Visualizing Interpretation
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When did “information” come to have so much clout in the community of digital humanities? These days, information feels like a guest invited to tea who arrives with an alarming amount of baggage, stays way beyond the invitation, and then presumptively assumes a place at the head of the table and settles in with a proprietary air. Interpretation, the traditional focus of humanities activity, somehow got shoved aside in the process. The community of scholars creating the discourse of digital humanities needs to call interpretation back to the center of what we are doing. In the courtship of humanities and computational technology, we understandably ceded significant ground to the contributing discipline of computer science. That was fine when it was necessary. We had everything to learn. Being humanists, I think we were intrigued by the intellectual discipline imposed on our interpretive methods through the rigors and exigencies of formalizing and making explicit so much of what was implicit in our activities in more traditional media environments.

But that era has passed. Over time it became clear that our attentions were not reciprocated. Computer science has remained aloof from influence. The engineering streak of applied sciences resists the speculative sensibility of humanistic endeavors, considering them lite fare. Why, a systems design colleague asked with incredulity, would one ever want to ask a question for which there was no answer? Why “imagine what you don’t know”? Problem solving approaches have their basis in convictions at odds with the opening-up that characterises work in the humanities. Not only are our methods different from those of the engineering disciplines, so are our substantive issues: critique the ideology of empiricism or quantitative analysis? Only in the most unlikely scenario would the computer scientists I know wake some morning to the necessity of critical tools for that undertaking. And if they did, the thought would likely pass as a mild entertainment and diversion, not a serious project.

Visualization is a good place to begin this revisionist project. (A sign of maturity of the field of digital humanities is that it is ready for revisionist undertakings. Time to take stock of where we are and reassert priorities central to our mission.) The techniques of visualization that are available for the display of data are really not well suited to humanists’ needs to display interpretative acts. And they are certainly not suited to the even more fundamental process of doing interpretation in visual form as a primary act of knowledge production. Information visualization dominates the screens and programs built on top of data sets. Sliders and bar graphs, pie charts and grids, scatter plots and diagrammatic schemes have established the language of visualization. These are all imaging methods well suited to the display of quantitative information. Hence their value in the sciences, where empirical data appears to be readily available to parameterization within discrete and unambiguous metrics. I say appears for all the reasons that the critical history of science notes well – the history of knowledge is a history of forms of knowledge representation, built on consensus and convention.

Scientific knowledge is by definition that which conforms to the conventions of knowing in any given cultural and historical moment. Scientific paradigms shift. And when they do, new knowledge and new forms come into being. The task of humanists is to read such forms with critical awareness. Our theoretical tools provide the language to
talk about how we know what we know, and don’t, and as well as what we can’t know because of the limits on conceptualization imposed by cultural blindness. Humanists adopted the statistical methods of empirical sciences, but not always with full recognition of the artifice involved. Quantitative methods are rhetorical arguments, not revelations of truth by statistical means. The distinction between logic and rhetoric is crucial in distinguishing information from interpretation. Quantitative data is generated by parameterizing observable or measurable phenomena. The metrics used to generate data shape its statistical profile. Decisions about sampling, and the granularity of scale, for instance, determine such shapes. Measuring the waking and sleeping habits of undergrads, for instance, would create a frightening data set if the sample were taken only at 10 pm each evening rather than charted using other parameters.

No one in the scientific community would dispute the interpretive character of statistical methods. They might well imagine a distinction between the relative and subjective judgment or bias in some experiments and the empirical character of the phenomena under investigation. The scientific method is premised on a clear subject-object distinction. So in the rush to use quantitative methods in digital humanities, theoretical convictions about the produced, rather than a priori, identity of texts has gone right out the window. However, the idea that phenomena are created by observation is not foreign to theoretical branches of the sciences. It forms one of the core tenets of quantum theory. Likewise, the notion of texts as constituted readings rather than as self-identical entities was a basic tenet of deconstruction. But neither the methods of quantum physics nor those of deconstruction have been transferred into the applied sciences of engineering, nor to digital humanities, except in the most remote fashion. In the rush to engage with applied methods from the engineering side of computational technology, digital humanities did not preserve speculative thought from its own traditions of deconstruction or those of probabilistic theory. But this is precisely why the current task of revision is so important.

