Stories and …

Being a Rapid Journey Through Several Fields Wearing Story-Colored Glasses

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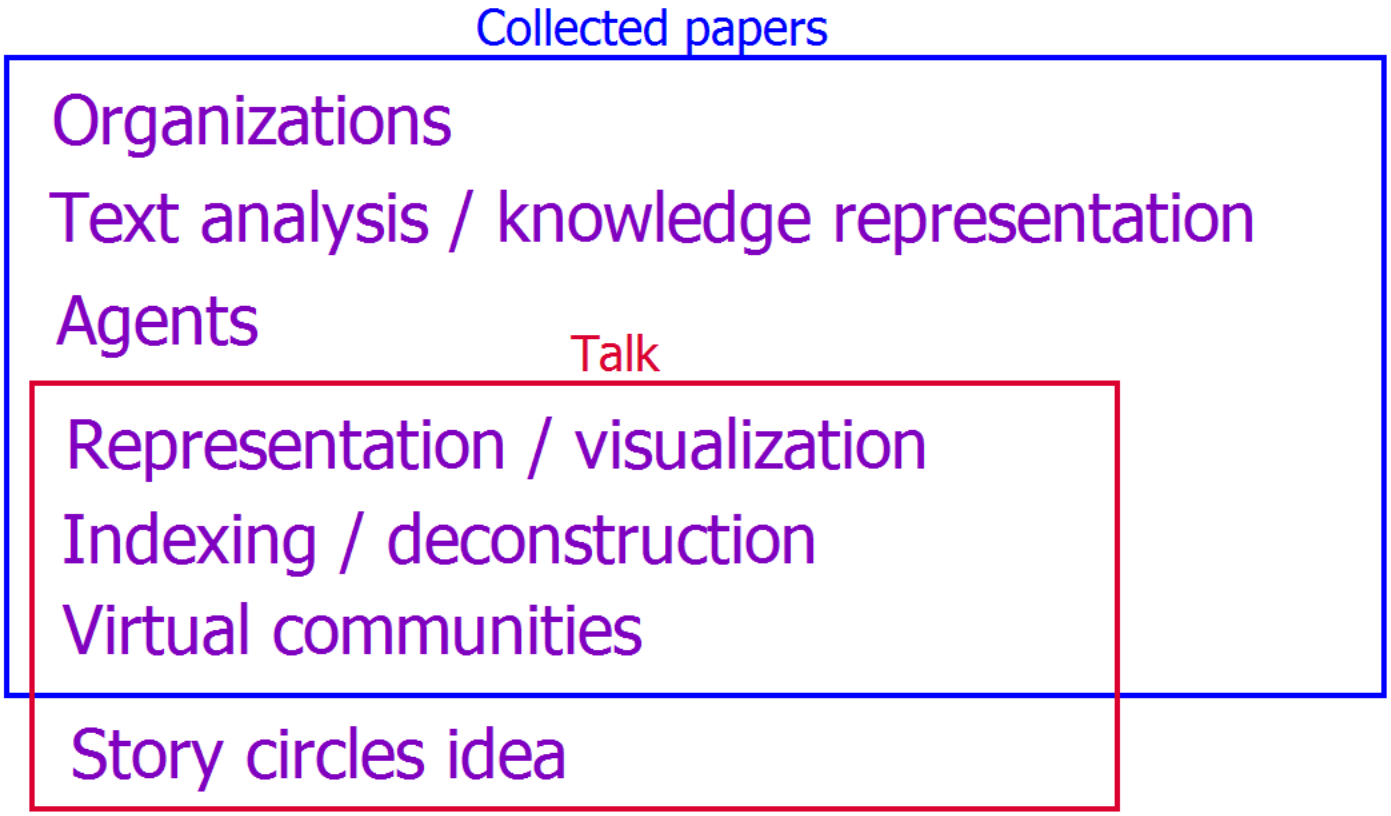
June 1999

http://w3.research.ibm.com/knowsoc

This presentation is from a talk given in June 1999 at the T.J. Watson IBM Research Center by Cynthia Kurtz in the Knowledge Socialization group of IBM Research. *The original presentation was in Lotus Freelance format. This is a version reconstituted in PowerPoint in 2013. The original slides are shown at the top; below them are the original notes that accompanied the slides. Nothing has been changed, no matter how embarrassing it looks now. Later comments are in italics. Most of the web links no longer work.*

Stories and ...



I've been reading a lot of literature in several fields related to the use of stories. During this talk I will present summaries of papers in three fields. The fourth part of the talk will be an exploration of an idea for a virtual storytelling community.

This graph shows a rough idea of how large these fields seem to be after a cursory reading *[of about six months]*. To give you some numbers, the smallest number of papers (on story representation) are about 10-20, whereas the number of papers on text analysis and knowledge representation is in the thousands.

Stories and …

Representation / visualization

Indexing / deconstruction

Virtual communities

Story circles idea

This page will lead you to the other parts of the presentation. *Actually it won't, but it did once.*

Story representation

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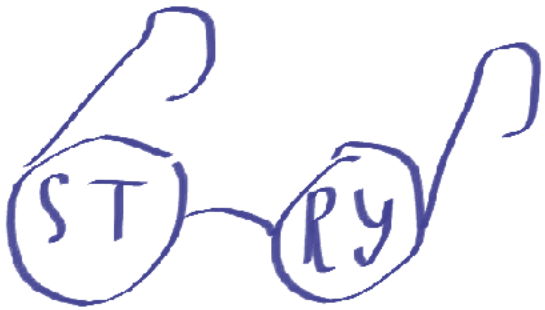
Story representation



If you had
a set of stories,
how could you find
the one you wanted?

How would you know what you wanted?

(this page had no notes)

Story representation

selected papers

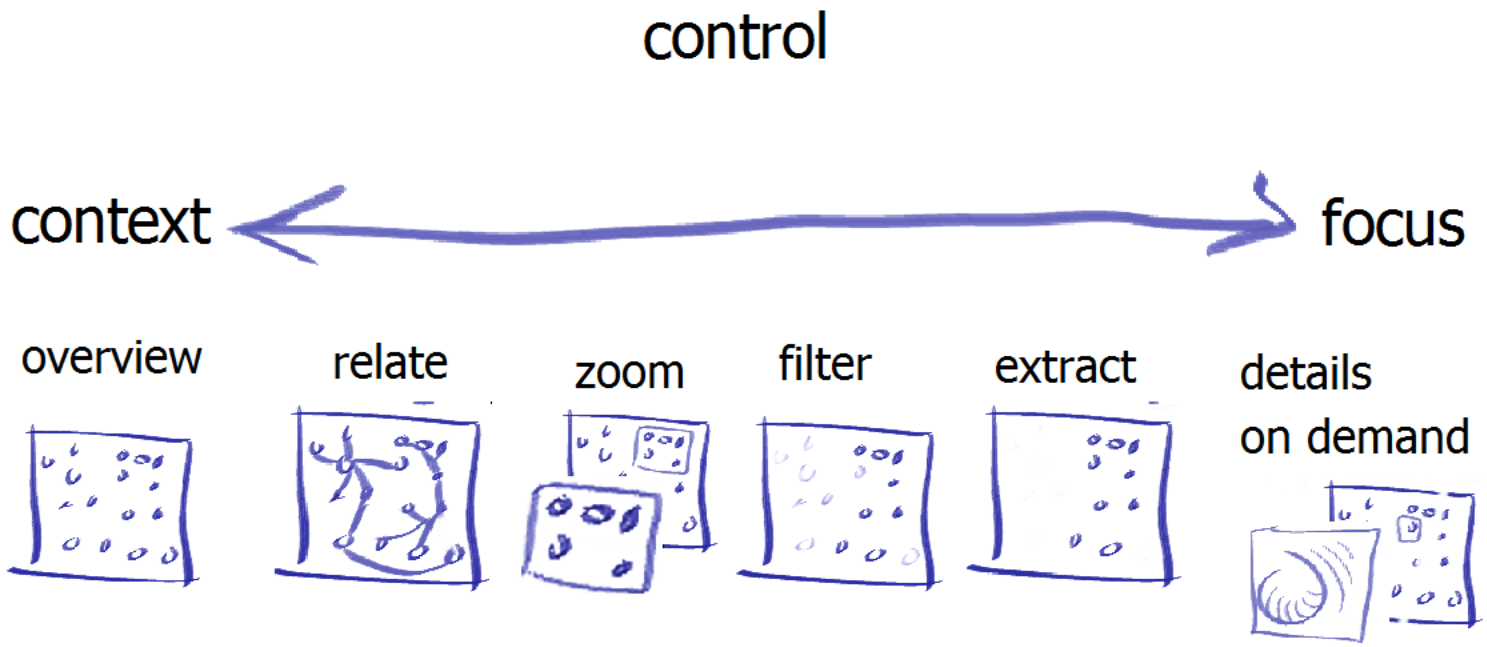
- Shneiderman 96 IEEE (review)
- Tufte's books (1990, 1997)

slides

- Shneiderman's tasks
- Tufte's concepts
- Assorted example systems

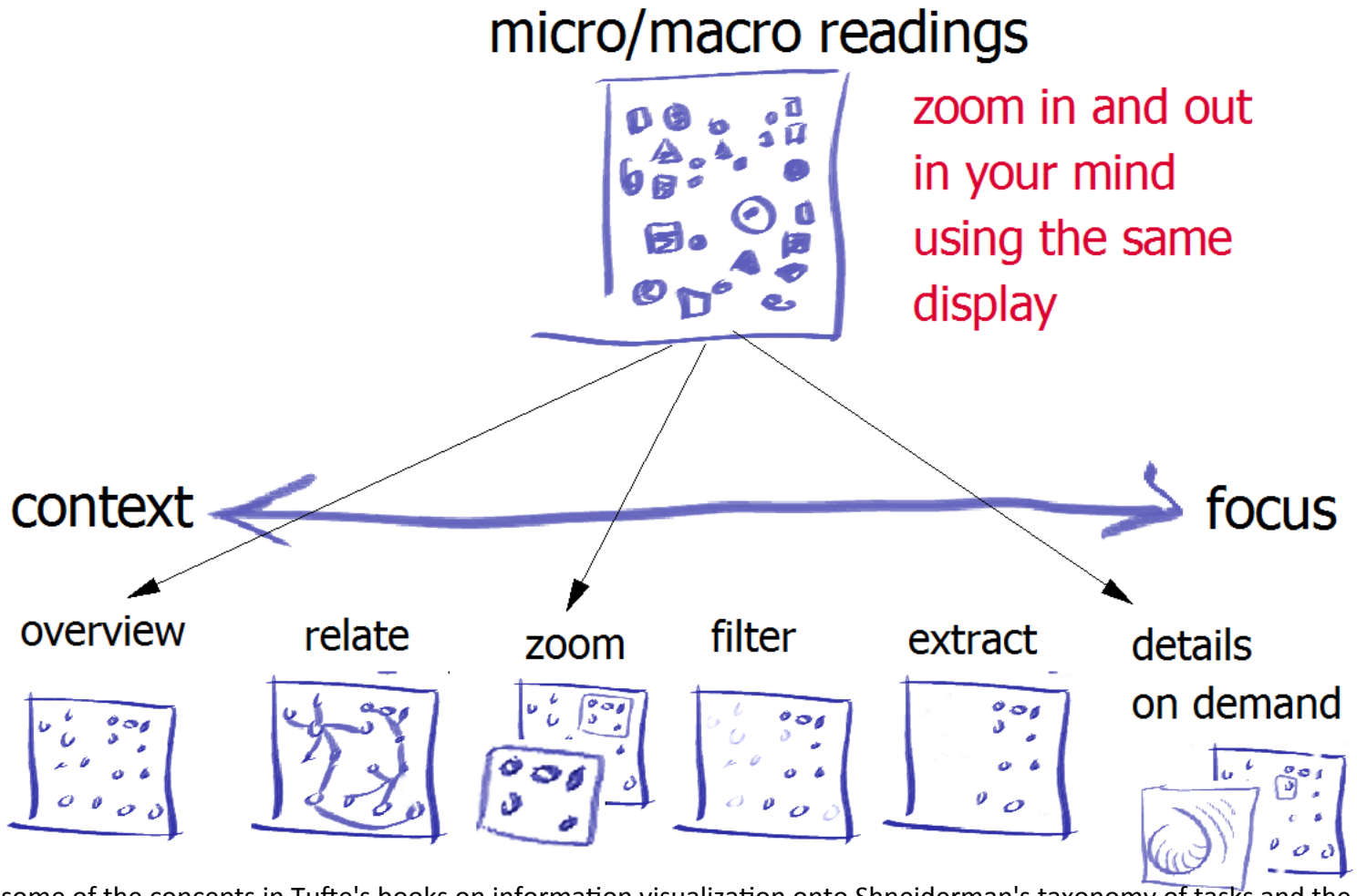
These are the titles that stood out most in my review of this subject and that I'll mention in this presentation. The slides will follow roughly the outline here. Full references can be found at the end of the talk. *Actually at the end of each section of the talk.*

Shneiderman's tasks



In an important review paper, Ben Shneiderman identified several tasks that any information-retrieval system has to support. I arranged these tasks on an axis between the two constraints that are typically important in information retrieval: context (the big picture) and focus (the details). Context and focus are usually at odds with each other: if you maximize one, you minimize the other. What is most important is to give the user control over the degree of context versus focus at any time.

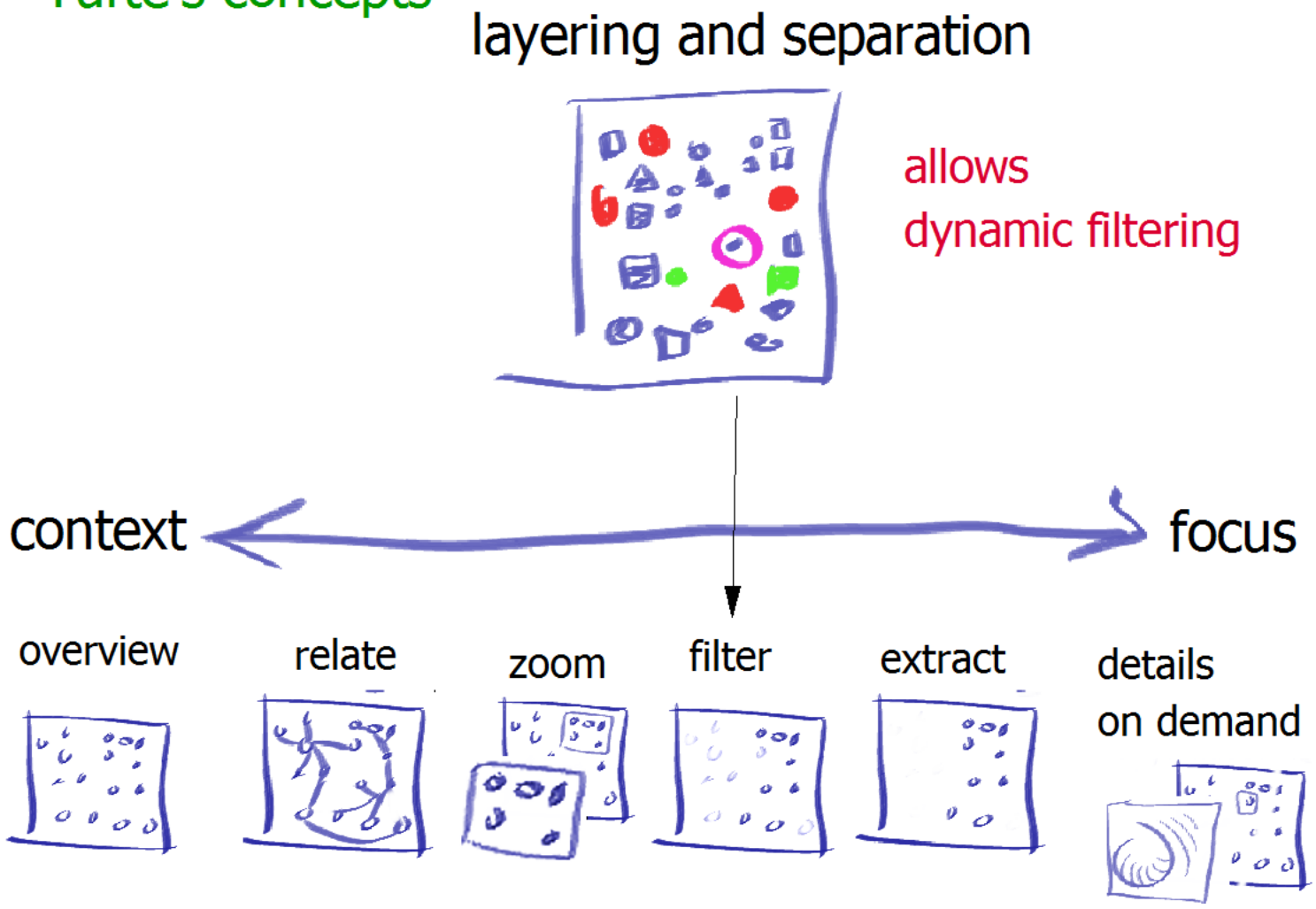
Tufte's concepts



We can map some of the concepts in Tufte's books on information visualization onto Shneiderman's taxonomy of tasks and the context-focus dimension.

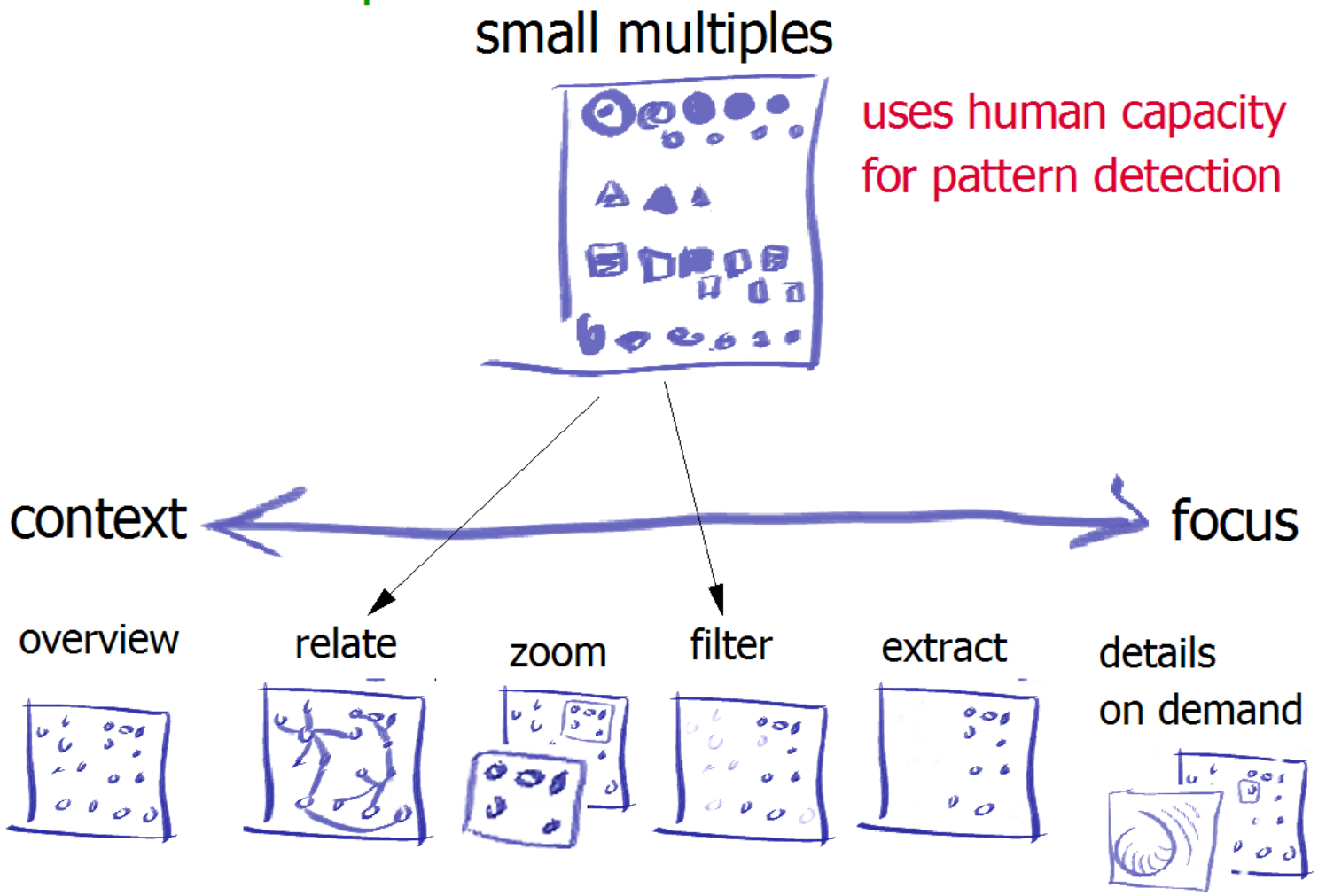
The concept of micro/macro readings says that visual representations of large quantities of information should give the viewer useful information at both the macro scale (zoomed out) and the micro scale (zoomed in). A good example of a diagram with good micro/macro readings is a train schedule in which trains are plotted as lines running through two dimensions: time on one axis and physical location on the other. In such a diagram, at the macro level you can see when the rush hours occur (where the lines cluster). In the same diagram you can look closer to see when specific trains come and go from specific stations. By including both macro and micro readings in one representation, the designer gives the viewer control over the level of detail they examine.

Tufte's concepts



Visualizations with layering and separation use visual cues such as color, font and size to help the viewer filter out different categories of information in real time. The classic example of layering and separation is an exploded diagram of parts in a car engine in which the part numbers of individual parts are shown in a secondary color. The viewer can choose to ignore the part numbers while exploring how the parts fit together; but when a specific part number is needed, the layer containing the part numbers can be referred to.

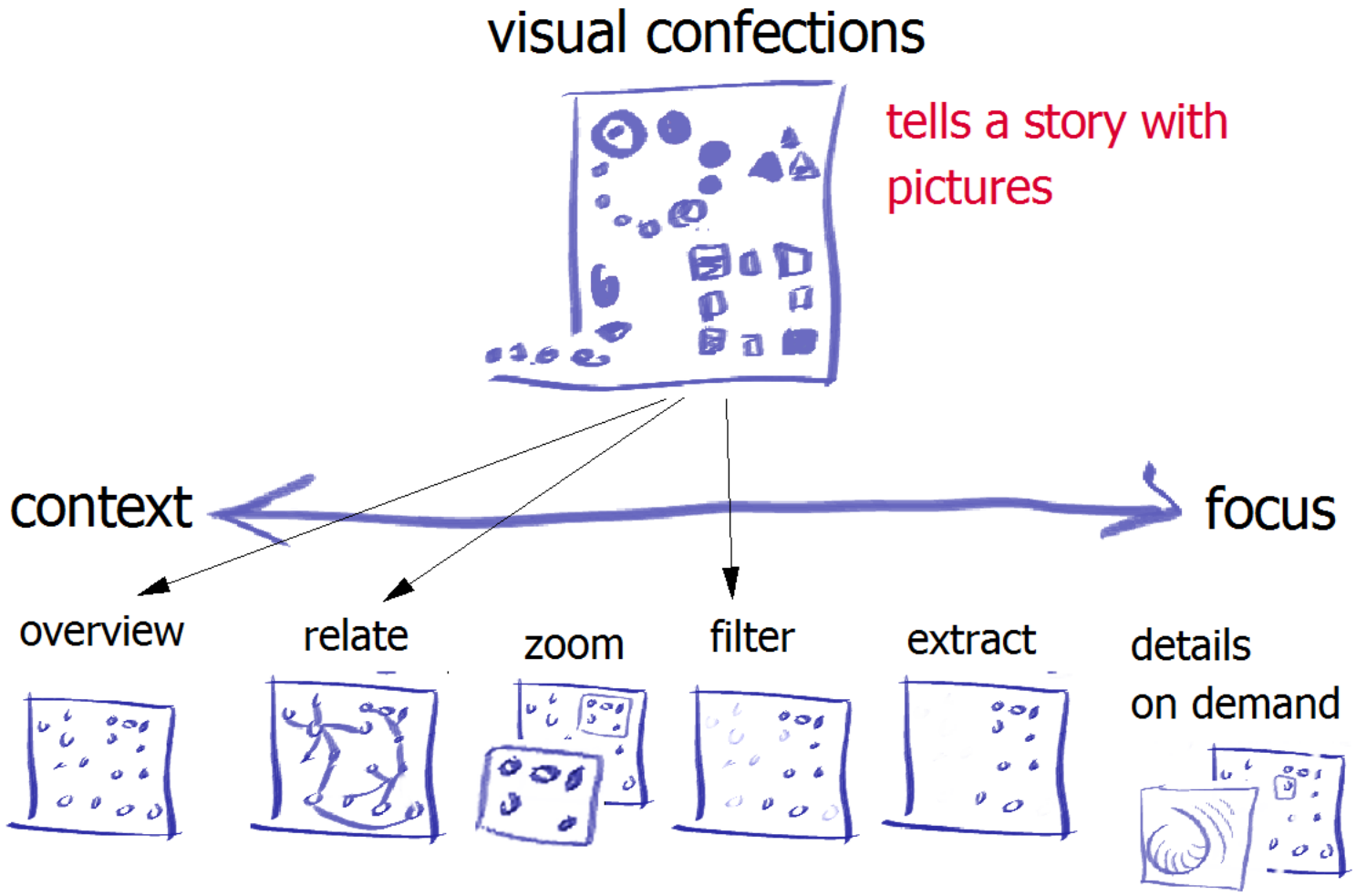
Tufte's concepts



Most people are adept at visually comparing many slightly differing objects, such as faces or food items. This capacity can be used to compare and contrast informational objects such as sales figures or accounting categories.

