The (Un)reality of the Timeline

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Delivered at the CHA, Congress, 2010

0. Introduction

J. Ellis McTaggart in his famous article in *Mind* in 1908 titled "The Unreality of Time" argued that positions in time can be ordered in two different ways.

- First, we talk about positions in time that have the property of being in the past, present and future, and these he calls the A series – a series of positions on a line, if you will, that flow from the far future through the present to the distant past.
- Second, we talk about positions in time that are earlier or later than each other. McTaggart calls these the B series of positions and they can be arranged on a line in terms of their relationships to each other.

The B series tends to be considered "objective" because the positions are permanent. If an event takes place three days before another, then the temporal relationship between those positions remains true forever. The A series, on the other hand, is relative to Now. An event I talk about today, June 1st 2010, as being tomorrow, in the future, will, by the time you read this, be in the past. The B series is generally how we construct timelines, as if events exist stretched out on an objective dimension in permanent relationships with each other. The A series, on the other hand is closer to how we experience the flow of time where events are possible in the future, are really present, and then are fixed in the past.

McTaggart's argument that time is unreal builds on the incommensurability of these two series. McTaggart argues that the B series doesn't account for change and

therefore is not about time while the A series is contradictory because each time has the properties of being in future, present and past.

The reality of unreality of time doesn't concern us here, what is important to thinking through timelines how McTaggart's argument that there are at least two fundamentally incompatible ways to represent a series of temporal events, and that neither can be collapsed into the other. Given that a timeline is a graphical representation of a series of events this means that there are at least two fundamentally incompatible ways to order a timeline corresponding to the A and B series. To paraphrase McTaggert, if Time is Unreal than the Timeline is also Not Real, something we all intuitively know, but something this paper hopes to illustrate with concrete examples from the Histories and Archives of Humanities Computing project. But first something about this project.

1. Histories and Archives

The Histories and Archives group at the University of Alberta got started when a variety of documents about the formative years of humanities computing in Canada, both analogue and born-digital, were passed to us, because we were assembling a chronology of humanities computing for a small SSHRC supported study. First, materials gathered and preserved over the years by the late Terry Butler were discovered in an office and passed to the research team for assessment. Essentially the boxes of documents were going to be thrown out if we didn't do something. Then, we were offered access to a similar collection belonging to Dr. Ian Lancashire at the University of Toronto, one of the leaders of the field internationally in the formative 1980s. Dr. Lancashire was organizing his papers and offered us access. In an effort to understand and contextualize this collection team members also began a review of the published literature about the history of humanities computing in Canada. The contextual research included systematically combing through the Globe and Mail back issues to see how computing in general and university computing in particular was represented to the public. This, of course revealed more people, projects, and stories that needed to be studied.

At a certain point we realized we had materials that really should be deposited so we also began to review best practices in digital archiving which in turn led to various people who were interested in developing their own archives joining our group. Simultaneously as we began to discuss the materials we had with the community. Asking around if others were archiving these materials we discovered that no one was doing anything like this, but everyone felt it was important to create a digital archive immediately. What started as a nice constrained project to create a timeline of our field exploded into an archival project. In particular it became clear that it was important that someone, Us, develop a workable repository suitable for gathering humanities computing materials quickly as so many of the actors are still alive and willing to help.

After some soul searching to decide what exactly was the project we were prepared to embark on, we ended formalizing ourselves into a research collaboratory under the Canadian Institute for Research Computing in the Arts, CIRCA, with the following objectives:

- We are developing a digital archive with the University of Alberta Library where documents relating to the history of humanities computing and other topics can be deposited for long term preservation and research access.
- We are using these materials to study the history of the formation of the discipline of humanities computing. For the moment we are concentrating on the emergence of institutions and contrasting their formation with both the published research and public representations of computing in the arts and humanities. We have been guided by Willard McCarty who, in his book *Humanities Computing*, in a chapter fittingly titled "Discipline", argues that the way to understand the discipline historically is to understand how it articulated its agenda through time. The way to understand the beginnings of a discipline are not to look for founding heros, but to track the desires and needs articulated at the time and how they form an agenda for action. That agenda can then be compared to what actually happened. We will return to this.