In thinking about visualization, I argue that interpretation, not information, should be central to the humanist’s project. The stakes are high. The cultural authority of computational methods is enormous. The need to reassert the authority of the humanities and all that it embodies in imaginative thought, aesthetic expression, and subjective judgments is essential as an ideological move. We have much to gain in formulating clearly the interpretive basis of what we do, and in asserting the validity of our approach to knowledge. In our era, administered culture has become intimately integrated with the instrumental logic of computational technology. That integration is all the more powerful for being rendered invisible and naturalized. The common assumptions about information and quantitative data is that they are authoritative because they are grounded in empirical methods. And the empirical methods are grounded in -- ? Interpretative frameworks that pass themselves off as truth. Alas. And so the task of deconstruction must begin again.

The projects we have been doing at the University of Virginia in the orbit of SpecLab make this deconstructive agenda conspicuous. The text and subtext of all our projects is this exploration of ways interpretive methods grounded in subjectivity and speculative methods can be integrated into our digital undertakings. Forging a link between interpretation in a humanistic mode and subjectivity is a crucial piece of my argument. I am not defining subjectivity in a binary opposition to objectivity. An “objective” world of extant phenomena fully available and self-evident to observation
does not exist in any useful sense when we are discussing aesthetic artifacts, textual interpretation, or the social and cultural production of works. Objectivity doesn’t offer a contrast to which subjective experience is some kind of filter or lens that distorts that empirically observable world. To frame subjectivity in that way is to lose the game in advance. Since the early part of the 20th century and the introduction of quantum methods, the mechanistic worldview that was the legacy of Newtonian physics has ceded conceptual ground. In its place is the recognition that observable phenomena consist of a probabilistic field that is intervened in the act of observation. This concept shifted the basis of scientific methodology almost a century ago. The arts and humanities came to these principles by way of Nietzsche’s nihilism, Bakhtinian dialogics, German critical theory, and the many iterations of deconstruction that came to prominence beginning in the 1960s in the philosophical criticism of Jacques Derrida, Paul de Man, Roland Barthes, Michel Foucault, Roland Barthes, Julia Kristeva, and others. Deconstruction was conceived within humanistic terms. The basic criticism of logocentrism, transcendence, metanarratives, and truth claims resulted in alternative conceptions of the activity of meaning production as a play of associations across a signifying field. Even though deconstruction was not conceived within a probabilistic frame or a speculative one, its impact literally shattered the objectivity of new critical approaches. It exposed the empiricist bias of biographical, bibliographical, or historical work predicated on a literal recovery of an authoritative text, a singular meaning, or any other semblance of a transcendent or absolute truth. Its historical and structuralist critiques offered a view of the produced and producing subject. The language and concepts of probability were not part of the critical or conceptual vocabulary of deconstruction. But now, incorporating the legacy of deconstruction and probabilistic approaches from quantum theory, we have adopted the term speculative as the rubric under which we signal a shift from information-based digital humanities to an approach grounded in subjective interpretation and notions of co-dependent, emergent phenomena that draw on ideas from deconstruction and quantum theory.

The critical debates of the late 20th century are all behind us, but they are still crucial foundations, or should be, for creating an argument for the cultural authority of interpretation in a world increasingly administered by computational logic. As my colleague Daniel Pitti once wittily remarked, digital humanists all come into the conference room as deconstructionist relativists—but after shaping their projects to fit within computational constraints, they leave as pragmatic empiricists. So it may be, or have been. In the creation of information structures for humanities research, the formal logic of computational methods do impose certain strictures. But this pattern of giving-in, letting the game terms be set by computer science, is all the more reason to insist on a rethinking of this approach.

Lest my larger agenda get lost in all of this recapitulation, I want to restate what I think is at stake by returning to the argument that I made above. The authority of computing lends an instrumental potency to administered culture. That potency will go unchecked unless challenged on its assumptions. The role of the humanities is in part to provide the intellectual tools on which an alternative authority is based. Those tools are imaginative thought, creative and aesthetic expression, and an insistence on the role of subjectivity within all forms of human activity. All human expression is interpretative. Exposing the structure and processes of subjective interpretation through visual means
has been central to the SpecLab projects in which I had a hand. I’ll describe three of these: Temporal Modelling, Ivanhoe, and Subjective Meteorology (not strictly speaking a SpecLab project, but that’s a quibble, not a crucial issue).

