

# Margins of Digital Databases: Dialectics between Database and Narrative

Yongsuk Shim (yongsuk\_shim@sfu.ca)

Simon Fraser University

## Abstract

A new mode of organizing information has emerged and become dominant in the era of new media: a digital form of database. The relational database that has recently taken a predominant position among other types of databases, for instance, offers a way to query it with the set-theoretic operations, produces automatically organized tables of data elements according to the attributes, and thus results in its self-describing structure in which formal logics will determine the arrangement of contents. Moreover, considering that database and narrative represent two distinct and major modes of organizing information there would be strong temptation, as Lev Manovich presented, to regard them as natural enemies. Narrative, however, still remains the necessary ‘Other’ to the ontology of (relational) database, functioning as an effective counter means to the tendency of ‘monopoly of knowledge’ by database as a monopoly of knowledge always invites competition from inside as well as outside.

## Introduction

In the preface to his famous book, *The Order of Things* (1971) Foucault’s laughter due to a Chinese encyclopedia from Borges’ passage<sup>1</sup> allowed him to figure out three distinct épistèmes. Here his laughter, although it could provide, finally, him with a way to theorize what kinds of limitations our thinking lies in, implies that it was caused by the impossibility of the contemporaries’ thinking and the according absurdness of the imagined Chinese taxonomy.

Today, however, this taxonomy is no more unavailable in everyday life. In computer games, in

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<sup>1</sup> It demonstrates a peculiar way of categorization of animals that also implies the “exotic charm of another system of thought”: “(a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) *et cetera*, (m) having just the broken the water pitcher, (n) that from a long way off look like flies” (Foucault, 1971, p. xvi).

particular an online role-playing game such as Lineage each player will bring various items including swords, spears, shields and so on, facing fantastic animals which never exist in the real world, and fighting against them with other online gamers. In one sense, online game with a set of unusual visual elements extends our imagination beyond the real world.

Diderot's publication of the first volume of Encyclopedia in 1751 was quite contrary to Foucault's laughter. His intention was not to see where the limits of our thinking lie in but to change people's common way of thinking, improving the condition of knowledge. Thus, he did know what should be included in or excluded from Encyclopedia in order to enlighten people and to make the world more transparent. Each item might be selected very carefully, being given a correct and detailed explanation. The amount of information, accordingly, was gathered, collected, and organized to provide people with more comprehensible and convenient access. If Diderot had survived until the era of new media, he must have celebrated the electronic forms of database which seemingly make it possible to gather an indefinite number of items, to provide them with the detailed explanation, and sometimes to offer multiple sensory data as well.

In this paper I will contend that the database has become the dominant way of (re)presenting and organizing in the era of new media. However, rather than following Diderot's ideas on Encyclopedia or database and thus discussing possible ways to maximize the speed and efficiency of the database, I will make an effort to show the limitation which the database sets up and how it restricts the range of our thinking, or rather, as Innis raises, how it makes us pay attention to the things to which we usually pay attention. It will be clarified that the database can ironically achieve its desired functionality, or what Bolter and Grusin (1999) call the 'immediacy' only with the interface as a necessary in-between device which can be regarded as a medium of

‘hypermediacy’. Finally, the interaction and relationships between narrative and database will be approached in terms of ‘natural symbionts’ on the basis of Harold Innis’ dialectical theory on communications.

New mode of representation: database

In his succinct but comprehensive book on the condition of knowledge in postmodern society, Lyotard (1984, p. xxiii) contends that the transformation from modern society to postmodern one brings about the crisis of grand narrative. One of the main forces which lead this transformation, according to him, is the progressive spread and maturation of information-processing machines that increase dramatically the amount of information per se and result in a situation where knowledge will be produced in the “form of informational commodity” (Ibid., p. 6) for exchange and, accordingly, the commercialization of knowledge (Ibid., pp. 4-5). In particular, scientific knowledge which becomes one of the most significant factors that contribute to dramatic increase in the force of production in modern society prevails; however, its insistence upon truth cannot be achieved without relying on the other kinds of knowledge or what Lyotard calls narrative (Ibid., pp. 29-30): for example, although *Dialogues* of Plato adopts the form of a narrative of scientific discussion in order to legitimize science, this narrative is not a scientific discourse; it neither provides nor explains any scientific truth. In this sense, it is important to remember that there is no scientific discourse which can be authorized or legitimized without various forms of narratives (Ibid., pp. 10-11). For instance, Lyotard suggests that today’s flexible networks of narratives which follow the breakdown of grand narrative that used to dominate modern society imply that a new type of social bond distinguishable from the

modernist understanding of society as a unified organic whole by functionalists such as Talcott Parsons or a cybernetic approach to society as a self-regulating system<sup>2</sup> is being formed, which will interweave the warp and woof of heterogeneous discourses (Ibid., pp. 11-12).

In fact, the recent tendency toward the breakdown of grand narrative is not conceivable without today's inundation of data. In particular, since the advent of new media as multimedia system (Castells, 1996), we have witnessed the "translation of all existing media into numerical data accessible through computers" (Manovich, 2001, p. 20). Thus, there is, at least, one key difference between new digital media and traditional media: as a multimedia system, 'New Media' allows different modes of communications, thus presenting a similar functionality with traditional media; at the same time, however, its programmability which is not only fundamental for communication on new media but also makes it possible to gather, store, and retrieve data in a digital form implies the necessity of a new approach on new media study (Ibid., pp. 47-48). What Manovich (Ibid.) calls 'software studies', accordingly, pays its attention to what can be regarded as examples of new category which will not fit to the category from the existing media study: 'interface' (Ch. 2) and 'database' (Ch. 5).