- We want to use this project to simultaneously think through the practices, technologies, and ethical issues around digital archiving. In particular we want to develop working models that respect and leverage the rights of cultural return to the community documented. We are working with a colleague that works with First Nations literature and one who works with Nigerian market literature to develop alternative archiving models that are designed to return control of the archive to the original community. We plan to make this the philosophical focus of next year's research.
- We are therefore interested in adapting social media and participatory media models and technologies so that they can work over trusted digital repositories. We hypothesize that a properly designed social archive where members of the community can deposit materials and add commentary to deposited materials can better suit the community than an archive accessioned by a dedicated team.

To put this another way, we decided to use these materials that fell into our lap as a chance to learn about digital archiving technologies and to experiment with different models, all while stepping up to the timely challenge of trying to document the history of the formative years of our field.

2.0 The Formation of Humanities Computing

Many of the documents we have relate to a series of events around the formation of key disciplinary organizations in English Canada in the 1980s and 1990s. We have, for example,

- Proposals of various sorts for centres and organizations
- Reports from centres and organizations
- We have minutes from meetings
- We have ephemera from training sessions, conferences, and other events
- We are working our way through all the articles in the Globe and Mail archives that mention computing in the academy

- And we are gathering published histories of or reflections on computing in
  the humanities
- We recently had sent to us all the books Robert Tannenbaum used to write
  his important textbook on the *Theoretical Foundations of Multimedia.*

As I'm sure happens to anyone who has a case of archive fever, once you start
gathering documents, you realize how little you have, how much could be gathered,
and how many gaps there are in what you have. One gap in particular is worth
noting - We have very little concerning humanities computing in Quebec though a
graduate student at the Université de Montreal is presently conducting a literature
review of materials published in French to help us at least understand the scope of
the gap.

That said, what we do have, suggested a hermeneutic for its interpretation. The
variety of administrative documents combined suggested the historiographical
approach we adopted of trying to identify the agendas of the actors and
organizations and contrast those with what is being reported or published. We
recogniae that there is something circular about drawing our approach from the
materials, but that is why we have been gathering "control" samples like the Globe
articles and the published historical reflections.

Let me give you a taste of some of our findings by looking first at early
representations from the Globe of computing in the arts and humanities. The first
article we found dates from 1957 and it is titled, "Strange Music Made By an
Electronic Brain". This article reports about a music composition experiment at the
University of Toronto. Listen to how the story reads,

> To the casual observer, the squeaks, squawks, groans and hints of tunes were
> a harsh cacophony. To Professor C. C. Gotlieb and his colleagues, the sounds
> were the Iliac Suite, a string quartet composed by the electronic brain at the
> University of Illinois.
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> It was an experiment in composition designed by Prof. Gottlieb and his
> fellow-workers with the university's electronic brain to show that humans

are not the only ones that can compose music." (*The Globe and Mail*, Friday, March 22, 1957, p. 4)

Professor Gotlieb, by the way, was the Director of the University of Toronto Computation Centre that was started in the late 1940s and which was the only site of academic research computing in Canada for the 1950 and early 60s. Gotlieb was not a music professor, but he was a great promoter of his center, and, as is often the case with the news, many of the stories about academic computing in the 1950s report lectures or demonstrations he gave using one of the Centre's computers. It wouldn't surprise me if he was looking for astounding demonstrations to show the potential of the digital computer and to get press attention in this early incunabular phase of research computing. In many of the articles about the Toronto Centre in the first decades one gets lists of fields where the "electronic brain" might contribute to research as if the expenditure needed to be justified by discovering new applications.

What stands out about this and subsequent stories in terms of their representation of computing in the humanities is that they are tales of novelty hinting at transformations to come, something that is still true of reporting about computers in general and certainly about reporting about computing in the humanities. It is the novelty of the modern computer being used for something old and unscientific like music composition that stands out about this article and others that mention the arts and humanities. The new "electronic brain" is being shown to be able to think in old and human ways.