Small multiples are visual representations of objects in which the same category of information is shown for each object. The juxtaposition of the objects allows the viewer to compare and contrast them.

Tufte's concepts



A visual confection is Tufte's term for a diagram that transmits a complex assemblage of information by the way it is laid out. Anyone who has read the Sunday comics has seen visual confections -- not the framed pictures that show snapshots in time, but the collages where several events happen in the same frame and are related in some spatial fashion. These displays often make heavy use of metaphor and shared cultural experiences to convey information at several scales. For example, placing items along a picture of a road or path conveys a process or lifetime.

Representation approaches

graphs

tools

metaphors

miniaturization

relations

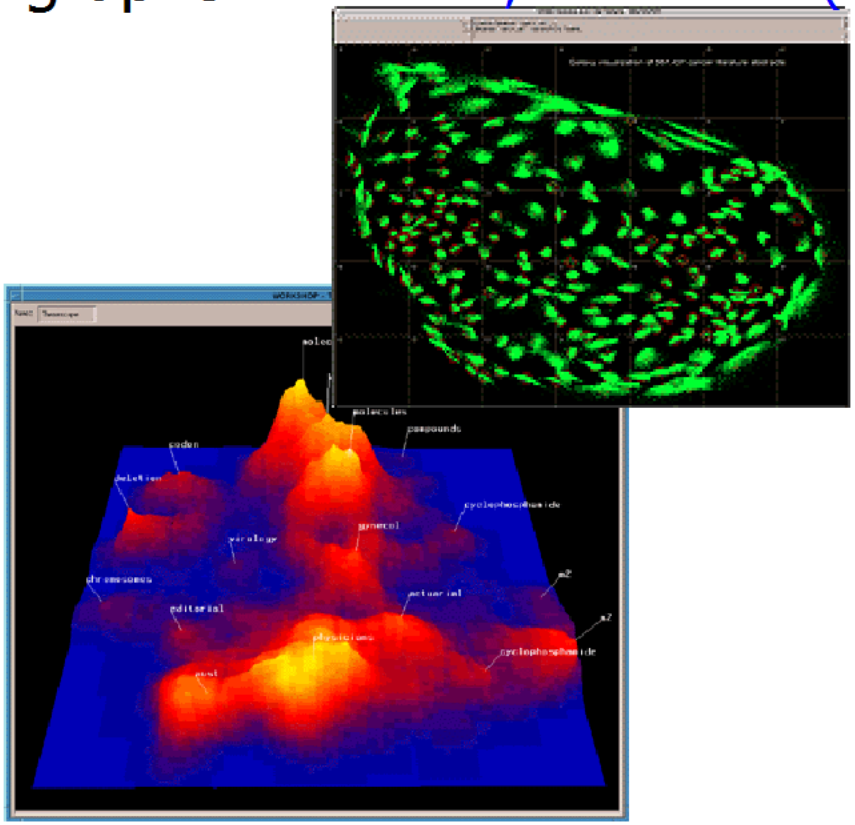
selective focus

small multiples

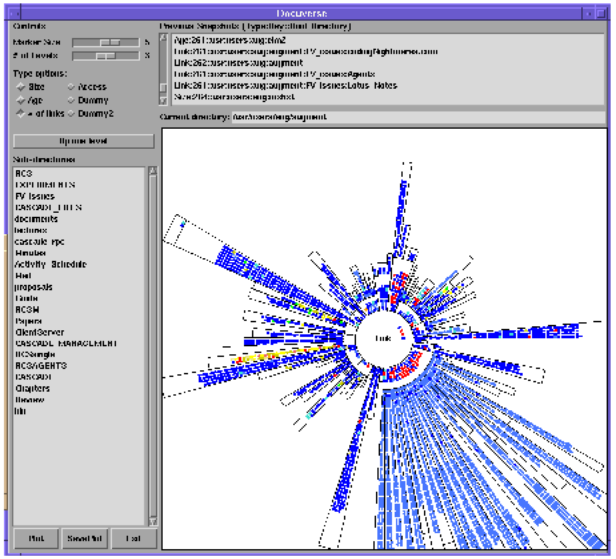
These are some types of approaches to representation of textual (non-numeric) information that the work I've seen seem to fall into. I'll next show some examples of each of these types.

graphs

Galaxies, ThemeView (Pacific Northwest Ntl Lab)



Docuverse



straight values or clustering axes

use axes to show values

very well understood, old formula

Representations that use **graphs** rely on the fact that most people educated in the last several decades have been taught to read graphs -- that plotting something along one, two or three axes has meaning to most people.

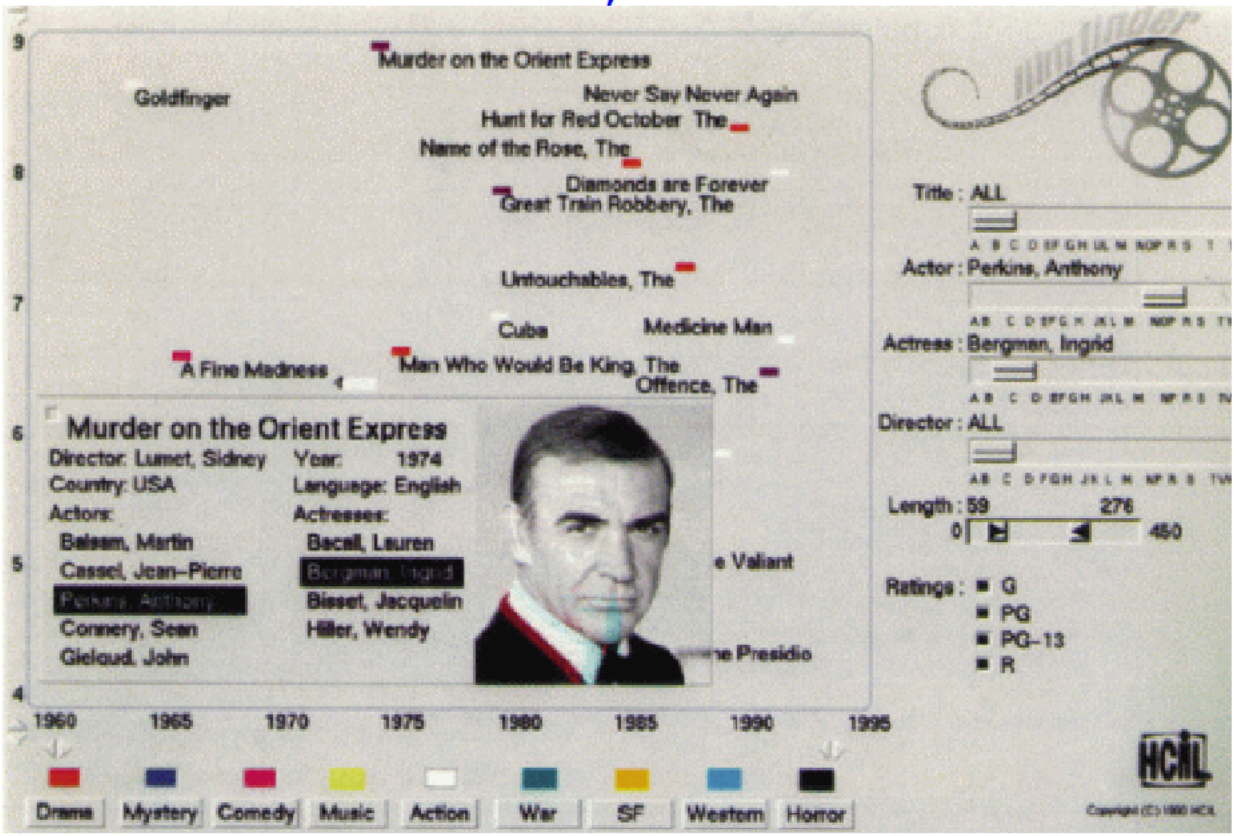
In the Galaxies system each document is represented by one point, and similar documents are clustered together. One traverses a 3D document space of similarity.

In the ThemeView system each document is represented by a point in 3D space, and the topology of the space is generated by the similarity of documents along three axes.

In the Docuverse system each document is represented by a line radiating out from the center to which all documents reach.

tools

FilmFinder, HomeFinder

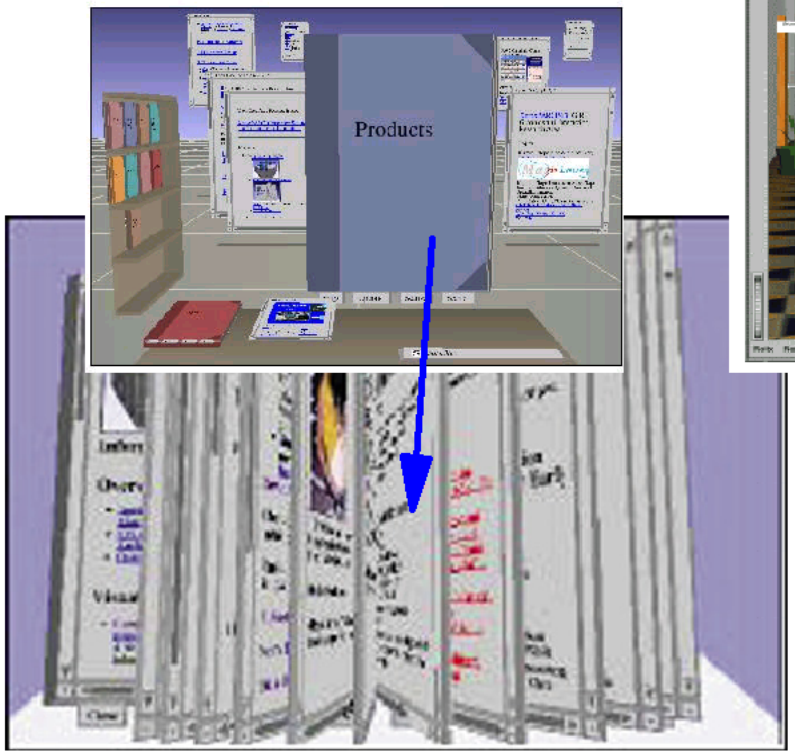


dynamic queries = micro/macro control
multi-dimensional relations
alphasliders

The FilmFinder and HomeFinder systems created by Ben Shneiderman's group are multimensional navigation systems based on the heavy use of **tools** rather than visualizations alone. Only two dimensions can be seen at one time, but the choice of *which* two dimensions to show gives the user any number of dimensions in actual effect. This system supports **dynamic queries** -- moving any of the sliders causes the 2D view to update in real time. The authors claim that dynamic querying allows the user to achieve balance between focus and context by moving rapidly between different choices.

metaphors

Xerox WebBook



Virgilio (Massari et al. 1997)

use real-world knowledge
navigate in virtual space

Some representational systems make use of metaphors to navigate information spaces in much the same way that the current desktop metaphor of computing makes use of our real-world experiences with files and folders. Buildings, hallways, rooms, posters, file cabinets, drawers, folders, books and papers are all metaphors that can be used (among of course many others).

One drawback to using metaphors to navigate information spaces is that people tend to take those spaces as literally as the actual spaces. For example, it may be difficult to convince people that the annotations they write in a virtual book cannot be seen by others (since it is not so in the real world).

miniaturization

Virtual Shakespeare (Small 1996)

SeeSoft (Eick et al. 1992)

scan and zoom

use colors to find trends quickly

(notes too long to fit, see next page)

miniaturization

Virtual Shakespeare (Small 1996)

SeeSoft (Eick et al. 1992)

scan and zoom

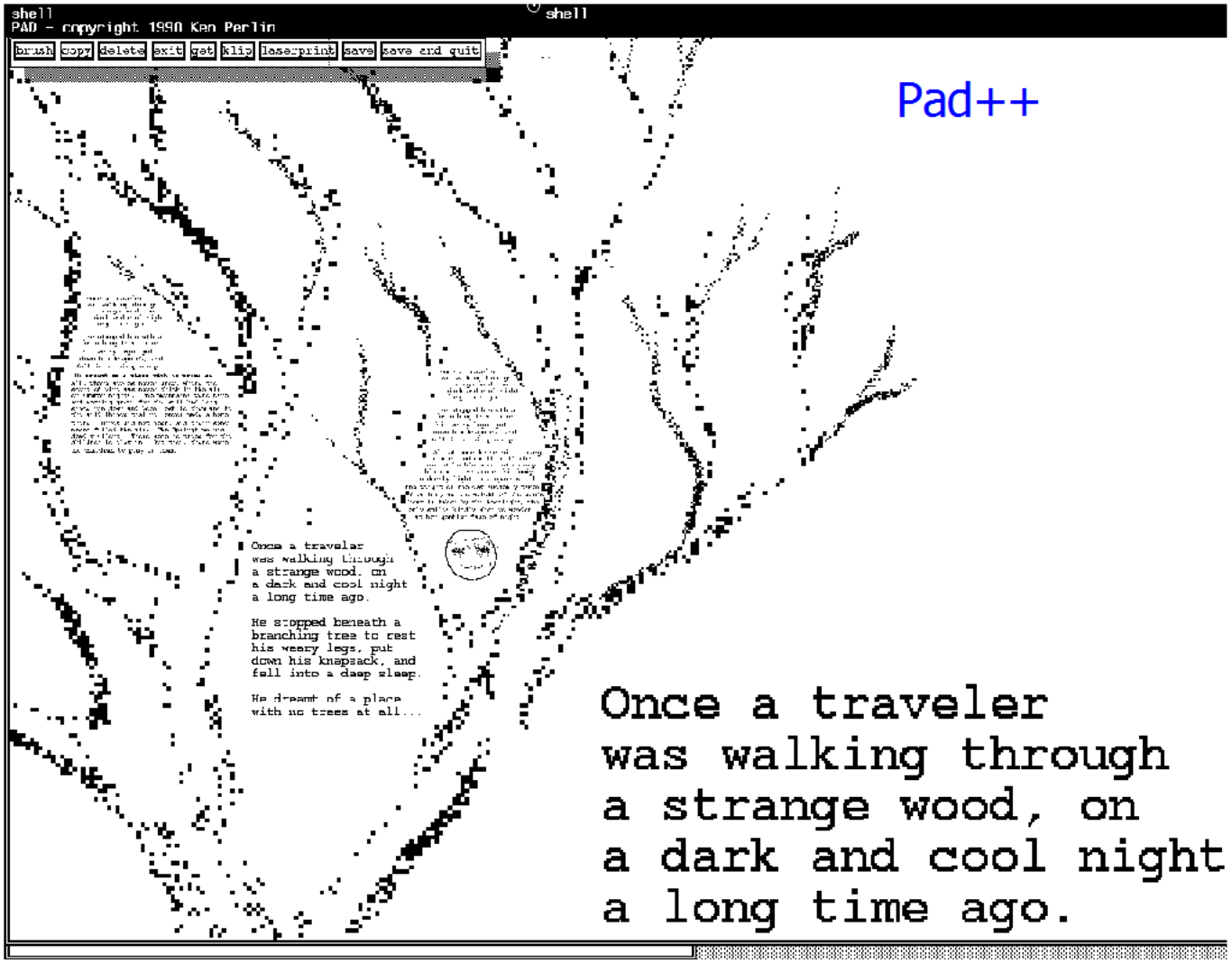
use colors to find trends quickly

An interesting approach to navigating large bodies of textual information is to zoom out, or **miniaturize** the information. You can see this if you look at thumbnails of pages in Adobe's Acrobat Reader. Often if the document has some structure to it, zooming out can give you adequate cues to find your way.

The SeeSoft system is a representation for programming code in which each line of code is drawn as a tiny line. Lines can be color-coded in many ways (this is a multi-dimensional element).

In the Virtual Shakespeare project, David Small at MIT created a virtual environment in which all of Shakespeare's works are arranged in a single 3D space. To read the works, you navigate in the space. Colors are used to distinguish actors, and notes are positioned orthogonal to the main text.

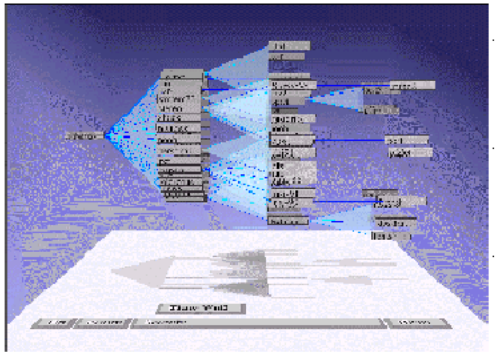
miniaturization (continued)



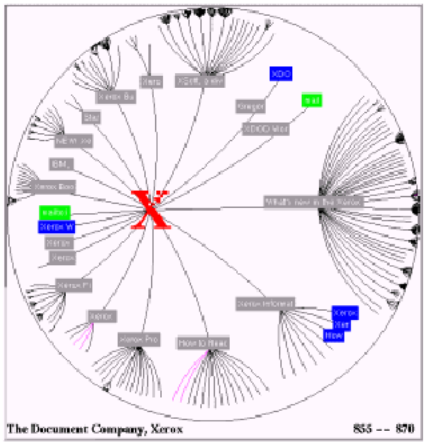
Pad++ is another system for navigating bodies of information in which you can zoom in and out.

relations

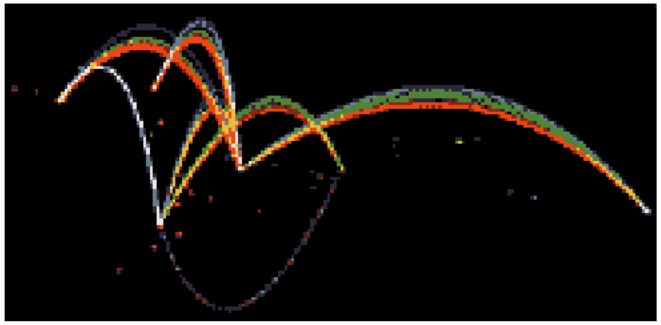
Xerox cone trees



Xerox hyperbolic trees



Rainbows (Pacific Northwest Ntl Lab)

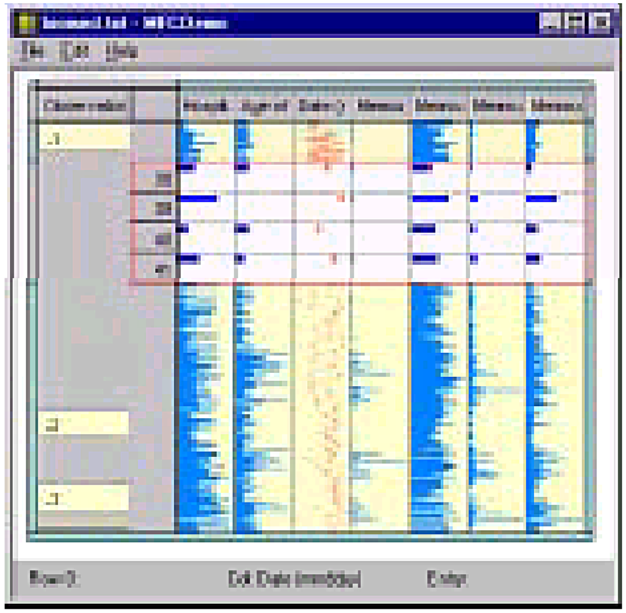


make relationships explicit
uncover subtle trends
manage complexity

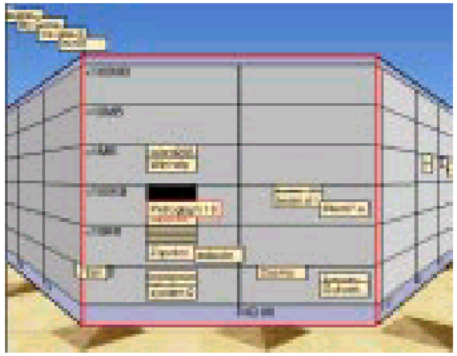
Some visualization systems work by making **relations** between objects explicit, usually by drawing lines to connect the objects in a 2D or 3D space. This builds on one of the great uses of visualization for numeric data -- that making relationships explicit using graphical methods can sometimes uncover trends that are not visible otherwise. Various attributes of relations can be shown by attributes of the connecting lines -- color, thickness, shape, direction, etc.

selective focus

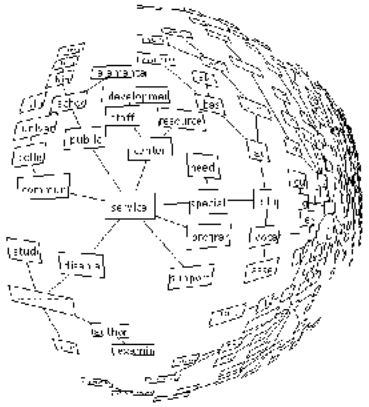
Xerox TableLens



Xerox VisualRecall



Fisheye (Furnas 1986, various)

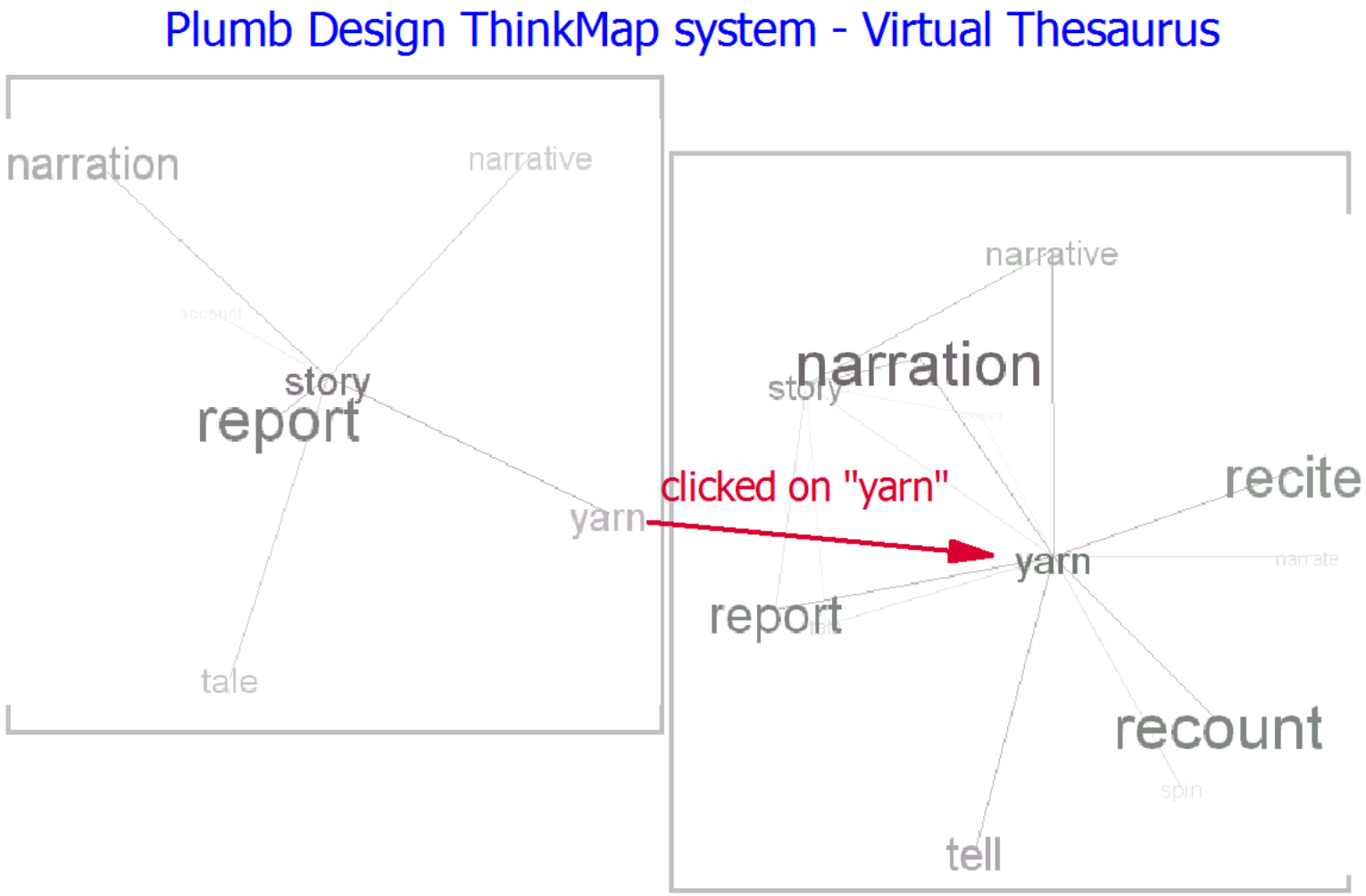


based on metaphor of visual field of view

see, then go (not go, then see)

Another useful method for visualization of large bodies of information is **selective focus**. This builds on the observation of peripheral vision -- in which detail is not attended to but rapid movement can attract attention. Xerox PARC has a useful slogan here: they say that in most information navigation systems (such as the web) you go somewhere (you click on a link), and then you see where you've gone. The better system, says Xerox, is to see at least something about an area *before* you go there, so you can decide if it's worth going. Most systems based on this idea have used either focus or sizing (or both) to emphasize the elements within the field of view.

