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## Organization of Knowledge and the Hyperlink: Eco's *The Name of the Rose* and Borges' *The Library of Babel*

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### Abstract

Western epistemology is linear or teleological, logical, and atomistic. Our classification does not adequately represent other cultures with holistic, circular, and inclusive worldviews. These issues are discussed through Umberto Eco's *The Name of the Rose* and deconstructed using theory discussed by Hope Olson. With the advent of the Internet, and the multiple possibilities of hyperlinks that are like a rhizome, hierarchical classification no longer needs to be an issue. Each item (web page) is a node of the rhizome and has the potential to be linked to infinite numbers of other nodes. All nodes are equal in value and extend shoots to other nodes. Borges' *The Library of Babel* represents the rhizome through a honeycomb of infinite hexagons.

### Introduction

Two vastly different libraries are represented in Eco's *The Name of the Rose* and Borges' "The Library of Babel". Eco's Library, conceived in the 1980's, is the center of a medieval monastery, populated by monks in the midst of a murder mystery in which the library plays an integral role. "The Library of

Babel" was written many years earlier, in the 1940s, yet Borges creates a Universe-Library that embodies hyperspace: a honeycomb of infinite hexagons. The stories differ greatly in length—Eco's a 500 page monster, Borges' barely 10—and in tone, atmosphere, and narrative voice. But aside from their differences, these texts both reveal the role of organization of knowledge and information in libraries, and they both examine the transitory nature of those related concepts, *knowledge* and *information*, that continue to change with our changing worldviews. The problems associated with the traditional classification schemes, represented by *The Name of the Rose*, are no longer present in the digital age with the onset of hyperlinking, while "The Library of Babel" anticipates the rhizomatic structure of the Internet.

### How Eco Manifests Classification in his Fiction

At first glance, the reader of *The Name of the Rose* will see that the implied author of the text is the third encasement; that is, he claims to have been handed a book in 1968 that was in turn a 19th century French translation of a 14th century Latin memoir of an elderly Benedictine monk remembering his youth. Then, the reader is lead to believe that novel is a truthful account of the original text, that even though the "author" lost the original translation and his notes, he could reproduce it faithfully from the integrity of his memory. From the beginning, Eco helps the reader question memory and truth. Can a

translated text recounted from memory be faithful to the original? How can the reader trust that the authorial voice is even telling the truth? Eco sets the atmosphere of question: he leads us into a world where we play a game with the "author" to be aware that constructs are not as concrete as they seem. An uncomfortable awareness of our own Western epistemology pervades *The Name of the Rose*, and we are left to discover that empiricism is just another way of knowing.

Our way of knowing is not absolute—every culture knows and thinks about the world differently. Libraries in the Western world employ a system of classification that is entrenched in Western ideology and worldview. Hope Olson, writing within the discipline of Library and Information Studies, brings feminist deconstruction into the field of classification. She shows that traditional schemes of classification are a product and legacy of our culture—our system of classification is not inherent in nature, rather it is of the lineage of logic and teleology. These are metanarratives (Lyotard 1984), tangible beliefs, systems of knowledge that a societal body holds to be true. Olson traces the presumptions in modern day classification back to fourth century BCE in Greece during the development of logic (1999b). The presumptions of exclusivity, teleology, and hierarchy are so "ingrained as to go unrecognized...we do not see them even while they are controlling our classificatory practice" (Olson 1999b, 66). Olson argues that these presumptions have pervaded our Western epistemology to be integral parts of our beliefs in logic, science, and rationalism.