The first true humanities computing reference dates from 1961 when there is a passing mention to textual computing in an article titled, "A Computer for Homework" which is about the new IBM 7090 to be bought for the University of Toronto. This computer, it is reported, "will make that institution's Computation Centre facilities the equal of any in the academic world." Note the future tense, Gotlieb is again the source of the story reporting what will be possible once Toronto

gets their spanking new computer. The piece surveys all the uses to which this new "transistor-type unit" will be put as a way of justifying it, including uses in the humanities. As the reporter puts it, "And those in the humanities find the computer invaluable for developing concordances."[1]

This short mention is followed in 1963 by the first story exclusively about textual computing titled, "Only 4 of 14 Epistles Believed Paul's Work" which reports about stylistic analysis in the UK, not Canada.

> Two researchers using an electronic computer have decided that St. Paul was the author of possibly only four of the 14 Pauline Epistles in the New Testament.
> Scientific evidence for their thesis is to be published next month by Dr. G. H. C. Macgregor, professor of divinity and biblical criticism at the University of Glasgow, and Rev. A. Morton, a minister of Culross Abbey, Fife.
> Together they programmed the computer with 250,000 words of Greek prose and analyzed the results of a stylistic study of the epistles and work by other Greek authors.
> ...
> Mr. Morton said their paper will present for the first time scientific evidence in support of the theory that only four of the epistles – Romans, First and Second Corinthians, and Galatiancs – were written by St. Paul. (London – AP. *The Globe and Mail*, Tuesday, February 26, 1963, p. 3)

Again, it is the novelty of traditional scholarship being done with the very modern and scientific computer that makes this newsworthy in Canada. That this story is about the New Testament would also seem an important contributing factor to the story being reported in Canada. The next story about textual computing is similarly about stylistical analysis of religious texts and the byline is Jerusalem. It is about

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[1] Spurgeon, David. "A Computer for Homework". *The Globe and Mail*, Monday, December 4th, 1961, p. 7. This signed article is set off in a box as a "Report on Science". The article ends by discussing how the computer will be used in expanded computer science training, something needed as industry demand grows. Students will be "able to do their homework on the machine. Homework in computer training, that is."

how a "Professor uses computer tests to prove two persons wrote the biblical Book of Isaiah". [2]

It should also be noted that in many of these stories there is a rhetoric of bringing scientific methods to the humanities, producing scientific evidence of humanistic claims, and therefore proving things scientifically. Science, and the computer, as its paradigmatic instrument is the dog that bites the human making the story. The sense of time in these public representations is oriented to the future – these stories are harbingers of what could be as we use "electronic brains" to bring scientific rigour to one field after another. We find this science of the future, by the way, also in the research literature. Computing, both in and outside the academic is as much about the desires for the future as anything.

And here we can begin to see one form of the challenge of evidence to the reality of the Timeline. A B Series timeline can't represent the desires (or anxieties) for a future that we read into the past. It can't show what was desired and anticipated before as there is no Now (or Future or Past) on the B Series timeline.

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[2] Jerusalem – Reuters. "Professor uses computer tests to prove two persons wrote the biblical Book of Isaiah". *The Globe and Mail.* Tuesday, March 31, 1970, p. 8.

The Incredible World of Tomorrow!

Here is an ad that ran in the *Globe* in 1964 for a four-part series on "The Incredible World of Tomorrow" about their future 50 years from then, or 4 years from Now:

> Imagine a world of schools without teachers and buses without drivers; a world in which men and women select their marriage partner by computer. Imagine a world of push-button farming and garden vegetables 12 feet in diameter; a world of gigantic industrial plants operated by a single man.
>   All this can happen in the world of 2014 A.D. – just 50 years away – an age in which your children may live. The first installment of a four-part series in the Star Weekly at your news stand now. (*Globe and Mail*, News Section, January 8, 1964, p. 24)

Even though 2014 A.D. is still in the future, it is a close future and that means we read this very differently, perhaps with nostalgia for a time when the future really was a glorious future. From the perspective of timelines, computing in the *Globe* is not presented as B Series events – an orderly set of relationships between temporal events. Computing in the news is often about the A Series properties, about what will be 50 years from the then Now. You can't represent the sense of time in this ad unless you recognize that what is being discussed is a distant future, a future that is Now almost on us as the present. You can't understand the sense of that future without a "now" to that time that is not today's Now. At the same time we have recognize the Now of the reader today trying to sympathize rather than laugh at the future then. We need these contradictory Nows, which makes such a time unreal, but expressive. Timeline that!