Visualization poses specific problems in the general sphere of knowledge production. In the analogue world, one of the characteristic features of visual mark-making is that it is infinitely varied and highly specific. In other words, graphic inscription has a degree of particularity that makes it hard to analyze or to subject to systematic rigorous analysis. Unlike language, it is not a system that has a stable code. This makes visual analysis and visuality different from linguistics and language-based notational systems, and less able to correspond to formal languages in a consistent way. Graphical sign systems have always posed a problem for semiotics, and the lack of a formal, logical foundation for articulating graphical codes is both a benefit and a liability for those of us who are partisans of visual epistemology.

Visuality and visual inscription have long been suspect within Western epistemological systems and philosophies. In an essay in which he was making an argument with OuLiPo for its cavalier use of the concepts of chaos, Rene Thom, this also meant there were only two types of notational systems, one using language (by which he meant natural language with its formal capabilities), and the other was mathematical notation. As a mathematician, Thom had no conflict with his formal systems, nor did he see any problem in limiting “knowledge” to those domains capable of such stability. He avoided and excluded visuality with good reason. Not only are visual codes not stable, they cannot be stabilized except under very limited circumstances. Drawings, maps, figurative and iconic imagery, marks and traces, decorative and even photographic representations – all contain qualities and characteristics that contribute to communication, but much of this graphical expression is affect or inflection. We have no single code for registering the value of even so simple an affective distinction as that between bold and italic forms of emphasis in a typographic environment, except to note their distinction and recognized this. A quasi-stable system of graphs and notations and representations can be used to present statistical information. Data can be processed and presented in well-structured metrics and parameters. But the act of mark-making is itself unstable, particular and varied at several levels of sign structures and signifying systems.

As visual representations begin to be used with greater frequency within digital humanities, the instability of graphical systems often gets bracketed in a rush to make use of precisely those visual conventions that have their roots in the representation of statistical information. As a result, the interpretative richness of visuality gets sacrificed as well. The epistemological legitimacy of visuality still remains dubious. The sacrifice nets little gain for the humanist, or for humanities legacies of rich modes of visual expression that are not formal and logical. Visual representation is a perfect place on which to make clear what is at stake in the distinction between information and interpretation within digital humanities practices.

We have tried to capture two aspects of subjectivity in our projects at SpecLab: inflected specificity and structured point of view. Specificity, or particularity, is an aspect of inflection, an affective and inscriptive particularity. The second aspect of subjectivity is expressed as position within a system or situation, the place from which any experience or expression is viewed. Qualitative difference, or inflection, and point of
view, or position, are the aspects of subjectivity to which we have given graphical form in SpecLab projects.

Our first project, Temporal Modelling, was begun in 2000 by myself and Bethany Nowviskie. This led to the founding of SpecLab soon after, when Jerome McGann and I turned our attention to Ivanhoe. I developed the prototype of Subjective Meteorology in 2004. All of these projects met with varying amounts of resistance and ridicule when we initiated them. But we wanted to develop digital humanities tools that generated graphical displays of subjective and interpretative activity, and which allowed the creation of visual interpretation as a primary mode of generating knowledge within the projects. Visuality and subjectivity were linked, and both were aggressively aimed at inscribing subjectivity in terms of expressive inflection and the notion of position.

We had different degrees of success with each project. Ivanhoe shows position, subjective point of view within the field, quite well. Temporal Modelling tried to show inflection, but it really pretty much failed, even though it succeeded in proving that visual knowledge could be generated as a primary act, not a secondary display. My interest in expressive inflection was extended in the drawings and prototypes for Subjective Meteorology, though implementing this fully in digital form would take another round of development work (not yet undertaken).

My larger aim is to create an argument in support of visual interpretation as an authoritative mode of knowledge production (thus putting the exclusive claims of objective and more formal modes into question). I want to stress again that the very idea of information comes out of a particular set of assumptions about what knowledge is. These may be valid in realms of knowledge where quantitative and statistical data are useful and warranted. But they do not have an exclusive or superior claim on knowledge. Rather than disposed of information-based knowledge production systems (objective, formal, stable), I want to assert the legitimacy an alternative modes of knowledge that are grounded in interpretation (subjective, particular, inflected).