In *The Name of the Rose* (1984), Adso is a young Benedictine who is assigned to follow William of Baskerville (WB), a Franciscan, on various missions. They come to the Abbey and WB demonstrates his intellectual acumen by using the evidence around him to problem-solve, just as their philosophical forefathers taught. Adso marvels at WB's skill, but WB states: "during our whole journey I have been teaching you to recognize the evidence through which the world speaks to us like a great book" (p. 23). He shows Adso not to make presumptions,

but to base all conclusions on empiricism—taking facts available from what we can see, taste, touch, smell, or hear, and synthesizing the items together to induce a conceptual "truth." The shortest path from evidence to conclusion is Occam's Razor: "one should not increase, beyond what is necessary, the number of entities required to explain anything" (Heylighen, 1995, ¶ 1). However, even WB's belief in absolute truth revealed through evidence is shown to be a construct.

When they first arrive at the Abbey, WB is persuaded to help solve the mystery of Brother Adelmo's death. It seemed that he might have committed suicide by throwing himself off a cliff. As the days progress, more people die, and the deaths appear to fit into a pattern of the prophecy of the Apocalypse and the coming of the Antichrist. Even WB, against his better judgement, looks for meaning where there is none. As they discover in the end, all the deaths, even though they seem to follow the prophecy, were coincidences and had nothing to do with a killer aiming to satisfy a predetermined set of signs. Eco shows the allure and danger of assumptions, that even though all empirical evidence may point to a "truth" it still may not be the truth. Deconstruction is a method of seeing how we think and see things to be true, such as WB's mistaken conclusion that the deaths followed the signs of the Apocalypse.

To deconstruct, one must first determine the constructs. Olson summarizes it as: "identifying the binary, reversing/decentering the binary, and dissolving the binary" (Olson, 1997, p. 182). Deconstructing binaries shows they are not innate; they are defined by their opposition from each other and not from inherent characteristics. Olson discusses Derrida's term, "différance," a combination of the words "differ" and "defer." The difference between binaries can never be pinpointed and is "perpetually deferred" (Olson, p. 182). Binaries are exclusive: "concepts forming a binary opposition are mutually defining—each being what the other is not. Such mutual definition involves exclusions, categorizations, and classifications. A given concept excludes what it is not" (Olson, p.182). Also in this binary, one part is

dominant and mainstream, while the Other is marginalized. Some common binaries are Man–Woman, Light–Dark, Fire–Water. Logic dictates that no statement can be both true and false, and nothing can be both A and non-A. Logic is based in binaries and mutually exclusive concepts. However, "the presumption of mutually exclusive categories is as dangerous for us as for the broader social fabric of which we are an integral part" (Olson, 1999b, p. 67).

How is this binary dissolved? Through deconstruction. As Olson states, the "alternatives to the foundationalism–relativism binary are partial, locatable, critical knowledges legitimated by the everyday practices of life" (1997, p. 185). The new way of organizing information may be through a rhizomatic structure, an idea introduced by Deleuze and Guattari (1987).

Within Western classification schemes like Dewey Decimal or Library of Congress, cataloguers inevitably come across a crossroad. The problem is that some items may cut across classifications, and may be placed under many different subjects. So it falls to the cataloguer or indexer to arbitrarily classify. However, this is only a problem in our physical world. In hyperspace, a discrete object may be in several places at one time, available at one click of a button. It may have multiple accessions, or just one. This cannot occur in the physical world, because of both fiscal and temporal limitations. Olson (2001) further discusses how the classifier (or cataloguer) determines the degree of sameness or difference between items to put them in a certain category. The whole system is essentially an arbitrary product of a societal mind. If the classification scheme was "natural" there would not be any doubt about the degree of sameness or difference to organize the information. Our culture has a *reductionist* view of knowledge: we can split everything down to their building blocks and put it all together again.

The Western legacy of classification is also embodied in the organization of *The Name of the Rose*. The book is organized in Days (from First Day to Seventh Day) with a prologue and epilogue as bookends. To further subdivide the Days, each basic

chapter unit is a piece of the day, such as *terce*, *matins*, or *night*. And each basic unit, or chapter, is headed by a short summary that serves as metadata. The book is almost clinically organized to support the Western ideal of teleology (progressing from First to Seventh), logic (chronological order), and exclusivity (each unit is discrete and does not bleed into the next). The separation of time is a representation of a worldview that can reduce everything to base units.