But let us return to the evidence and this time look at the evidence from the documents we have gathered internal to humanities computing because they show the need for B Series timelines. One thing that stands out about these documents is the amount of work that went into founding institutions for supporting humanities computing research as opposed to doing research. The 1980s was the time of founding of centres, consortia, and other institutions. That is, to some extent, the stories told by unpublished administrative materials. What the academy publishes is usually the finished research of individuals, what archives keep are the institutional proposals, reports, minutes and other administrative documents. Reading through the materials kept by figures like Terry Butler and Ian Lancashire we see the formation and construction of the institutions of a discipline. Humanities computing goes from being the work of individuals to being the work in institutions. We see how individuals are making the case for funding to set up university centres, provincial organizations, and eventually national organizations like COCH/COSH (the Consortium for Computing in the Humanities) which is the first national learned society – a society that eventually turns into the Society for Digital Humanities. Here is our reconstitution from the documents of the series of events that led to the formation of the society:

1982 – proposal for the establishment of a Canadian National Centre for Computers in the Humanities to SSHRC. Ultimately turned down, but when?

1983 - the Centre d'Analyse de Textes par Ordinateur at the University du Québec a Montréal known to be serving the local and provincial community. When is it founded and by who?

1983, June 2 – Meeting of the Advisory Committee for the IBM/U of T Cooperative Agreement.

1984, June 11 - 1st proposal for a Humanities Computing Facility at the University of Toronto.

1985, August 20 – The Faculty of Arts and Science of the U of T created the Centre for Computing in the Humanities. Presumably the cooperative agreement between U of T and IBM is signed.

1986 – Elaine Nardocchio from McMaster is determining the possible vialbility of an Ontario Consortium.

1986, April 17 – An Ontario Consortium for Computers in the Humanities is set up in principle (with 17 institutions).

1986, November 14 – Ontario Consortium for Computers in the Humanities (OCCH) has its first Board of Directors meeting.

1987, January – First newsletter about Ontario Humanities Computing (OHC).

1987, December – Issue 1.4 of OHC contains first of new series of reports 'Outside the Province'.

1988, November 4 – Board of Directors of OCCH approve constitutional amendment to change from an Ontario-based initiative to nation-wide initiative. Change of name to Consortium for Computers in the Humanities/ le Consortium pour ordinateurs en sciences humaines (COCH/COSH).

1989, April 24 – Approval of application for membership of Laval University bringing membership to 21 Canadian institutions of higher learning. Adds to bilingual nature of the organization.

1990, May – COCH/COSH meets at the Learneds (now called the Congress).

This a our best guess at the timeline of institutional events in Canada that formed our current national institutions, SDH/SEMI. Such a sequence of events extracted from the archival materials resembles McTaggarts B Series of a fixed series of relationships. Like anyone else we have all the usual problems fixing these events from the evidence.

- There are different degrees of certainty about events.
- It isn't clear exactly when certain events happened, though we can figure out by when something happened or infer that it happened.
- Many events don't really happen at a distinct moments, but are announced as an event after the fact.
- We can't always trust the documents.

Nonetheless, reading through these administrative documents, one of the things that stands out are the dates. To the writers the dates matter and the relationships between events. The writers are trying to effect change through the creation of institutions. They use the language of relationships between events (like, but not limited to, cause and effect.) When you therefore try to use the evidence to recover a sequence of related events that explains the formation of institutions you end up with a B Series of events which is a very different sort of timeline than the times of futurity with its multiple Nows.

