Toward Criteria for the Arguing Model

The digital humanities (DH) is a material approach to humanities studies that embraces a wide array of media and analytical representations for interpreting texts and disseminating meaning. Digital humanities, practically, is a conglomeration of many thousands of coding hours, text enrichment, qualitative text analysis, and interdisciplinary cooperation. This amounts to a quiet, continuous revolution of the way scholars everywhere are interacting with humanities texts. Ramsey and Rockwell attempt, in “Developing Things: Notes Towards an Epistemology of Building in the Digital Humanities,” to mediate the discourse surrounding fundamental shifts in process that necessitate a greater dependence on intermediating artifacts for textual analysis. Using their quest for a “materialist epistemology sufficient to the task of defending building [intermediating artifacts] as a distinct form of scholarly endeavor” as a jumping-off point for my own exploration of DH, I will assess a claim made by Lev Manovich that a prototype, presented as a DH model, is capable of proffering an argument on its own (Ramsey and Rockwell 77).

I will first define a number of oppositions that illuminate the sometimes-murky terrain of DH, specifying what I include in my assessment, and what I do not. Then I’ll unpack a number of these concepts further and show how they can help us create a list of criteria for evaluating a model’s capacity for argumentation. Finally, I’ll look at a few
DH models with these criteria in mind as a means of showing how the evaluative
discussion might take place, without making sweeping claims about the ontology of
argumentative models. I hope that this will help in some small way to clarify our concept
of a bourgeoning practice.

I am purposefully omitting from this essay a distinction between computer models
and material installations. While most of my assertions will address, or be limited to, the
realm of computer science simply because that is the focus of contemporary literature
surrounding DH, I don’t want this to preclude material artifacts from containing
arguments. Indeed, one of the most striking examples of politicized (and therefore
argumentative) objects is found in Langdon Winner’s essay “Do Artifacts Have
Politics?” which begins with an account of Robert Moses, New York City’s notoriously
classist urban planner working from the nineteen-twenties to nineteen-sixties. One of
Moses’ most abiding contribution to New York is the extraordinarily low clearance
heading over the Long Island Expressway. These ensured that no bus would ever bring
low-income citizens to Jones Beach. Decades after Moses ceased to hold sway over New
York’s roads and railways his designs continue to divide middle from lower classes
(124). In this case, the passivity of concrete perpetuates a cruel and antiquated statement
about accessibility.

Several distinctions are crucial and illuminating if I am to tackle the question of
whether a prototype can argue. First, I will differentiate between models of things and
models for things and make clear that this essay primarily regards the latter. Then I will
briefly explore the relationship between software and the media content that it makes
accessible: this relationship provides a handy analogy as we start to think about how we
interact (and argue) with humanities texts. Once I have a working definition of what a model is, I will touch on Katherine Hayles’ binary of consciousness and cognition, and then examine which of these a prototype is exhibiting if or when it argues. Other terms, like meaning/interpretation, content/data and art/design will be delineated along the way.

A model aircraft is a miniaturized version of an original. It exhibits the structural and design characteristics of the original with a much-reduced crew manifest. A Cessna is a small plane, but it is not a model, and this is illustrative of the qualitative difference between a humanities model and works within the humanities. This first example is a “model of,” as laid out in *A Companion to Digital Humanities* (McCarty, “modeling” II.19, n.pag.). Climate modeling software made up of complex algorithms used to forecast weather trends can be seen as a “model for,” since we may use it to compute statistical probabilities of future weather scenarios. It is a blueprint for the construction of something entirely new, whereas a “model of” is an example from which to instruct or classify. Though a prototype can be of either order, it most often performs the work of the “model of,” since it is instructional, representative, and is indicative only of iterations of itself. However, the prototypes I wish to consider are those that point to an entirely new direction, and substantiate something of a qualitatively different order, in the way paper plans inform the construction of a steel skyscraper.