## Hypertext, Citation Linking, and Digital Worldview

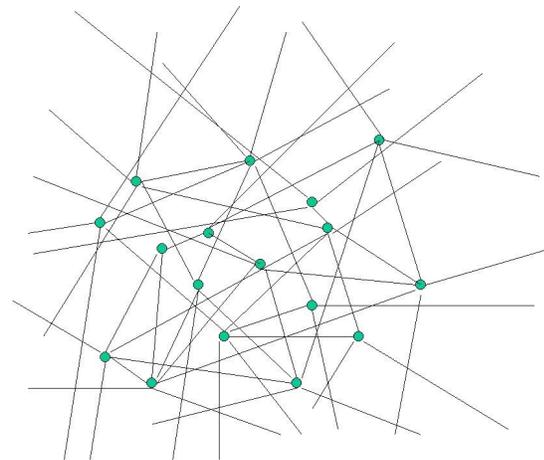


Figure 1: A representation of the rhizome. There is no center, but each node can link to an infinite number of other nodes.

In traditional classification, it is difficult to classify an object if it has the same degree of sameness to many different other objects; the object can only be in one place, even though it is similar to many objects in different places. But, with the advent of the digital age, the hyperlink and the semantic web, many concepts/classifications can be put on the same level, without hierarchy, like a *rhizome*. Deleuze and Guattari (1987) introduce the concept of the rhizome (Figure 1), contrasting the rhizome with the structure of a tree. In a rhizome, there is no center or trunk, "a rhizome as subterranean stem is absolutely different from roots...[the] rhizome itself assumes very diverse forms, from ramified surface extension in all directions to concretion into bulbs and tubers" (p. 6-7). Each extension crosses into another like interlocking knotted tapestries without a beginning or an end: "Any point of a rhizome can be connected to anything other, and

must be. This is very different from the tree or root, which plots a point, fixes an order" (p. 7).

The tree Deleuze and Guattari (1987) refer to may also be visualized as "center," or "totality," and even "universality." Universality is a grand assumption, and assumption "is an act of power, usurpation. By assuming, *one* sets *oneself* above *Others*, in arrogance. Assumption is an act of the dominant *one*" (Olson, 1999b, p. 191). Other cultures may have no clue as to the system of our classification schemes—these schemes are embedded in the history and legacy of the development of our society. Olson offers an alternative to traditional hierarchical classification schemes, suggesting the use of local (as opposed to universal) critical knowledges. This is necessary because "what is marginalized in the originating culture and what is different in other cultures may well be poorly or even deleteriously represented" (Olson, p. 65). Olson further discusses alternatives to the Western epistemological legacy of Aristotle through exploring discourses in indigenous cultures. The "dominant" culture may not acknowledge (and may have no way of acknowledging through linguistic lack of conceptual representation) the discourses of other cultures, such as cyclical worldview (instead of our teleological worldview) or knowing through Dreamtime, where the Australian Aborigines "separate time from location" (Olson 1999a). All these local critical knowledges are the nodes of the rhizome; they are all equal and decentralized, but also all link to each other without need for a central root system.

## Borges and the Rhizome

Borges begins his short story, "The Library of Babel" with a pithy sentence: "The universe (which others call the Library) is composed of an indefinite, perhaps infinite number of hexagonal galleries" (p. 112). Even though this story was written in the 1940s, we see the implications of the Internet. The Internet can be seen as a microcosm of the universe just as a library has often been used as a metaphor of the universe because it can theoretically contain all information about the world/universe. The

Borgesian library is a "vast metropolis: a city of data, a...library of vast databases containing all a culture's deposited wealth, where every document is potentially available, every recording playable and every picture viewable" (Featherstone, 2000, p. 164-65). The Library of Babel, as well as the Internet, is immense—no one can contain its limits because it keeps growing and changing without bounds.