Jensen (2007, p. 8) sharply points out that a new, digital way of approaching information leads to consider new media primarily, if not quite exclusively, in terms of their representative

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<sup>2</sup> While having traced historical backgrounds and scientific discourses of the emergence and proliferation of information, in particular from the field of cybernetics, Hayles (1999) argues that this approach characterizes the cybernetics from 1945 to 1960 or what she calls the 'first wave of cybernetics,' which emphasizes signal over noise and thus stasis over change (pp. 63-64; Ch. 3). However, the second wave changes its attention toward a circular and self-reflexive dynamic of machine systems (Ibid., p. 10 & Ch. 6) and finally the third wave which parallels the rise of artificial intelligence assumes that universe is essentially composed of information, and thus regards, if not deliberately, even human beings as merely informational entities or what she calls the "posthuman" (Ibid., p. 11 & Ch. 9, 10). In the long run, Hayles (1999) contends that nowadays digital information celebrates its self-existence, disembodimenting its body from the material forms and thus circulating itself without any drastic change over the world. In a word, as Jensen (2007, p. 18) describes, today's digital aesthetics dicursify the human body.

power as Manovich's software studies do. For example, any type of digital information cannot be approached or accessed without an interface such as computer screen as well as a software program such as database. The links between hardware and software in new media, according to Jensen (Ibid., p. 13), are understood less as means of communication than as modes of representation by Manovich, which indicates the tendency in much current work of new media toward what he calls 'digital aesthetics' (Ibid., p. 8). This tendency also results in the oversight of communicative aspects of new media although "[m]edia are vehicles of *information*; they are channels of *communication*; and they are means of both interpersonal and macrosocial *action*" (original italics, p. 16). For instance, Manovich (2006) introduces the term 'augmented space' from the established term 'augmented reality' (AR), being defined as the "physical space overlaid with dynamically changing information" (p. 220). Although the concept of augmented space mainly deals with "how to overlay physical space with layers of data," its emphasis lies on the "*aesthetic* potential of laying new information over a physical space" (my emphasis, Ibid., p. 226), disregarding communicative aspects in the augmented space.

While Jensen's critique is to explain the wider implications of new media which is beyond the limited range that the 'digital aesthetics' can handle, it does not imply, of course, that it is necessary to exclude this approach from the framework of understanding new media (Jensen, 2007, p. 21). In a sense, to incorporate digital aesthetics to communication study (and vice versa) nowadays is more important than ever in that new digital media make various modes of representation come to the fore of communication actions by digitizing and thus, computerizing almost all the forms of old media. In the following section, in order to explore both representational and communicative characteristics of new digital media I would like to firstly approach the aesthetic or representational aspects of digital databases with reference to Bolter

and Grusin's (1999) ideas on new media, in particular their well-known concepts, remediation, immediacy, and hypermediacy. Above all, it is worth to account for digital databases because they, as Manovich (2001) shows, have become one of the most dominant forms of (re)presenting and organizing information in the era of new media. In this procedure, it will be revealed that the digital databases can be regarded as a medium of immediacy and in order to achieve their appeal to authentic experience they should rely on the other logic in our culture – hypermediacy.

### Remediation of database and narrative

Manovich (2001) offers a technical definition of database<sup>3</sup>: “*database* is defined as a structured collection of data” (p. 218, original emphasis). Its different strategies for search, retrieval, and organization of data will cause different types of databases: hierarchical, network, relational, and object-oriented (Ibid.). Based on the technical characteristics, database, accordingly, can be regarded as one of the most powerful tools of gathering and ordering a vast amount of information and of executing structured type of query repeatedly (Hayles, 2007, p. 1604). In a word, unlike narratives databases that inherently entail restricted structures of information simplify the data which will be included within them, as a result restricting and distorting discourses severely and making the vast amount of information storage as well as increased speed of information retrieval available and possible (Poster, 1995, p. 66).

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<sup>3</sup> There are, argues Hayles (2005), slippages in Manovich's usage of the term, database. His technical definition of database, without any explanation, is being applied to much broader contexts, in particular data structures, resulting in no distinction between database and data (pp. 165-166). However, a definition of any medium in a technical term can clarify how its function operates and is materially based, and thus, provide a way to discuss reliably how its technical potential had/has/will have been culturally and symbolically realized in everyday life. Thus, in this article while accepting and exploiting Manovich's technical definition of, not his usage of, database, I will make a distinction between its technical form and its symbolic one.

In addition, while following Dimock's argument that genre can be considered a kinship network that is similar to the rhizome, the concept of Deleuze and Guattari in the sense that both of them allow any information of "family resemblance" to be gathered and restored, resulting in the "nomadic multiplicity of identity" (Folsom, 2007, p. 1573), Folsom contends that database can be regarded as genre. In this symbolically extended sense, database, as genre, or rather, "[a]s a cultural form, ... represents the world as a list of items" (Manovich, 2001, p. 225) and this list will never be exhaustive. An example of database as a cultural form that Folsom (2007) offers is the online Walt Whitman Archive<sup>4</sup> which has been co-directed by Folsom himself and Kenneth M. Price (p. 1573). Whitman considered the world being "a kind of preelectronic database", thus producing entire lines, each of which can be treated as a "separate data entry" (Ibid., p. 1574) and can be used over and over<sup>5</sup>. In complete and total sympathy with his approach to composition, Folsom and Price, if their original intention of building this archive was to control the material in the database and to provide proper narratives, realized that it quickly exceeded any narrative with the exponential growth of material (Ibid., p. 1576) as the rhizome of Deleuze and Guattari, unlike the arboreal system, grows without bound. In a word, The Walt Whitman Archive finally makes visible the advent of database as genre or the "most significant effect computer culture will have on the literary world"<sup>6</sup> (Ibid.).

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<sup>4</sup> <http://www.whitmanarchive.org/> accessed at March 8<sup>th</sup>, 2009.

<sup>5</sup> Whitman's practices to produce a line as a separate data entry and to use it repeatedly can be explained by two distinct, but quite closely interconnected, principles in new media, or rather in this context, database: 'modularity' and 'variability'. The former refers to separate and independent identities of new media object, thus making it possible to combine smaller distinct parts into a whole without abandoning their independency (Manovich, 2001, pp. 30-31) while the latter implies multiple (re)orderings of new media objects, abolishing the traditional concept of identical copies in art (pp. 36-45).

