The *Analytical Onomasticon* Project:
A brief auto-ethnographic vignette

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> *In nova fert animus mutatas dicere formas corpora…*
> *…vivam.*
> Ovid, *Met* 1.1-2, 15.879

The following is an auto-ethnographic vignette of a digital research project on the *Metamorphoses* of Ovid that I began in the late 1980s and with help from research assistants worked on until 2004.[1] Its original purpose was to support writing of a conventional book on the *Met*, but work with my first assistant turned up such compelling problems of mismatch between computational form and poetic meaning that I abandoned the book and devoted myself to them. By putting this experience into circulation here my aim is to keep the theorising firmly grounded in real machinery and actual poetry while I attempt to describe what happens in the "contact zone" between them, when the strictures of the machine are rigorously applied to the poem.[2]

Ovid's *Metamorphoses* is a large, elusively structured compilation of teasingly interrelated mytho-historical stories in 15 books, amounting to 12,000 lines of classical Latin hexameter. Since its composition ca. 100CE the poem has had enormous historical, literary and artistic influence, making it fundamental within the European cultural tradition. Nevertheless in modern times it has been poorly understood as a poem, often downgraded to little more than a convenient miscellany. When I became interested in it, literary scholarship on the *Met* was largely preoccupied with realising "the immortal dream of a universal key", as one exceptional critic noted of the most ambitious attempt.[3] It and other such attempts did not succeed.

I wanted to do better. The bewildering combinatorial complexity of the poem's many narratives suggested to me that the computer might help by modelling how the poem worked to see what patterns might arise. My specific aim was to build a software tool which would allow someone interested in a given story to follow its interconnections with others in order to see how it is affected by its context. Familiarity with the poem left me in no doubt of the extent to which a story's context of relations powerfully informs it when it is read in this way, *collocatively*. Demonstrating the effectiveness of a collocative reading would thus show that the opposition between miscellany and unified poem misses the whole point of it.

I chose not to focus on the poem as a corpus of words, in the manner of a concordance, which was then the focus of computer-assisted 'text-analysis'. I thought the relation of lexemes to narrative interrelations too difficult for the technologies then (and perhaps now) available. Nor did I choose to focus on the stories themselves, which are in many cases exceedingly difficult to delimit individually and often nested within each other to a depth of 2 to 5 layers.[4] To delimit them with arbitrary precision would almost certainly prejudice the outcome by embedding too much idiosyncratic interpretation. I chose instead the names of persons, whether human or divine, since names are data and entail the narratives in which the named persons are found. Thus I called the intended tool an *Onomasticon*, a 'book of names'. For a variety of reasons, however, the category 'name' quickly expanded from proper name (e.g. *Tereus*) to include all devices of language referring to a person, including personal attributes and effects (e.g. *barbarus, arma auxiliaria*). Persons could thus be grouped by how they were named and so provide, I thought, a reliable way of exploring their interconnections and so inferring relationships among stories. In consequence the number of names grew exponentially from a few hundred to ca. 60,000, i.e. an average of 5 per line of poetry. Such density of naming confirmed the potential of the *Onomasticon* to embrace the entirety of the *Met*.

To render these names computationally tractable I had to 'tag' each one manually, i.e. insert computer-readable metatext that said for each, e.g., 'here is a mention of person *Tereus*, named by lemma *arma auxiliaria* in category Attribute'. Despite my attempt to avoid interpretation (and so avoid prejudicing the outcome for other readers), a very large majority of tags made interpretation unavoidable: not only is ambiguity essential to poetry, but the poem itself also explicitly plays on ambiguities to subvert every ontology the reader is tempted to construct. Indeed, the poem almost constantly tempts with possibilities of closure only to dodge them. Typically it offers a close analogy from a given story to another, e.g. Actaeon's sighting of Diana in her bath to Semele's sight of Jupiter; then it offers a recognizable but more distant analogy, e.g. Tiresias striking the snake. By such propagation of analogies, each forcing revision of a developing pattern, a continually branching network of similarities and differences spreads out into the poem. The result, however, is not one network nor different for each reader or from one interpretative stance to the next, rather a continual, unresolvable networking.