From Lev Manovich’s perspective, media content, the stuff—input or output—that computers compute and humanities professors teach, has no inherent properties of its own in computer theory (“Media After Software,” 32). The characteristics of a digital photograph, a website, or a digitized song are interpreted entirely by their user interfaces (UIs), which are built to be transparent. Like the book in hand, the UI is meant to be
unobtrusive to the point of disappearance, so that the information contained within it is maximally accessible. My aim is not to define, within the boundaries of a DH model, what is software (which is itself untethered to any specific program, and is constantly being repurposed for different contexts) and what is content, but to isolate the two, as working parts of a whole, and see if an argument is generated from within. So Manovich’s blatant assertion that digital content has no characteristics of its own is instructive but not decisive. This analogy, however—book to user interface—offers insight into one of the defining features of argumentation in DH models.

The UI, as stated, is what unpacks meaning from long strings of ones and zeros. It does not imply or interpret, in the human sense, but rather creates meaning through categorizing, ordering, and presenting information. A computer does this in a very technical and specialized manner, but another kind of interface has been employed to this end for centuries—the diagram. Johanna Drucker compares diagrams from medieval logicians and nineteenth century mathematicians and finds that “in both instances, [scholars] relied on graphical forms to perform their intellectual inquiries, not merely to express results” (84). These Venn diagrams and cladistic constellations are not just helping us display graphics in comprehensible ways. They are informing the way we think and, in basic ways, doing the thinking for us.

At this point, a brief digression exploring the neurological origins of the self and consciousness is necessary. Winner stresses that artifacts (presumably this includes models, as humanities artifacts) are essentially political. What he doesn’t state outright is that they are arguing for themselves. But diagrams, as visual representations of human thought, are shown to be more than just passive artifacts. They are assisting those who
employ them in computational analysis. To see the extent to which this quality imitates human thought, and how attributable it is to DH models, I turn to Katherine Hayles and her fascinating article “Cognition Everywhere: The Rise of the Cognitive Nonconscious and the Costs of Consciousness.” Hayles posits a “tripartite structure of conscious thinking: thinking, nonconscious cognition, and material processes” (202).

Thinking is what we experience every day. It is subject to introspection: we can think about our own thoughts. Below this is the nonconscious, not to be confused with the un- or sub-conscious, which are grouped with thinking as “modes of awareness” (202). Rather, the non-conscious is the contact point between the interiority of a human being and the material processes that make up the working human body. The mind interacts with the body endlessly to promote homeostasis, using information called ‘somatic markers,’ indicators emerging from chemical concentrations in the blood and electrical signals in neuronal formations…. The markers, sending information to centers in the brain, help initiate events such as emotions—bodily states corresponding to what the markers indicate—and feelings, mental experiences that signal such sensations as feeling hungry, tired, thirsty and frightened. (204)

This is the basic sensory information we use to construct the composite of a single self from a multitude of physical processes. Goethe, String Theory, and Ice Cream Sandwiches come later, with thought. As material beings, we re-present what is going on
in our bodies at a neuronal level for our minds to mull over, but the re-presenting is completed nonconsciously.

Furthermore, this task does not set us apart from animals, computers, or models. The key similarity among all of these candidates for nonconsciousness is recursion. Recursion—feedback loops that affect the very processes that continually constitute the candidate—allows interaction between different stages of ontological becoming. I’m hungry; I eat. I’m sad; I sing. Instead of biological activities, in “artificial media [computers and models] recursion operates along a hierarchy that moves from simple to complex,” continually reconstituting what the candidate is or does (Hayles 208).

Cognition, according to Hayles, is all around us in the feedback loops that either perpetuate or deny the ontology of discernable patterns.

Kathleen Fitzpatrick’s book, Planned Obsolescence: Publishing, Technology, and the Future of the Academy, was written during the winter of 2010. A draft copy was available online for public comment the entire time (Galey and Reucker 409). The dialogue between author and reader is recursive, but it is a far cry from making an argument. I would call it a necessary but non-sufficient trait, suggesting the existence but not the cogency of an argument. As a model for future publishing strategies, it falls into the category of research, according to Andres Gaviria.