<sup>6</sup> Their efforts to reflect their sympathy with Whitman's ideas in the web archive and its (potential) influences on other literary works can be approached with reference to the last principle of new media, 'transcoding' raised by Manovich (2001, pp. 45-48). This principle is introduced in order to clarify the

The representational modes of database can be explored in more detail with reference to one of the “two key contributions to recent media theory” (Jensen, 2007, p. 8), Bolter and Grusin’s (1999) work, *Remediation*<sup>7</sup>. While warning the dangers of media or technological deterministic aspects in McLuhan’s theory (Ibid., pp. 76-77; p. 187)<sup>8</sup>, they totally agree with his idea that “the ‘content’ of any medium is always another medium” (McLuhan, 1964, from Ibid., p. 45). The term, remediation, which refers to the “representation of one medium in another” (Ibid.) or the “mediation of mediation” (Ibid., p. 56), is coined to imply “their [digital media’s] particular strategies for remediating television, film, photography, and painting” (Ibid., p. 50)<sup>9</sup>. This ability of digital media to remediate almost all media is, of course, derived from one of the principles, ‘numerical representation’ (Manovich, 2001, pp. 27-30): “All new media objects, whether created from scratch on computers or converted from analog media sources, are composed of digital code” (Ibid., p. 27).

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interaction between the ‘computer layer’ and the ‘cultural layer’ in new media and, on the other hand, the advent of a new computer culture from this interaction.

<sup>7</sup> Another contribution, according to Jensen (2007), was made by Manovich (2001).

<sup>8</sup> For a quite opposite interpretation of McLuhan’s media theory with an introductive but fully comprehensive explanation of his theory, refer to Morrison (2006).

<sup>9</sup> In a similar vein, McLuhan (1964, p. 174) notes that “A new medium is never an addition to an old one, nor does it leave the old one in peace. It never ceases to oppress the older media until it finds new shapes and positions for them.” First of all, there is the resistance of old media against new media which results in the horseless-less carriage phase (McLuhan, Fiore, & Agel, 2001, p. 173) or what Murray calls the “incunabular days” (1998, p. 29; also see Note 1 in pp. 287-288) that represents the embryonic state of new media in which new media tend to be understood in terms of old media because people during this phase are strongly embedded in and thus, hypnotized by the old media. What McLuhan calls the ‘rear-view mirrorism’ will be engendered sequentially rather than simultaneously: “seeing the old environment in the mirror of the new one while ignoring the new one” (McLuhan, Fiore & Agel, 2001, p. 18). While not recognizing the overall impact by new media, people tend to project their perspectives which have been already influenced by new media onto their understanding of old media.

Remediation, according to Bolter and Grusin (1999)<sup>10</sup>, consists of the dual logic of immediacy and hypermediacy. First, “the logic of immediacy dictates that the medium itself should disappear and leave us in the presence of the thing represented” (Ibid., pp. 5-6). Thus, the purpose of a medium of immediacy is to disappear and to deny its mediated character for the transparent representation. Immediacy, however, does not exclusively refer to physical characteristics of medium; in its psychological sense, it is intrinsically connected to the experience of audience in the sense that it will address the search for their authentic experience because the medium has disappeared, forcing them to pay attention to the *seemingly* unmediated content itself (Ibid., pp. 70-71).

Hypermediacy, in contrast, refers to the “fascination with media” or the “enjoyment of the opacity of media themselves” (Ibid., p. 12; p. 21). Instead of erasing its traces, a medium of hypermediacy reveals itself in order to show its ability to represent the world more comprehensively and fully. While the audience experience the opacity of a medium of hypermediacy per se, hypermedia can also heighten and strengthen their experience of the event. For example, in a staged rock concert there will be no media to be forgotten or erased. Every single medium such as musical instruments, stage-settings, lighting devices, and so on is equipped in order to maximize the effect on the audience and to evoke the feelings of shock. As a result, the audience will abandon themselves to rock music in a degree to which they can achieve an experience they regard as authentic (Ibid., pp. 71-72). Thus, the logic of hypermediacy makes the audience focus on or look at the surfaces of media, usually adopting

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<sup>10</sup> A succinct but informative review on *Remediation* is offered by Dobson (2006). After a brief introduction and explanation of main concepts in *Remediation*, Jenson (2007), like his critiques of Manovich’s theory, draws his acute criticism for their overemphasis on aesthetic characteristics of new media with reference to its lack of systematics of the theoretical framework, the ambiguous place of history, and finally, the equivocal pragmatics of remediation (pp. 10-12).

multiple styles of representation, even sometimes transparency itself (Bolter, MacIntyre, Gandy & Schweitzer, 2006, pp. 32-33) and multiplying media in the interface as the computer monitor does.

Digital database, in particular the relational one in which data are allocated to rows and columns based on their attributes (Hayles, 2007, pp. 1603-1604)<sup>11</sup>, follows the logic of immediacy. As visual media of immediacy, in order to achieve transparency, have adopted three strategies – linear perspective, erasure, and automaticity – (Bolter & Grusin, 1999, pp. 24-26), leading the audience to forget the fact that they are appreciating the contents, mediated by them, database does not leave the audience at the surface of medium; rather it allows them to look through it,<sup>12</sup> thus abolishing the distance between the subject (the audience) and the object (data in database).

Firstly, database, like paintings and photographs of linear perspective, tends to produce what might be called the space of illusion. In other words, as, for example, Atget around 1900, as Benjamin (1968) illuminates, took photos of Paris streets like the scenes of crime, celebrating their exhibition value and proving their “simple relationship to the real” (Bolter & Grusin, 1999, p. 108)<sup>13</sup>, database’s self-containment structure, providing the ability to query it with set-

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<sup>11</sup> The relational database has recently taken a predominant position among other types of databases due to its powerful methods for storing and retrieving data without disrupting its structure (Bono, 2007, p. 95). Similarly, “Relational databases ... have built into their structure the ability to combine with other databases,” notes Poster (1995, p. 89), “forming vast stores of information that constitute as an object virtually every individual in society and in principle may contain virtually everything recorded about that individual.” In a sense, The Walt Whitman Archive can also be considered a textual version of and thus, an extended one of relational databases, because it consists of seven, independent main categories, each of which any text or data can be easily updated to or removed from.

<sup>12</sup> The differentiation between ‘looking at’ and ‘looking through’ with reference to mediation of media is raised by Lanham (cited in Bolter & Grusin, 1999, pp. 41-42). While the former refers to a viewer’s awareness of media’s mediation, the latter usually invites her to immerse herself in media.