Deciding whether any given candidate *is* a person meant confronting the vexatious problem of 'personification', i.e. the making and un-making of persons in a literary text by assigning to them ontologically anomalous attributes,[5] for example motion to a stone, sometimes in such a way that they become teasingly neither one thing nor the other, e.g. by referring to the earth by the phrase *viscera terrae*, somewhat in the manner of Jastrow's duck-rabbit – a 'seeing as':[6]
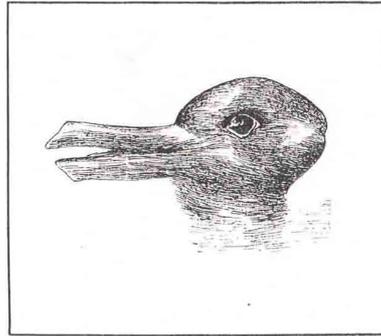
Personification is in fact a crucially unresolvable problem, but under the influence of the post-classical device of capitalisation – a form of markup, one might say – we are apt to slight it, and so undervalue the poem's de-ontologising force. An example will show how difficult, indeed reductive, deciding what is who can be. Consider the word *bacchus*, conventionally naming either the god associated with wine or wine itself. For such a standard mythological character the referent up to the story of Philomela in Book 6 is quite clear. But then, in that story, at the royal feast her father Pandion orders in honour of the tyrant Tereus, who wishes to marry her,

> … bacchus in auro
> ponitur… (*Met* 6.488f)

Here, suddenly, the unambiguous god becomes wine, de-personified by the final two letters of *ponitur*, which make the verb passive. At one moment *bacchus* is the god who *in auro ponit* ('puts [something] into a gold [cup]'); in the next, *bacchus* is wine that *ponitur* ('is poured') into that cup.

Thus the crux: what is to be done? In this instance (as in many, many others) I compromised, for *bacchus* deciding that wine is indicated, tagging the instance as an attribute of the god so that it would not be lost to the *Onomasticon*. But not only was that compromise untrue to the dynamical, experiential reading of these lines, it flagged the problem of deciding in general what conditions of context are required for a person to remain unaffected by a de-personifying, ontologically disruptive agent. We must consider *inter alia* how great the separation in syntactic or in semantic relations between name and agent must be and what effects surrounding words and stories might have. The complexities mushroom; I could cite many, many other examples. But my point should be clear enough: that attempting to translate the *Metamorphoses* into computationally manipulable form subjects the translator to these two familiarly opposed forces: on the one hand, truth to the poem, which must take into account numerous alternative, changing interpretations of the individual passage and of the poem as a whole; on the other hand, the imperative of reduction to algorithmic form. The computer demands an ontology; the poem de-ontologises everything it touches. Crossing the digital Rubicon cannot be avoided, but much is lost (and gained) by doing so. There's always a tradeoff.

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Possibly the best overall explanation of how computation fits into the making of knowledge is philosopher of science David Gooding's "Varying the cognitive span". "To digitalize", he writes,

> is to represent features of the world, including relationships between them, in a manner that establishes and fixes unambiguous meaning…. It is a method designed to achieve two things: to preserve the invariance of tokens in a symbol manipulation system and to make the value of the tokens unambiguous. (2003: 279 and 283 n. 33)

In other words, it is to represent the object of analysis in completely explicit and absolutely consistent form. But, he goes on to explain, digitalisation is rendered meaningful to humans both before and after it happens, as in the following diagram:
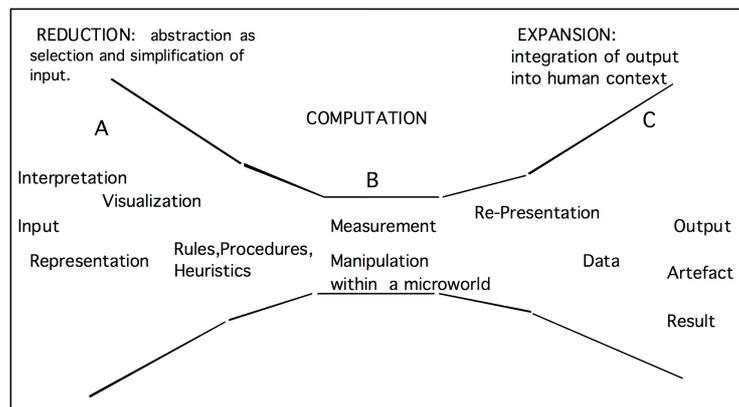

