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Collecting Knowledge

Narrative Tapastries

Database Substrates

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Collecting Knowledge: Narrative Tapestries and Database Substrates

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An examination of Web 2.0 using Manovich's Language of New Media, and an interpretation of folksonomies within the context of the narrative-database dichotomy. This inquiry looks at tagging as a mechanism for constructing narratives from databases, and relates narratives to knowledge construction and representation. Educational curricular activities involving tagging will also be considered.

What I am really concerned with is giving you some insight into the relationship of a book collector to his possessions, into collecting rather than a collection... But one thing should be noted: the phenomenon of collecting loses its meaning as it loses its personal owner. Even though public collections may be less objectionable socially and more useful academically than private collections, the objects get their due only in the latter.

— Walter Benjamin, *Unpacking my Library*¹

In the groundbreaking work *The Language of New Media* Lev Manovich claims that information access is a new category of culture, demanding theoretical, aesthetic, and symbolic consideration.² The emerging role of folksonomies in the new generation of web applications is decidedly innovative and potent,³ and this latest form of information storage, access, and retrieval likewise deserves consideration along these axes.

Crucial to the exploration of this category is a fundamental polarity between the cultural forms of narrative and database, which Manovich introduces as “natural enemies.”⁴ This opposition neatly corresponds to the competition between psychological engagement and information access, which often results in experiences which are “awkward and uneasy.”⁵ He calls upon new media designers to experiment with the merger of database and narrative into a new form,⁶ and presumably to reconcile the tensions between information and immersion.

Does the activity of personally collecting and describing media objects reflect this merger? Does personal tagging, and ensuing public sharing, add a new layer of meaning to the original collection? Does it contribute to the individual’s knowledge and apprehension of the original media? Can these forms of interaction be used to construct meaningful learning environments and activities?

This year we witnessed a discernable and renewed excitement around the Internet, and a fresh barrage of network enabled, web-based, applications. To some, these advancements began to demonstrate the fulfillment of the original promises of the web.⁷ This family of developments has been collectively termed “Web 2.0”,⁸ a concept which started out hollow and vacuous, but has taken on distinct substance and meaning.⁹ Web 2.0 describes both cultural and computing logics: democracy, architectures of participation, the harnessing of collective intelligence, and the corresponding technology to support and encourage these processes and values.¹⁰

One of the central features which characterize Web 2.0 media is the ability for participants to associate “tags” — sometimes also called “labels”, “keywords”, or “categories” — with the media objects they encounter. This activity is truly transmedial as text (email, news, blogs, wiki entries), images, audio, video, and hyperlinks have all been subjected to this popular new treatment.¹¹ An important usage pattern for tagging is the so-called *folksonomy* — As described by Thomas Vander Wal, the father of this term, “Folksonomy is the result of personal free tagging of information

and objects (anything with a URL) for one's own retrieval. The tagging is done in a social environment (shared and open to others). The act of tagging is done by the person consuming the information.”¹² Tagging has spawned variations beyond the original conception of folksonomies, and we explore these differences and their relevance to knowledge representation and education below.

Manovich introduces a series of powerful models which are invaluable in the study of both existing and emerging forms of media, culture and communication. He effectively separates his arguments from these models, building his cases on top of these structures. This method facilitates reuse and appropriation in subsequent inquiries around these themes.¹³

Manovich accomplishes this separation of concerns by introducing dimensions of analysis which provide a common ground and points of departure for his elaboration and analysis. This approach lends itself to deductive reasoning, and provides structure and shape to the engagement with his objects of study. It also disposes his models to subsequent reuse by other theorists, who may disagree with particulars but recognize the utility of a common language.¹⁴ In this sense Manovich has truly created a “Language of New Media” which has remained extremely relevant in the years following its introduction.

The conceptual apparatus developed in this work is the raw material which can be utilized to formulate hypotheses, which in turn can be empirically tested and verified. However, Manovich is primarily concerned with a stage of reasoning that is prior to hypothesis formation – the topology and texture of the paradigms themselves, from which hypotheses are later cast and constituted.

Manovich’s models take the form of principles, trends, and dichotomies which function as his tools of observation and analysis. He outlines five principles of new media – numerical representation, modularity, automation, variability, and transcoding.¹⁵ He also identifies a number of social and psychological trends that describe various observables, such as the externalization of mental life and objectification of the mind,¹⁶ and the ways media increasingly structures our experiences of ourselves and the world.¹⁷ He introduces dichotomies such as information vs. immersion, representation vs. action, narrations vs. description, and narrative vs. database.¹⁸ These tools will serve us well in the exploration of tagging, folksonomies, and Web 2.0, as well as in a critique and refinement of Manovich’s theories.

