

Looking backward, figuring forward: Modelling, its discontents & the future

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[See the accompanying slide-show, to which the marginal numbers make reference.]

1. A text is a unit of language that is not reducible to a series of propositions.
- 1.1 Texts do not establish how “the world is all that is the case” but instead foster imaginative inquiry into all that could be the case if appropriate scenarios could be constructed. To treat writing as a text is to set it against the fixities of the world and against the disciplines we trust to establish those fixities.
- 1.11 Considered historically, texts weave into one another in networks of intertextuality. So in dealing with textuality there is no feasible principle of closure. Texts are generative.

Charles Altieri, “Tractatus Logico-Poeticus”, *Critical Inquiry* 33 (Spring 2007: 528)

Nature does not reason, and its operation is at one with itself... Ultimately, shouldn't we say that nature is a more perfect art, since it is inside the thing itself, and is immanent and immediate?

Pierre Hadot, *The Veil of Isis* (Belknap, 2006): 24

For Jerome McGann, on the occasion of his *Jestschrift*

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1. In need of help

This paper is a venture into the by-me-unknown and a call for help. When I proposed my topic to the organizer of the session, I leapt into the future more ignorant than ever before of what lay ahead. Indeed, I flung out my proposal with energetic abandon, like a message to *Humanist*, indicating a desire to explore rather than sketching out an accomplishment. One reviewer of the proposal offered a balancing scepticism. He or she asked,

How much really will yet another well-ornamented intelligent meditation advance us? Perhaps it will create the pleasant illusion of understanding.

Making progress here requires such an enormously disciplined intellectual effort: details, rigor, engagement with opposing views beyond strawmen, forgoing of all ornament and digression, abandoning the technique of argument by tenured authority, etc. The effort should be spartan and the net feeling one of anxiety and provocation as much as comfort and edification. (Anon., by e-mail, 2 Feb 2007)

Although I couldn't agree more about the difficulties of achieving anything genuinely worth the candle, and although I share the reviewer's suspicion of intellectual comfort's seductive power, I beg to differ on the highly consequential matter of style. Let me select a few indicators of the difference.

"Spartan" is synonymous with "simplicity, frugality... [and] brevity of speech" (*OED*) – admirable sometimes, for some purposes, but not absolutely. Rigour likewise can be a virtue. It is, in mathematics, logic and severe forms of spiritual practice, but it is not so virtuous or effective elsewhere. It isn't the only way, and sometimes not the best way, especially where computing serves the hermeneutic passion of the humanities and thus recalls its philosophical origins. Rhetorical ornament can bemuse, and digression can distract, but the plain style that my reviewer seems to prefer – in the words of Bishop Thomas Spratt's 17C *History of the Royal Society*, "a close, naked, natural way of speaking" stripped of figurative language – only gets us what can be plainly stated (Frazer 1960: 151). And that brings us to the reviewer's last condition, that another sort of ornament be foresworn, namely copious citation, which he or she interprets as serving or skirting "argument by tenured authority". In present context, for example, I am moved to cite Pierre Hadot's brilliant study, *The Veil of Isis* (2006), which begins with Heraclitus's enigmatic statement, φύσις κρύπτεισθαι φιλεῖ, "Nature loves to hide" – from which follows plain style's masculine, Baconian passion to lift her veil and behold naked truth. The history of the sciences has shown, indeed in the very machine we champion, how successful this way of reasoning has been. But again it is not the only way, especially for the humanities, especially since the 1960s, when philosophers unwrapped the mummy they had made of science and saw "the remnants of an historical process of becoming and discovering" (Hacking 1983: 1) – all quite messy, digressive and dependent on metaphor.

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By citing Hadot and just now echoing Ian Hacking to make this point I certainly don't intend to crush argument with their massive authority but to stimulate interest further afield than we tend to go. My intention is to continue a larger, longer-term effort to connect what we do in *humanities* computing with the rest of the humanities, so that we may be strongly *of* them, not just weakly *in* them. This is possibly the most important thing I have to say, but it is intended merely as preface to an illustrated request for

your advice and suggestions concerning specific research as ambitious as my reviewer suspects. I make bold to ask for advice, rather than to keep *shtoom* until I can report *results*, in the conviction that conferences are for conversing as much if not more than for reporting. More than that, they are for taking risks, and so for leading the way so favoured by computing, from monumental to conversational scholarship.

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2. From comfort to claustrophobia

Let me first tell you where I am coming from.