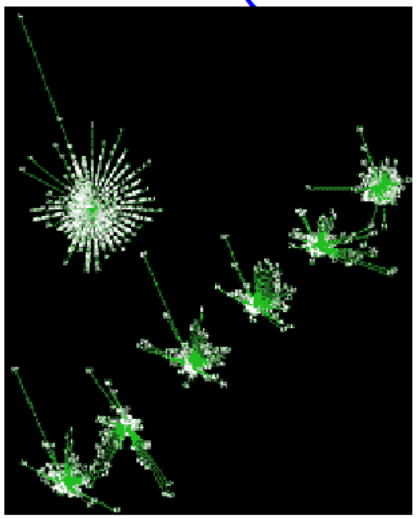
selective focus (continued)



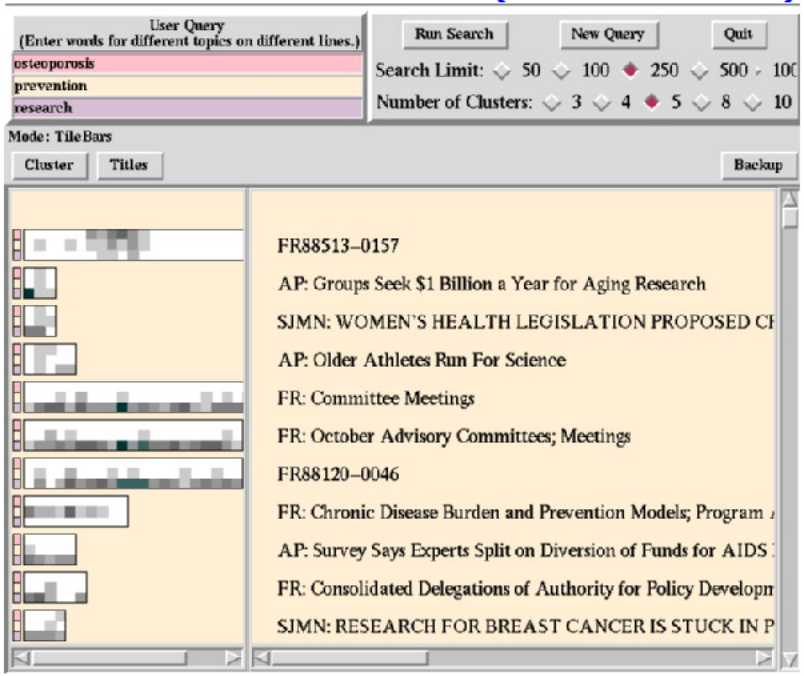
The ThinkMap system created by Plumb Design is an example of a selective focus system with several levels of focus. Words closest in conceptual similarity to the focused word are darkest and largest. Words less similar are smaller and more faint; and words not related are not shown at all.

small multiples

Starstruck (Pacific Northwest Ntl Lab)



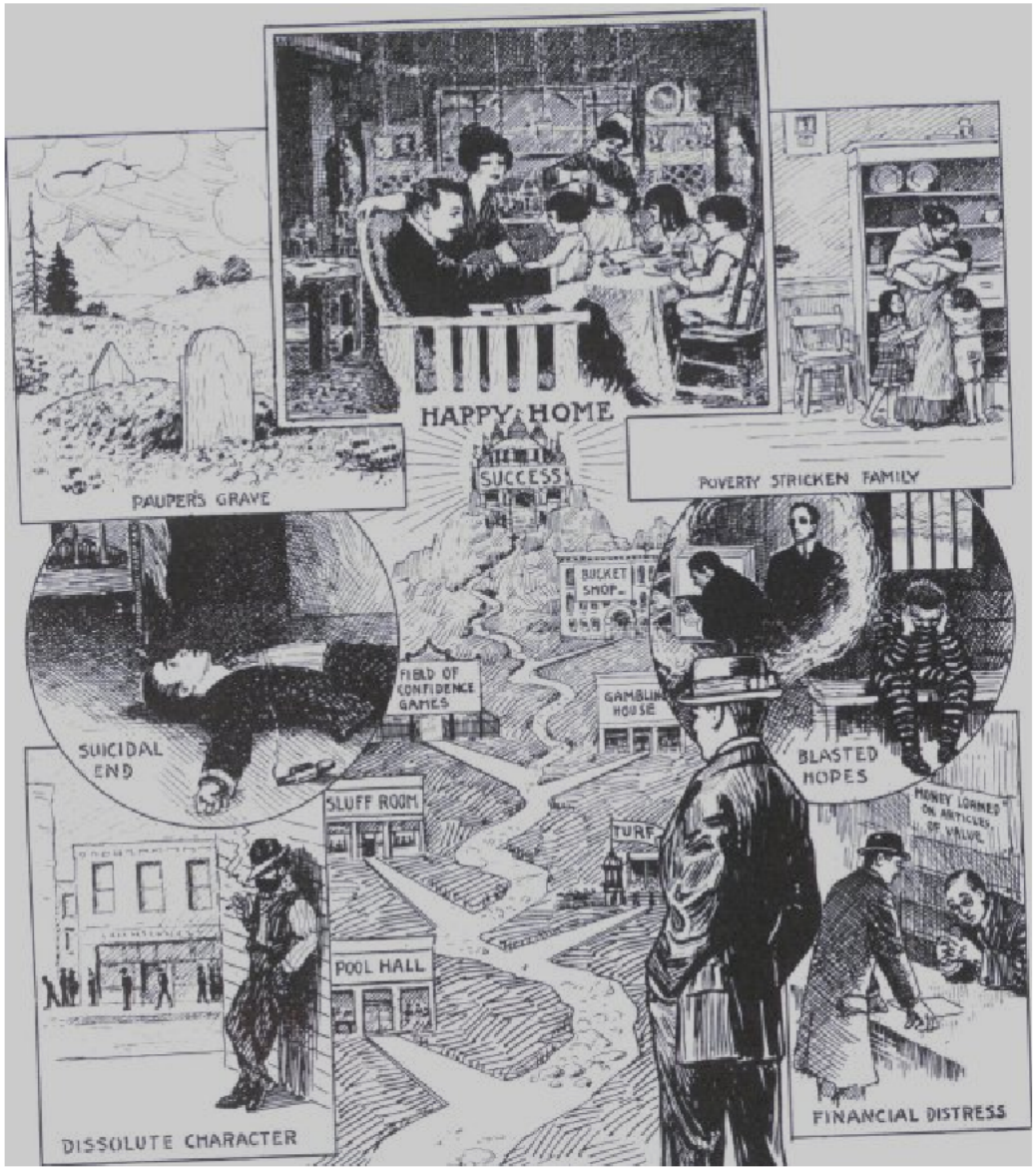
TileBars (Hearst 1995)



side-by-side comparison

trends make repeated patterns

Comparatively fewer systems have so far used the "small multiples" method of comparing documents side by side (at least with visual representations; most web searches present small multiples of text information).
In the Starstruck system each document appears as a sort of wheel, and each spoke in the wheel represents a topic. Wheels with similar radial shapes have similar topic signatures. The TileBars system has a similar representation with the frequencies of key words represented as shaded squares.



Some pictures from Tufte's books and what they appear to use

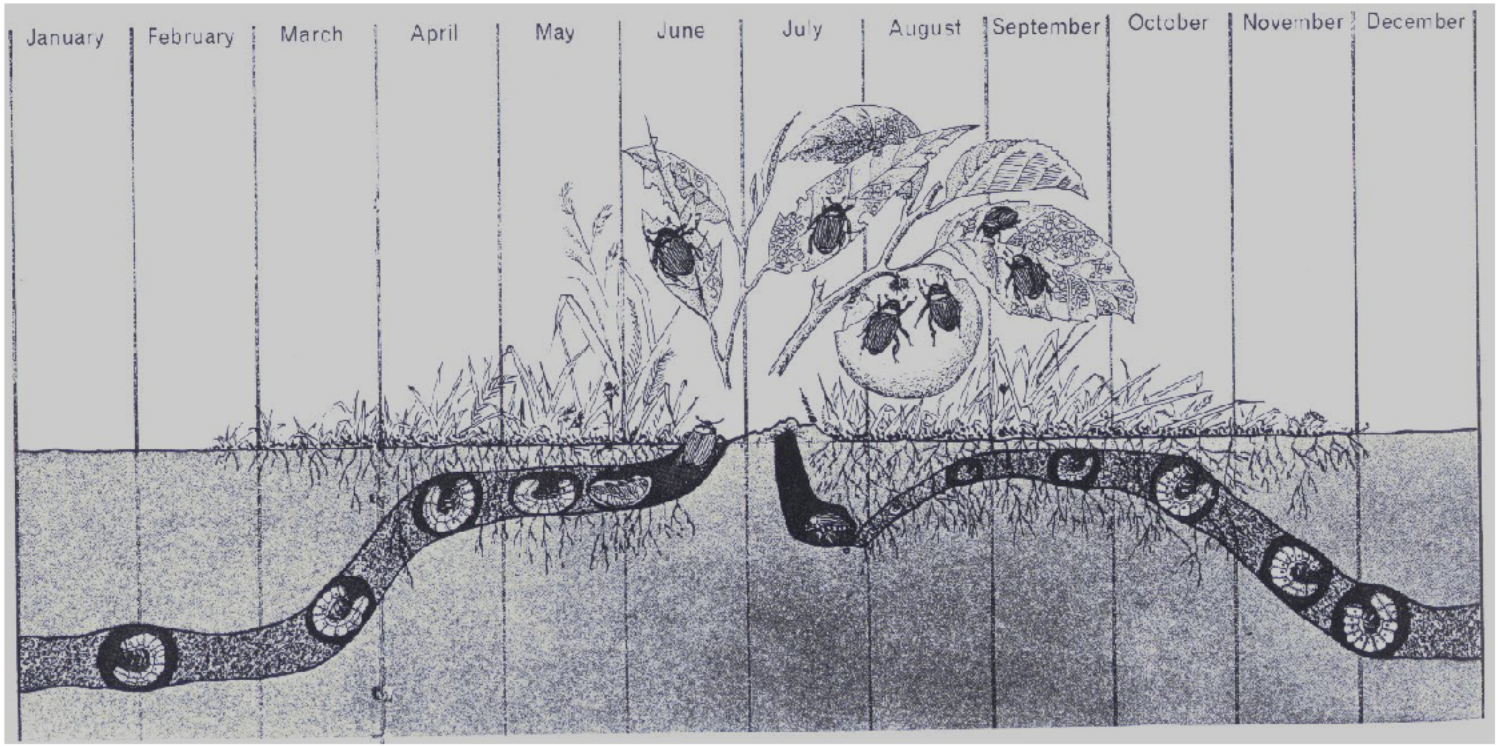
metaphors

relations

small multiples

Now we will look at a few pictures I scanned in from Tufte's books and see what visual representation systems they use. Tufte used these old pictures to illustrate the use of visual confections to tell a story with pictures.

This picture, the story of a life and the choices made in it, uses the metaphor of a road for the journey of life. It uses relations in that points down each road are visually related to each other. And it uses small multiples in that the vignettes have a certain similar shape and size (for example, the figures of people in each vignette are of similar size, so you can compare what the people are doing).



graphs

small multiples

This picture, the story of the life cycle of a beetle, uses graphs because time is measured along a calendar left-right axis and space is measured along the up-and-down axis above and below ground. And it uses small multiples because we can compare how the larva changes as it "rolls" along the subterranean path.

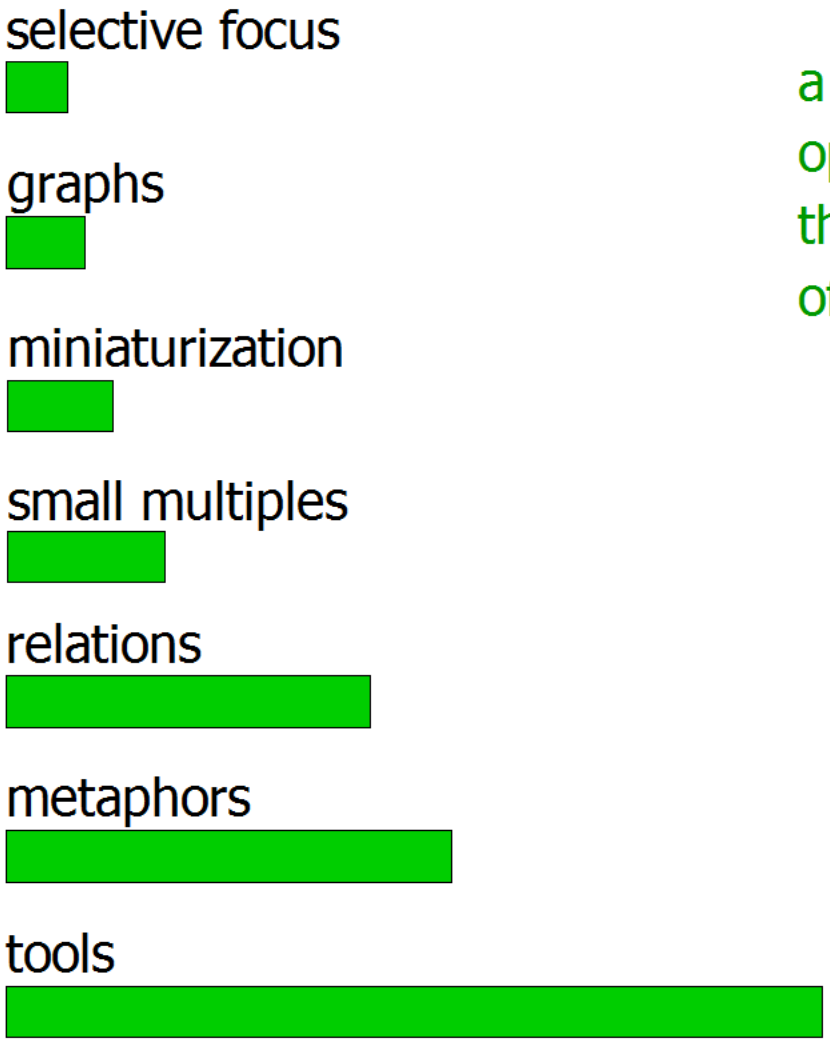
graphs

relations

small multiples

This picture, showing the choreography of a dance, uses graphs because the implied X and Y axes of the dance floor correspond to the positions on a real dance floor. It uses relations because the steps are linked by lines. And it uses small multiples because each dance step is shown in a similar way; the differences between steps in length and curve have meaning.

Which representations are best for stories?



a subjective
opinion based on
the conceptual nature
of stories

Stories are based on (and contribute to) much of our conceptual knowledge about "the way the world works". Because of this I think that the best representations for stories are those that build on conceptual skills rather than physical or visual skills such as peripheral vision or navigation in virtual space.

Partly, though, this ranking just comes from the subjective experience of looking at all of these visualizations and thinking about which I would rather use when navigating among groups of stories. (In fact, the FilmFinder tool-based system is the closest to any in this list to actually navigating stories.)

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graphs

Galaxies, ThemeView (Pacific Northwest Ntl Lab)

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Docuverse

Sasseen, R. V., & Caid, W.R. 1994. Docuverse: A Context Vector-Based Approach to Graphical Representation of Information Content. In Proceedings of IEEE Dual-Use Conference.

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References (continued)

tools

FilmFinder

Ahlberg, C. and B. Shneiderman. 1994b. Visual Information Seeking: Tight coupling of dynamic query filters with starfield displays, Proceedings of ACM CHI94 Conference, 313-317.

HomeFinder

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metaphors

Xerox WebBook

Card, S.K., G.G. Robertson, and W. York. 1996. The WebBook and the WebForager: an information workspace for the World Wide Web, CHI 96, ACM Conference on Human Factors in Software, ACM Press, New York. 111-117.

Virgilio (Massari et al. 1997)

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References (continued)

miniaturization

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References (continued)

relations

Xerox cone trees

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Robertson, G.G., J.D. Mackinlay, and S.K. Card. 1991. Cone Trees: Animated 3D visualizations of hierarchical information. Proceedings of ACM Human factors in Computing Systems (CHI'91), 189-194.

Rainbows (Pacific Northwest Ntl Lab)

http://multimedia.pnl.gov:2080/infoviz/index.html

These are the references mentioned in this part of the talk.

References (continued)

selective focus

Xerox TableLens

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Xerox VisualRecall

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Plumb Design ThinkMap system - Virtual Thesaurus

http://www.plumbdesign/thesaurus

These are the references mentioned in this part of the talk.

References (continued)

small multiples

Starstruck (Pacific Northwest Ntl Lab)

http://multimedia.pnl.gov:2080/infoviz/index.html

TileBars (Hearst 1995)

Hearst, M. 1995. TileBars: visualization of term distribution information in full text information access, Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI), Denver, CO. 59-66.

These are the references mentioned in this part of the talk.

Story deconstruction and indexing

Knowledge Socialization Group

IBM Research

June 1999

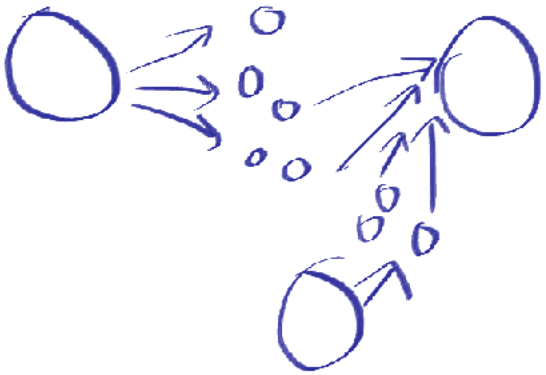
http://www.research.ibm.com/knowsoc

This is part of a talk given at the T.J. Watson IBM Research Center at Hawthorne, NY in June 1999 by Cynthia Kurtz in the Knowledge Socialization group of IBM Research.

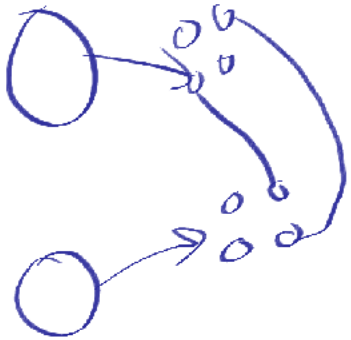
Story indexing and deconstruction

Why deconstruct stories?

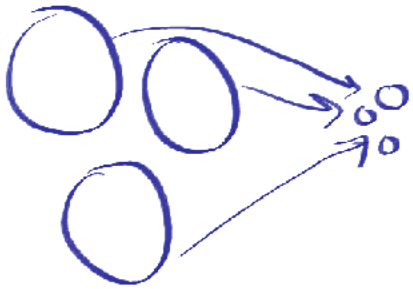
to reconstruct stories



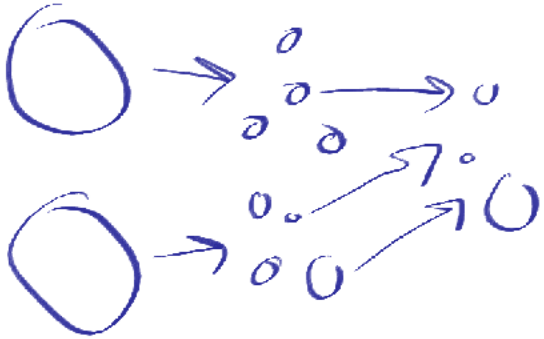
to connect stories



to summarize stories



to extract information



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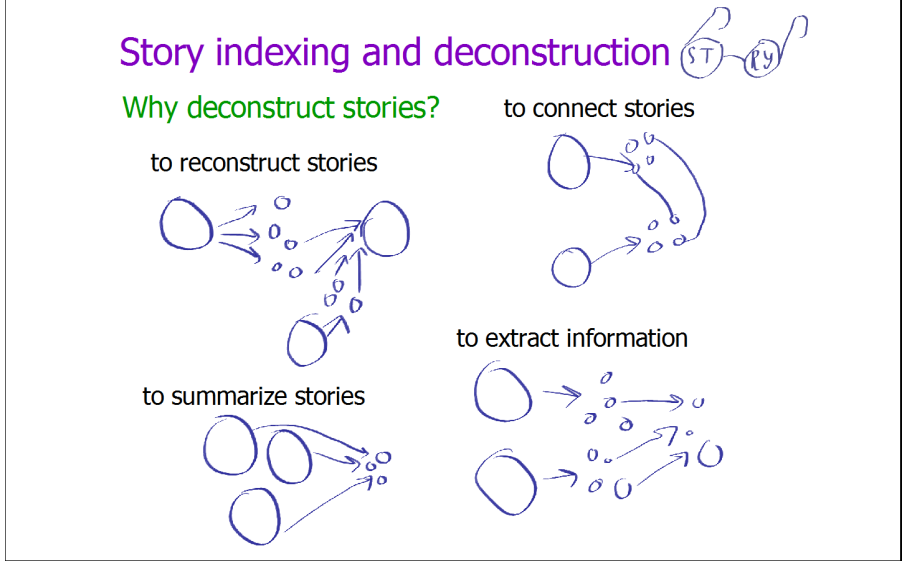


Story deconstruction is what it sounds like -- taking a story apart, finding out what its components are, and finding out how and why they are related. For example, the story of the boy who cried "Wolf!" could be deconstructed into many overlapping parts: it has to do with trust and accountability; it has to do with children and learning; it has to do with peril and resources; and so on.

Story indexing is putting a story into a context of other stories based on certain criteria (usually those resulting from deconstruction).

Why would you want to pull stories apart?

- You might want to make another story about it, one with a different purpose. (What about a story about a boy who cried "Asparagus!")
- You might want to make sure the story can be found again when it is needed and for many different reasons. (Wasn't there a story here somewhere about trust?)
- You might want to produce a representation of the story that can be read quickly so people can find out if they want to read the entire story. (These stories are about trust, and these are about children.)
- You might want to extract factual information from the story to use in analyses. (How many sheep did the wolf eat? How many times did the boy call for help?)

Story indexing and deconstruction

selected papers

Agent Stories (Brooks 1996)

ASK (Cleary & Bareiss 1996)

slides

Brooks' Agent Story construction system

Schank's ASK story connection system

Dramatica

StoryBook Weaver

These are the papers I'll be mentioning and what the slides will be about. Full references can be found at the end of the talk. *Section.*

Story indexing and deconstruction

possible approaches

Text analysis

Tools for guiding human classification

The analysis of text by computer algorithms is useful for many purposes and is improving rapidly. But because stories are so strongly wrapped up in conceptual knowledge about the world, I don't believe that there will be an automatic story-understander anytime soon.

In this talk I'll be presenting four systems that involve aiding people in classifying, deconstructing, explaining and constructing stories. I'll be looking at how ideas from those four systems might help us think about tools that would help make a storybase system efficient and useful.

Brooks' Agent Stories system

narrative primitives

speaker (protagonist) intro	resolution
character (not protagonist) intro	diversion
conflict	ending

for example, a typical detective story has this sequence:

character (not protagonist) intro	a person is walking
conflict	the person is killed
speaker (protagonist) intro	the detective is called in

In Kevin Brooks' paper "Do Story Agents Use Rocking Chairs?" we find an interesting method for deconstructing and constructing stories. Brooks uses narrative primitives based on Branigan's original story sequence elements. Any story can be represented as a connected web of these primitives, or "clips". Each clip has a point of view (POV), usually of one of the characters.

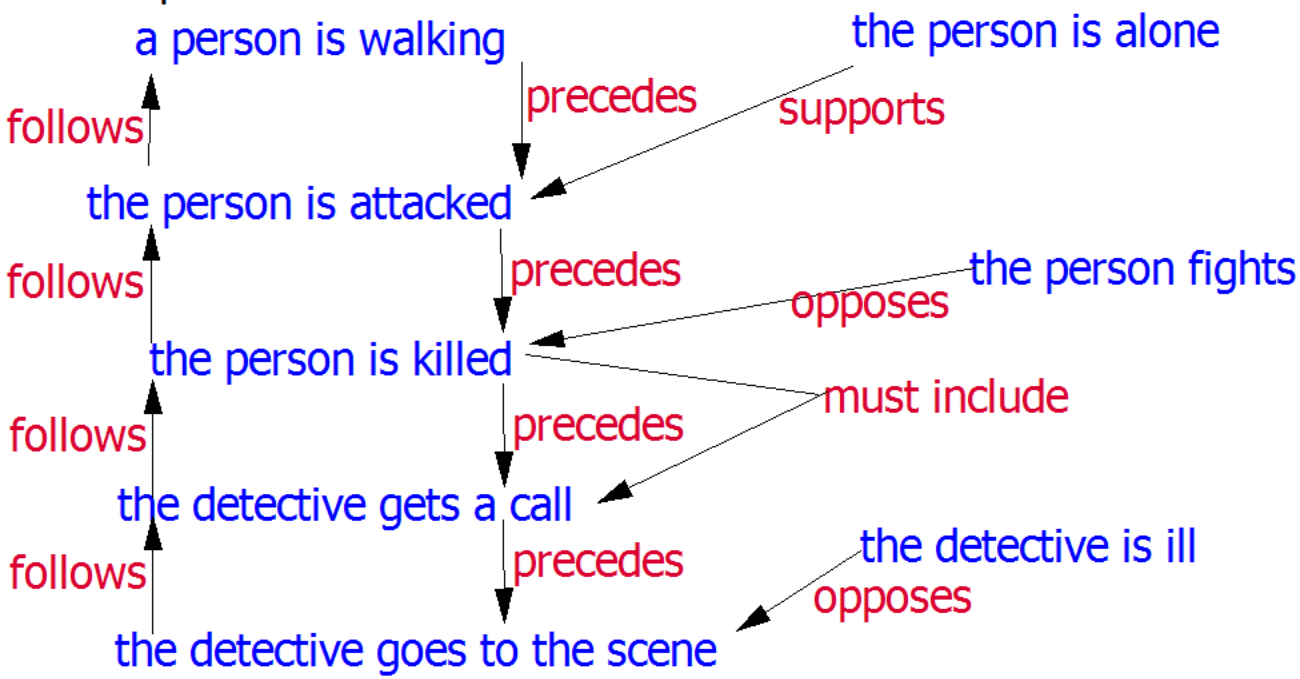
Brooks' Agent Stories system

relationships between primitives

follows
precedes
must include

supports
opposes
conflict<->resolution

for example



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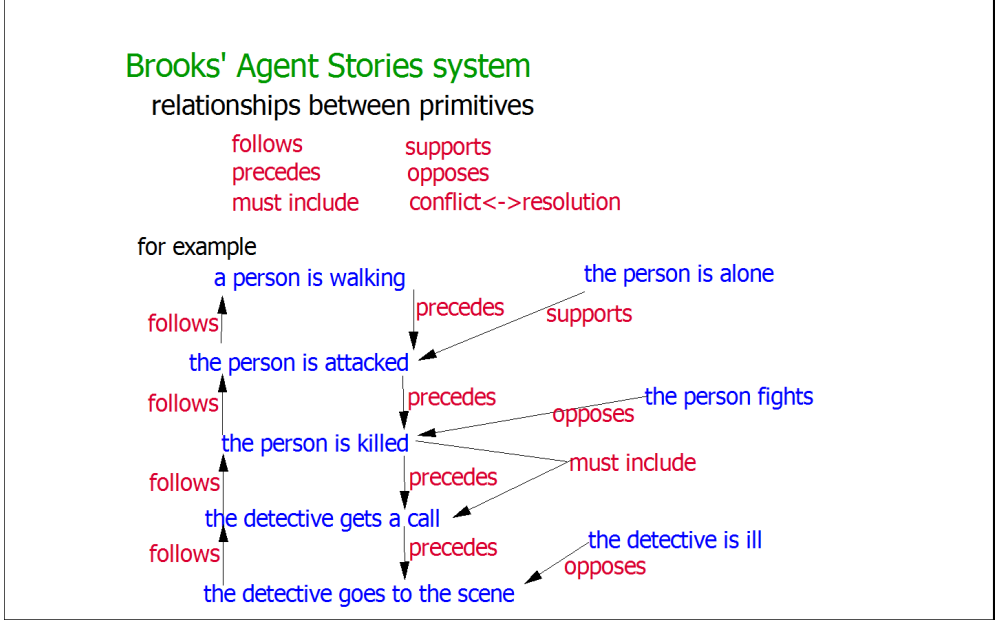


If a story is made up of clips, then, the clips are related by relationships. Brooks proposes that all of these relationships can fall into a limited list (of which he gives only "examples", so there are probably more).