The transcoding principle describes the expectation for “the logic of a computer... to significantly influence the traditional cultural logic of media; that is, we may expect that the computer layer will affect the cultural layer.”¹⁹ He elaborates that “cultural categories and concepts are

substituted, on the level of meaning and/or language, by new ones that derive from the computer's ontology, epistemology, and pragmatics."²⁰ Manovich provides examples of this principle in action, but does not explicitly emphasize the counter-trend, where the traditional cultural logic influences the software component essential to the logic of the computer. It is important to recall the principle of variability, which enables a type of fluidity in the expression of computer logic. Manovich understands that software can be described by its underlying data-structures and algorithms, but he does not dwell on the idea that software too can be described as a type of media, itself a form of creative expression, and a product of cultural and psychological conditions.

This dialectic between the logic of the computer and the logic of culture is made possible by the variability intrinsic to software. Manovich observes that the "larger modern trend to externalize mental life, a process in which the media technologies – photography, film, VR – have played a key role... [and that] these technologies externalize and objectify the mind."²¹ The externalization aspect of this trend may stem from pragmatics of technology, but if mental life itself is being externalized, it will undoubtedly influence the external systems themselves to closely mirror its conditions. This dynamic does not represent an outright contradiction, as we can expect the interplay between these two tendencies to result in a shifting balance between these loci.

Manovich applies the transcoding principle in his discussion of the differences between the symbolic forms of narrative and database, and the tendency for new media towards the database form. He describes "the anti-narrative logic of the web. If new elements are being added over time, the result is a collection, not a story. Indeed, how can one keep a coherent narrative or any other development trajectory through the material if it keeps changing?"²² In fact, he is surprised that narratives still exist at all in new media.²³

His surprise might be rhetorically feigned, given his understanding of the parallel trend towards the externalization of mental processes. Narrative and description are central to a wide range of cognitive processes, including the internal representation of knowledge, memory, and identity.²⁴ It is very natural for computing systems to adopt these characteristics, as Manovich anticipates with his call for reconciliation between narrative and database in new media.²⁵

In broad strokes, we can understand the differences between databases and narratives as follows: Databases do not tell stories, do not have a beginning or an end, do not have any sequence (thematically or formally); They contain a collection of items, each possessing the same significance as any other. Narratives, on the other hand, tell a story, should be a series of connected events caused or experienced by actors, should contain both

an actor and a narrator, and three distinct levels – text, story, and fibula.²⁶ In typical Manovich style, the introduction of the database form, in turn, helps (re)define the narrative form. In a sense, narrative can be construed as a particular trajectory through a space of possibilities, sprinkled with a dash of meaning.

Manovich illustrates cinema's infiltration by the database complex, citing films which catalog places or behaviors as examples of this permeation. He analyzes Vertov's *Man with a Movie Camera*, which he claims transforms the ordinarily static and objective database into something dynamic and subjective. He clearly appreciates the possibility of hybrid cultural forms, and the importance of new media's return to narrative.

Could personal tagging of new media objects represent such a merger? In many ways tagging approximates the traditional criterion for narrative, implying an actor/narrator/director (the tagger), creating connections between objects, and privileging some objects over others. Sometimes tags even tell a story, such as when alternative parts of speech are used indicating emotional expression (wish lists, likes/dislikes), verbs (to-read, to-do), and reflexive pronouns. From this perspective, tagging can be understood as a mechanism for creating paths through databases. The process of tagging is also reminiscent of Benjamin's description of collecting, and implicitly creates an autobiographical narrative. Benjamin also suggests that the subjective act of filtering creates a special meaning, denoted by the relationship between the collector and the collected.

Admittedly, these collections can still be conceived as smaller personal databases, but cultural cues have emerged which indicate these collections bridge the divide between psychological engagement and information access. In particular, the visual form of the "tag cloud", which has been adopted as a standard UI element for displaying tag collections has been appropriated as a distinct visual-cultural element. It has spawned "tag poetry," where authors use the traditional form of the tag cloud as a structural guide to composition²⁷. Custom t-shirts containing a user's personal tags, derived from their blog or photo sharing account, are the latest form of self-identification²⁸. The transcoding of art and identity are both anticipated by Manovich's theory, but the database itself has morphed in the process.

Accepting that tagging represents a merger between database and narrative, we can also formulate connections between the creation of narratives and the construction knowledge. This linkage suggests various learning opportunities that tagging exercises provide.

Beyond the bureaucratic convenience that tagging provides, the exercise of categorization and the creation of taxonomies and ontologies are both import aspects of mastering a subject matter domain. Various vocabulary

sharing policies might be applicable to different learning contexts: Fixed vocabularies might make more sense in a domain where the subject matter was well understood (ie medical diagnostics), whereas folksonomic vocabularies (either shared across the class, or developed individually, by each student) might work well in more open ended inquiries. A curricular exercise might involved the students making a first pass over a library or database of media assets, and coding or tagging it according to a strategy appropriate for the curriculum. Variations include working with student contributed media, or conducting distributed research on media “in the wild.” Following this, students could more easily compare and contrast their relative understanding of the media.