Discussion of a few examples of visualization, particularly text visualizations, will provide some critical focus to bring the issues of interpretation and display together. My first visual example had three elements in it: an image of a newspaper, with an arrow coming out of it pointing to a box labelled “information.” In media studies we term this a transmission concept of information based on the assumption that information can be extracted in a manner that is mechanistic, supposedly content neutral, and assumed to be without noise in the channels. The conventions at work in the visual display of quantitative information assumes such a transmission model to some extent. A notable, and aesthetic, practitioner in this field is Edward Tufte. Tufte notes that the visual presentation of information has many advantages because it is compact, legible, and allows patterns within large amounts of data to be seen clearly. Reading columns of numbers is difficult for most of us, but a scatter plot graph or bar chart can be apprehended readily. Tufte suggests that a list of quantitative statistics and a visual display are in “essence” the same – because they are reducible to the same “information”. Though the data set can be critiqued by examining its bases of parameterization, chunking, metrics, and other framing factors, Tufte tries to bring the statistical and visual material into as close an alignment as possible. Even though we know, and he knows, that graphs and charts are rhetorical expressions, as capable of lying as they are of accuracy,
he is keen to demonstrate the virtues of the most transparent seeming visualizations he can create. He brings examples of bad visualizations, even lying or misleading ones, into discussion, but he never questions the fundamental benefits of the transparency of representation to serve the fundamental integrity of statistical data.

In another example, I examined a flow chart that graphs the stages in which authors write stories. We can see immediately some of the problems with representing and visualizing complex processes using statistically-oriented means. In one such graph, boxes are used to break this process into stages: “Author thinks about a topic,” followed by an arrow that points to a box labelled “Author draws a chart depicting his thoughts.” After that, another arrow points to “Author reviews sketched chart.” In many of these stages, the boxes have no rear-pointed arrow, suggesting that the process of reflection is always going in a forward direction. The silliness of these things is easily made apparent. But in fact, we structure our work this way all the time when we labor within the requirements of computational environments. They ask for discrete units, they ask for identical units, and they ask for structured relations that have this sort of mechanistic pattern to them. They ask us to be efficient and functional at the infrastructure level (chunking, content typing, dividing processes into discrete steps) so we do not create problems at the superstructure level (generating output or results).

Any chart or graph can be a subject for study within the ideology and semiotics of the visual. The rhetoric of the image is something that we are fully familiar with at this point. The sheer force of arrows with their swelling points, target bases and centres in the example of a chart for business shows how the input of new knowledge into a firm, along with new capital, regulation, and new service all leads to greater productivity. The schematic flow chart makes the results seem inevitable, systemic, and without any intervention or difficulty involving human beings. We come to believe these graphs because the models have rhetorical force or power. Many of them also have wonderful incidental aspects of information, as in a graph that shows what happened to workforce migration to and from farms/factories between 1940 and 1949. Not only the statistical figures, but the quality of the images that represent industry, agricultural and urban life, carry all kinds of information in them. Knowledge is present in the way that the visual images are styled and the details of clothing, of factory building architecture, and so forth. This specificity adheres to the notational systems themselves, through association. In the inflected quality of the lines, shapes, figures, icons and we read the cultural and historical resonance of visualization.

Interest in using visualization to do things to texts and with texts has been very active, in art and poetry communities as well as among digital humanists. The field of graphic visualization is dominated by now-familiar forms. Topic maps with their nodes and links, the visualization of word frequencies and proximity, tree maps, area charts, and grids that show patterns within a larger corpus or discourse are all very useful for visualization of data. But many of these aesthetic experiments are affective, whimsical, or poetic in their form even if they have algorithmic or quantitative underpinnings. In Ariel Malka’s *javascriptorium*, text is draped over a form generated with XYZ coordinates to produce a dramatic three-dimensional visual effect. Another text visualization art/installation took the analysis of word frequency in news reports and turned them into a graphical wall displays. The size of the words registered their relative frequency with a politically dismal predictability. Seeing Bush’s name as the largest term
in the field did not tell us something new, even if the graphic effect reinforced certain insights. Another of artist’s manipulations created twistings and turnings of language in virtual space – digital space – that provided an illusion of three-dimensionality. Almost all of these are special effects and don’t operate on mechanistic or empirical bases. They are created for visual impact. Their great advantage is that they don’t have a rational approach, they don’t attach particular value to the parameters. Increasing the size of a word because of its frequency is one thing, but according to what parameters are juxtaposition and sequence to be generated? Such works are examples of aesthetic provocation rather than digital data display of quantitative information. They are imaginative and intriguing, but remote from the world of information visualization. Sometimes pieces have no obvious use value whatsoever – as in the case of a visualization of the frequency of letter pairs in a text. These are assigned a parameter for display in varying sizes, again according to frequency, but since letter pairs have no legible linguistic meaning for us, they float them in this soup of letter pairs.