The follows and precedes relationships merely say that when one element exists, it must follow or precede another. They don't require that the other element exist. This relationship deals with timing only.

The must include relationship, on the other hand, means that one element can only occur in the story if the other element occurs. It is a dependent relationship.

The conflict<>resolution relationship specifies that if one element is a conflict, the other element is the resolution of that conflict. For example, the element "I have to go to work, but I am still sleeping" represents a conflict, and the element "my alarm clock rings and I wake up" resolves the conflict.

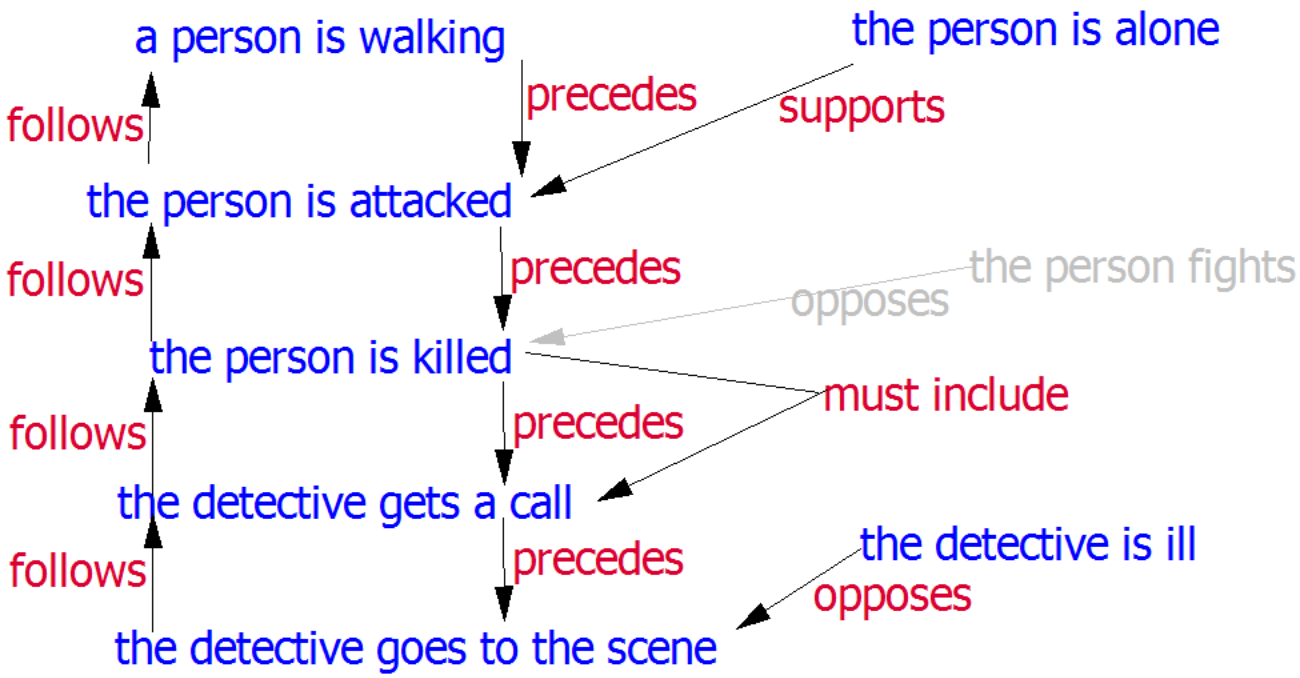
The supports and opposes relationships modify conflicts and resolutions based on differing points of view. For example, one character's clip may oppose the resolution of a conflict while another character's clip may support the resolution. To some extent this allows the interaction of characters within the story.

Brooks' Agent Stories system

storytelling style

agent styles are preferences for relationship types
different agents tell different stories from same set of primitives

for example, a storyteller might only consider supporting information:



With a web of information in clips and relationships between them, a storytelling agent can construct a story based on rules that create its storytelling style. For example, an agent might try to tell stories with little conflict in them; or an agent might give great weight to the clips related to the protagonist and consider the contributions of the antagonist only peripherally. Using rules to govern a storyteller's behavior is a way to construct different stories for different purposes.

ASK system

Topics are connected by links based on:

no world knowledge

refocusing

- context — Give me background!
- current topic
- specifics — Give me details!

comparison

- analogies — Give me an example!
- current topic
- alternatives — Give me alternatives!

world knowledge

causality

- causes — What led to this?
- current topic
- results — What is next?

advice

- opportunities — What can be done?
- current topic
- warnings — What should be avoided?

Engines for Education

(notes too long to fit, see next page)

Another system of story deconstruction geared more toward indexing stories than constructing them is the ASK system developed by Roger Schank's group working at Northwestern University (Cleary & Bareiss 1996).

The ASK system works by linking topics by a hierarchical set of questions based on an analysis of the reasons people move from one topic to another in a hypertext work. Each pair of link types represents two opposing directions you might want to move in the subject of the larger group. For example, context and specifics are opposing forces.

The first two major groups of link types have to do mainly with comparing any group of topics, and do not require that the topics contain any particular knowledge about the world.

If you need to refocus, you either want more context (zooming out) or more details (zooming in).

If you need to compare topics, you either need to find similar topics (analogies or examples) or you need to find dissimilar topics (alternatives).

The second two major groups of link types have to do with relationships between topics based on their meaning in the real world, not just in a simpler relation.

If you need to explore a causal relationship, you either need to find topics that contain the cause of the current topic, or you need to find topics that contain something resulting from the current topic.

If you want advice about the real world connected to the item you just read, you either need to find things you should do as a result (opportunities) or things you should avoid doing as a result (warnings).

The Engines for Education project is a hypertext book about education that uses the ASK system to link topics.

ASK system

simple concept linking

The Shepherd's Boy and the Wolf

A Shepherd-boy, who watched a flock of sheep near a village, brought out the villagers three or four times by crying out, "Wolf! Wolf!" and when his neighbors came to help him, laughed at them for their pains. The Wolf, however, did truly come at last. The Shepherd-boy, now really alarmed, shouted in an agony of terror: "Pray, do come and help me; the Wolf is killing the sheep"; but no one paid any heed to his cries, nor rendered any assistance. The Wolf, having no cause of fear, at his leisure lacerated or destroyed the whole flock.

There is no believing a liar, even when he speaks the truth.

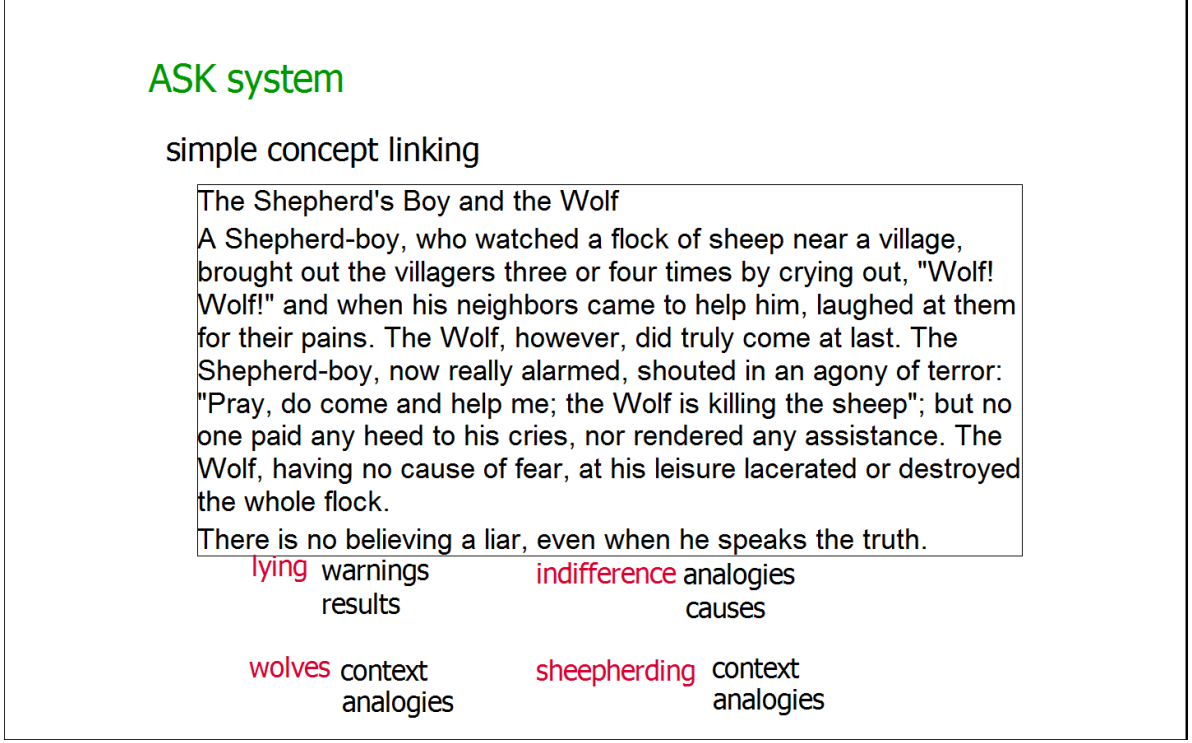
lying warnings
results

indifference analogies
causes

wolves context
analogies

sheepherding context
analogies

(notes too long to fit, see next page)



The first type of linking the developers of the ASK system did was using simple concept linking. People who knew the subject matter of the topics would simply come up with concepts that were mentioned in the topic and choose a link type for each. (I'm using here an example of a story (Aesop's) to see how this could be used to link stories together in a storybase.)

This story could be led to by looking for warnings about lying and for results of lying.

This story could be led to by looking for more context about wolves (actually about the role of wolves in folk tales) and for examples of stories about wolves.

This story could be led to by looking for examples of indifference (to the wolf's attack) and for the causes of indifference.

This story could be led to by looking for more context about sheepherding and for examples of it.

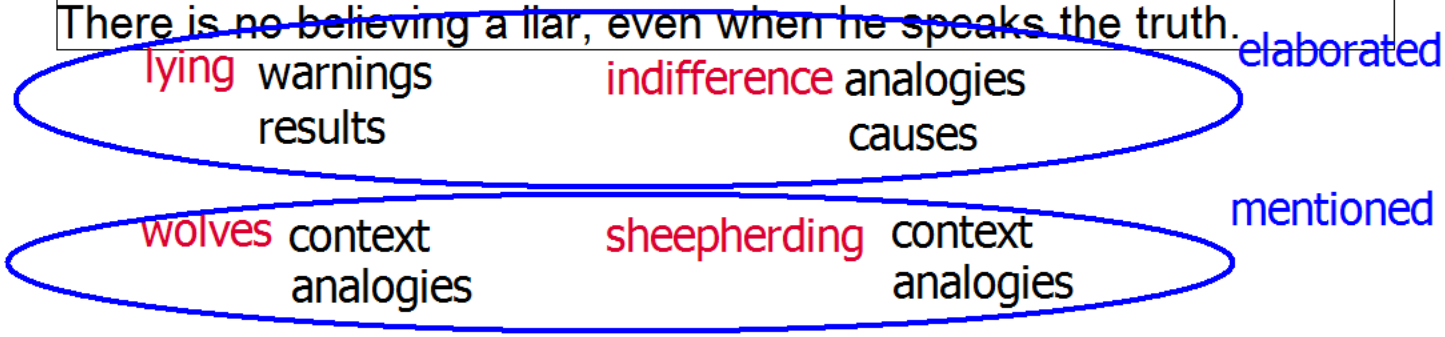
ASK system

elaborated concept linking

The Shepherd's Boy and the Wolf

A Shepherd-boy, who watched a flock of sheep near a village, brought out the villagers three or four times by crying out, "Wolf! Wolf!" and when his neighbors came to help him, laughed at them for their pains. The Wolf, however, did truly come at last. The Shepherd-boy, now really alarmed, shouted in an agony of terror: "Pray, do come and help me; the Wolf is killing the sheep"; but no one paid any heed to his cries, nor rendered any assistance. The Wolf, having no cause of fear, at his leisure lacerated or destroyed the whole flock.

There is no believing a liar, even when he speaks the truth.



An important improvement in the way topics are linked came when the authors made a distinction between concepts merely mentioned in a topic and those elaborated upon.

So in the "boy who cried wolf" example, the fact that wolves and sheep were in the story is incidental to the meaning and usefulness of the story -- it could have been lions and goats and the deeper meaning would have been the same. So wolves and sheepherding are merely mentioned concepts. In the improved system, only elaborated links (lying and indifference) are used to link topics.

ASK system

point linking -- guided concept creation

The Shepherd's Boy and the Wolf

A Shepherd-boy, who watched a flock of sheep near a village,

ying out, "Wolf!

, laughed at them

e at last. The

agony of terror:

ne sheep"; but no

assistance. The

rated or destroyed

s the truth.

concept 1	**(any concept)**	**lying**
mode	**do, should, can**	**can**
sense	**indeed, not, anti**	**indeed**
relation	**(from long list)**	**result in**
concept 2	**(any concept)**	**indifference to needs**

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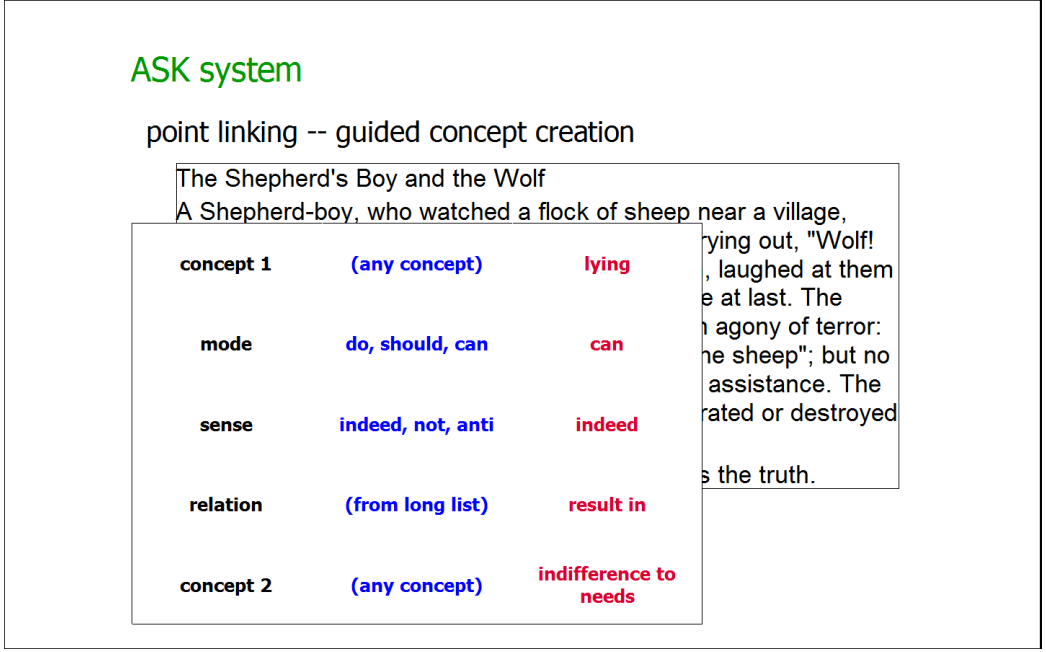


Another improvement in the concept linking system came when the authors developed a guided concept creation system for creating the actual concepts which are linked together. This was done to help novices to build concepts and links.

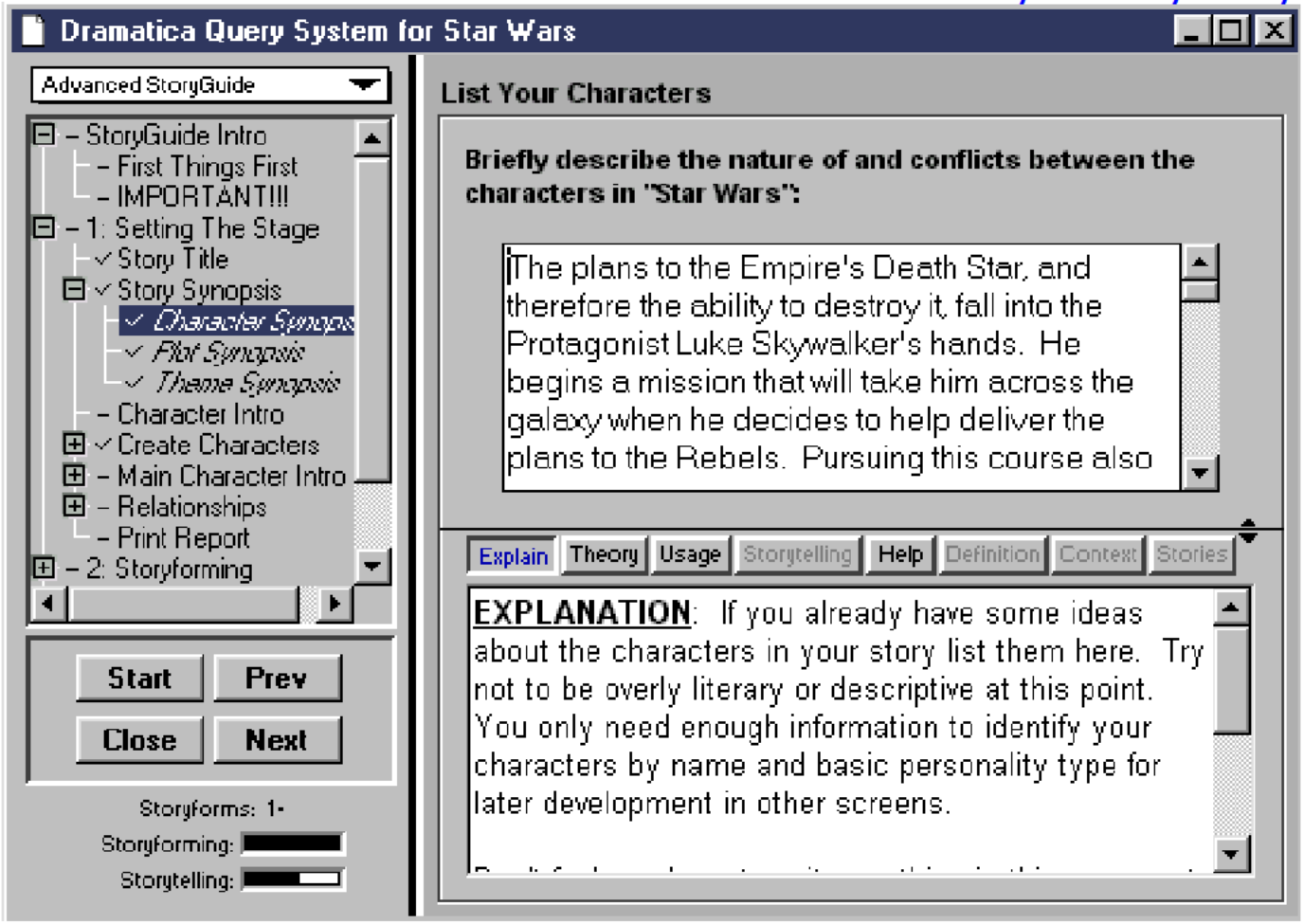
Basically guided concept creation works by forming a statement by concatenating a series of choices from lists, like this:

1. Choose a concept.
2. Choose a mode with which the concept will be linked to another concept -- from the fixed list [do, should, can].
3. Choose a sense that will modify the mode to provide more subtle meanings -- from the fixed list [indeed, not, anti].
4. Choose a relation that will link the two concepts -- from a list of about 30 fixed relations (e.g., Attribute, Domain, Event, Goal, Change, Role...).
5. Choose a second concept.

This method improved the quality of concept and link mapping by novices.

Dramatica Pro

many questions and forms
guided analysis of the story
theory of story analysis



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Dramatica Pro

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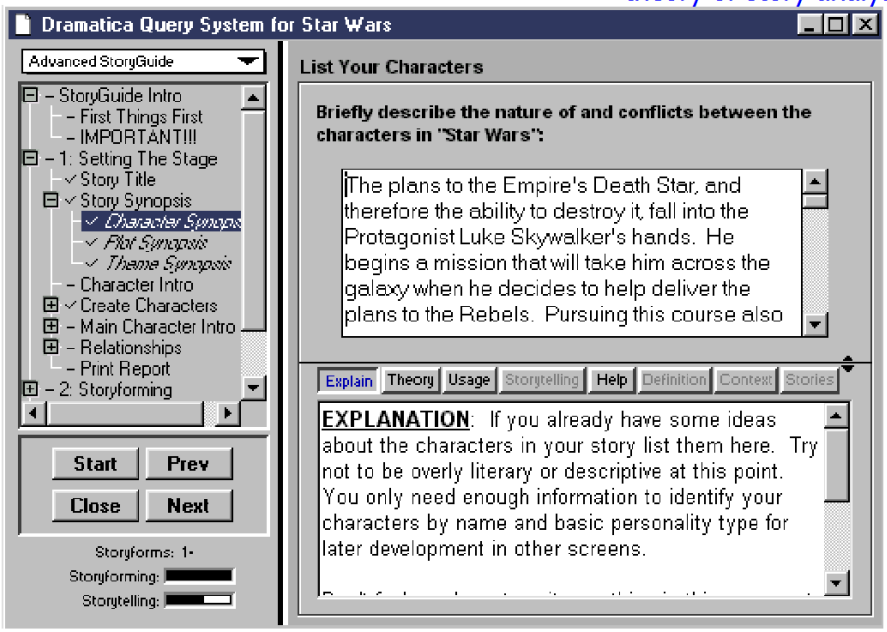


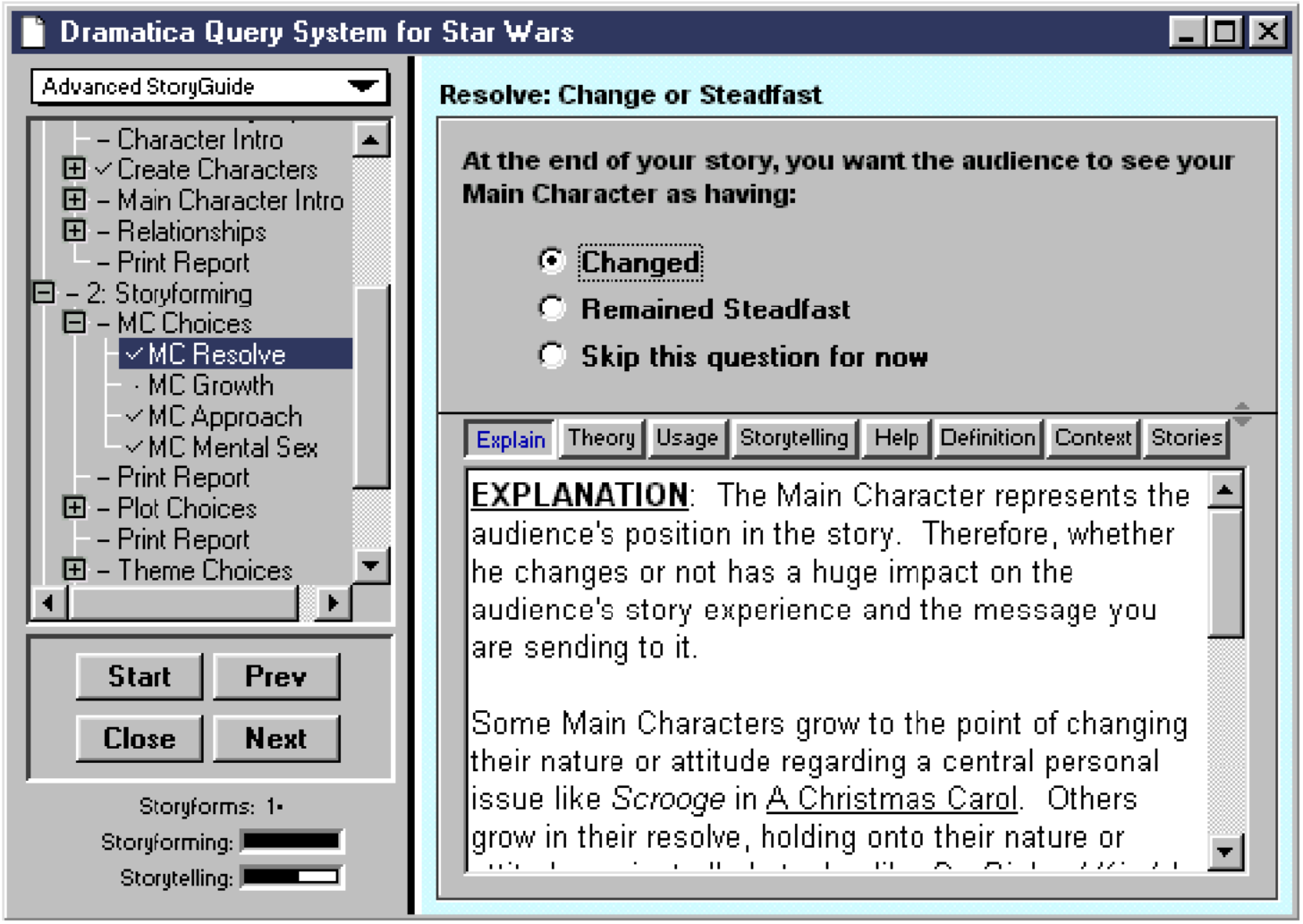
Dramatica Pro is a software program and a theory of story development. The main component of Dramatica is a guided question-and-answer system in which a story is examined thoroughly in many dimensions. The software doesn't write a story, and it can't fix a bad story, but it does cause you to think about a story you have already in mind. It helps you to shape the story more carefully than without the analysis.