Figure 13.4 (Gooding 2003: 280)

In the physical sciences, the individual datum tends to be in itself simple and insignificant; what matters are the patterns detectable in very large amounts of data. In the human sciences patterns are of course equally important, but the objects of study yield relatively small amounts of idiosyncratic and complex data with high probability that the individual datum will prove a significant, if not a revolutionary anomaly, hence crucial to preserve. Preparatory reduction (e.g. by markup) therefore tends to be a far more serious and difficult affair. The loss due to reduction needs to be captured while the data are under the interpreter's cognitively computational microscope, then brought into play when the output of analysis is integrated back into the interpreter's world. Note that this particular 'microscope' is indeed a very powerful tool of analysis; it illumines what the digital net does not, perhaps cannot catch.

What difference does digitalisation actually make? Careful readers have always been philologically scrupulous, checking the textual data and integrating new insights

into their interpretations accordingly. There are two differences. The more obvious, in consequence of the machine's manipulatory affordances, is scale, which is no simple matter. Rather it is transformative: "size is seldom *just* size", Franco Moretti comments, "a story with a thousand characters is not like a story with fifty characters, only twenty times bigger; it's a different story".[7] But the difference I am emphasising here is micro- rather than macro-scopic. It is the radically reductive step of translation into digital form, and the driving force its revelations exert on the interpretative act.

Technologically the *Onomasticon* was a failure, but (unsurprisingly) I like to think of it as the illuminating kind. No question about the naivety of my original intentions. But with the help of that computational microscope, albeit in a hard, indirect way, I learned much about the poem, and crucially for subsequent involvement with computing, I absorbed from the *Metamorphoses* encouragement to see beyond that dream of a universal ontology to the poet's radically destabilising design. On the literary side I emerged from the work more persuaded than ever that from first to last – from *in nova fert animus* to the concluding *vivam* – the poem is harnessing the reader's ontological hunger to generate ontologising play, and thus guaranteeing the poet's *vivam*.

On the technological side, analytical markup, in which much hope was then (and is now) being invested, had already proved to be a dead end from all but the most pragmatic of perspectives, e.g. producing digital editions and facilitating publication. For the literary interpreter markup is, for one thing, simply too laborious even at the relatively modest scale of one poem by one author. (We tend to forget: the computer is a physical machine and we creatures in time, hence a cost/benefit analysis cannot be avoided.) But the failure that proved most rewarding was the equally negative realisation that even if it could be completed the *Onomasticon* would be far too difficult for anyone else, or indeed for me, to change systematically and so, ironically, to adapt to shifting views of Ovid's shifting world. Too much interpretation fossilised in too many tags involving too many unrecorded if not unrecordable decisions constituted the fatal blow to my ambition of constructing even a theory-minimal device.

We agree that no construction can be theory-free, but the making of the *Onomasticon* points to a somewhat different, redeeming conclusion: that the power of a tool arises from the engineer's agonistic interplay of design against constraint (cf. Wulf 2000). For a computational tool, design in my sense is its responsiveness to the interpretative moves of the user-designer, moment by moment; constraint is provided by the imperative of complete explicitness and absolute consistency. Hence the core failure of analytical markup lies not in its rigidity but in the lack of responsiveness which that rigidity entails, its propositional rather than subjunctive, as-if form. Unlike human language, in which fossilised metaphors can come back to

life at the poet's touch, its units of expression remain fossils from the moment of utterance. But methodologically the *Onomasticon* also points to Gooding's stage of cognitive integration, as he says to the 'construals' which emerge from modelling, the "flexible, quasi-linguistic messengers between the perceptual and the conceptual… [which] assimilate the novel to the familiar" (1986: 208). Much more attention is needed here.

References

Barchiesi, Alessandro. 2002. "Narrative technique and narratology in the *Metamorphoses*". In *The Cambridge Companion to Ovid*. Ed. Philip Hardie. 180-99. Cambridge: Cambridge University Press.

Bloomfield, Morton. W. 1963. "A Grammatical Approach to Personification Allegory". *Modern Philology* 60.3: 161-71.

Due, Otto Steen. 1974. *Changing Forms: Studies in the Metamorphoses of Ovid*. Classica et Mediaevalia, Dissertationes 10. Gyldendal: Museum Tusculanum Press.