<sup>13</sup> Mitchell (1992), however, clearly and comprehensively shows how this simple relationship has been broke down since the advent of digital photography. Thus, what he calls “post-photographic era” (p. 225) implies the advent of radical reconsideration of photographic truth.

theoretic operations such as insert, select and so on, allows its content to be determined by looking inside or looking through it (Hayles, 2007, p. 1604). Thus, there would be, if not absolutely, almost no necessity to leave the space of database in which the audience would unconsciously immerse themselves.

The strategy of erasure, secondly, can be found from oil painting. In order to make the space of the picture continuous with the viewer's space, oil painters have erased their brush strokes (Bolter & Grusin, 1999, p. 25). This strategy is closely interconnected to the third one, automaticity which refers to the automatic process of recording as there would be nothing to do except clicking the cameras in order to take a photograph, in the sense that both strategies try to eliminate potential interruptions by human beings such as oil painters and photographers. Similarly, the digital database, providing an automatically organized set of elements or data based on the underlying logic of data structure which results in the space of illusion, makes its users become oblivious to the actual, physical space; thus, it is seemingly not interrupted by anything outside it including human's action. Even though how people will understand data will depend on their social and cultural backgrounds, it is obvious various understandings will not affect the structure of database per se.

Accordingly, database disappears, bringing people closest to data and obliterating their recognition of using database, when people are searching or retrieving something from it. Database as a medium of immediacy, therefore, leaves the audience not in the surface or interface of medium, but in front of the data per se. Based on one of the most famous concepts from Walter Benjamin, the aura, it might be possible to say that immediacy is nothing with uniqueness or originality, the historical place and time of object; it is not an experience of

“unique phenomenon of distance, however close it may be” (Benjamin, 1968, p. 222). There would be, firstly, almost no (experience of) distance between the subject and the object because a medium of immediacy already has, at least in one’s appreciation of it, disappeared, leading him/her to be confronted with the data within it. Additionally, the object which is represented by a medium of immediacy will lose its historical and temporal origins and thus the contexts where it has been located; otherwise, there should be another medium – or, at least the function in the medium of immediacy – which will illuminate the object’s contexts, thus resulting in the opacity of mediation<sup>14</sup>. A medium of hypermediacy, on the contrary, reveals the distance between the subject and the object, clarifying the context in which a specific object lies. In a word, an object in the hypermedia retains its uniqueness with a constellation being built by its peculiar affinity with the hypermedia. As a result, media of hypermediacy are fascinating us, making the distance between us and them visible and obvious.

At the first glance of immediacy and hypermediacy, there seems to be no interaction between them; rather, only the battle or conflict might rule their relationships. According to Bolter and Grusin (1999), however, immediacy and hypermediacy are so closely interconnected that their relationships can be conceived less in terms of ‘natural enemies’ (Manovich, 2001, p. 228) than in terms of ‘natural symbionts’ (Hayles, 2007, p. 1603): “[o]ur culture wants both to

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<sup>14</sup> By contrary, Bolter et al. (2006, pp. 26-27) argue that while media of immediacy such as Hollywood films reduce, if not totally erase, the distance between subject and object, their transparency creates another sort of distance between the projected visual world, usually considered being real and the imagery world conceived by the audience. Thus, the transparency of medium which generates a seemingly unmediated representation and experience of world (p. 32) can evoke aura, or rather, a “sense of remoteness, of distance-no-matter-how-near” (p. 25) from the audience. However, they interpret aura exclusively in terms of the audience’s reception of media messages, thus disregarding the uniqueness of object per se: “The closeness which one may gain from its [the object’s] subject matter does not impair the distance which it retains in its appearance” (Benjamin, 1968, p. 223, Note 5). In a word, “its presence in time and space, its unique existence at the place where it [a work of art] happens to be” (Ibid., p. 219) should be included in order to discuss the concept of aura.

multiply its media [hypermediacy] and to erase all traces of mediation [immediacy]” (Bolter & Grusin, 1999, p. 5, parentheses added) and the “appeal to authenticity of experience is what brings the logics of immediacy and hypermediacy together” (p. 71). Additionally, a medium and/or logic of immediacy always need one of hypermediacy in the sense that its insistence upon transparency is only relatively be measured against the opacity of another medium because there is no medium without mediation. Similarly, hypermediacy also depends on immediacy because if there is no social, cultural understanding of the degree to which media represent the world transparently, there would be no hypermediacy at all. Thus, “[t]ransparency needs hypermediacy” (Ibid., p. 84) and vice versa.

An example will clarify the interaction between immediacy and hypermediacy, or the way how remediation works. As aforementioned, remediation can be defined as “representation of one medium in another” whose characteristics are easily found in new media. Hypertext, for instance, is now competing with the print-based text. Hypertext based on internet occasionally imitates the printed page whose order is usually linear or hierarchical<sup>15</sup>, while it shows its own ability to connect important terms or phrases to other sources with hyperlinks and adds even visual elements like the medieval manuscripts or ancient Egyptian hieroglyphs, resulting in a more visually organized text (Bolter, 2001, pp. 40-46). In a word, “[e]lectronic writing is

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<sup>15</sup> Of course, there are many exceptions: Sterne’s (1989) novel, *The Life and Opinions of Tristram Shandy, Gentleman*. This novel, although it generally follows the chronological order of Shandy’s life, spends almost half of contents on explaining his birth, mixing up other events, even those which will happen after his birth, from his father, mother, uncle and so on, resulting in new principles of organization to “‘dechronologize narrative,’ and ... a successful “struggle against the linear representation of time”” (Ricoeur, 1984, cited in Landow, 2006, p. 225). Although in almost every novel, of course, it should be distinguished between the sequence of events in the story and their chronological order in the fabula and the difference between them generates what Bal (1985, p. 53) calls “chronological deviations or anachronies”, it is obvious Stern intentionally maximizes the degree of the difference in order to “escape the potential confinements and falsifications of linear narrative” (Landow, 2006, p. 225; also see Bolter, 2001, pp. 140-142) and accordingly, to provide Shandy’s life with rich context and startlingly lifelike color.

mechanical and precise like printing, organic and evolutionary like handwriting, visually eclectic like hieroglyphics and picture writing” (Ibid., p. 8). Thus, hypertext as the remediation of printed forms obviously reveals its strategies of hypermediacy but it is not without homage to a linear and older medium, the printing press which can be considered a medium of immediacy.