For example, I tried out the Dramatica software by starting to answer the questions with a well-known story in mind -- Little Red Riding Hood. After answering about a quarter of the questions available, I felt that I understood the old folk tale much better than I ever had before. Actually, I'd never really thought deeply about Little Red Riding Hood, and answering the questions led me to a deeper understanding.

Going through the entire query system does take a lot of time, though. It took me about an hour to finish only about a quarter of the questions for Little Red Riding Hood. For a more complex story it would take even longer.

Dramatica Pro

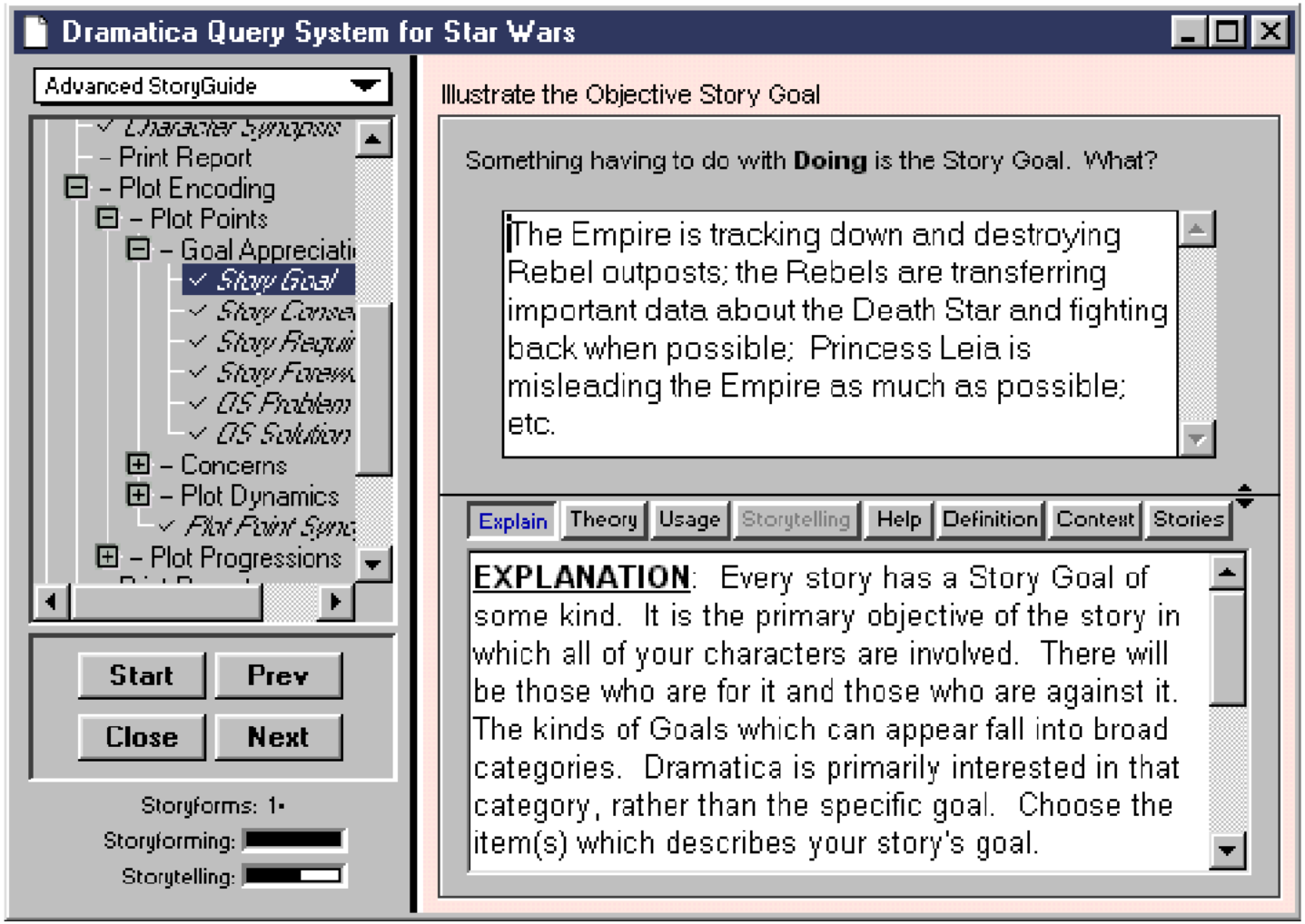
character development



The development of characters through the story is analyzed both through descriptions of different aspects of the characters and through specific questions about how the characters change or develop throughout the story.

Dramatica Pro

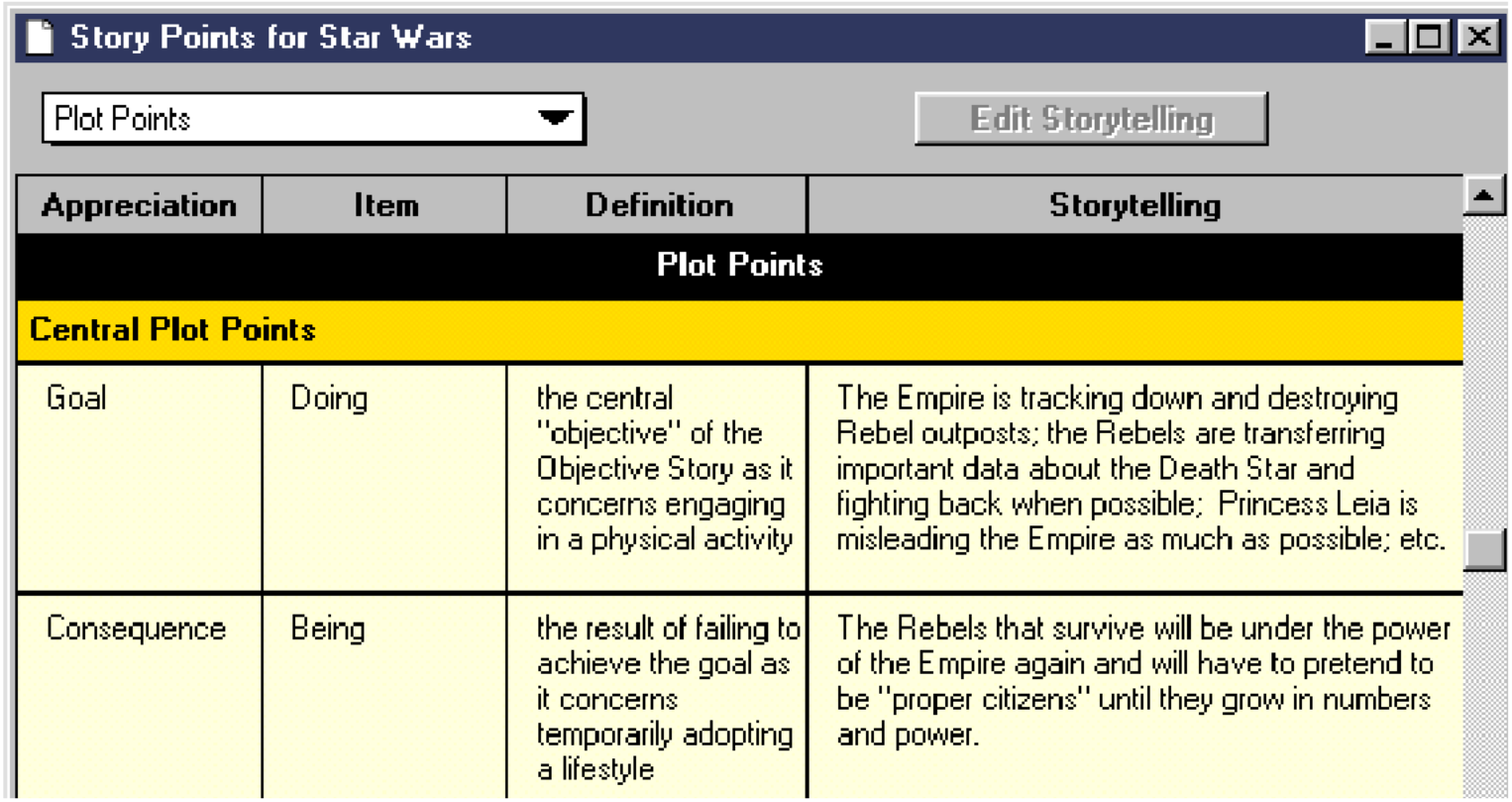
plot development



Plot development is analyzed mainly by choosing domains in which the plot takes place and thinking about how the plot moves through those domains.

Dramatica Pro

summary reports

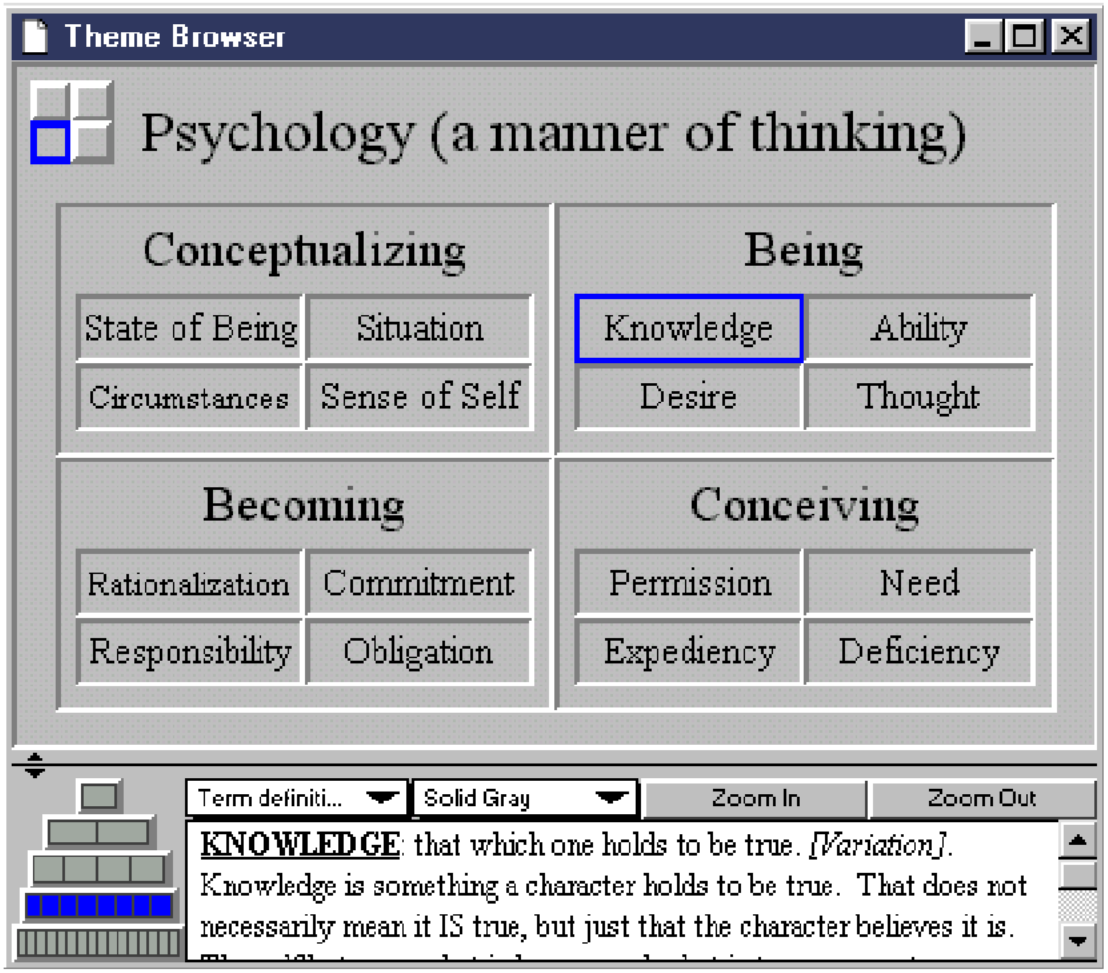


Appreciation	Item	Definition	Storytelling
Plot Points			
Central Plot Points			
Goal	Doing	the central "objective" of the Objective Story as it concerns engaging in a physical activity	The Empire is tracking down and destroying Rebel outposts; the Rebels are transferring important data about the Death Star and fighting back when possible; Princess Leia is misleading the Empire as much as possible; etc.
Consequence	Being	the result of failing to achieve the goal as it concerns temporarily adopting a lifestyle	The Rebels that survive will be under the power of the Empire again and will have to pretend to be "proper citizens" until they grow in numbers and power.

When the exhaustive questionnaire is complete, Dramatica produces a set of reports that link up the answers you gave to questions. The reports become meta-data or supporting material for the story itself. The real benefit of using Dramatica is not in the reports themselves, though; it's in the creation of the reports. The thinking you have to do when answering the questions helps you to put the story through its paces and find the gaps and weak points.

Dramatica Pro

vocabulary of story analysis
system of annotation
teaching tool



Part of the Dramatica system is a complex vocabulary of concepts which are used as referents.

Dramatica Pro

What can we learn from this?

guided query is a useful way to analyze (and maybe to deconstruct) a story

but guided query takes time

much interesting conceptual space here

possibly useful to reference for simpler tools

The Dramatica system is very involved, but it seems that there are some useful concepts here for deconstructing, indexing and constructing stories. Guided query (similar to conversational exploration) might be a useful way to design tools that help human users to index stories in a group.

Storybook Weaver

story-writing tool for children

Storybook Weaver is another story-writing system, this time for children, that has some interesting aspects which might be useful in thinking mainly about constructing stories using elements.

If one were making a sort of word processor for stories, for adults, some of the features of Storybook Weaver might be useful.

(Note: These screen shots are from an older, "classic" version of Storybook Weaver, not the most recent version.) *(“Recent” meaning 1999.)*

Storybook Weaver

choose a scene
many combinations above and below horizon

Storybook Weaver uses a page-based interface, where you design each page of your "book" separately.

To start your story in Storybook Weaver, you choose a background scene. This is done cleverly by using the fact that the horizon line is a reasonable place to separate any scene. Using two pictures separated at the horizon, a library of drawn scenes has a much larger combinatorial size. In this example I chose upper and lower parts of the same scene (a garden), but then I changed the upper part of the scene to a plain sky. The drawings are specifically engineered to fit together as neatly as possible.

Storybook Weaver

add objects (people, animals, furniture, etc) to scene

After you have a scene, you place objects on the scene: people, animals, furniture, buildings, artifacts. There are large clip art libraries to choose from.

After you place objects in the scene you can resize them, flip them, paint on them, and actually choose a different color for them (the software remaps the colors in the bitmap, so that you can for example make the camel purple).

It's easy to copy a page to the next unchanged, so you can create an effect sort of like a flip-book animation.

Storybook Weaver

add words, sounds, music

After you've composed your picture with a background and objects, you add the page text below the picture. The program will insert the name of any object in the picture into the page text when you click on a special "spell it" button.

You can also add sounds and music to objects and pages. If you add sound to objects, the sound plays when the book reader clicks on the object.

Storybook Weaver

What can we learn from this?

given a large set of pictures, people can put together stories using shared metaphors

putting together stories this way might be a good way to help people brainstorm and come up with stories

might be difficult to do this for corporate stories; metaphors might be more restricted set

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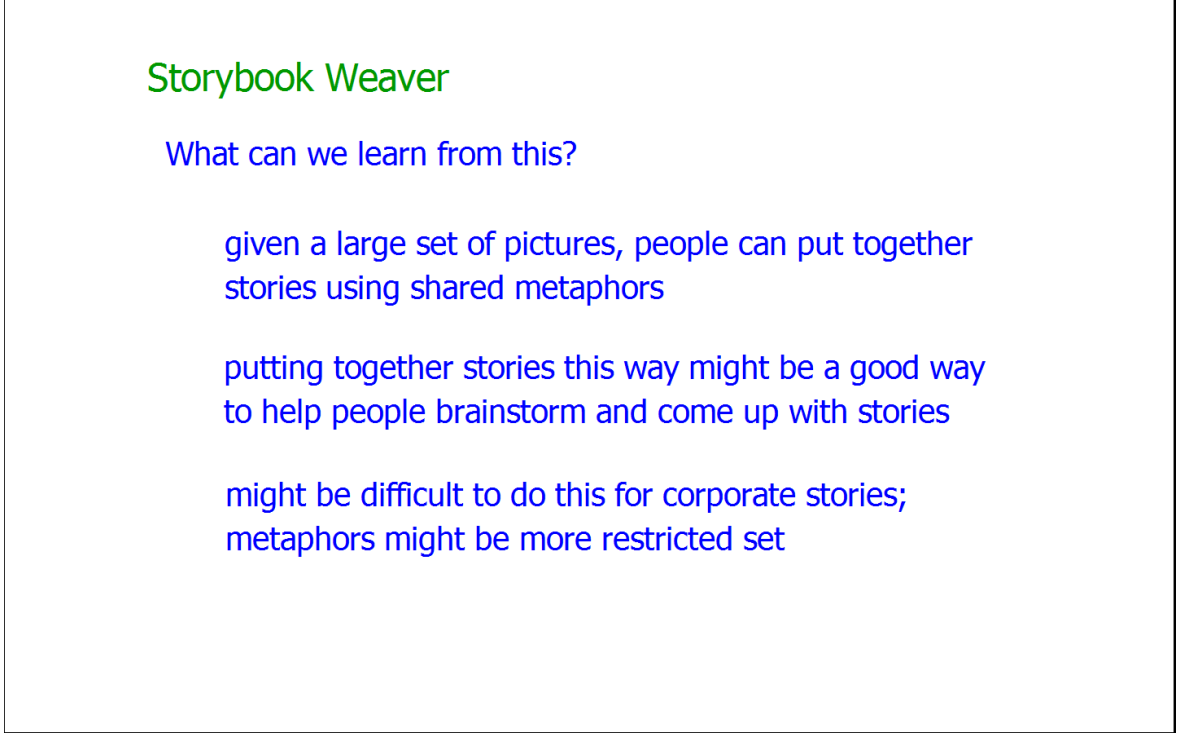


What can we learn from this children's program in the context of business story construction?
As an experiment, I tried to take a business story (about a consulting project) and create a story with Storybook Weaver. Aside from the obvious problems that no corporate backgrounds were included in the scene library and that assembling something that looked like a conference room or office from the available objects was difficult, there were still other problems. Many business situations do not lend themselves easily to pictures, because the topics discussed are more subtle. For example, how would you illustrate a story about convincing a client to try a new research methodology? Is there a simple picture for something like that?

I felt that pictoral tools for story building are useful when the topics are grounded in real-world objects and when the concepts are simple, but that much of the knowledge contained in business-related stories is too complex to be dealt with in this way. It is possible that a sort of adult Storybook Weaver for Business, with adequate and well-positioned pictures, might be useful as a brainstorming tool -- but not for all situations.

What I think we can learn from looking at Storybook Weaver is that an adult story construction kit might include some of the same functional features: a large set of source materials; several options for sensory modality; a limited world with some rules; help with common problems (like spelling the names of objects); and a forum for expression.

What can we learn from all of these systems?

It is possible to devise systems for indexing and linking stories.

Tools can aid in the process, but people have to spend time thinking about the stories.

Spending time thinking about stories is not necessarily a bad thing.

Tools that help people to write stories can also help them to deconstruct and classify stories.

These tools can also help people to become better storytellers.

These are some conclusions from looking at all of the systems presented here.

References

Agent Stories (Brooks 1996)

Brooks, Kevin. 1996. Do Story Agents Use Rocking Chairs? ACM Multimedia 1996.

ASK (Cleary & Bareiss 1996)

Engines for Education:
http://www.ils.nwu.edu/~e_for_e/

Cleary, C. & R. Bareiss. 1996. Practical Methods for Automatically Generating Typed Links. ACM Conference on Hypertext 1996.

Dramatica Pro

http://www.dramatica.com

Storybook Weaver

http://www.learningco.com

These are references to the works mentioned here.

Stories and virtual communities

Knowledge Socialization Group

IBM Research

June 1999

http://www.research.ibm.com/knowsoc

This is part of a talk given at the T.J. Watson IBM Research Center at Hawthorne, NY on June 14, 1999 by Cynthia Kurtz in the Knowledge Socialization group of IBM Research.

Stories and virtual communities

Can virtual communities
support and enhance
storytelling in organizations?

How?

As people working on project teams become more spatially separated, computer-supported collaborative work (CSCW) is becoming more of an essential technology. Telling stories is one of the most important ways people communicate informally in any organization.

How does using the computer as the primary mode of communication affect the tacit knowledge transfer that occurs in storytelling? Is it possible for virtual communities to support and enhance storytelling? What are the qualities of a virtual community that would do so?

Stories and virtual communities

selected papers

- Alexander (Pattern Language) 1977
- Masinter & Ostrom 1993
- Wilkins 1984

slides

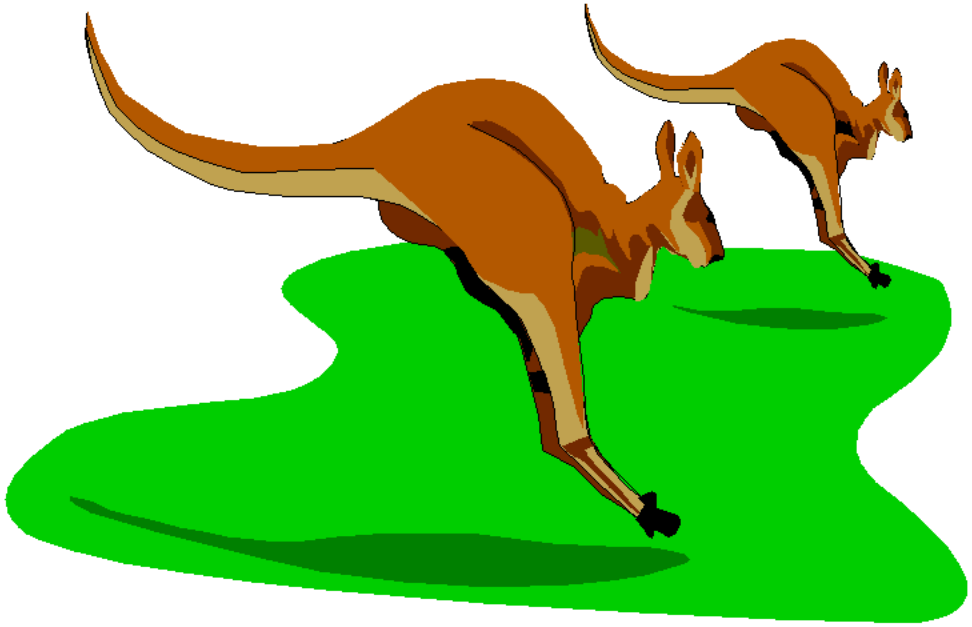
- Natural habitat of stories
- Work environment
- Digital libraries
- Constructivism
- Shared storytelling culture

These are the titles that stood out most in my review of this subject and that I'll mention in this presentation. The slides will follow roughly the outline here. Full references can be found at the end of the talk.

Stories and virtual communities

Caution:

Opinions, generalizations and
wild leaps of speculation ahead.

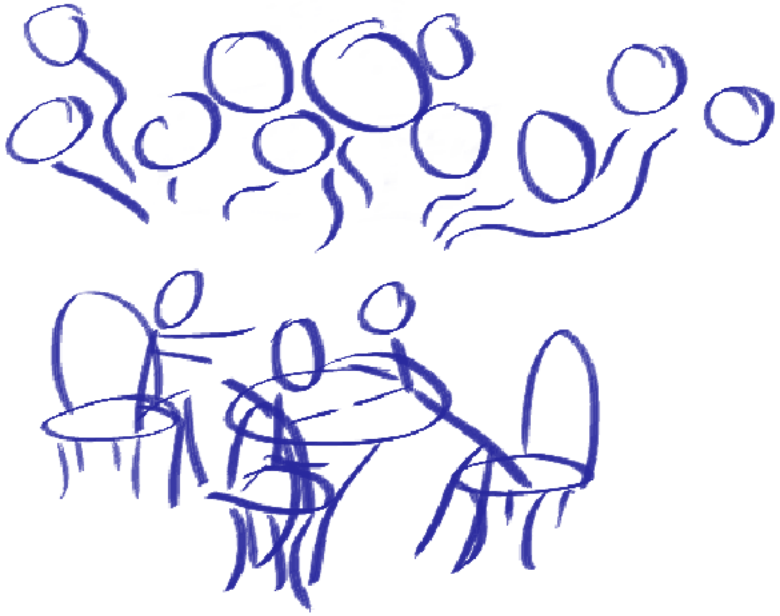


This portion of this four-part presentation is only partially factual; some slides give my own opinions and speculations only.