As you may already know, Alan Turing's scheme has not been adequate to computing "in the wild" for more than 50 years (Mahoney 1997: 621). It does have two fundamental implications for analytic work in the humanities, however. Its first implication is that intellectual gain from the computational analysis of a cultural artefact comes primarily from comparing what we already know by other means to its digital representation as this is improved through repeated trials and adjustments. Its second implication is that in principle the instantiations of computing are without limit, hence the trials and adjustments also. Computing's basic tradeoff follows: on the one hand, reduction of the artefact to computational form, which guarantees a permanent though changing gap between its transcendent reality and its calculable representation; on the other, no end to the perfective attempt to reach the former with the latter. This attempt I have called "modelling". My recent book, *Humanities Computing*, is essentially an exploration of its implications (2005).

Up to quite recently, my literary-critical research (reported to this conference and written into the book in 2004) took the form of a relational modelling device, which I used to work with the Roman poet Ovid's rhetorical creation of person-like entities, known as "personifications", in the *Metamorphoses*. I constructed this device in the belief that parsing Ovid's personifications analytically would prove unproblematic in theory, however difficult in practice. Hence I set about to identify the relevant factors, influences, situations and the like, and having made a start for selected personifications across the poem, designed a relational scheme that broke down the literary trope into those causal entities I knew to record. The resultant model produced interesting results but reached an impasse when I realised that its structure was not so much incomplete as arbitrary. With no clear idea of what "context" might reasonably be taken to mean, I could not say with reason what *the* or even *a* context for specific personifications might be. (Only what I could think of? What a group of intelligent classicists could think of?) I had no defense against the infinite regress which opens up once one realizes that any

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reading is affected by the contexts within which it is read, and these in turn are affected by others, and so on *ad infinitum*. We somehow cope when reading, but modelling is a different story. It requires (to quote Collingwood) that we begin "*from the knowledge of our own ignorance: not our ignorance of everything, but our ignorance of some definite thing....*" (1993/1946: 9). No handwaving, no promissory notes allowed.

3. From claustrophobia to (foolish?) agoraphilia

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Intellectual claustrophobia set in. My comfortable argument for analytic modelling had become distinctly uncomfortable – which, as my reviewer said, is a very good thing. Then help came, from two sources.

First was Johanna Drucker's fine review of my book in *Digital Humanities Quarterly* (2007). In the review, her argument orbits a fundamental distinction between *mathesis* and *poiesis*, between a Foucauldian "science or practice of establishing a systematic order of things" (*OED*), and the imaginative creation of new unities. Once we have this distinction in mind, it seems obvious that person-making, which creates new beings by violating normal ontology, is not mathetic to begin with but clearly poietic, and should be studied that way. As my colleague Bianca Schröder remarked, "once you accept the game, you can play it everywhere" (e-mail, 17/5/07), especially (for reasons I cannot get into now) the game of personifying, especially in the *Metamorphoses*. Context then becomes a matter not of what a poetic reading *is* but what it *does*, how it *contextualizes*.

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The second source of help was the literature on context, which appears to sort into three different categories.

First are the strong warnings, for example from Jonathan Culler (a literary critic), who says that the word means merely more text and so is "just as complex and in need of interpretation (1988: 93f); from Graeme Hirst (a computational linguist), who says it is a spurious concept (2000); and from Ben-Ami Scharfstein (a philosopher), who declares that "the problem of context is too difficult for philosophers or anyone else to solve" (1989: 4). Its well-known unboundedness, he points out, leads to extreme relativism and so to paralysis – or, as I put it earlier, claustrophobia.

Second, confirming the first view of context, is the great majority of writings on the subject, which go very heavily nowhere, or at least nowhere useful to the student and modeller of poetry.

Third are the treatments *à la* Drucker, whose arguments amount to this: that the origins of the analyst's claustrophobia do not lie in context itself but in an assumed "mind-set of reductionism, of looking only downward toward subsystems, and never upward and outward" (Rosen 2000:2). What if, I began to think, we were not to look at the text, and as much of its context as we can manage, as if it were a specimen under a microscope – but to proceed from within the text outward (which *is* how it is read), into a "world of others' words", as a reader capable of infinitely diverse reaction (Bahktin 1986: 143)? Context, after all, quite clearly doesn't accommodate microscope or telescope: it not only expands continuously by association in the mind of the reader, but each association also potentially affects all subsequent possibilities of what may be associated. To put the matter in another way, "there is no [context] as an objective structure, existing in nature. There are practices of [contextualizing]... of articulated reaching. And there's no shortage of dubiously useful ways for characterizing 'structure' in the frozen object called ['the context'], given the possibilities of transcription, recording and terminological classification" (Sudnow 2001: 126). Thus context defeats mathesis.