“Inspiration” is an interesting, though slightly wacky software program for graphical analysis. Created for use in teaching, it maps textual analysis in a literal and somewhat flat-footed way. In the demonstration example, a Robert Frost poem was nested in the center of a field of comments. Each comment was in a little boxes around an icon of a gold leaf, representing the “theme” of the poem—“nothing gold can stay.” Rectangular boxes contained literal paraphrases linked to oval boxes containing “personal” readings of each line of the poem. This example showed the difficulty and absurdity of using mechanistic forms for humanistic purposes. The diagram is a complete distortion of what happens in reading the text. But it serves usefully as an example of how such distortion, when foregrounded and called to attention, actually becomes quite tractable. The visualization is a monstrosity, hideously ugly, and basically destroys the textual structure of the poem. The inter-textual complexity and subtlety of the poem is impossible to see with this apparatus. But such an obvious and grotesque distortion has the value that it can’t pass for natural or transparent. The graphical display makes the interpretative act of reading conspicuous, so that it can’t be seen as “information” processing.

TexArc, familiar to most of us, provides a striking contrast to Inspiration. TexArc’s elegant display of distribution and proximity analysis within texts can be used in all kinds of visually dazzling, seductive ways—especially by contrast to the ugly picture of clumsy boxes, lines, and schematic shapes in the ill-named Inspiration. TexArc convinces you that it is doing something really substantial because it produces elegantly beautiful galaxies of language in a dark field. But what do they mean beyond the fact that certain parameters are being displayed. These reveal something about the ways texts can be processed with algorithms, but they say precious little about the interpretative rhetoric that is on display. TexArc pretends to be about texts. But it is really an ongoing demonstration of TexArt as a display of quantified information.

Idiosyncratic examples make for dramatic demonstrations. But visuality can be used to generate knowledge in systematic activity as well. In the days before high-speed computational machines, visual algebra and visual calculus were used to generate the results of complex equations. Without question, visualization is a useful tool for many kinds of information analysis and information representation. My interest is in visualization that resists systematization. I bring Edward Tufte back here as a point of
deliberate contrast. Tufte is an exquisite engineer, but his approach has very little to do 
with the humanities. Not because of the clarity of his graphic visualizations, but because 
of the assumptions behind them. Tufte’s premise is that information pre-exists 
visualization, the task of graphic display is to find the right representation, a transparent 
legibility that gives us unmediated access to the information. Every example that I’ve 
discussed is an argument against that premise. There are no transparent visualizations. 
Visualizations constitute information just as surely as any other human expressions. They 
are all acts of interpretation with assumptions that are encoded in their form. All perform 
a rhetorical distortion, which is welcome. We need to pay attention to and engage with 
these distortions.

In our effort to make graphic systems for distortion, we started with Temporal 
Modelling. We depended on a distinction between time (absolute, a priori, given) and 
temporality (contingent, relative, constructed). We wanted to create a visual composition 
space in which primary knowledge could be generated through visualizations that could 
be exported in turn as XML. The basic assumption of Temporal Modelling was that 
timelines, as they are conventionally defined and designed, come out of the empirical and 
natural sciences. Traditional time lines make three assumptions: time is uni-linear, time 
is homogenous (that is every moment is the same as every other, the metric is stable), and 
time is continuous (there are no unbroken periods in temporality). In documents in the 
humanities (letters, stories, maps, records, accounts, reports of all kinds) and in human 
experience, none of those three things hold. Temporality is multi-directional, 
heterogeneous, and discontinuous. Temporality is multidirectional (forward and 
backward branching occurs since retrospective and prospective aspects of temporality are 
part of the narrative in film, texts, poetry, etc.). A system for graphing multidirectional 
temporality seemed useful for humanities documents, whether they come out of history 
or anthropology or literature or other fields. Secondly, time is not homogenous. Some 
moments are long moments and other moments are short moments (the moment before 
the kiss and then the moment after are very different). Time also flows at varying rates, 
like tides. You get up in the morning, and some days you can barely get your shoes tied, 
your teeth brushed, pack your books in your bag get out the door before you are already 
ten minutes late. Other days, you get up and do your exercises and you read a chapter of 
this and you write a little of your novel and have a leisurely bath and breakfast and you 
kiss whoever’s next to you and you pat the cat and you realize, “I still have fifteen 
minutes until I have to walk out the door.” The literal time spent on both days was the 
same, but the time tides were different. Some days are fast and some days are slow. 
Temporal metrics are not stable in our experience. Finally temporality is not continuous. 
Temporal experience is filled with breaks and ruptures, especially when representing time 
with historical or literary documents. Holes and gaps appear that can’t be filled, they have 
no relation to an absolute a priori time somewhere, they exist because narratives are 
fragmentary compositions, not documents, of temporal spans.