Why? Partly because I like this field and have some opinions about it. Partly because it seems the field of virtual communities is one that people tend to develop more definite opinions about. Some people like them more than others. Perhaps it has something to do with inherent differences in our social selves.

Natural habitat of stories

If stories were an endangered species
and you wanted to create a story wildlife preserve,
how would you design it?



Stories thrive in

groups of people

in frequent and persistent contact

in a shared culture.

(notes too long to fit, see next page)

Natural habitat of stories

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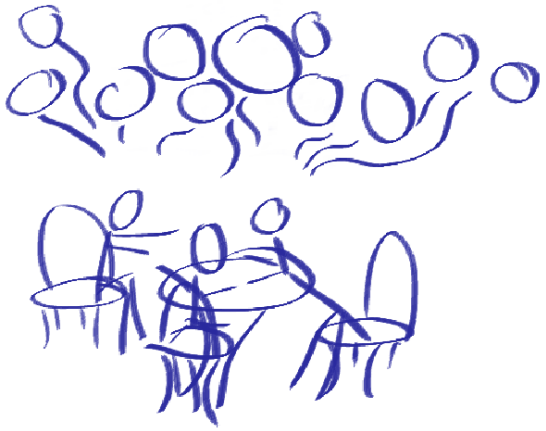


Stories thrive in

groups of people

in frequent and persistent contact

in a shared culture.

Let's take it for granted that stories are an important mode of informal communication in organizations. Using biological terms, then, stories are important to the health of the organization as an ecosystem. Now let's assume that stories are becoming endangered in an organization. Say you wanted to create a story preserve, where stories could flourish and recover in a supportive habitat. What sort of habitat would you build?

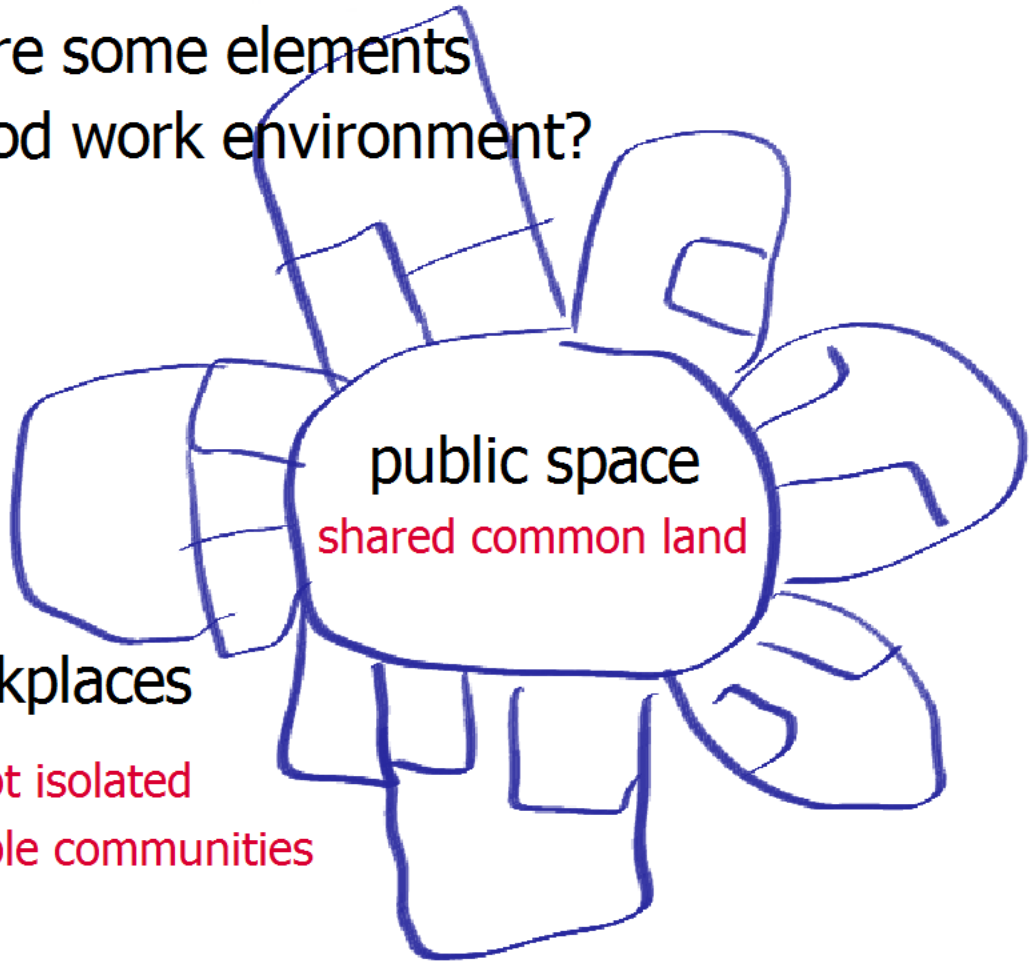
I suggest that stories are most likely to survive and prosper only where people are found. And not just one person -- many people, in groups large enough to interact in interesting ways but small enough to share a common culture and history.

The stories would also need a certain type of interaction between the people: they would need for the people to interact often (so stories can be passed on before they are forgotten) and over a long period of time (so stories can live a long life).

Work environment

What are some elements
of a good work environment?

Alexander:



clustered workplaces

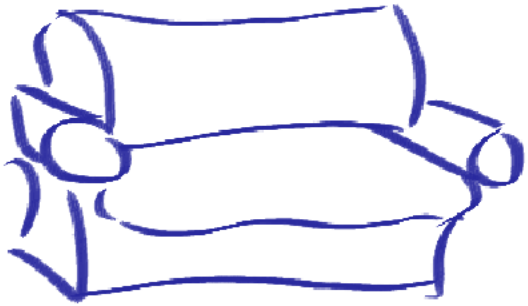
distinct but not isolated
form identifiable communities

In Christopher Alexander's book *A Pattern Language* he outlines what a good work environment should look like. He emphasizes a gradient between public and private space at work.

In particular, he believes it is important to allow people on a team to have a shared space distinct from those of other teams. In this space the team can exchange information important only to that group -- they can tell the team's stories. This leads to a shared identity for the team.

Work environment

What are some elements
of a good work environment?



couches

shared social space

soup

social traditions

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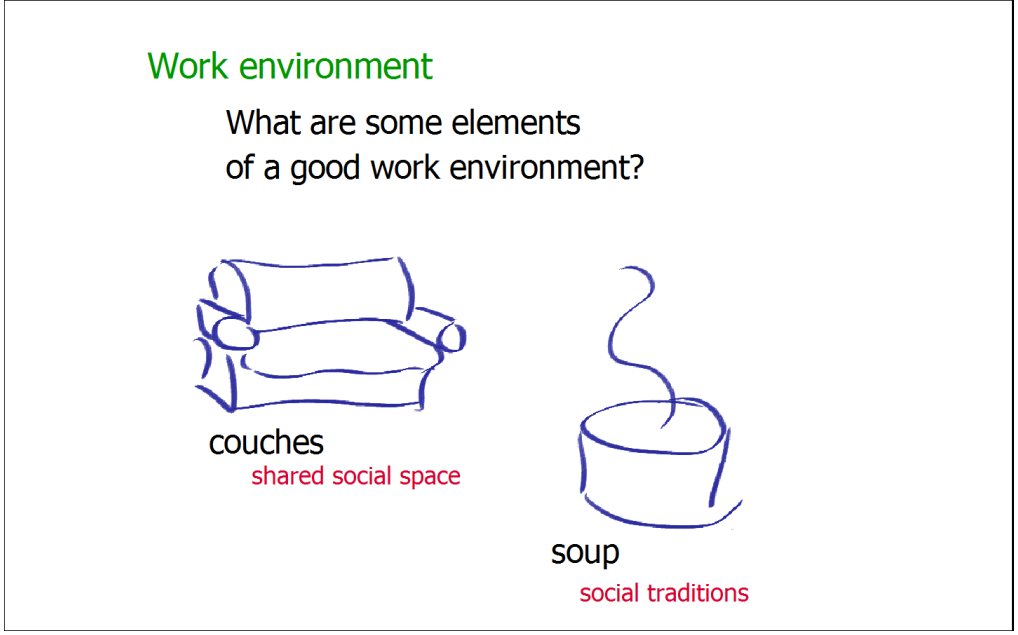


In thinking about a good habitat for stories, I thought back to my years in graduate school, in which it seemed to me that group coherence was very good and the social atmosphere was excellent. Two aspects of that life stand out as important to the communication we had there.

1. In each of several hallways the students placed an old couch (usually dragged from the roadside trash in the middle of the night). Because the couches were old and comfortable, this created a shared space with the obvious purpose of socializing. A lot of ideas (and stories) were generated and exchanged on these couches. Also, since each hallway was the location of one or two professors' labs, the couches represented somewhat distinct sub-group locations as in Alexander's example of group workplaces.

2. Every Friday, lunch was a communal soup made by a student or faculty member. This was a social exercise, but fairly obligatory. In fact, all together there were some six to eight hours per week of obligatory social activity. Not all members of the department went to all of the activities, but it was expected that faculty and students would go to at least some of them. These traditions created a common culture and a time in which much informal information (crucial to work) was exchanged.

So from these experiences I find that stories need not only groups of people, but also traditions in time and space in which they can thrive.

Digital libraries

Masinter & Ostrom:

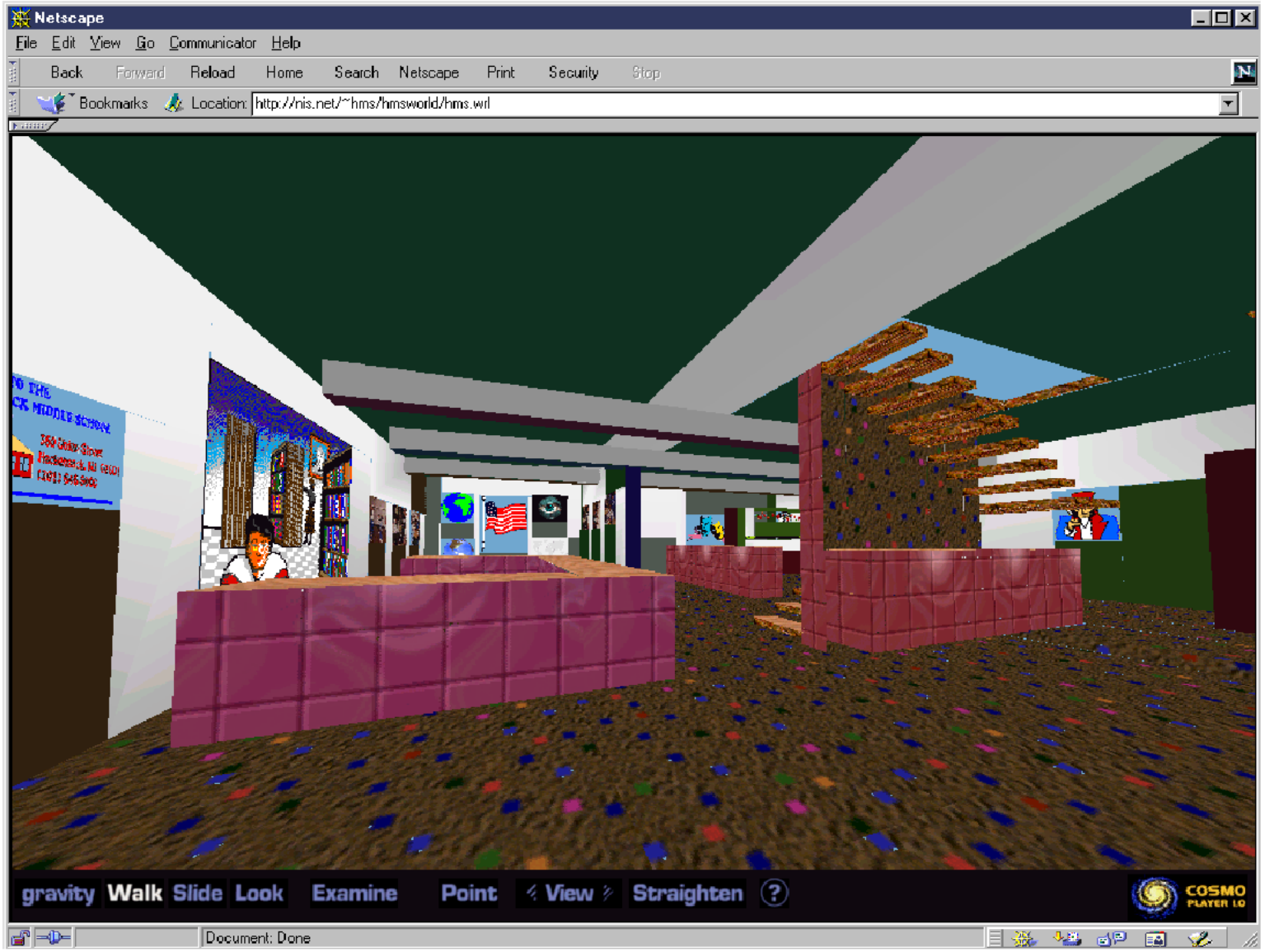
"A typical description of the electronic library is that users will have access to the contents of a local library from home or work ...

However, a library is more than just a pile of books. Libraries are also social spaces. Treating the 'electronic library of the future' as an information repository ignores many of the roles played by current institutions, where library users interact with their friends, colleagues, and professionals to find material that is relevant for them."

To continue following these distinct but converging threads, this slide shows an interesting quote from a paper on virtual communities.

It is typical for emerging technologies to start out by trying to replicate some aspects of existing technologies. Early movies were made simply by placing a movie camera in front of a theatre stage. Only as the technology matured did movies begin to include some of the features we expect today -- panning and zooming; moving between close-up shots and scene-establishing shots; following moving actors with the camera; and so on.

Many of the uses of the computer for information exchange are still sitting in front of the stage: not fully exploiting the features and possibilities of the new medium.



Here's a funny story:

To show an example of an empty virtual library, I went to the Internet and searched for "virtual library" in a search engine. I quickly found this virtual library. But wait, this library was not empty; there was a person behind the desk. I moved closer to the person, clicked on them, tried to find a way to talk to them. Then I turned to the other side of the counter. The person at the desk turned as well -- and then I realized that the person was only painted on the wall behind the desk! Not only was this library empty; it had pictures of fake people on the walls!

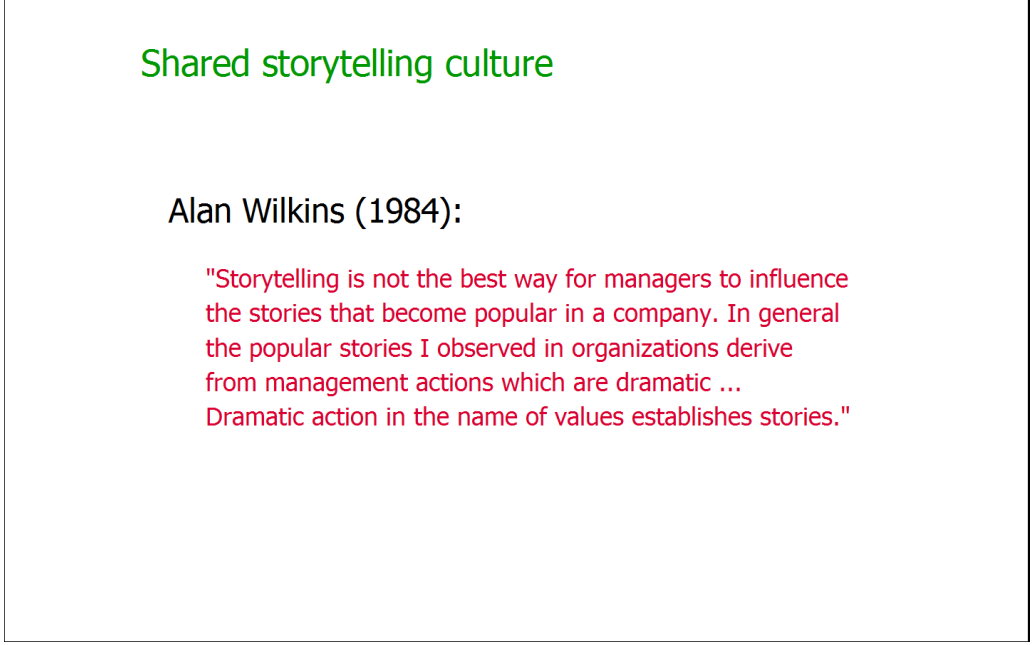
Again, informal information exchange works best when real people are connected in shared space and time.

Shared storytelling culture

Alan Wilkins (1984):

"Storytelling is not the best way for managers to influence the stories that become popular in a company. In general the popular stories I observed in organizations derive from management actions which are dramatic ... Dramatic action in the name of values establishes stories."

(notes too long to fit, see next page)



Here's another interesting quote from a researcher into stories in organizations. In the paper referenced here, Wilkins cautions managers that simply telling stories to people may have a smaller effect than making stories happen.

For example, here's a true story: an IBM manager once implemented cost cutbacks that disallowed first class airline travel unless the flight was very long. This was not a popular policy, as you can guess, especially among frequent fliers. It turned out that on the very day that the new guidelines took effect, the manager had to make an important flight.

A representative of the airline recognized the manager and offered him a free upgrade to first class. The manager thought about it, and decided to decline the offer because of the principle of the thing.

It turned out that several IBM employees were on the flight. During the flight, some of them found him and told him how impressed they were that he was following the new rules. Later he heard the story of that flight told from several sources -- and the new rules were accepted.

Now, one might imagine that the manager could have had some effect by simply telling such a story. But making the story happen (even though it wasn't deliberate, or maybe because it wasn't deliberate) had a much greater effect.

Shared storytelling culture

How do you get people to tell stories?

Make it

possible (a place to tell stories)
and permitted (time and freedom to tell stories)

easy (should come naturally, not awkwardly)
and worth doing (has real value, not a meaningless exercise)

a growing experience (you learn though it)
and comfortable (it's something you look forward to)

One of the biggest problems with virtual communities is getting people to participate. People don't have time; they don't see the value; they don't feel they are allowed; they don't want to bother learning. These are a few things one can do to help.

1. Give people a place to tell stories, but ALSO give them time and permission to do so.
2. Make the system easy to use, but ALSO make it worth doing. If something is not worth learning, it doesn't matter how easy it is to learn.
3. Help people to learn, but ALSO keep the experience from being so difficult (or boring) that people avoid it.

Shared storytelling culture

Connect people
frequently and persistently

Facilitate the emergence of traditions
in space and time

Fill libraries with
books and people

Create an environment in which stories are
told, retold, swapped, elaborated, and created

So to bring all of these threads together, I speculate that a virtual community that supports informal information exchange through storytelling should have these qualities.

1. It should connect people frequently and persistently.
2. It should enable the creation of traditions for social contact in (virtual) space and at specific times.
3. It should create populated libraries, not empty ones -- people and information should be mixed, not separated.
4. It should allow stories to be not only told but also created by the actions of people in the virtual community.
5. It should provide a place and time, a reason, and an opportunity for telling stories.

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Masinter, L. and E. Ostrom. 1993. Collaborative Information Retrieval: Gopher from MOO. Proc. INET '93.

Wilkins 1984

Wilkins, Alan L. 1984. The Creation of Company Cultures: The Role of Stories and Human Resource Systems. Human Resource Management 23(1): 41-60.

These are the references mentioned in this part of the talk.

Story Circles idea

Knowledge Socialization Group

IBM Research

June 1999

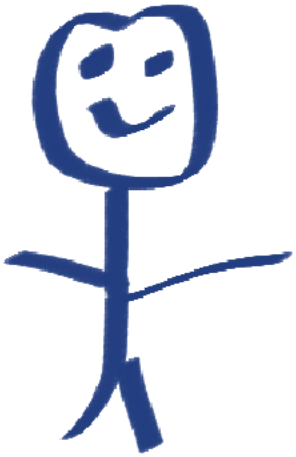
http://www.research.ibm.com/knowsoc

This is part of a talk given at the T.J. Watson IBM Research Center at Hawthorne, NY on June 14, 1999 by Cynthia Kurtz in the Knowledge Socialization group of IBM Research.

Note that this part of the presentation, unlike the others, is not a review of literature in a field. It's a set of ideas about a possible virtual community for storytelling based on constructivist ideas.

Story Circles

If this idea were a person,
it would be about eight years old.



It's not mature, but it's growing.

It's really better described as
a coalescence of ideas into
a form that MIGHT be
interesting.

I've been calling it a "thought project".

This is not a software project, and it's not very likely to become one either. It's more like one of many possibilities that could come out of the convergence of stories and computers.

Constructivism

says:

Build it
and they will come.

Make it possible
and they will come and build it.

There is a school of thought in education and in computer-supported collaborative work that people learn best by building things. The LOGO system is just one example of the many applications of constructivist theory to education. Business use of constructivism has been less strong.

A constructivist approach does not cure all ills, but I will propose here that for the transmission of tacit knowledge through storytelling it has special merit. Why? Mainly because groups of people construct stories already, as part of their natural interaction. Tools that support storytelling must support the construction of stories in groups.

Background on MUDs

MUD = Multi-User Dungeon / Dimension

MOO = MUD Object Oriented

Qualities of a MUD (Curtis 1992)

not goal-oriented (microworld)

multi-user (social)

extensible from within

(notes too long to fit, see next page)

Background on MUDs

MUD = Multi-User Dungeon / Dimension

MOO = MUD Object Oriented

Qualities of a MUD (Curtis 1992)

not goal-oriented (microworld)

multi-user (social)

extensible from within

I'll give a few slides here of background on constructivist virtual communities.

The very first multi-user environments were adventure games somewhat like the Dungeons and Dragons game. The first application of MUDs (multi-user dungeons) were very simple; people just played the game together. At some point someone suggested allowing players to add new rooms to the existing game, and the constructivist virtual community was born.

Today there are thousands of MUDs (and MOOs, the object-oriented equivalent) all over the internet. The activities in these communities range between all gaming and all discussion.

The three main qualities of a MUD are:

1. It has no goal; you can't win. It is usually quite complex inside, though limited, and has its own rules of physicality and conduct. This is much like Papert's definition of a microworld.
2. A MUD has more than one user at a time.
3. A MUD can be added to and changed by its users.

Background on MUDs

Some examples of MUDs

Text-based (many)

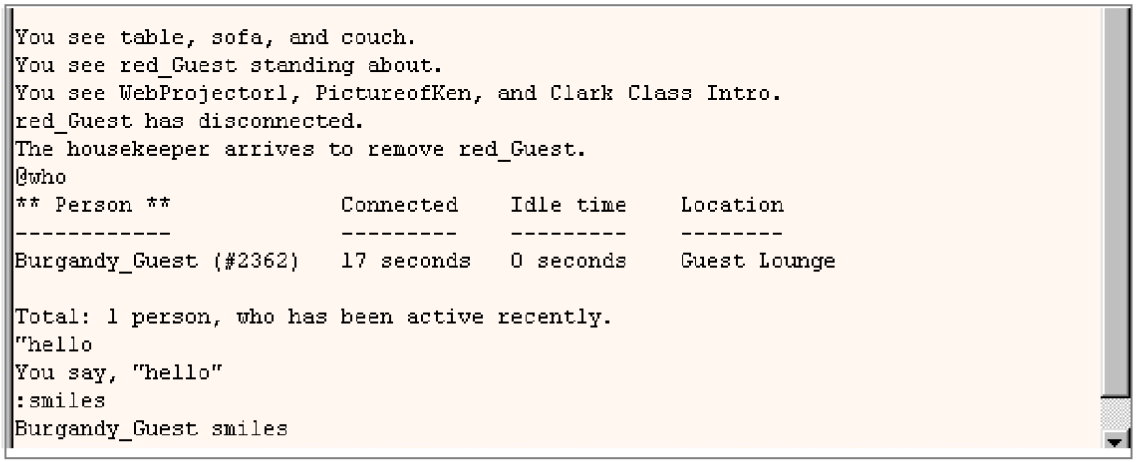
```
You see table, sofa, and couch.
You see red_Guest standing about.
You see WebProjector1, PictureofKen, and Clark Class Intro.
red_Guest has disconnected.
The housekeeper arrives to remove red_Guest.
@who
** Person **              Connected    Idle time    Location
------------              ---------    ---------    --------
Burgandy_Guest (#2362)    17 seconds   0 seconds    Guest Lounge

Total: 1 person, who has been active recently.
"hello
You say, "hello"
:smiles
Burgandy_Guest smiles
```

(notes too long to fit, see next page)

Background on MUDs

Some examples of MUDs

Text-based (many)



Here I'll quickly shows some screen shots from a few randomly-chosen MUDs. This MUD is text-based, like many.

In a text-based MUD there are two main ways of communicating: speaking and emoting.

To speak, you type [say hello], or more simply ["hello]. The system responds with [You say, "hello"], and all other people on the MUD also see this on their screen.