Of course, the evidence internal to humanities computing, like *The Globe and Mail* articles is also full of A series discourse about the past, present, and future, but cast in the form of proposals for what can be done in the future and reports on what has been done in the past. Administrative documents bring together the rhetoric of related events (B Series) with the rhetoric of desire, though more concrete desires formulated as "needs" that can be met with formation (A Series.) For example, from the June 1983 *Minutes of the Meeting of the Advisory Committee for the IBM/U of T Cooperative Agreement* we read about the Needs of Researchers in the Humanities:

> 1. Needs of Researchers in the Humanities
> The areas in need of support were:
> - data collection and communication links with Oxford and U.S. Universities that have established databases of text. (Oxford University – Old English Literature, University of Chicago – French literature, Rutgers)
> - data base packages that would assist researchers to organize and analyze text,
> - ability to handle odd characters and symbols on the terminal keyboard, screen and printer, ...
> - printing of high quality documents for publication
> - various software packages, e.g. one that can parse English
> - improvement of the interface between the researcher and the microcomputer

Where in a timelines do expressions of need go and how are they to be connected to the B Series of events and documents that led to the actual formation of the Centre for Computing in the Humanities? How do we inscribe on a line what an influential committee decides in 1983 are the future needs of humanists which may or may not

have influenced the formation of an important centre in Canada? I should add that such descriptions are central to the discourse of proposals – and in this case the sequence of proposals testify to a negotiation around needs (both those of the academics and those of the donor, IBM) that eventually defines the agenda for the University of Toronto's Centre for Computing in the Humanities, a Centre whose founding leads to the construction of a national agenda.

Here we see the challenge captured by McTaggart's incommensurable A and B Series. The evidence we have from our sources about the history of computing in the arts and humanities can't be represented by either the object B Series type of timeline or by an A Series type of (un)timeline. The archival materials witness to both series. The materials are both about relationships of events or B Series time and about agendas for the future and reports about the past or A Series time. To understand the emergence of the field we can't just choose one or the other, or collapse one into another. The challenge is to find a way to maintain both representations despite their incommensurability because it seems that, as McTaggart argued, we operate with both views of time. This is the unreality of time and its lines – not the unreality of something we can ignore, but the (un)reality where we have to understand the weaving of the real and unreal. It is an (un)reality which can really do without either.

I want to close turning to a second philosopher and that is the 18th century Neapolitan philosopher of history Giambattista Vico who in his *New Science* presented a cyclical view of history as being made up of three returning ages: the divine, the heroic, and the human. He tries to deal with the difficult challenge of the changing Now of the interpreter in time.

Each age, according to Vico, constructs their own sense of time and each age has their own perspective on the other ages. Vico is a relative relativist, by which I mean that that in Vico's cyclical philosophy of time even the view that history is relative is

constructed in one particular age, that of humans or the secular age that doesn't believe in Gods or Heroes. In other ages we construct teleological histories or heroic ones and no one view has any better a foundation than another. Our sophisticated secular view leads to chaotic absence of certainty which is really another form of jungle which will be cleared by the fundamentalists and their Gods (again.) Whatever the truth about history, Vico is right about the interpretation of history and the tendency of each age to see the interpretations of the past as naïve. Our timelines are a view from an age, in our case an age with a residual belief in the reality and objectivity of time that is captured in the simplicity of the line through time. Of course we all know that time isn't experienced as a line and the future is certainly not experienced as events of the same order as those present or past. How then can we reimagine the timeline? How can we keep the B Series representation, because it too is important, while layering over the A Series representations that are so much part of how we talk of computing to be.

Again we can turn to Giambattista Vico who had a frontispiece created for his *New Science* that was supposed to represent his philosophy of cyclical ages so that contemporary readers might commit it to memory to remember his argument (many readers in the early 18th century in Naples were unlikely to be able to afford their own copy, so Vico wanted to make it easy to commit the ideas to memory with a visual device.) This frontispiece can be thought of as a very different sort of representation of time – perhaps a representation of a philosophy of ages, but also as different sort of representation for time – a representation for that time when you don't have the text, when it is unreal. The frontispiece is not a linear representation of time, but it for time and about time. For that matter it has all sorts

of temporal references in relationships with each other, but relationships beyond the mere line.