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In summarizing the third, Druckerian kind of writings on context, I have just quoted, as you can see, from books on theoretical biology, discourse studies and then, altering very little, from an account of jazz improvisation. Again, my intent is not "argument by tenured authority". These are not isolated points of accidental contact cited to dazzle and bemuse but indications of promising analogies, bringing help from diverse quarters. Where these ideas originate matters much less than what they bring with them, including vocabulary, habits of mind and explicit connections within and beyond their fields of origin.

Theoretical biology brings the idea of self-organizing (or *autopoietic*) systems, with their specific ability to contextualize the physical world, to make chaos into cosmos. On the smaller stage, as Terry Winograd and Fernando Flores argued more than 20 years ago, these systems teach us that perception "must be studied from the inside rather than the outside – looking at the properties of the nervous system as a generator of phenomena, rather than as a filter on the mapping of reality" (1987: 42). They recommended that our interactive environments should be designed on the basis of that analogy. On the larger stage of life itself, autopoiesis means looking at the development of living systems, e.g. with biological anthropologist Terrence Deacon, as emergent rather than evolutionary – "a more general kind of resonance effect". His argument in a nutshell is that when a living system repeatedly interacts with its environment, possibilities that reinforce each other tend to replace those

that don't, and implicit regularities favour synergistic interactions (2006b, 2006a). Order emerges out of randomness.

Discourse studies generously maps out an area of interconnection for literary criticism, linguistic pragmatics and anthropology, and leads, via the metaphor of conversation (common among jazz musicians), to studies of improvisation and performance. Here it seems clear from a first look that if we view literary reading as a kind of self-organizing, autopoietic conversation in a Bahktinian "world of others' words", then we're close. Jazz improvisation is intensely disciplined. For the student it begins, as Bill Wulf says of engineering practice, in "design against constraint" (2000). With practice, constraints are internalized. Spontaneous disciplined performance emerges, whose ways are (to use one of Sudnow's phenomenological terms) "handful" – that is, embodied, kinaesthetic, tacit. You may ask, as I do, of what use is this to modelling personification? I am tempted here to say, "trust me", for that is what I tell myself, the "me" that I trust being the instinctual one from whom all my good ideas come. But at minimum it offers the idea of improvisation, with its roots deep in assimilated, tacit knowledge, as a way of thinking about how a cultured and thus disciplined reader makes sense of Ovid, in the world of others' words, to produce a reading. How *does* this happen?

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4. *A Metamorphoses Game?*

Partitioned as humanists are into largely non-communicating disciplines, having been raised as disciplinary creatures to ignore the arts, scorn the social and both envy and fear the natural sciences, such connections as I am trying to make are likely to seem difficult, problematic or worse. I do not underestimate the challenges. I certainly do not court the exotic or flash a bit of bling. Rather I look for help from wherever it may come. The fact is that we inhabit a cultural and intellectual space which however diverse is a universe. We have already been shaped by influences we may regard as unwelcome but whose effects we cannot deny. Better to gain knowledge of them, much better yet is also to look around for growth areas as far afield as our sight can reach. To do so is to put a sextant to our own trajectory.

What is that trajectory? Let me close with a more generous picture than I've known to give before, as follows:

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1. A world-wide, semi-coordinated effort to create large online scholarly resources;
2. out of this activity, the slow development of new genres in something like a digital library;

3. analytic modelling, to raise the epistemological question of how we know what we somehow know;
4. synthetic modelling, to reconstruct lost artefacts from fragmentary evidence, blurring gradually into a
5. modelling for possible worlds.

But of course "trajectory" is not quite the right metaphor, even if we assume a manned vessel, since nothing is being left behind, and destinations come into being as we envision them.

The cognitive psychologist Jerome Bruner, in his wonderful essay, "Possible Castles", argues that exploring "the alternativeness of human possibility" is what happens on the common ground of the humanities (1986: 53). On the one hand, especially for the end-makers of computing, this is where the humanities meet the visual and performing arts, as Andrew Mactavish and Geoffrey Rockwell have argued (2006). On the other hand, the humanities via computing meet the biological sciences *et al.* where this exploring takes the form of a criticism seeking progressively to algorithmize the authorial "inner standing point" that Jerome McGann describes (2003). So, at last, my question is: how would this be done for the game of the *Metamorphoses*, so as to illumine its play, open, hidden or avoided, across the subsequent two millennia until now – the alternativeness of its human possibilities? What sort of computing would do the job?

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