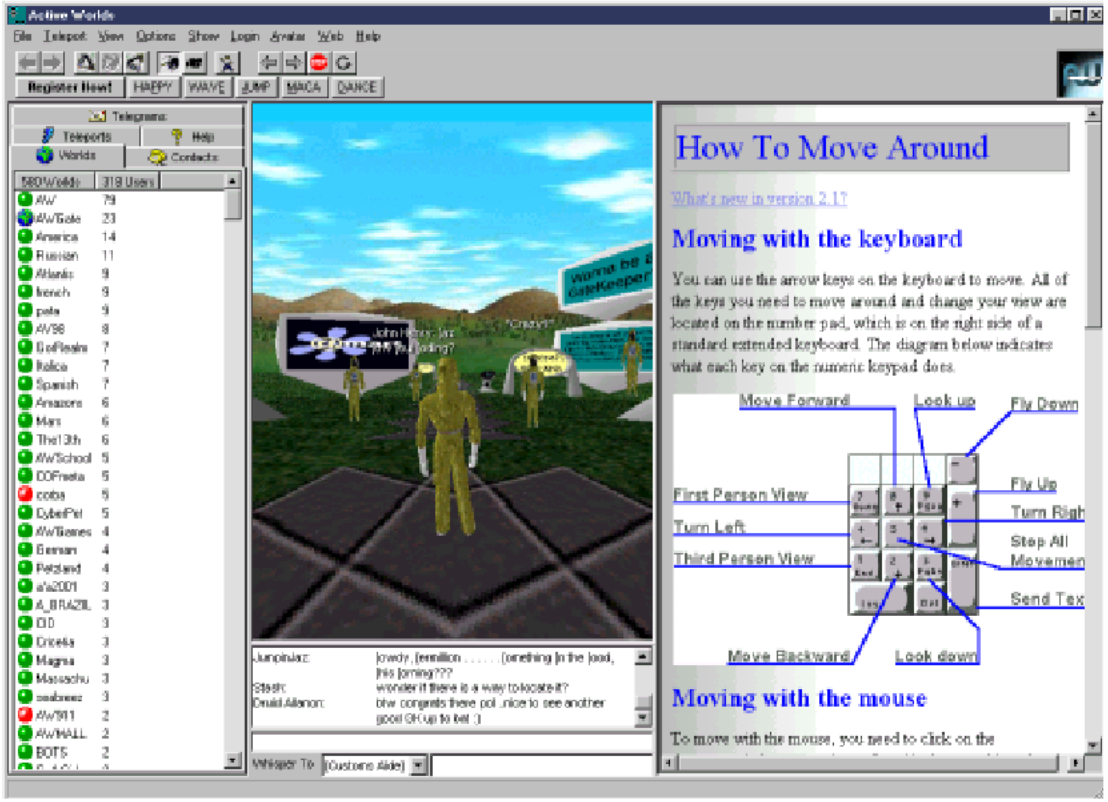
To make something happen without speaking, you type [emote smiles] or simply [:smiles]. Emoting actually makes something happen in the fictional world of the MUD, so when you type [:smiles], you smile. The system responds with [Guest smiles] (if your name is Guest) to you and anyone connected.

Besides speaking and emoting, you can also move between virtual rooms and other areas, interact with objects (such as a virtual tape recorder, slide projector, or computer) and you can create new areas and objects. People create objects and environments and leave them behind for others to find, and they discuss topics in real time.

Background on MUDs

Some examples of MUDs

ActiveWorlds



ActiveWorlds is an example of a visual MUD environment. In ActiveWorlds people are represented by 3D figures, and the texts they speak can appear above their heads. Rooms and spaces appear as 3D environments, with trees, buildings and doors.

In this MUD, the list of worlds to which you can travel (teleport) is shown on the left. In the center of the window is the virtual world in which you are located, with a few people, signs and mountains to be seen. Below the scene is the transcript of chat going on. To the right is a web page describing the world in which you have arrived. These web pages help to orient people in each world and help people decide if they want to spend more time there.

Background on MUDs

Some examples of MUDs

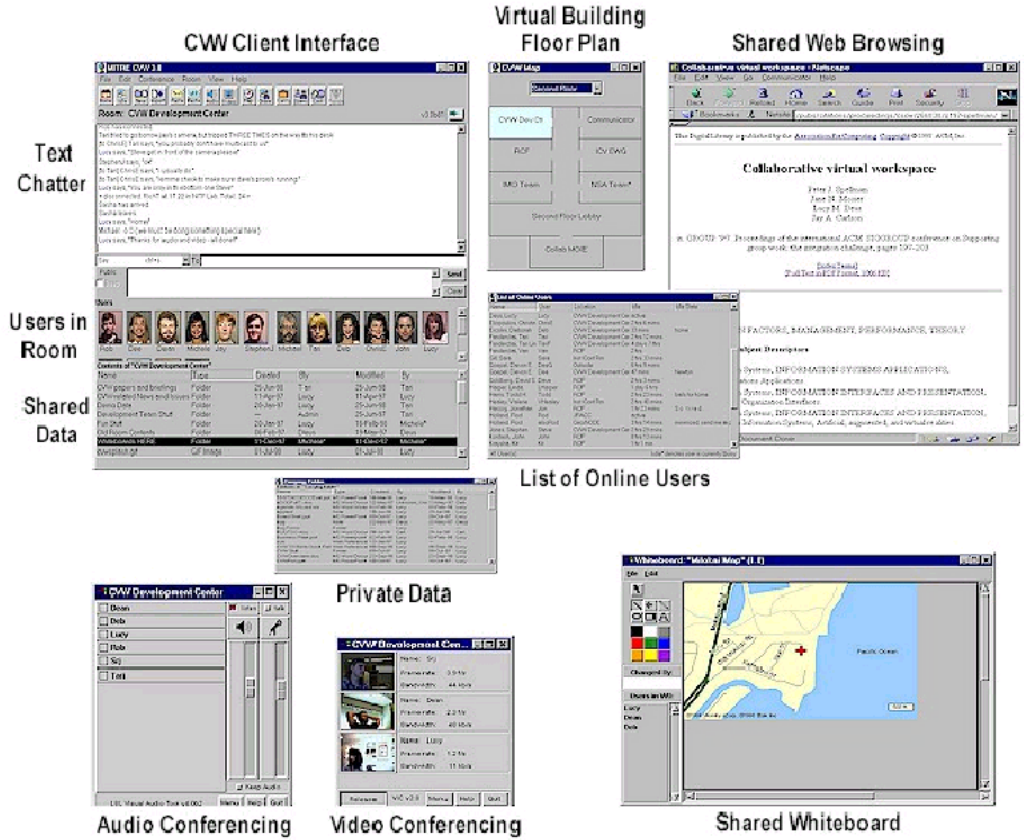
ChibaMOO (The Sprawl)

Here's another visual MUD: the Sprawl. Again people are represented as figures, and chat text is shown below.

Background on MUDs

LambdaMOO -- MITRE

Some examples of MUDs



Here is a virtual world specifically used for business purposes. The MITRE corporation, a large group that does work mainly for the US government, has developed this MUD for business use on top of the LambdaMOO system. This system is an open-source offering.

Note that while many useful elements are here (shared whiteboards and audio/video conferencing), the virtual environment is much less rich than in ActiveWorlds or The Sprawl.

MUD environments have been used for work purposes in several instances besides this one. MediaMOO is such an environment used for communication among media researchers. MUDs have also been used as team communication tools among systems administrators and programmers.

Background on MUDs

Some MUD stories from LucasFilm Habitat

The Big Doll-Crystal Ball Scam

The Giant Egg

Bargaining with Death

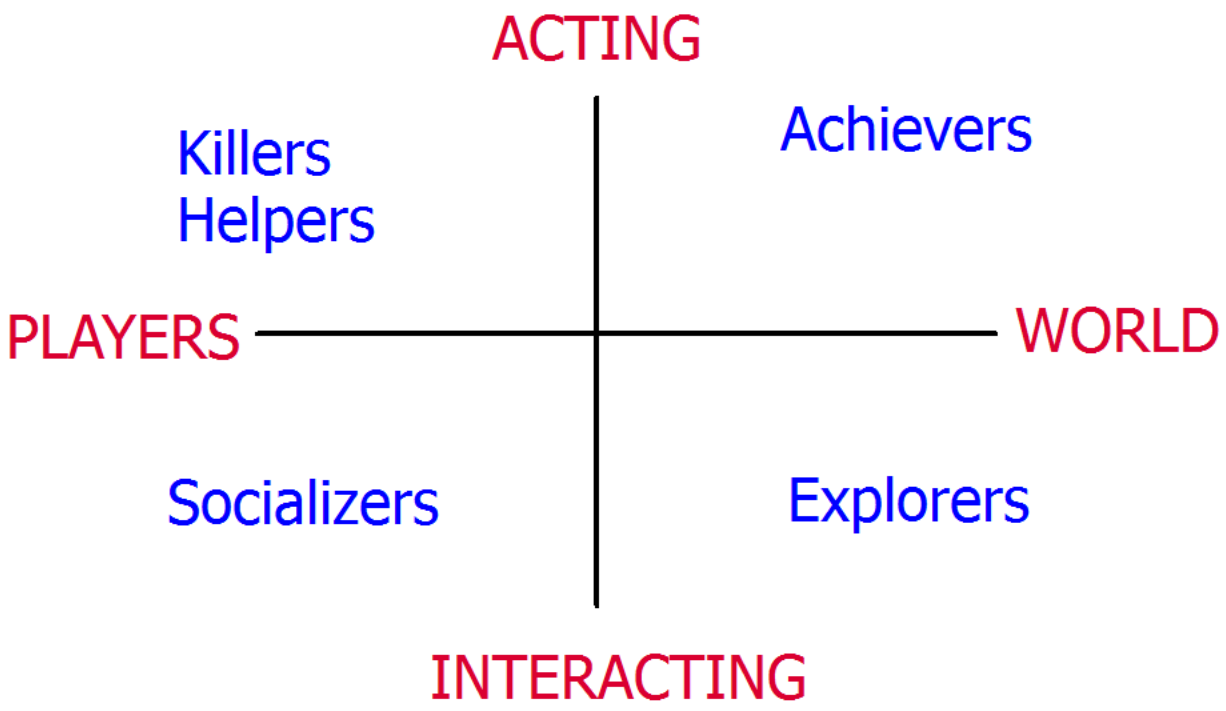
The Church of the Holy Walnut

Most MUDs are places in which stories are often told and created. Usually a shared culture grows up in any MUD, and a set of traditions center around the history of the MUD.

Habitat was a commercial MUD created by the LucasFilm company in the mid-80s. It had thousands of members at the end of its several-year run. One of the "oracles" or administrators of the Habitat system recounted some of the most famous stories from Habitat in a paper (reference given later). I won't tell the stories here, but you can find the paper online and read it yourself.

Background on MUDs

Personality types on MUDs (Bartle 1996)



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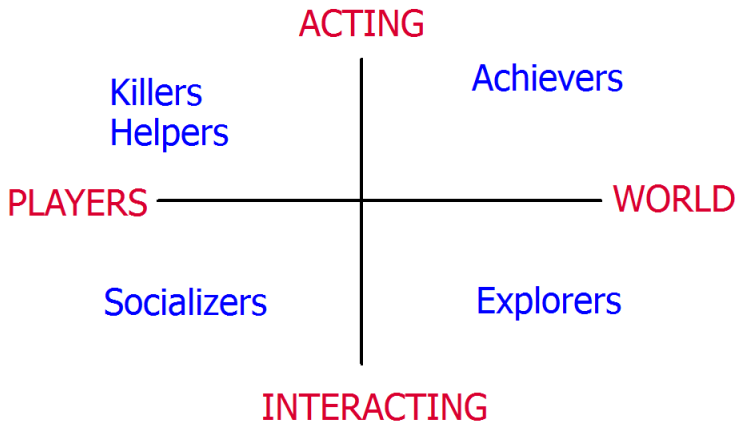
Background on MUDs

Personality types on MUDs (Bartle 1996)



In a fascinating study of MUD users based partly on surveys and partly on discussion within a MUD, Bartle (1996) divided MUD users into four personality types. He placed these four types on two axes. The horizontal axis, players vs. world, is similar to the typical task vs. people oriented axis often used in psychology. The vertical axis, acting vs. interacting, is something like an active vs. passive dichotomy.

The achievers want to affect the environment. Typically in MUDs achievers build things. Bartle says that achievers say things like, "Only 4211 points to go!"

The explorers want to play with the environment. Typically in MUDs explorers solve puzzles and map out new areas. Explorers say things like, "You mean you *don't know* the shortest route from here to there?"

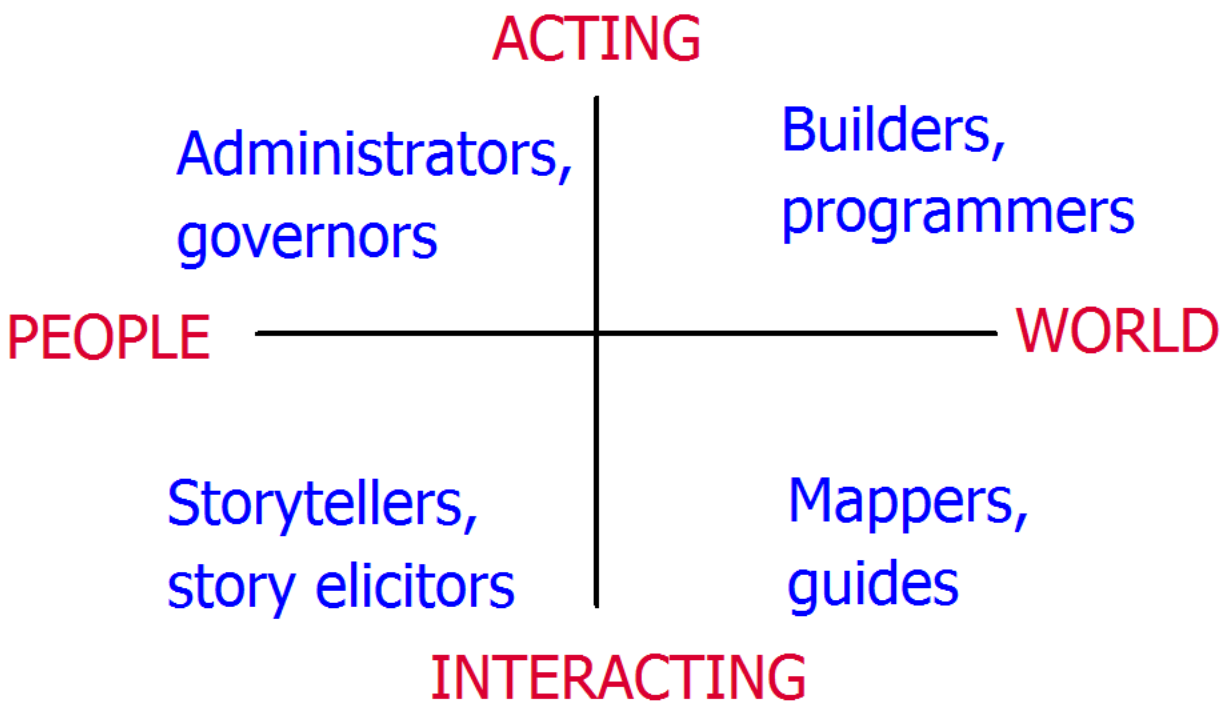
The socializers want to play with other people. Typically in MUDs socializers ignore the environment and just talk. Socializers say things like, "Yeah, well, I'm having trouble with my boyfriend."

The killers want to affect people. Typically in MUDs killers do only one thing: kill other players (figuratively, of course). Killers say things like "Die! Die! Die!"

The helpers, like the killers, want to affect people -- but in a positive way. On many popular MUDs there are far fewer helpers than killers, though.

Background on MUDs

In a work situation,



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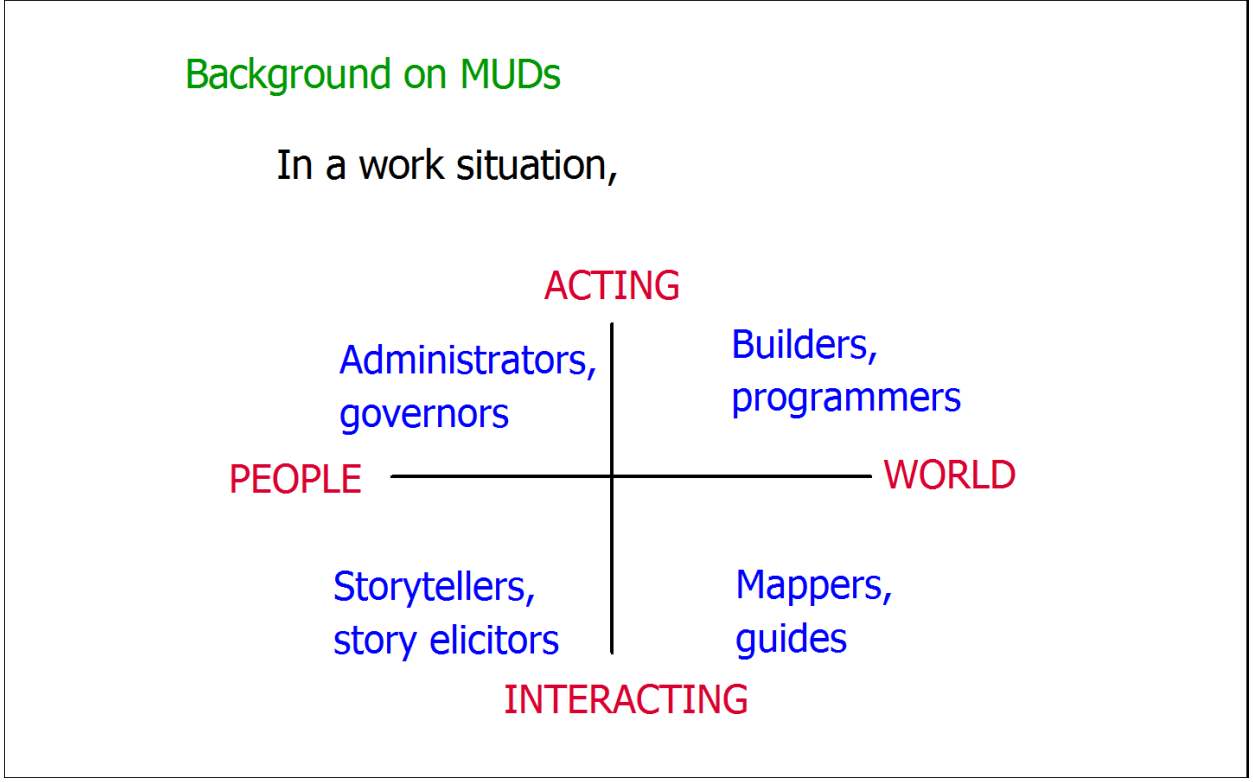


Now let's take the four personality types and think about how their points of view might be accommodated in a work situation.

The achievers want to affect the environment. In MUDs achievers build things; in a work environment the achievers can build knowledge bases and create presentations.

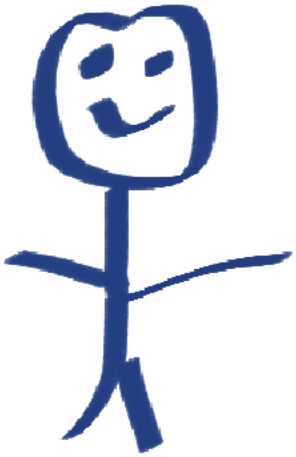
The explorers want to play with the environment. In MUDs explorers solve puzzles and map out new areas; in a work environment explorers can navigate knowledge bases, summarize information, guide other people, and answer questions.

The socializers want to play with other people. In MUDs socializers talk; in the work environment socializers would talk about work issues. Socializers would be the important storytellers and listeners in any virtual storytelling environment.

The killers want to affect people, as do the helpers. In a work environment there would presumably be no killers, only helpers. But in order to affect people by helping them, these people could take over some of the administrative tasks of the virtual community -- setting up rules for behavior, settling disputes, and so on.

Story Circles

If this idea were a person,
it would be about eight years old.



It's not mature, but it's growing.

It's really better described as
a coalescence of ideas into
a form that MIGHT be
interesting.

I've been calling it a "thought project".

I'm showing this slide again just to remind you that this is a thought project.

Many knowledge management efforts have this affect on employees. The question is: How can this reaction be avoided?

Story Circles

Main goal:

Enabling informal information exchange across many scales of time.

move emphasis from mandate to volunteer

(notes too long to fit, see next page)

Story Circles

Main goal:
Enabling informal information exchange
across many scales of time.

move emphasis
from
mandate
to
volunteer

I would like to change the emphasis from "we will take all of your information from you" -- mandating -- to "here's what I've learned; hope it helps you" -- volunteering. From take to give, if you will. How can you do this? By helping people to leave behind information for other people, and allowing that information to persist through many scales of time -- a day, a month, a year. And by removing some of the barriers between people, so they can help each other more directly.

On the wagon trails going to the American West, people often left messages on boulders for travelers coming after them. Some of the messages were personal -- "Uncle Joe, we're going to Tucson" -- and some were for anyone -- "Flash floods on Big River Canyon in December!"

The main goal of this thought project, then, is to build a virtual community based on storytelling that helps people to leave behind informal knowledge for others to find -- in an interesting and compelling way.

Story Circles

Sub-goals

stronger storytelling traditions

increased sense of community & common purpose

stronger social networks

improved attraction and retention

better exchange of informal knowledge

smoother start for new employees

These are some smaller goals related to the main goal.

Story Circles

Means to sub-goals

stronger storytelling traditions
- substrate for story telling and creation

increased sense of community & common purpose
- many overlapping senses of self

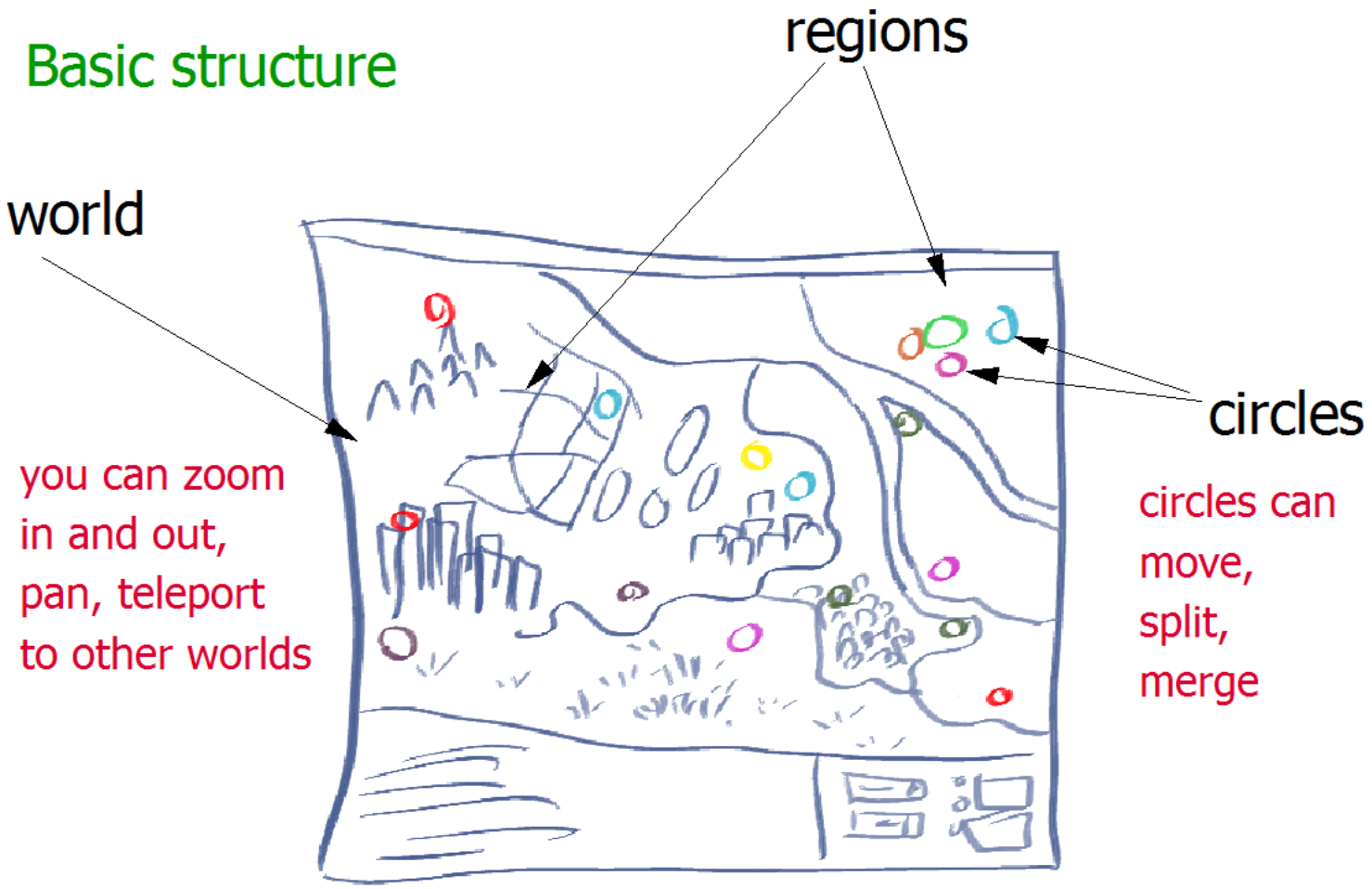
stronger social networks
- persistent social groups and public space

improved attraction and retention
- more reasons to come; more reasons to stay

better exchange of informal knowledge
- real-time and persistent stories and other informal "stuff"

smoother start for new employees
- you don't just get a desk; you get a place in the social world

These are some possible ways of arriving at the smaller goals.



Here's the basic idea of the thought project. A story circle is something like a newsgroup but with much more structure and associated tools. Story circles are located in a graphical landscape made up of distinct metaphorical regions within virtual worlds.

Basic structure

... sort of like SimCity

but graphics and metaphors are optional
can be scaled back to tables and text

The graphical environment takes its cue from SimCity and other similar games. It would of course be possible to scale the graphics back at any time; the entire interface could also be seen as tables of text categories.

Basic structure

squares are based on meaningful metaphors that create shared story referents

Include in these choices

- Alexander's patterns
- connections

Given enough choices, people usually create a consistent and meaningful world.