In addition to being able to represent these aspects of temporality, we wanted the 
system to express various kinds of inflections. Inflections included elements like 
anticipation, causality, foreshadowing, regret and impact. Our design of this system 
made a lot of our colleagues nervous. Those with information science backgrounds or 
those who were quantitatively-oriented humanists worried. “How will you gauge how 
important something is.” Our point was that the visualization would provide that
information graphically. Our approach to creating the graphic elements was grounded in systematically assigning values within Jacques Bertin’s outline of seven basic graphic variables (shape, size, position, orientation, color, value, texture). In digital environments, the time-based aspect of display offers another variable, rate of display. We experimented with all kinds of ways to show things like foreshadowing by using projections from one line to another, or from an event through a cone of influence. We looked for ways to used schematic and diagrammatic means to show temporal effects. We divided inflections in to semantic (characteristic) and syntactic (relational) effects. We derived our system of conceptual primitives from an interdisciplinary literature on temporality, culling vocabulary for concepts like the “dividing instant” from computer science, narrative theory, formal logic, and linguistics. The final device we introduced into our system was an item we called the “now-slider.” This allowed us to show action and events unfolding across time. We adopted this for Ivanhoe where it became linked to multiple points of view structured into the game space. In Temporal Modelling it is a handle to advance or replay the branching of events.

Temporal modelling could be used to construct a visual analysis of objects that had relative time-based relations, but it could also accommodate date-stamped events into a chronology. But in the end, our prototype lacked flexibility and weirdness. The graphical elements were constrained by the requirement of generating XML, since it meant that every visual element had to be part of a hierarchical system. The rigidity of that hierarchy shows in the persistent of lines as the basic organizational principle, so in many ways we failed to break from the conventions that we had set out to avoid. One effect we rejected was curving a time line when a “heavy” event weighed it down and distorted it. We couldn’t figure out how to make such distortions systematic, so we gave them up. Now I realize that was a mistake, and by giving in to the constraints of XML and an appearance of rational systematicity, we defeated our original intention of creating a system meant to visualize subjective experience.

When we began work on Ivanhoe, we shifted our attention entirely towards visualizing acts of interpretation. Our design process began with a hand-drawn storyboard so that we could represent all of the various functionalities we wanted Ivanhoe to have. The drawing was based on Windows drop-down menus and display modes and had the quaint, feeling of digital humanities incunabula. By the time we got around to designing a working prototype for Ivanhoe we had moved into strictly digital production and display mode. The structure of Ivanhoe (subtitled “a game of interpretation”) is based on the conviction that everything in the game takes place from within the subjectivity of roles players takes on. Ivanhoe is meant to call attention to the subjective and deformative act of interpreting aesthetic artefacts (literary, visual, etc.).

Our premise was that no one speaks (reads, interprets) from a position of neutrality outside of an interpretive field. All acts of reading are interpretative acts within a subjective field. This marked a strong theoretical insistence on metaphors taken from quantum theory. In “playing” Ivanhoe, you had to pick a role, define your role and your objectives in order to participate. (A player could have as many roles as they wanted) Each player designed a specific identity for every role, customizing the color by which their moves, links, and comments would show up in the game space. The game was in fact a “discourse field,” where literary and historical artefacts and materials were pulled into play. Any artifact brought in to play was available in and represented in a
game space. It showed up as a portion of the rim of the discourse field, but could also be found and used as a file. Our vocabulary for describing actions in the game stressed theoretical issues. Players “called a text” rather than simply “using it”, for instance, emphasizing the deliberate choice of a particular object or edition, denaturalizing the self-evident character of textual or visual artefacts. We created a set of functionalities in the game – a player log for recording justification for moves, a message space, a community space for communication, and so on. All of these were signalled by an icon in a menu at the left edge of the game space. At the bottom of the discourse field, tick marks along a now-slider marked every entry and every move by every player. Moves, new texts and artefacts, comments, links, and so on were all noted. Anything that entered into the discourse field as a document showed up graphically, and was available for use by all players. Each role appeared as a circle in a “marble tray” showing who was in the game. The colors matched those displayed in the tick marks in the now slider. All elements of the game were tightly coordinated for maximum legibility. Since every move (whether it was to introduce new text, or make a comment, or anything else) was attached to a player, every phase of the game could be seen from any particular player’s point of view.