The interface also clearly shows why immediacy needs hypermediacy. Determining how users have access to and interpret new media objects by providing a specific way of representing them, the “interface imposes its own logic on them [different media]” (Manovich, 2001, p. 65). The interface, once its form and design are stabilized, tends to be unchangeable as Adobe Photoshop has since been a leader for commercial image manipulation. Thus, quite contrary to the database which has ever-changing and ever-growing qualities, the interface tends to fixate and stabilize the mode of representation, allowing us to realize the counter bias or force against the effects of ‘spatialization’ in new media culture that privileges spatial organization of data in database rather than temporal organization of narratives (Ibid., p. 78).

Moreover, it is obvious that without an interface there will be no way to get access to database. Even though we tend to forget the mediation of database per se, we are forced to be just in front of data only through the mediation of interface; in a sense, in order to use database we have no other options but just to accept and follow the logic of interface. The logic of interface consists of two contradictory, opposite principles: for example, the computer screen, according to Manovich (2001, p. 90) can be read as a place in which there is a tension between two distinct pictorial conventions – the older Western tradition of pictorial illusionism which emphasizes depth, transparency, and image as illusionary space, and the more recent convention of graphical human-computer interfaces that by contrary favors surface, opaqueness, and image

as instrument for action. Similarly, in each graphical user interface, argue Bolter and Grusin (1999), there is the logic of immediacy in that it represents the object graphically so that transparent or natural representation is guaranteed (p. 32) on the one hand; on the other hand the computer screen which allows simultaneously multiple windows, providing the user with the heterogeneity of contents, follows the logic of hypermediacy (p. 33). In this sense, it is obvious the database as a medium of immediacy cannot totally get rid of the potential of hypermediacy.

Thus, it becomes self-evident that database needs another medium or logic in order to function as a medium of immediacy. In the next section, I will discuss why and how the form of narrative can function as a medium of hypermediacy, how it has formed the tradition on which database depends and how database tries to go beyond narrative in the age of new media. Harold Innis' theory, in particular his well-known distinction between space bias and time bias, will be discussed in order to clarify the difference and interaction between narrative and database as well as to illuminate communicative aspects of database.

### Narrative as Symbiont of Database

Manovich's (2001) assertion that the logic of new media never facilitates the generation of narrative (p. 228) so that digital computer becomes the perfect medium for the database form (p. 234) tends to overlook the remediation of narrative and database. Not only is narrative, as Hayles (2005, p. 166) shows, a much older model of the world which can be found from myth, epic poetry, and so on but also even in the age of new media is pervasive in everyday life. Thus, to theorize database without consideration of narrative is to disregard the long history of interaction between them. In fact, Manovich (2001, p. 234) also admits that there have been

fierce battles between modern media, say, photography that privileges catalogs, taxonomies, lists, and thus database, and film that privileges narrative.

In one sense, the digital database as a way of organizing information owes its emergence to narrative as another one. The dominance of grand narrative in the modern world (Lyotard, 1984) ironically makes researchers pay attention to and accumulate proper information which will support a grand narrative, rather than construct another one. For example, driven by a combination of Marxism from the academic left, the Weberian economic model, and the interest in historical factors which brought about a major transformation in society such as capitalist industrialization, state formation, and regime change, historical sociologists in the 1970s and 1980s mainly dealt with what Mahoney & Rueschemeyer call “big questions” (Clemens, 2007, p. 530). In other words, the new Marxist (or New Left) scholarship, despite of its divergent interest in both of “general theoretical and explanatory schemes ... [and] culturalism and the study of lived experience” (Abbott, 1991, p. 210), mainly focused on the formation or history of working-class or what can be called “labor history” (Ibid., pp. 208-209)<sup>16</sup>. Thus, while the historical sociologists in this period did the research involving data over time, concentrated mainly their attention on theorization of social processes, and self-consciously examined past social groups, there did exist an orthodoxy in historical sociology which was held by most of them (Ibid., pp. 204-206). First of all, there was a set of questions that had been already defined by major theories such as Marxism: which economical factors caused a transformation in society toward capitalist one? Secondly, its style and methods were strongly, if not completely, fixed: the

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<sup>16</sup> Defining a general theory in historical sociology “a postulate about a foundational cause that features two components: a causal agent and a causal mechanism” (p. 461) Mahoney (2004) provides five categories of ‘big questions’: functionalist theory, rational choice theory, power theory, neo-Darwinian theory and cultural theory (pp. 462-464). This categorization indirectly and implicitly shows a tendency of ‘big questions’ to identify the main cause(s) of transformation and to describe the transformation.

historical comparison between the pre-transformation and the post-transformation society (Clemens, 2007, pp. 530-531). In a word, the Marxist problematic would lead the direction of research and the interest of researchers, resulting in the development and application of the “singular and idiographic, grist for the nomothetic mill of Marxist theory” (Adams, Clemens and Orloff, 2005, p. 17), thus blocking the advent of new narrative and producing the amount of data per se.

