconsin, and is of medium height, and said all these things at once, you

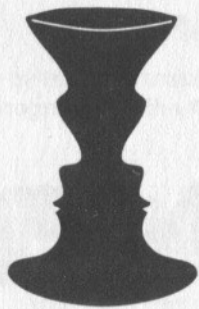
would never get the mental map in your head, nor would you retain the memory of the information. Each way that you organize information creates new information and new understanding.

THE SPACE BETWEEN THINGS

Part of the concept of looking at things from different vantage points is the idea of opposites. I see things in terms of opposites. I rather worship the space between things, the silence between good friends, the time between the notes of music, the break time during a conference, the space between buildings, negative space. I love the space on my desk better than the objects themselves. It makes me see clearer. That is yin/yang. The opposites of things are just so much more fascinating than the things themselves. It's the way I approach everything. I look for a solution which has a valid oppositeness. Not a "different way" of looking at things, but an opposite way.



At dinner parties, I always look at the table with the place settings as the focal points; then I blink a couple of times and look at them as the backdrop for the table, which becomes the foreground. I try to look at cities the same way. In Venice, I look at the buildings as the space between the canals. Artists do these kinds of figure/field exercises all the time; we are all familiar with the drawing of the vase that becomes the profiles of two people facing each other. To see the opposite is illuminating.



Barry Diller, chairman and CEO of Twentieth Century Fox, once asked a junior executive why a certain assignment wasn't finished. The young man said, "It's taking so long because I'm trying to do it the right way." Diller replied, "Did you ever consider doing it the wrong way?"

Opposites embrace the unexpected—what you look at everyday but never really see or what you expect will never happen but does. With the advent of computers came the prediction of the paperless office. But just the opposite has proven to be the case. We have developed desktop computer publishing capabilities. The VCR was predicted to supplant the movie theater, just as television was supposed to take the place of radio. The people who profited most from these new developments were the ones who could look at opposites. One looks at radical alternatives to discover new possibilities and solutions, whether in architecture, writing, book publishing, graphic design, business, surgery, science. It's a way of testing what has already been done, a way of finding solutions via the Hegelian formula of thesis versus antithesis yields synthesis.

Typewriters were historically designed with carriages that moved from left to right to accommodate keys that were always struck in the same place. Then IBM asked the question, why couldn't the paper stay in the same place and the printing mechanism move across the page? That question revolutionized office machines. Volvo designed its production process from an opposite. Instead of using the traditional industrial assembly line process, which calls for one person to perform one task, Volvos are built by small groups of people who each perform different tasks on the same car.

Numerous scientists were researching the possibility of developing a vaccine for polio, believing that it must be developed from a live virus. The Salk vaccine was developed from a dead virus.

The mastering of many subjects demands an acceptance of the counter-intuitive, or the opposite of what you would expect. To become a competent snow skier, for example, you must learn to lean forward, when it seems more natural to lean back.

THE PICKET FENCE

One time there was a picket fence with space to gaze from hence to thence.

An architect who saw this sight approached it suddenly one night,

removed the spaces from the fence and built of them a residence.

The picket fence stood there dumbfounded, with pickets wholly unsurrounded.

Christian Morgenstern

Opposites inspire most scientific discoveries and business developments. Looking at opposites is a way of testing an idea to see if it works. It is a way of seeing, listening, and testing.

We recognize all things by the existence of their opposite—day as distinguished from night, peace from war, failure from success.

This should be the approach to interpreting information. You should ask yourself, "How can I look at this from different or opposite vantage points?" and "How would reorganizing the information change its meaning?" Instead of being bound by the accepted way of organization, what happens if you mix everything up?

THE SMART YELLOW PAGES® OR YOUR PERSONAL GUIDE TO LIVING

These were the questions I asked myself when I was asked to redesign the Yellow Pages in California. A friend, Warren Bennis (a business professor at USC and the co-author of *Leaders*), suggested that I contact one of his friends, John Gauling, on my next trip to San Francisco. It turned out he was president of Pacific Bell Directory. He asked me if I would help him transform his books and his company, of which he had recently become president.

The Yellow Pages are one of the ubiquitous reference materials that we accept without a thought. They are our path to the commercial environment, to our culture. Yet they are often confusing to use.

Companies are listed under one set of subheadings. If you don't happen to categorize information in the same way the phone company does, they can be pretty inscrutable. For example, pencils are listed under the heading of "Pens & Pencils—Retail," which is fine, but I would have never found them.