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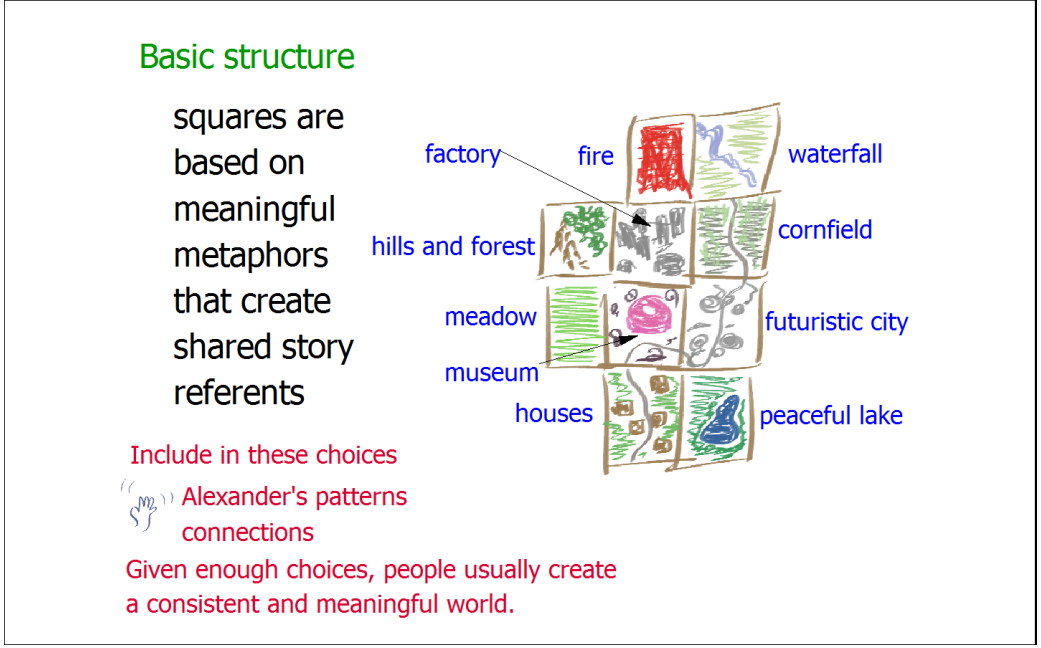


Each story circle would have a background picture with a metaphorical meaning. There are at least three reasons to use landscape pictures to convey metaphorical meanings: (a) they create a shared language ("meet you by the lake"); (b) they provide shared story referents ("the lake" might stand for a boating topic); and (c) at least for people who are more visually oriented, they might provide a quicker way to navigate than by reading through lists of categories.

The meanings of some metaphorical pictures might vary across cultures, and this would be a consideration in designing the library of available backgrounds for story circles. It might be possible to use a self-consistent set of metaphors such as Christopher Alexander's patterns for social living.

Because people tend to take visual representations very literally, it would be necessary to think about connections between squares. For example, a road might run through some squares, and so you might want to design a few versions of each so that the road can be connected.

I think that if the number of possibilities were large, people would tend to construct a world that would make sense. (People usually do.)

A note: The little waving hand means that there is some hand-waving in the claim next to it -- that some work would have to be done to develop the idea further.

Circles

A story circle

is a unique community where people talk and tell stories, usually about one topic.

exists in a square on the map (but can move).

is essentially a Babble with additional structure.

can be private, semiprivate, or public.

can be linked to other circles with named and typed relations.

has a constitution and rules.

has a web site.

So: a story circle is a small community in which people talk about a topic. It exists in a square on the navigational map (within a region, within a world). A story circle has more structure than a chat, newsgroup or web site. And because of its strong social element -- and emphasis on persistent traditions -- a story circle has a set of rules agreed upon by its members.

Circles

A story keeper

is an intelligent agent that lives in the story circle.

can represent a real or fictional character that embodies the circle's topic ("the traveler" or Galileo).

can talk with people in the circle.

organizes and manages the storybase and other "stuff".

can surf the web looking for links and stories on the circle's topic.

can be programmed by circle members.

helps people tell stories and categorize them.

One of the members of the story circle is the story keeper, an intelligent agent that exists mainly to help people record and find stories. The keeper can be programmed by members of the circle (in some unspecified, hand-waving way). The keeper basically tries to take care of many of the mundane tasks associated with administering any shared communication.

However, keepers can be more imaginative than simple automated administrators. They can represent a character appropriate to the topic and store information about the character. For example, a "Star Trek" circle might have a keeper named "Hugh" who knows a lot of Star Trek lore and can converse on the appropriate topics.

Circles

A story circle looks like...

The interface for interacting in a story circle looks a little like a mix of Babble, ActiveWorlds and Ask Jeeves. It combines a persistent chat (with the Babble visual circle), a chat area, a web site area, and an area for interaction with the keeper.

Circles

A story circle web site has

- a description of the circle
- the circle's constitution and rules for behavior
- news
- the top ten stories
- FAQs
- meeting times
- themes of current discussions
- calls to vote
- notes from the keeper

Why have a web site for each story circle? Mainly to explain the circle to visitors, to answer the questions of new members, and to highlight news items. A web site is a structure most people can understand in terms of getting the basic information needed to access an information source.

Circles

A story circle promotes shared identity by

- web site
- constitution / rules
- roving / stationary status
- private / semiprivate / public status
- appearance of square
-  personality and prominence of keeper
- chat themes

It's important when creating a virtual community to help people form identifiable communities. In the real world we all wear our community identities every day -- in our clothes, in the way we talk, in the way we respond to other people. In the virtual world most of this information is lost, and it's important to help people feel that they belong to a group (and that it's worth an investment of time to belong to it).

These are some ways a story circle can promote group identity.

Circles

Story circles can relate to each other by

- joining
- splitting
- budding
- forming a temporary bond
- exchanging stories and other info
- moving together
- linking to each other (typed and named links)
- refusing or breaking links

Creating circles for telling stories is not much use if the circles are completely isolated; like web sites, circles need to relate to each other. There are two main reasons to emphasize connection between circles: (a) because people who belong to multiply connected groups tend to get along better; and (b) because people have many different interests.

These are some ways story circles can relate.

Circles

Special circle members

Governor

makes "real" security decisions, settles arguments

probably management

appointed externally or elected?

Keeper makers

program keeper

probably programmers or other techies

Keeper oracles

answer questions passed on by keeper

can choose whether to allow people to "reach through" keeper to get real name

Keeper helpers

help keeper elicit, categorize, tell stories

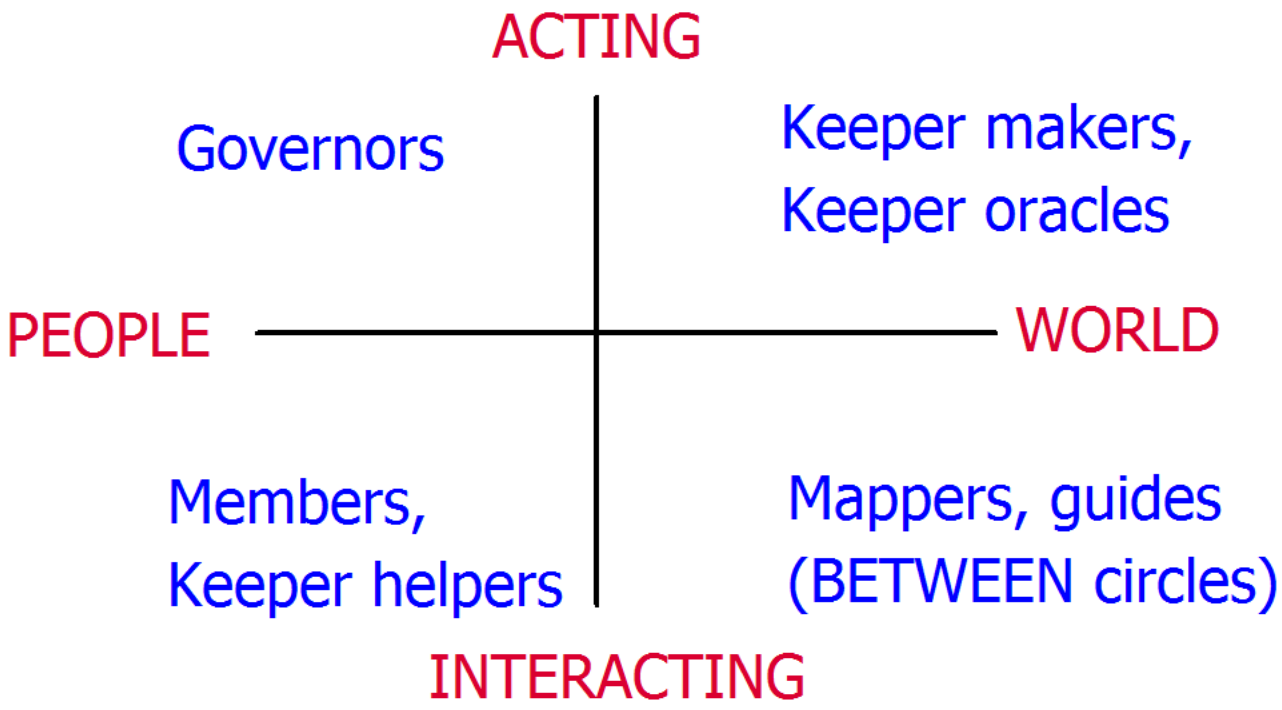
because keeper might screw up

Some members of the story circle have special roles, as shown here.

The keeper oracles deserve special mention. The keeper can function in the story circle as an expert cover. Sometimes when you ask people to identify themselves as experts in an area, they are reluctant to do so because they will drown in the deluge of questions. Using a programmed keeper to answer some questions allows the true experts in the topic to "hide behind" a false front. If the keeper cannot answer a question to the asker's satisfaction, the question can be passed on to the keeper oracles without divulging their identities to the asker. Depending on the question and the asker, the keeper oracles might allow the asker to "reach through" the keeper and speak directly to them -- but they have the option of keeping their distance.

Circles

Circle members



These special roles are chosen to correspond to the four personality types in MUDs (shown earlier). Notice that the Mappers/Guides operate between circles, not within them. They create tours, lead expeditions, and help people get started in different regions or worlds.

Circles

Circle members can vote

on the circle's constitution and rules for behavior.

on whether to allow guests or not.

to move the circle.

to strike an utterance or story or label it with a warning.

to split, join, exchange info or bond with another circle.

to exclude a person who is annoying.

to elect new keeper makers or oracles.

to send out invitations to join the circle (to everyone or to specific people).

for any other reason they want.

Since the story circle is a community, it has some characteristics that self-governing communities have. An effort is made here to address some of the particular issues important in virtual (as opposed to physical) communities.

Stories

Can be anything that works in HTML

text, images, animations, audio, video, Shockwave, Freelance (converted), VRML, other plug-ins

Can be created


explicitly (using tools)


by pulling them from chat


by pulling them from the web

The stories themselves would be anything that can be seen by a web browser, since that is the standard. Note that there is MUCH hand-waving here. Presentation of stories is an open question for any knowledge base centered around storytelling, and there are major issues surrounding the interaction of storytelling with computer technology.

Stories

The keeper will help users to

- write stories
  - dictionary, spell-check, grammar check, etc
- edit stories
- classify / reclassify stories (alone or collaboratively)
  - Agent Stories, ASK, Dramatica
- visualize / navigate stories in circle
  - FilmFinder
- rank / vote for stories
- send stories by email (sending the story itself or a link to it)

"Keeper helpers" help the keeper to

find, elicit, classify stories

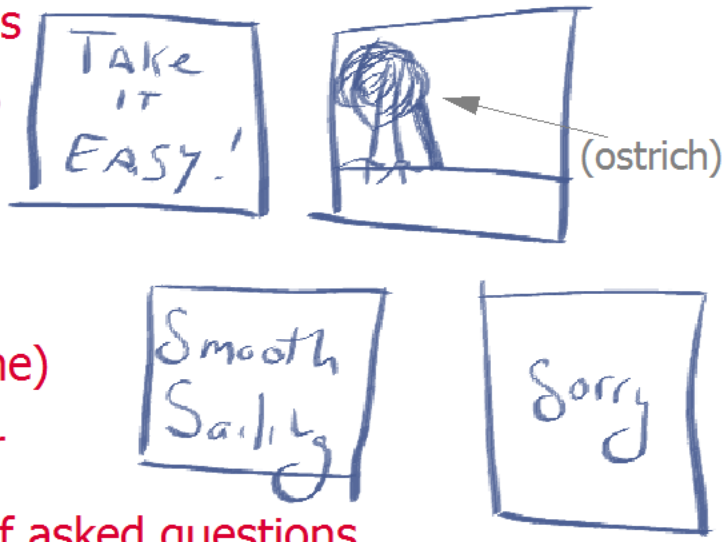
The story keeper would be instrumental in collecting and indexing stories, by helping people enter stories, by talking to people and eliciting stories from them (then pulling the stories out of the chat transcript), and by searching for related stories on the larger web.

The special member role of "keeper helper" is in recognition that the "intelligent" keeper might not always work perfectly. Keeper helpers would assist in classifying and editing stories to keep the circle's storybase well organized and useful.

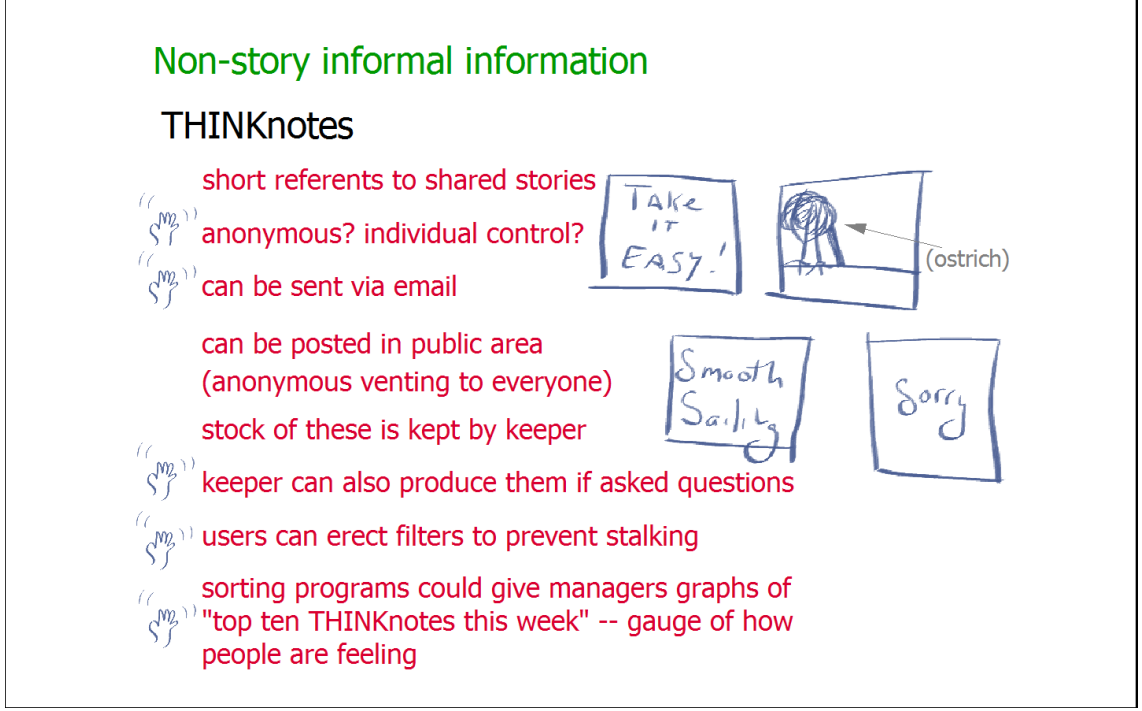
Non-story informal information

THINKnotes

- short referents to shared stories
- anonymous? individual control?
- can be sent via email
- can be posted in public area (anonymous venting to everyone)
- stock of these is kept by keeper
- keeper can also produce them if asked questions
- users can erect filters to prevent stalking
- sorting programs could give managers graphs of "top ten THINKnotes this week" -- gauge of how people are feeling



(notes too long to fit, see next page)



The story circle system should in theory include more than just stories, for two reasons: (a) sometimes it's difficult to decide exactly what is a story and what isn't; and (b) if the goal is informal knowledge transfer, stories are not the only transfer mechanism. They are important but not all-important.

One idea for non-story informal knowledge transfer is THINKnotes. This idea is based on a magazine article I saw once (somewhere, maybe Fast Company) about a cultural practice at one company. People in this company kept a stack of index cards on their desks with short, snappy phrases on them, like "GO AHEAD", "WAIT FOR ME", and "GREAT JOB". When people wanted to tell a coworker something, they would wait until the person left their desk and then slip one of these notes on it. This was a great way to send subtle, anonymous messages to people, especially on issues you didn't really want to bring up in public.

Actually, such a system does have something to do with stories, because such short notes can be referents to shared stories. For example, if you sent someone a note saying "TOO MANY COOKS", it would reference a whole complex story about division of labor.

So part of the story circles system could use these THINKnotes (I made the name up, with THINK for IBM). People could "pass" them around in various ways, as shown on this slide.

Non-story informal information

Miscellaneous stuff

- how-tos
- web links
- advice
- quotes
- proverbs
- jokes

The keeper can

- listen to you telling it this stuff
- extract it from chat
- pull it from the web
- give it back in response to questions
- show it to you (you navigate it)

Other non-story informal information is officially called "stuff". This includes short instructions ("how to get to the office from the train on a bike"), pointers, advice ("watch out for the third step going to the parking lot"), quotes, proverbs and jokes. All of this information tends to collect on any public discussion place, so why not make it easier to find and navigate?

Special circles

Circle of one

for your own stories and informal info

only on your own computer

can have password

you can program your own keeper

you can export/import stories, other info, even keepers

Circle of few

for stories and informal info in a lab or small group

can run on a private server or in a private circle on main server

can have own worlds, regions, circles inside

The story circles idea can be extended to private circles for one computer or for a small group of people.

Larger interface

Map-based

circles are differentiated by attributes:

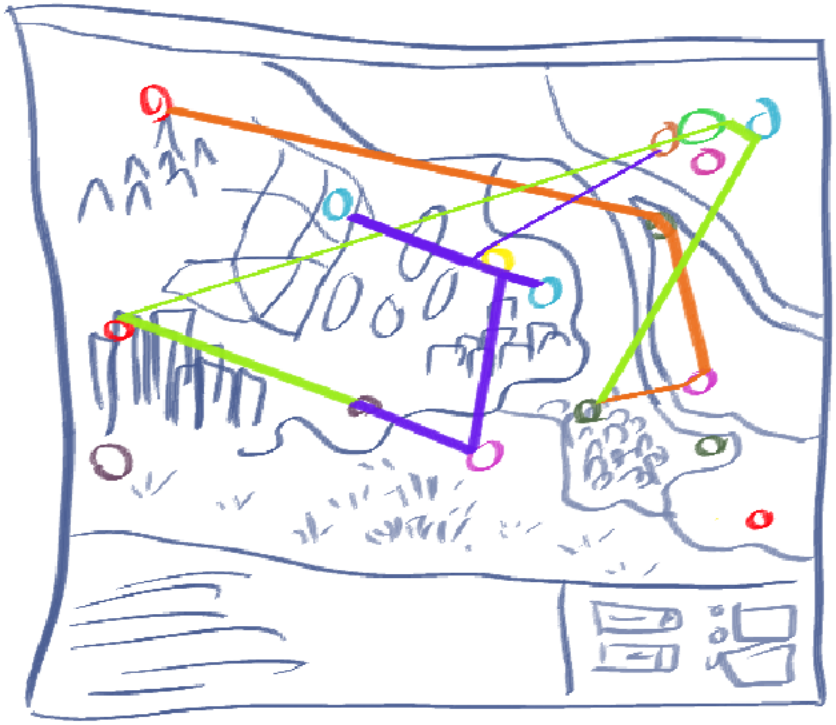
- color
- thickness
- opacity
- etc

A bit more on the interface.

Larger interface

Showing typed links between circles

can also follow links using web pages or plain text lists

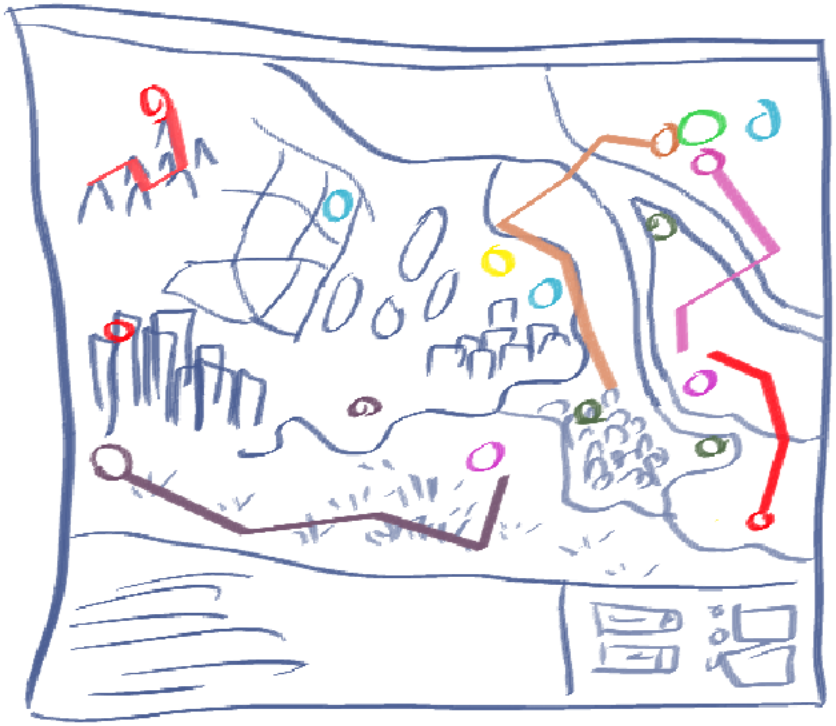


This shows how one can see relationships between the circles.

Larger interface

Showing move trails

so you can find a circle that has moved



Allowing circles to move has a few functions: (a) it allows circles to include their movement or non-movement as part of their identity; (b) it allows circles to go on "expeditions" where they visit other regions; and (c) it seems like fun. Move trails show where circles have been recently so you can find them again.

Communication channels

Users can communicate directly by

- talking in a circle
- guiding people around
- sending emails with links to stories, circles, etc
- sending emails with stories, THINKnotes, info
- inviting people to join circles

Users can communicate indirectly by

- leaving stories and other info behind in a circle
- reading stories and other info in a circle
- helping classify stories and "stuff"
- asking/answering oracle questions
- voting, writing constitutions
- programming keepers
- creating new circles and regions
- making/reading maps and directions to circles

These are some ways users can communicate using the story circles system.

Some circles that might form

Research/academic areas

- cognitive psychology
- HCI
- sociology of storytelling

Industry areas

- pharmaceuticals
- utilities
- telecommunications

Doing-your-job areas

- computer repair
- shipping
- payroll

Light interest areas

- pets
- woodworking
- antique cars

Deep interest areas

- existentialism
- Sioux
- space colonization

Anonymous areas

- whine-a-rama
- cafeteria suggestions
- shy people's group

These are some circles that might form.

Existing tools that could be linked to or built on

- Babble — persistent chat
- ExpertNetwork — keeper oracles
- SameTime — shared whiteboards & applications
- Notes — interface with email
- Apache — HTTP server
- Netscape/IE/Mozilla — HTTP client
- MITRE system (LambdaMOO) — open-source
- WordNet (and other similar systems)
  - text analysis for keeper and tools

Some tools that touch on these ideas.

Why is this better than....

newsgroups?

quoting is awkward	persistent chat is better
very little internal structure	keeper, tools help maintain structure
difficult to find FAQs, constitution, news, rules	web pages create standard starting points and answer questions
no links between newsgroups	user can read web pages, search, follow links, explore maps, be invited, take tours...
all concepts are text-based	using graphical metaphors for concepts is more natural and more interesting for many people

Now the objections and challenges.

Why is this better than newsgroups?

Short answer: it's got more structure and it's more fun.

Why is this better than....

chat?

no persistence	persistent chat is better
very little internal structure	keeper, tools help maintain structure
rules and procedures not obvious	web pages create standard starting points and answer questions
difficult to know which chat to join	user can read web pages, search, follow links, explore maps, be invited, take tours...

Why is this better than chat?

Short answer: it's got more structure and it's more fun.

Obstacles

People not wanting to waste time at work

People wasting time at work

Hand-waving technology areas

- story categorization
- agent design
- programming environment
- story representation
- security
- customization

Fear of speaking

etc, etc

There are many obstacles to making such a system work, both technological and social. As I said at the start, it's not a mature idea, and these obstacles are indicators of that.

Open questions

How much anonymity? Names? Genders?

Keepers -- obligatory? Only one per circle?

Avatar appearance by owner or viewer?

How much lurking? Ghosts?

How much should management be involved?

How to balance personality types?

Any central authority?

How attract computer novices and experts?

Some questions that would need to be answered.

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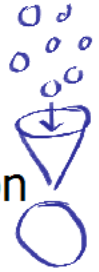
Summary: Grails & Graffitis

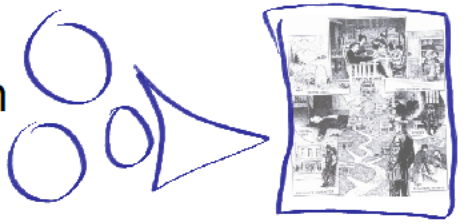
Grails

automatic story deconstruction

automatic story construction

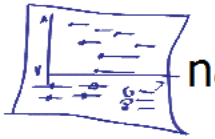


automatic story visualization



Graffitis

tools to aid human-guided story indexing



navigation tools

enabling storytelling communities

This slide sums up my conclusions about story representation, deconstruction, and virtual communities through the reading I've done. *Grails means holy grails, things that are not likely to happen soon. Graffitis means things like graffiti, a writing recognition system that relies on the user making changes to the way they write so as to meet the computer halfway. These are things that can help people do things with stories, but not automatically.*