Fantham, Elaine. 2004. *Ovid's Metamorphoses*. Oxford: Oxford University Press.

Geertz, Clifford. 1986. "Making Experiences, Authoring Selves". In *The Anthropology of Experience*. Ed. Victor W. Turner and Edward M. Bruner. Urbana IL: University of Illinois Press.

Gooding, David. 1986. "How do scientists reach agreement about novel observations?" *Studies in History and Philosophy of Science* A.17.2: 205-30.

---. 2003. "Varying the Cognitive Span: Experimentation, Visualisation, and Computation". In *The Philosophy of Scientific Experimentation*. Ed. Hans Radder. Pittsburgh PA: University of Pittsburgh Press.

Katanova, Maria, Alexandra Milyakina, Tatyana Pilipovec, Artjom Shelya, Oleg Sobchuk and Peeter Tinits. 2017. *Broken Time, Continued Evolution: Anachronies in Contemporary Films*. Literary Lab, Pamphlet 14. Stanford CA: Publications of the Stanford Literary Lab, Stanford University.

Knox, Peter E. 2009. *A Companion to Ovid*. Chichester: Wiley-Blackwell.

McCarty, Willard. 1993. "Encoding Persons and Places in the *Metamorphoses* of Ovid: 1. Engineering the Text". Texte et Informatique. *Texte: Revue de Critique et de Théorie Littéraire* 13/14: 121-72.

---. 1994. "Encoding Persons and Places in the *Metamorphoses* of Ovid part 2: the Metatextual Translation". Texte, Métatexte, Métalangage. *Texte: Revue de Critique et de Théorie Littéraire* 15/16: 261-306.

---. 2003. "Background material on personification". Unpublished note.

McManus, I.C., Matthew Freegard, James Moore and Richard Rawles. 2010. "*Science in the Making: Right Hand, Left Hand.* II. The duck-rabbit figure". *Laterality* 15.1/2: 166-85.

Moretti, Franco. 2013. *Distant Reading*. London: Verso.

Otis, Brooks. 1966. *Ovid as an Epic Poet*. Cambridge: Cambridge University Press.

Paxson, James J. 1994. *The Poetics of Personification*. Cambridge: Cambridge University Press.

Pratt, Mary Louise. 1991. "Arts of the Contact Zone". *Profession* 1991: 33-40.

---. 1992. *Imperial Eyes: Travel Writing and Transculturation*. London: Routledge.

Tarrant, Richard. 1976. Review of *Changing Forms: Studies in the Metamorphoses of Ovid* by Otto Steen Due and *Ovid's Metamorphoses: An Introduction to the Basic Aspects* by G. Karl Galinsky. *Phoenix* 30.3: 297-303.

Wright, Peter and John McCarthy. 2005. "The value of the novel in designing for experience". In *Future Interaction Design*. Ed. A. Pirhonen, H. Idomäki, C. Roast and P. Saariluoma. London: Springer-Verlag, 2005.

Wulf, William A. 2000. "The Nature of Engineering, the Science of Humanities, and Gödel's Theorem". *Ubiquity* 2000: 1-30 September. http://ubiquity.acm.org/article.cfm?id=351308 (14/4/17).

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[1] For a detailed discussion see McCarty 1993 and 1994. Although no longer in development, the *Analytical Onomasticon* can be accessed online, at http://www.mccarty.org.uk/analyticalonomasticon/.

[2] I'm indebted to Amiria Salmond for suggesting this vignette. For the genre see Wright and McCarthy 2005: 16-17, citing Geertz 1986: 374, whom I paraphrase. For "contact zone" see Pratt 1991 and 1992.

[3] Due 1974: 135 on Otis 1966; Tarrant 1976. For later, more favourable scholarship see e.g. Barchiesi 2002, Fantham 2004 and Knox 2009.

[4] For a representation of the nested structure see http://www.mccarty.org.uk/analyticalonomasticon/base/narrative.html (18/4/17).

[5] I have set down a detailed discussion in McCarty 2003, which is essentially dependent on Bloomfield 1963 and is supported by Paxson 1994.

[6] The case of *viscera terrae* (*Met* 1.138) is in context thoroughly ambiguous. For Joseph Jastrow's duck-rabbit figure see McManus et al 2010.

[7] Moretti 2013: 169, quoted by Katanova et al 2017.