This inverted-relationship between narrative and database can be explained from Harold Innis’ (Innis, 1964; Innis & Godfrey, 1986) dialectical theory of communications<sup>17</sup>. According to Blondheim (2007), Innis, unlike the commonly held interpretations of his theory (pp. 56-58), never argues that communication technology, medium drives to a considerable extent the direction and pace of history; nor is his argument that for example, heavy and durable media, unlike light and portable media, will result in temporally biased society. Rather, his theory can be best understood when it is considered a social constructivism<sup>18</sup>. The way of human adjustment to a specific medium is not solely determined by its material characteristics. For example, the evanescent characteristic of orality (Ong, 1982, pp. 31-33) makes both of dissemination of knowledge over space (space bias) and over time (time bias) almost impossible. However, oral society is small enough to disseminate knowledge or information over space by

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<sup>17</sup> Innis (1964, pp. 81-82) had already recognized that the new mode of representation by the movie camera whose effects were evident during the Second World War needs to be considered. An impression of realism held by the camera and an immediate screening of battles in theaters in Germany brought about new possibilities of delusion, “a peculiarly modern frame of mind known as a photo-realism, the naïve belief that a camera cannot lie” (Stamps, 1995, p. 81). As well known, most German people during the Second World War believed in the imminent defeat of enemies, convincing the victory of German troops strongly. However, Innis is mainly concerned in communicative or discursive aspects of media: “I have attempted to trace the implications of the media of communication for the character of *knowledge* and to suggest that a monopoly or an oligopoly of *knowledge* is built up to the point that equilibrium is disturbed” (my emphasis, Innis, 1964, pp. 3-4)

<sup>18</sup> The subtitle of an earlier version of this article (Blondheim, 2004) which is available from the website of *Canadian Journal of Communication* is ‘Harold Adams Innis as social constructivist’.

spoken language and thus the important issue in oral society is to find a way to preserve valuable knowledge from the past. This context results in the invention of a mnemonic device such as formulas (Ong, 1982, pp. 22-26; 33-36; 57-68). Subsequently, in temporally biased society like oral one when it finds a practical and satisfying way to keep and transmit knowledge over time, the main concern would be changed into the control over space. For instance, ancient Greece found ways of handling this spatial problem during the 7<sup>th</sup> and 6<sup>th</sup> centuries B.C. through the importation and modification of alphabet from the Phoenicians and the importation of papyrus from Egypt (Innis & Godfrey, 1986, pp. 62-65; Stamps, 1995, p. 86). Thus, “a bias, if recognized, will generate a counter bias as a corrective, in the cause of equilibrium,” or what Blondheim (2007, p. 61) calls the “inverted-determinism dialectic” will start operating.

In a similar vein, arguing that two tendencies toward theory and concrete historical cases are working in Innis’ framework, Watson (2006, p. 315) notes “Innis ‘breaks the rule’ of his own schematic dialectic wherever historical evidence dictates.” For example, the following is one of the general statements which are made by Innis himself:

The concepts of time and space reflect the significance of media to civilization. Media that emphasize time are those that are durable in character, such as parchment, clay, and stone. The heavy materials are suited to the development of architecture and sculpture. Media that emphasize space are apt to be less durable and light in character, such as papyrus and paper. The latter are suited to wide areas in administration and trade. (Innis & Godfrey, 1986, p. 5)

This general statement, one of main factors which ironically draw the canonized sketch of Innis, resulting in what Blondheim (2007, p. 56) calls the ‘accepted Innis’ in most communication

work investigating his theory<sup>19</sup>, however, does not necessarily mean that it always and universally true which can be applied to any historical instance. Although he finds some general patterns from the history with reference to communications (media), Innis, at the same time, clearly acknowledges the contingency of any single event which makes impossible and unthinkable to produce any type of the universal law. Thus, for instance, before the Hyksos invasion and occupation in ancient Egypt, even one of obviously heavy and durable media, pyramid, argues no other than Innis himself, did function as spatially biased media, which was reflected in the decentralization and thus, democratization of the twelfth dynasty of the middle kingdom (Innis, 1964, pp. 94-95, cited in Blondheim, 2007, p. 59).

Monopoly of knowledge derived from monopoly of matter, that is, of dominant communication technology in a specific time and space, however, tends to “perpetuate and fixate ... the interests and concerns of society” (Blondheim, 2007, p.61), proliferating a specific ideology or hegemony as the universal, only truth over society. As a result, it will also, if sometimes not intentionally, struggle against the generation of a counter-bias. Although empire tends to keep its balance<sup>20</sup>, in an extreme situation monopoly of knowledge will bring about “a series of marginal attacks and counter-attacks in which each reversal simply set the stage for the next”<sup>21</sup> (Stamps, 1995, p. 77), resulting in the breakdown of empire.

Monopoly of grand narrative in modern times, accordingly, did not succeed in blocking the advent of a counter bias of database; rather, its inverted deterministic dialectic toward data is

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<sup>19</sup> Blondheim (2007, pp. 56-58) presents four consensual components which the ‘accepted Innis’ consists of: fundamental historicity of his work; the emphasis on the role of media; an economically based interpretation of his concept, monopoly of knowledge; a clear-cut time-space divide.

<sup>20</sup> Refuting Stamp’s (1995) argument that the “successful empire would thus be a non-empire,” (p. 72) Watson (2006) argues that Innis’ starting point is not the role of media in empire but the historical facts of empire and his assumption of its balance (pp. 316-317; refers to note 70 in p. 482 as well).

<sup>21</sup> Innis (1964) expresses this as follows: “Each civilization has its own methods of suicide” (p. 141).

now bringing about a new form of monopoly of knowledge based on database. In this sense, Manovich's (2001) idea regarding the dominance of database form in the era of new media is not completely misguided. However, it is important to realize that the digital database as a medium of immediacy also contains its marginal, counter logic of hypermediacy – narrative. This interaction between database and narrative will be obvious when it is considered within as well as without database: the classification of information in database, the reconstitution of subject as multiple individuals by database, and the navigation of internet by web users.

First of all, the above-mentioned Foucault's laughter in the introduction is caused by the impossibility and absurdness of categories from the Chinese Encyclopedia although it is not possible to assign a specific meaning on every category and this category is also arranged in an alphabetical order (Foucault, 1971, pp. xv-xvi). In a word, it is difficult for us to understand the order in the list offered by Borges, resulting in a "worse kind of disorder than that of *incongruous*" (Ibid., p. xvii). Accordingly, what Foucault calls the '*heterotopias*' that "desiccate speech, stop words in their tracks, contest the very possibility of grammar at its source" (Ibid., p. xviii) will emerge. The contemporary mode of classification which is found in a digital database is, however, neither naturally given nor unmediated. We are classifying various things, not only similar but also different in the digital database on the purpose of easy search, fast retrieval, and well-established organization, resulting in a seemingly inherent and logical coherence of its structure. Although the categorization in database can be considered immediate, there exist cultural codes within it that make us take a certain order of things for granted. Thus, "a 'system of elements' [that determines the "threshold above which there is a difference and below which there is a similitude"] ... is indispensable for the establishment of even the simplest form of order" (Ibid., p. xx) and it is important and necessary to illuminate above all cultural codes that have

always governed the perspectives of society, thus becoming the foundation of any ‘order of things’. In short, even in the digital database it is not impossible to observe and find “how a culture experiences the propinquity of things, how it establishes the *tabula* of their relationships and the order by which they must be considered” (Ibid., p. xxiv) although these cultural influences are usually concealed and thus invisible.