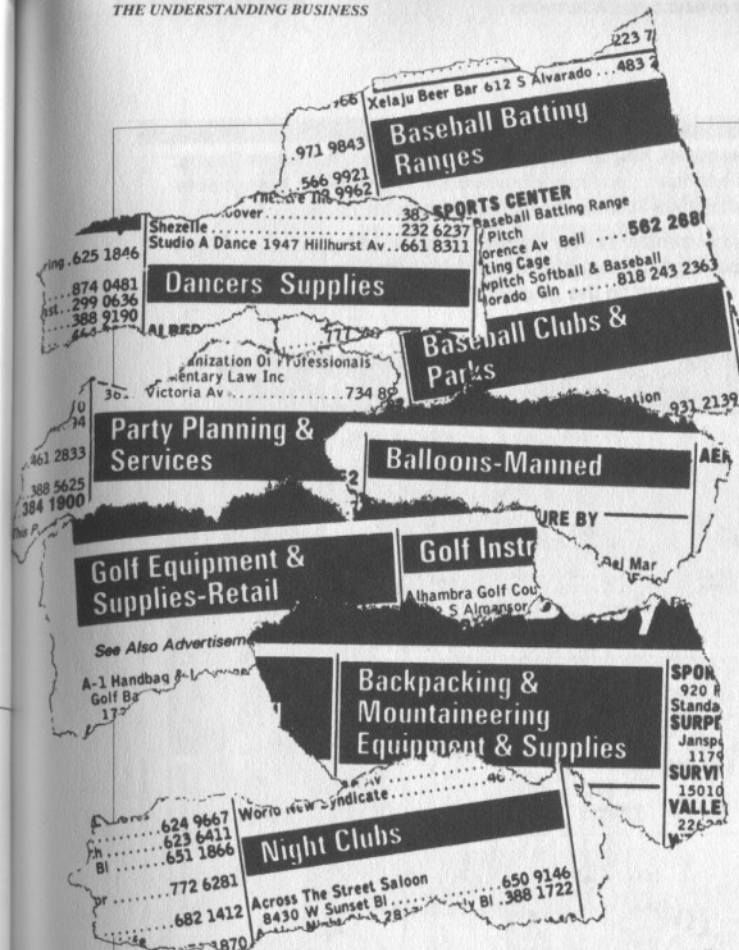
If you have an automobile and look up the word, you will find that fewer than ten percent of the total listings that have to do with automobiles begin with AUTO.

DON'T THROW AWAY THE WASTEBASKETS YET

In 1985, 2.8 million tons of computer paper were used in offices in the United States—twice the amount used in 1975. The manager of The Paperless Office, a Washington, D.C. consulting firm, admits that fewer than one percent of the offices in this country are fully electronic and paper is still the primary way that information travels. Among the obstacles to the paperless office are the lack of linkage between computers, mistrust of electronics, and the ease with which computers and printers can generate paper.

USA TODAY

I understand, therefore, I can act.

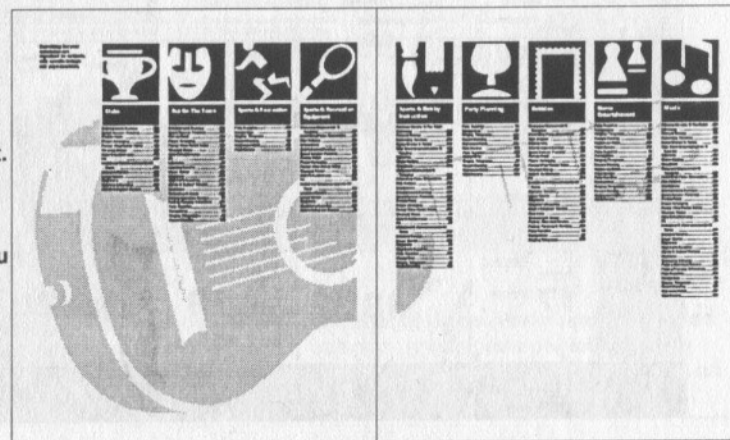


Where would you look in the Yellow Pages if you were thinking about what you were going to do over a free weekend? S for Sports? C for Concerts? G for Golf Courses? P for Party Supplies?

With a normal, strictly alphabetical arrangement of headings you have to be very specific about what you want. You have to know beforehand what things are called, how they're spelled, and even how the directory company goes about classifying the businesses.

Now, in a special section up front, it's possible to find every heading in the book that has generally to do with Entertainment and Leisure, for example. Or Automobiles. Or Home Improvement, Travel, Food, or other areas of interest in everyone's life.

It's fun just reading the titles on the Entertainment and Leisure Subject Search shown to the right. The pages remind me of a department store catalog, where you more often than not stumble across things that you never would have thought of otherwise.



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