The Borgesian Library is *total*: "perfect, complete, and whole...its bookshelves contain all possible combinations of the twenty-two orthographic symbols" (Borges, 1988, p. 115). The Library contains every possibility, every word ever said and every word that will ever be said. It is a copy of the Universe, which is also an often used metaphor for the Internet: "The library is a labyrinth, containing not one Truth but all truths, many of them hoaxes, fallacies, frauds or imperfect facsimiles (books that differ by only a single letter or punctuation mark)" (Piper, 2001, p. 57). The similarity to the Web is obvious. The Internet contains many legitimate websites containing "truths." However, as Piper discusses, many websites promote false "truths," such as incorrectly reproduced poetry, and these "falsehoods" can be as serious as false banking sites and nonexistent charities.

The Library as a honeycombed labyrinth both relates to the Web, the Universe, and also to the rhizome: many nodes that have shoots and connections to an infinite number of other nodes. Nodes can also be thought of as Web pages, or one of the hexagons in the Library of Babel. In the rhizome, the Internet, and the Library of Babel, there is no center and no binary, but an infinite number of interlocking nodes, linked through similarity through the Semantic Web. Borges writes: "[the] Library is a sphere whose exact center is any hexagon and whose circumference is unattainable" (p. 113). This statement is itself a circular structure or paradox, for to say that a structure has a center is to say that it has limits, but this Library is a sphere whose circumference is unattainable, and therefore infinite. Sassón (2000) also acknowledges this: "Neither [the Library or Web] has a fixed center. They are both in a

constant state of becoming: the library is in a constant flux since each time a book is read it establishes connections to novel experiences and thus new links are established to other works" (p. 78).

While there is no center, no totality, and no universal, there are patterns in the Borgesian library:

I have just written the word "infinite." I have not included that adjective out of mere rhetorical habit; I hereby state that it is not illogical to think that the world is infinite. Those who believe it to have limits hypothesize that in some remote place or places the corridors and staircases and hexagons may, inconceivably, end—which is absurd. And yet those who picture the world as unlimited forget that the number of possible books is *not*. I will be bold enough to suggest this solution to the ancient problem: *The Library is unlimited but periodic*. If an eternal traveler should journey in any direction, he would find after untold centuries that the same volumes are repeated in the same disorder—which, repeated, becomes order: the Order. (Borges, 1941, 118)

The library is a circular structure—as one node crosses to another, and that one to yet another, and eventually the connection will come back to the original node. Circular structures, and decentralized organization are the complete opposite of Western classification schemes that employ a central tree structure and the base unit of the binary. Just like the Semantic Web, for as each node or Web page contains links to other Web pages, and those in turn to other Web pages, eventually the series of links will lead back to the originating Web page. To consider the idea that there is an end to the Borgesian library is to visualize that there is a linear organization to it. However, according to Borges, the library *is* linear, but cyclical, so at the end of the linear set it repeats again. The Library is an infinite set of finite, discrete, blocks.

The rhizome of the Internet is not without flaw. Because of the nature of the hyperlink

and the Internet, and the sheer volume of information in cyberspace, there may be an overwhelming amount of recall in a search that most likely would not happen with traditional forms of regimented classification: "Many people have tried to produce catalogues and systems of classification, but have been defeated by the sheer scope of the problem. The Library amounts to an unmanageable labyrinth to get lost in" (Featherstone, 2000, p. 165). Somewhere there has to be a compromise, not just a blending of boundaries, but also of expectations. There will never be an end to bias because we are human—our worldviews will always be suffused with our own points of view. Perhaps the next step in research would be to develop models of hybridity that blend traditional hierarchical classification schemes with rhizome structures, similar to the idea of critical local knowledges that Olson suggested.