Admittedly, Gaviria’s focus in “When Is Information Visualization Art? Determining the Critical Criteria,” is the difference between “genre art,” which incorporates hallmark characteristics of previous artistic genres, thereby cleaving to those genres, and “research art,” which “aspires to be conceptually transgressive, to reframe canonized structures by off-centering consensus” (482). But the same dichotomy comes
up in much of the literature surrounding forms of digital media as well. Galey and Reucker see the design of DH models as being either transparent and aloof from their output, or visible, challenging, and expressive in and of themselves (406). Manovich sees the UI as being like a book, which disappears behind the words written on it (36). Hayles distinguishes “confirmatory” from “exploratory” algorithmic analysis (213). All these dichotomies relate the DH model both to the content upon which it works and to comparable modeling work, and point toward positive criteria for evaluating a model in terms of exhibiting argumentation.

Nonetheless, before I can make that evaluation, this relationship should be explored. Must we draw borders between what a DH model is and what it works on? The content these models work with is called, in computer science, the “knowledge domain” (McCarty “Metaphors and Stories” 4). It is the stuff, made up of a well-bounded and defined collection of texts, contexts, relations among, and facts pertaining to, a discipline, which constitutes a delineated field of analysis. The word discipline itself, evoking rigor and exactitude, may be a contributing factor in what McCarty sees as a practice of overdetermined separation within academia (3). He interrogates the metaphors with which we describe the relations between disciplines, such as “tree” (as in the Tree of Knowledge, whose branches divide endlessly but do not reconvene) or “turf” (as in a turf war between departments for funding opportunities), holding them not just complicit but responsible for the fractured and sometimes hostile terrain that DH negotiates (3). Inevitably, there are those who want to draw a line of disciplinarity around DH as well.

DH models do not operate within a “knowledge domain,” though, but across it. The fundamental components of DH models are described as “migrant knowledge-
objects”; in practice, “formalized methods… developed collaboratively, then carried by the practitioner from project to project” (McCarty 7). DH practitioners are like troubadours; they know a few songs to sing to make humanities works get up and dance, regardless of the knowledge domain. Despite this versatility, there are limitations to what a model, and here I am speaking distinctly about computer models, can do with a text. Amy Cutler shares her experience as she invites a diverse range of scholarly interpretation of maps and diagrams; “claims made for [interdisciplinarity] and communicating academically often fail to address critically the media by which it takes place” (113). Here she is addressing what McCarty calls “computational tractability,” that is, a computer’s ability to compute (8). Not all humanities works, in their entirety, can dance to a DH tune.

Although it may prove an impossible task, we generally take it for granted that the Humanities is about making meaning. Hayles thinks DH, and the cognition that is its vehicle, undermines this assumption (199). When a computer “makes explicit that which is implicit,” a formulation of David Kirsch’s which McCarty employs as a foundational relationship in his essay, the computer is doing it on two very different levels. On a material (visual) level, we see the ones and zeros take shape as patterns; not only recognizable but often beautiful. On the level of cognition, the humanities text is systematically parsed for implicit orderings that fall outside human detection “either because the corpora is too vast to be read in its entirety, or because long-held presuppositions constrain too narrowly the range of possibilities considered” (Hayles 213). I use the plural noun “orderings” instead of “patterns” because the definition, and
very existence, of patterns is contingent upon the human mind’s ability to uncover them. Different orderings, then, do not necessarily bring about meaning.

A computer might, for instance, re-order *Finnigan’s Wake*, exchanging every fifth word for every tenth word, and spit out *Winnigan’s Fake*. Supposing anyone actually noticed the difference, they would then have a choice to make, which is whether or not to spend time analysing this coin-toss rendition. That would depend on the meaning, if any, that they derived from either *Winnigan’s Fake*, or the process used to produce it. If either shows merit, or pattern, then a human discussion may begin about what it offers us. This remains a human endeavour in all stages except the generation of a different ordering, which is not a task well suited to human beings since we have a tendency to project our own internality on the world and find/make patterns where they need not be. All this is to say that computer models may generate an interpretation, but only a human being can assign value and meaning. In addition, regarding computational tractability, not every text calls out for digital re-ordering, not every model exhibits versatility, and not every human finds meaning in those interpretations.