Narrative seems to be related to “the psychological process of filling-in, hypothesis formation, recall, and identification, which are required for us to comprehend any text or image at all”.²⁹ As Frances Yates recounts in *The Art of Memory*, the ancient Greeks and Romans leveraged the power of narrative association in the discipline of rhetoric.³⁰ Some of the techniques employed to allow feats of massive information recall involved the creation of narrative mnemonic structures which proved easy to revisit. Augustine considered memory, along with understanding and will, to be the three powers of the soul. A broader inquiry into the relationship of narrative to memory, understanding, and will is beyond the scope of the current effort, but the mere suggestion seeds the possibility of further investigation.

Folksonomic tagging looks to be another instance of Manovich’s tendency towards the technological externalization of mind. The structure of folksonomic tagging closely resembles free-form associations prevalent in human memory³¹, potentially explaining its utility in the realm of information retrieval.³² In light of this analysis, the popularity of this new form of expression and communication is not at all surprising. Systems which mirror human cognition can provide valuable opportunities for the external construction of knowledge, and narratives can infuse this knowledge with engagement and meaning. These possibilities have widespread implications for teaching and learning.

- ¹ Walter Benjamin. *Illuminations*. Trans. Harry Zohn. Edited and with Introduction by Hannah Arendt. (New York: Schocken Books, 1968), 60, 67.
- ² Lev Manovich. *The Language of New Media*. (Cambridge MA: MIT Press, 2001) 217.
- ³ See http://en.wikipedia.org/w/index.php?title=Web_2.0&oldid=30873995 or even this parody checklist of features required to qualify as a Web 2.0 application: <http://msippey.tadalist.com/lists/public/155420> [accessed January 2, 2007].
- ⁴ Manovich 225.
- ⁵ Manovich 216.
- ⁶ Manovich 243.
- ⁷ Ross Mayfield, the CEO of socialtext, summarized these trends with the claim “Web 2.0 is made of people! That is all I have to say.” (http://ross.typepad.com/blog/2005/09/web_20_is_made_.html [accessed January 2, 2007]). This assertion also has its critics, such as Nicholas Carr, who dismisses optimism about Web 2.0 as “quasi-religious longing”. (http://www.roughtype.com/archives/2005/10/the_amorality_o.php [accessed January 2, 2007]).
- ⁸ Tim O’Reilly. “What is Web 2.0?” September 2005. <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html> [accessed January 2, 2007].
- ⁹ Paul Graham. “Web 2.0”. November 2005. <http://www.paulgraham.com/web20.html> [accessed January 2, 2007].
- ¹⁰ See, for example, Howard Rheingold. *Smart mobs: The Next Revolution* (New York: Perseus Books, 2002) or James Surowiecki. *The Wisdom of the Crowds* (New York: Random House 2004).
- ¹¹ Tony Hammond, Timo Hannay, Ben Lund, and Joanna Scott, “Social Bookmarking Tools: A General Review,” *D-Lib Magazine*, April 1, 2005. <<http://www.dlib.org/dlib/april05/hammond/o4hammond.html>>. A good overview of “Social Bookmarking” tools, although the list has grown substantially since its publication.
- ¹² <http://www.vanderwal.net/random/entrysel.php?blog=1750> [accessed January 2, 2007].
- ¹³ Parenthetically, *The Language of New Media* itself adheres to many of the principles of New Media which Manovich outlines— it is modular, supports variations, can be read out of sequence, etc etc.
- ¹⁴ Manovich is widely cited, and numerous essays in *The New Media Book*, edited by Dan Harriess, explicitly mobilize his language.
- ¹⁵ Manovich 27.
- ¹⁶ Manovich 57.
- ¹⁷ This tendency is supported by “content and interface merg[ing] into one entity, [that] no longer can be taken apart.” (Manovich 67).
- ¹⁸ Manovich 216.
- ¹⁹ Manovich 46.
- ²⁰ Manovich 47.
- ²¹ Manovich 57.
- ²² Manovich 221. As we show later, tagging offers a potential answer to this question.
- ²³ Manovich 228.
- ²⁴ This probably deserves a good reference. Plato? Kant? Wittgenstein? Freud? Cog-Sci literature?
- ²⁵ Manovich 243.
- ²⁶ Manovich 218.
- ²⁷ <http://wrt.ucr.edu/wordpress/2005/10/12/towards-tag-poetry/> [accessed January 2, 2007].
- ²⁸ <http://arsblog.com/img/tagshirts.jpg> [accessed January 2, 2007].
- ²⁹ Manovich 57.
- ³⁰ Frances A. Yates. *The Art of Memory*. (Chicago: The University of Chicago Press. 1966).
- ³¹ For example, newyork, newyorkcity, and nyc used to tag media pertaining to New York City, and the category apple containing media pertaining to fruits and computers. Flickr’s new cluster feature begins to address this shortcoming, but the contention here these loose, free form associations closely model human memory anyway, and therefore work very well for information retrieval.
- ³² Manovich also identifies the tendency towards making the private public, also a common feature of Web 2.0. “What before had been a mental process, a uniquely individual state, now became part of the public sphere. Unobservable and interior processes and representations were taken out of individual heads and placed outside – as drawings, photographs, and other visual forms... what was hidden in an individual’s mind became shared.” (Manovich 60-61).