In conclusion, I want to make a few points about the final project, Subjective Meteorology. I worked on this project during a month I spent as the Digital Cultures Institute Fellow at UC Santa Barbara where I undertook this as an art project. The idea was to take the metaphors and templates of traditional meteorology and use them as a way of graphing “personal weather”. I was looked at weather maps as source material for creating a graphic language of forces. Weather provides both a model and a metaphor for this project. For instance, a chart showing “perturbations with stream functions” seemed to provide a usefully provocative image for mapping shifting moods and states of mind. The task I set myself was to create a system of charting and graphing complex psychic states, subjective and interior, but influenced by outside events and forces. I began by drawing. For instance, I would sketch something like “a bad event sequence with a semi-positive outcome.” I drew all day, intuitively recording fluctuations of mood and psychic state in response to whatever occurred in a schematic, diagrammatic graphic language. I would draw lines of anxiety and storms of anger and weird events at a distance. I literally sat in a room at UC Santa Barbara in a communal work/conference space, just drawing whatever happened as it happened. I didn’t map out a system in advance. I had no external metrics and no pre-existing parameters. I gradually began to adopt certain conventions. Things that happened in close physical proximity were graphed near the bottom of the page, those at a distance towards the top, and so on. In the course of the month, borrowing from meteorological texts for nomenclature, and my own drawings, I came up with a graphical system. In one proof-of-concept demonstration, I created a sequence in five steps. An entity appears at a distance from the point of observation, while the time for completing a task moves towards a line of anticipation. As the task
gets going, increased energy builds around that line of anticipation. An intervention changes the activity and perturbs the field. Vague clouds of anxiety appear near a shifting line of activity. Then a line of morbidity forms. Clouds drift into the recent past, and a second entity appears. The line of anticipation moves and the energy in the field intensifies. None of this was immediately apparent to a viewer. A key and legend were required. The system required a learning curve, but the drawings were suggestive and the animations had an aesthetic quality that was way beyond what we had been able to achieve with Temporal Modelling or even Ivanhoe.

Subjective meteorology is an elaborate and idiosyncratic system. I created detailed documentation in a handbook that included drawings, charts, and animations. Playfulness aside, the point I was trying to make was that we have to create visual interpretations that are directly suited to humanities research. These will not have a stable underlying basis in quantitative information. The displays can certainly generate mathematical descriptions. But they are not generated by these as post facto displays of quantitative information that precedes their creation. The graphical and visual interpretations come first, and are subject to all the instability that inheres their visual particularity and their interpretative character. They inscribe both facets of subjectivity – inflection and position. They are subjective in their expression of particular affect and inflection. They are produced from a subjective point of view. They are produced as arguments against the supposedly neutral, objective metrics of empirical science with its mechanistic expectations.

These experiments in visualization are demonstrations of importance of interpretation as the core of digital humanities. They are a deliberate attempt to create an alternative to the terms of a mechanistic world-view. They are meant to be suggestive and provocative, to disturb the instrumental authority of a managed culture and introduce an unmanageable imaginative subjectivity as a valid – perhaps the only valid – place from which to address knowledge production. The interpretative activity of the humanities is grounded in a probabilistic world-view, one in which we understand the texts, images as objects produced by our interpretative acts. Humanities documents are fields of possibility to which an interpretation comes as an intervention. They are not revealed as information, as pre-existing, stable data fields, but co-dependent products constituted in the process of interpretative acts.

The knowledge we are involved in producing in the humanities is fundamentally interpretation, not information. We need to insist on this, and on the cultural authority of subjective and speculative approaches. Visualizing interpretation is one way to demonstrate this in dramatic form, but such ventures are not for the risk-averse.