Secondly, while digital databases make it possible to dramatically and exponentially increase the speed of retrieval of information as well as the total amount of information storage, they, at the same time, result in what Poster (1995, p. 85) calls the “super-panopticon” that reconfigures the constitution of the subject: by transforming the private act such as using a credit card into a part of public record by the credit card company, databases as super-panopticon technologies constitute and produce individuals as decentered from their ideologically determined unity in modernism. In a word, “The individual subject is interpellated by the super-panopticon through technologies of power, through the discourse of databases” (Ibid., p. 86) and as a result digital databases tend to produce dispersed and multiple individuals (Ibid., p. 93; Graham and Wood, 2003, pp. 230-231) on the basis of data contained in digital databases. In this sense, the digital databases cannot be considered only a set of information; it also has a discursive impact, or rather, narrative power to reconstruct the subject.

As Manovich argues (2001, pp. 220-221), web sites, like database, always grow with ceaselessly added new links and information. This attachment results in a collection of data and thus makes a coherent narrative almost impossible, contributing to the “anti-narrative logic of the Web” (p. 221). Here Manovich, however, thinks of grand narrative retrospectively, not of possible multiple narratives. Of course, web sites, again like database, will provide any web user

with the same information regardless his or her context<sup>22</sup>. If anyone puts the same search word in, say, Google, the results which s/he will get will be the same. However, every web user will not choose the same web sites from Google search. Even when web users visit the same web site from Google search results, they bring different perspectives and thus, will pay attention to distinct information. In this sense, as Hall (1980) clarifies in one of his celebrated articles, encoding a message in a way that reflects a dominant ideology in society does not automatically lead to a dominant-hegemonic decoding; decoding a message is always open to different interpretations, thus making available a negotiated as well as an oppositional decoding. Moreover, multiple or kaleidoscopic narratives in the web constituted by peculiar pathways and interpretations of each user through his/her navigation make possible what Murray (1998, p. 151) calls the ‘constructive pleasure,’ that is, “the highest form of narrative agency the medium allows, the ability to build things that display autonomous behavior.” In other words, new media, allowing each web user’s own construction of his/her own narratives, tend to produce, if not always desirable<sup>23</sup>,

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<sup>22</sup> In this sense, database is similar what Innis calls space biased media. While space bias media tend to overlook the contexts of specific places for the expansion of territory, focusing on quantitative information which can be applied to any space, time biased media usually pay attention to the contexts, preserving partially valid but important knowledge over generations. Accordingly, narratives, not grand narrative which usually has a tendency toward universal law, can be regarded as following the logic of time bias.

<sup>23</sup> Benjamin (1968, p. 242) has already clarified two distinct but conversely interconnected possibilities that mechanical reproduction technologies, or rather, mass media make possible: the “introduction of aesthetics into political life” by Fascism and the politicization of art by communism. “This [the self-alienation by mankind as an aesthetic pleasure] is the situation of politics which Fascism is rendering aesthetic. Communism responds by politicizing art.” There are also two aspects of the same process by new media, like the ones by mass media although they will be beyond the range which this article covers; however, it might be safe to say that new media, allowing the audience’s own participatory construction of narratives with access to an amount of data through a certain interface, can cause incoherence, confusion, and as a result, preposterous narratives by failing to weave together multiple different story sequences properly.

participatory and multiple narratives<sup>24</sup> and these multiple narratives clearly reveal a hidden but still potent logic of inverted-deterministic dialectic.

### Conclusion

The digital database, as Manovich shows, has become dominant, therefore leading to a new mode of representing the world as a list of data. In this sense, his assertion that new media study enter a new stage, what he calls the ‘software studies’ in the field of communications is not misplaced at all. Moreover, considering the fact that the digital database consists of a structured set of simple factual information, its dominance clearly signifies an aesthetic or representational mode of new media or what Bolter and Grusin call ‘immediacy’. However, this dominance, as this paper clarifies, does not necessarily imply an absolute abolition of ‘hypermediacy.’ In particular, the existence of interface which is indispensable for having access to data in the digital database constitutes the dialectical pole of immediacy, hypermediacy even in the representational mode of new media.

While today's new media theory reveals its tendency to concentrate almost exclusively, if not completely, on aesthetic and representational modes of new media, it is also important to realize communicative modes of new media. In this sense, there is a tendency toward aestheticization of digital media in new media study while it overlooks the wider context of communication theory. Thus, it is necessary to see and realize what types of knowledge new

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<sup>24</sup> Interestingly, Hayles (2005) argues that data available from database are just ‘known knowns’ (visible data); there are other types of data available from narratives: ‘known unknowns’ (invisible but available data) and ‘unknown unknowns’ (invisible and unavailable data) (pp. 167-178). While the audience can make different interpretations only from the former, it is obvious that narratives of the latter provide more options for interpretational flexibility.

media prefer to disseminate, how they organize data, and what would be their impacts on our ways of communications. It is true that as the database has become a dominant way of (re)presenting and organizing data narrative seems to lose its glorious past; the dominance of database makes us mainly focus on its ever-changing characteristics, thus making it difficult generalize its characteristics and having a tendency to get our eyes away from narrative. The strength which can be found from an Innisian inverted deterministic dialectics, however, is that it always renews a focus on the margin, rather pays exclusive attention to the dominant, which leads us to pay attention to the things which we usually pay attention. Only when narratives are considered as a natural symbiont of databases (and vice versa) can we embrace as well as change the culture of new media.