## The Internet and the Rhizome

Metanarratives of logic embodied in Western classification schemes can be deconstructed through an alternative: the rhizome structure. Sassón (2000) discusses the rhizome in her dissertation: "It does not necessarily link similar traits: on the contrary, the rhizome is able to make connections with diverse modes of coding. As a consequence, a rhizomatic structure does away with vertical hierarchies, so that no supreme force rules or imposes its traits upon subservient subjects" (p. 56). This can be seen in the digital world, especially in the hyperlink:

Everything in hypertext depends upon linkage, upon connectivity between and among the various elements in the system. Linkage, in hypertext, plays a role corresponding to that of sequence in conventional text. A hypertext link is the electronic representation of a perceived relationship between two pieces of material, which become nodes once the relationship has been instantiated electronically. That is, the link simulates the connections in the mind of the author or reader (Slatin, 1990, p. 877).

Hyperlinks, or hypertext, are also labyrinthine structures. Reference or citation linking is a specialized type of hyperlink. It has been given a great deal of attention in the past few years and can be viewed as the hyperlink-with-a-purpose. In a journal article, each reference will be hyperlinked so that the reader may jump to the reference for the source (Caplan 2001). In turn the reference will be linked to the source that it is referencing, and the article itself will be linked to from the reference lists of other articles.

Digital information does not have to be organized through a hierarchical classification. But, if classification was used in hyperspace, items would no longer have to be placed to one particular subject as digital objects can be in multiple places at the same time due to the hyperlink. In addition, digital tools can search full text when a user needs a specific string. However, for browsing purposes, the recall may be larger than in a traditional classification scheme. As Berners-Lee, Hendler and Lassila (2001) state:

The philosophy is similar to that of the conventional Web: early in the Web's development, detractors pointed out that it could never be a well-organized library; without a central database and tree structure, one would never be sure of finding everything. They were right. But the expressive power of the system made vast amounts of information available, and search engines...now produce remarkably complete indices of a lot of the material out there. The challenge of the Semantic Web, therefore, is to provide a language that expresses both data and rules for reasoning about the data that allows rules from any existing knowledge-representation system to be exported onto the Web. (¶ 14)

Traditional classification schemes were applied to items that were discrete and finite. They would not appear and disappear at any time; physical laws bound items. The Semantic Web is so gigantic it overwhelms the mind, and web pages can be created

and destroyed in a second. New concepts can be expressed immediately by anyone with little effort (Berners-Lee, Hendler and Sassila, 2001). This will be a fragmented universality made up of nodes and pockets with offshoots that interact with each other: a rhizome. Both systems have their benefits and flaws, for to laud the Semantic Web as the road of progress or a next evolution of knowledge organization is to fall under the spell of teleological discourse, one that Olson deconstructs as yet another discourse of our culture.

## Conclusion

Physical libraries are limited by natural laws: one book cannot be in two places (or more) at any particular time. However, with some classification schemes the book may fall into more than one category, but can only be physically placed in one. The concept of "location" means different things in the physical world than the digital world, and the organization of knowledge changes to reflect that. Eco's *The Name of the Rose* embodies many of the structures of classification. The reader travels along with the implied author and characters while WB's carefully constructed world, based on evidence, logic, and empiricism is slowly deconstructed. Librarians using Western classification may observe through this text, and research in this field, that classification is a cultural construct, and does not reflect universality.

With the formation of the Internet, the digital world provides the potential to support a method of knowledge organization free of hierarchy. Items, or nodes of the digital rhizome, can be linked via semantics (or similarities in topic, keyword or descriptors) with the possibility of infinite links per node. Borges' "The Library of Babel" represents this as a honeycomb of infinite hexagons with multiple links. But the Librarians in "The Library of Babel" go mad as they go on quests for obscure, arcane books that are never found in the sheer volume of information in the infinite hexagons of the Universe—overwhelming recall can negate the organization of the information. Libraries in cyberspace have the potential to end one kind of bias in classification schemes: through semantic linking and generating

other digital tools, they may be able to achieve a more balanced scheme of classification.

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