Like DH models themselves, made up of software that migrates from project to project, the information they impart is transitive and equivocal. This is another necessary criterion for an argumentative model. Kris Belden-Adams prospects Charles Pierce’s “The Icon, Index and Symbol” for an account of photography: “the inexactness and contradiction of Peircean indexicality prove useful for describing the range of possible realisms expressed by the medium” (9). “Diagrams,” as well, “may be seen as ‘piloting devices’ for thought: but they are not exhaustive and do not present data as necessarily solved or ‘solvable’” (Cutler 115).
The ambiguity of data is a necessary component of argumentation for two reasons. Firstly, because “every interpretation necessitates description…. description and interpretation are recursively embedded in one another, description leading to interpretation, interpretation highlighting certain details over others” (Hayles 213). Without ambiguity, we would interpret a model’s output or expressions in only one way, thereby limiting the recursive relationship between human understanding (meaning) and model output (interpretation), and with it a model’s cognitive functioning as described by Hayles. As Belden-Adams reminds us, a picture says a thousand words, but not all of them are trustworthy (8). Secondly, McCarty talks about the dialectical process that sets Humanities computing apart from mainstream computer science. In computer science “the focus of interest is on the abstract process (computation) rather than what we do with physical instantiations of it (computing)” (8). Humanities computing borrows the fundamental processes but not the fundamental values of computer science. The notion of a one-to-one correspondence between signifiers and signifieds does not fly in the English Department.

You’ll be pleased to know we now have a working list of five attributes with which to evaluate DH models for their capacity to argue. They are: Model for (not model of) recursion, research (not genre) based, computational tractability, and humanities related argumentation (including ambiguity). For my first candidate, I will examine Textarc, the flagship program of qualitative analysis models. Textarc is one of a few DH models examined by Galey and Reucker and found to contain arguments (419). Its basic unit of operation, words—their relation to each other and position throughout the text—is computationally tractable. That's gravy for computers. While Textarc has been around for
more than a decade now, in its time it was a meaningful leap forward in concordance software, suggesting a research bent: a propensity to depart from conventional qualitative analyses (this criterion should not be exclusive nor binding, though, as conventions change: Textarc is now the standard against which other concordance tools are judged and might not be considered innovative if it came out today). Meaning can be inferred from its multidimensional representations of words relating to each other, and the meaning of these analyses is open enough to invite a dialogue about what Textarc is saying about the text in question.

But is there recursion? Certainly the incited dialogue may lead us to ask more questions about other texts, but Textarc’s contribution to the conversation about the initial text is exhausted after the first and only interpretation of it. One cannot say “fascinating, Textarc, do go on.” It’s a one-trick pony. The same can be said for the beautiful visuals painstakingly created by Stephanie Posavec. While her body of work is continually exploring abstract literary relations through the visual field, (ie. making explicit what is implicit) what she creates is crystalized. I contend that those arguments are not related by the models themselves but are imbued by the authors.

Another, less conventional, DH model they look at is the Poultry Internet, an electronic, wireless means of sending one’s chicken some pleasant vibrations (420). Isn’t that sweet? Cheok’s basic unit of analysis is a person’s love for their pet. He is reinterpreting the way we go about expressing it. There can be no doubt that this is research related; a model for future pet interaction. The computational tractability, in this case, is questionable, but as I said at the beginning, I don’t want to preclude the viability of non-computing, cognitive models. The Poultry Internet is so involved with humanity
that it bypasses any direct humanities argumentation. But the conversations it will initiate about human love and relation may create the ambiguity that would make it a prime candidate for an arguing DH model.

This essay may incorporate a bit too much ambiguity of its own, for I’m afraid it resolves nothing. Like the models it seeks to explore, it provides but one iteration from a plethora of interpretations. It’s up to those who are interested in applying for and issuing project grants, defining boundaries, and transgressing those boundaries to apply these criteria to a complex and dynamic field. The reciprocity between complex academic social structures and the simple defining criteria that underpin them is, following Hayles’ logic, what allows us to articulate the story of the humanities. McCarty writes that “having a story is essential, first to make best sense of one’s professional life, then to be equipped to explain it to others” (2). Pervading the somewhat fractious disciplinarity within the humanities, which necessitates this account of one’s self and work, is a prevailing sense of excitement about what models will say when they speak up.
Notes

1. http://www.stefanieposavec.co.uk/-everything-in-between/#/entangled-word-bank

2. See Poultry Internet and Internet Pajama: Novel Systems for Remote Haptic Interaction. Authors: Keng Soon Teh, Shang Ping Lee, and Adrian David Cheok.

Works Cited