#### References

- Abbott, A. (1991). History and Sociology: The Lost Synthesis. *Social Science History*, 15(2), pp. 201-238.
- Adams, J., Clemens, E. S. & Orloff, A. S. (2005). Introduction: Social Theory, Modernity, and the Three Waves of Historical Sociology. In Adams, J., Clemens, E. S. & Orloff, A. S. (Eds.), *Remaking Modernity: Politics, History, and Sociology* (pp. 1-72). Durham: Duke University Press.
- Bal, M. (1985). *Narratology: Introduction to the Theory of Narrative* [Theorie van vertellen en verhalen.] . Toronto ; Buffalo: University of Toronto Press.
- Benjamin, W. (1968). *Illuminations*. New York: Harcourt, Brace and World.

- Blondheim, M. (2004). Discovering the Significance of Communication: Harold Adams Innis as Social Constructivist. *Canadian Journal of Communication*, 29(2) Retrieved from <http://www.cjc-online.ca/index.php/journal/article/view/1431/1538>.
- Blondheim, M. (2007). The Signification of Communication. In Watson, R. P. M., & Blondheim, M. (Eds.), *The Toronto School of Communication Theory: Interpretations, Extensions, Applications*. Toronto: University of Toronto Press.
- Bolter, J. D. (2001). *Writing Space: Computers, Hypertext, and the Remediation of Print* (2nd ed.). Mahwah, N.J.: Lawrence Erlbaum Associates.
- Bolter, J. D., MacIntyre, B., Gandy, M. & Schweitzer, P. (2006). New Media and the Permanent Crisis of Aura. *Convergence the International Journal of Research into New Media Technologies*, 12(1), pp. 21-39.
- Bolter, J. D. & Grusin, R. (1999). *Remediation: Understanding New Media*. Cambridge, Mass.: MIT Press.
- Bono, A. (2007). Historical Seismometry Database Project: A Comprehensive Relational Database for Historical Seismic Records. *Computers & Geosciences*, 33(1), pp. 94-103.
- Castells, M. (1996). The Culture of Real Virtuality. In *The Rise of the Network Society*. Cambridge, Mass.: Blackwell Publishers.
- Clemens, E. S. (2007). Toward a Historicized Sociology: Theorizing Events, Processes, and Emergence. *Annual Review of Sociology*, 33, pp. 527-549.
- Dobson, S. (2006). Remediation - Understanding New Media – Revisiting a Classic. *Seminar.net: International journal of media, technology and lifelong learning*, 2(2). Retrieved Nov. 10, 2008, from [http://www.seminar.net/images/stories/vol2-issue2/review\\_remediation\\_dobson.pdf](http://www.seminar.net/images/stories/vol2-issue2/review_remediation_dobson.pdf).

- Folsom, E. (2007). Database as Genre: The Epic Transformation of Archives. *PMLA*, 122(5), pp. 1571-1579.
- Foucault, M. (1971). *The Order of Things: An Archaeology of the Human Sciences*. - [Mots et les choses.] (1st American ]. - ed.). New York: Pantheon Books.
- Hall, S. (1980). Encoding/Decoding. In *Culture, Media, Language : Working Papers in Cultural Studies, 1972-79*. London; Birmingham, West Midlands: Hutchinson; Centre for Contemporary Cultural Studies, University of Birmingham.
- Hayles, N. K. (1999). *How We Became Posthuman : Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago, Ill.: University of Chicago Press.
- Hayles, N. K. (2005). Narrating Bits: Encounters between Humans and Intelligent Machines. *Comparative Critical Studies*, 2(2), pp. 165-190.
- Hayles, N. K. (2007). Narrative and Database: Natural Symbionts (responses to Ed Folsom's 'Database as Genre, the Epic Transformation of Archives'). *PMLA-PUBLICATIONS OF THE MODERN LANGUAGE ASSOCIATION OF AMERICA*, 122(5), pp. 1603-1608.
- Innis, H. A. (1964). *The Bias of Communication*. Toronto: University of Toronto Press.
- Innis, H. A. & Godfrey, D. (1986). *Empire & Communications* (Rev. ed.). Victoria, B.C.: Press Porcépic.
- Jensen, K. B. (2007). Mixed Media: From Digital Aesthetics towards General Communication Theory. *Northern Lights*, 5(1) pp. 7-24.
- Landow, G. P. (2006). *Hypertext 3.0: Critical Theory and New Media in an Era of Globalization* (3rd ed.). Baltimore: Johns Hopkins University Press.
- Lyotard, J. F. (1984). *The Postmodern Condition: A Report on Knowledge*. Minneapolis: University of Minnesota Press.

- Mahoney, J. (2004). Revisiting General Theory in Historical Sociology. *Social Forces*, 83, 459-489.
- Manovich, L. (2001). *The Language of New Media*. Cambridge, Mass.: MIT Press.
- Manovich, L. (2006). The Poetics of Augmented Space: Learning from Prada. *Visual Communication*, 5, 219.
- McLuhan, M. (1964). *Understanding Media : The Extensions of Man*. New York: McGraw-Hill.
- McLuhan, M., Fiore, Q. & Agel, J. (2001). *War and Peace in the Global Village*. Corte Madera, CA: Gingko Press.
- Mitchell, W. J. (1992). *The Reconfigured Eye: Visual Truth in the Post-photographic Era*. Cambridge, Mass.: MIT Press.
- Morrison, J. C. (2006). Marshall McLuhan: The Modern Janus. In Lum, C. M. K. (Ed.), *Perspectives on Culture, Technology, and Communication: The Media Ecology Tradition*. Cresskill, NJ: Hampton Press.
- Murray, J. H. (1998). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge, Mass.: MIT Press.
- Ong, W. J. (1982). *Orality and Literacy: The Technologizing of the Word*. London ; New York: Methuen.
- Poster, M. (1995). *The Second Media Age*. Cambridge, UK; Cambridge, Mass.: Polity Press; B. Blackwell.
- Stamps, J. (1995). *Unthinking Modernity: Innis, McLuhan, and the Frankfurt School*. Montreal: McGill-Queen's University Press.
- Sterne, L. (1989). *The Life and Opinions of Tristram Shandy, Gentleman*. Oxford, England: Oxford Text Archives.

Watson, A. J. (2006). *Marginal Man: The Dark Vision of Harold Innis*. Toronto: University of Toronto Press.