Ghosts in the machine?
Relational databases, digital objects and alterity

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> *Systems can be viewed as perspectives that can never be inhabited simultaneously* (Gershon 2005: 104).
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> *Ontological perspectivism… is the view that what a kind or category of object is turns on the relation of that object to something else* (Paleček and Risjord 2012: 16-18).

Work on the development of two relational database systems required us to confront assumptions about the nature of digital objects and the kinds of relations through which such systems or networks may be constituted. Helping to design and build these very different digital environments raised practical problems regarding database ontologies and how they might accommodate and allow exchange across different modes of relationality. Our attempts to work through these challenges together with Māori colleagues generated insights into distinctions between 'real' and 'virtual' objects as well as between *relativist* and *relational* approaches, differences simultaneously being addressed in anthropological discussions of ontology. Here we bring our experiences to bear on these debates, to see what new understandings of digital objects and ontologies might emerge through these partial connections.

Figure : Database workshop, Uawa, January 2012

Whereas in information science, "ontologies" are taxonomic hierarchies allowing data to be shared across diverse systems and platforms, anthropologists borrow the term from philosophy's distinction of matters of being from those of

knowledge. In its current usage among ethnographers ontology has acquired a variety of meanings, signifying anything from peoples' theories of the world, to subconscious assumptions about the nature of reality, to the reflexively produced artefacts of scholarly analysis (Salmond 2014). Across the board, ontological discussions may be seen to be haunted by a specter of relativism, an association linked to the idea of mind as a "ghost in the machine" of matter, the primal schism of mental from material reality.[1] Drawing on the legacy of such dualisms, critics have charged the ontological turn with advocating a "radically essentialist" version of cultural relativism,[2] in which peoples are seen to inhabit "different worlds" irrevocably divided by incommensurable concepts (when in fact they live in the real world defined by physical matter). Parallels are drawn with earlier debates on linguistic relativism (the idea that different languages entail different thought worlds) and the relativity of scientific knowledge (beginning with Thomas Kuhn's notion of incommensurable scientific paradigms). Yet such comparisons often miss the emphatic post-representationalism of at least some "ontological" projects.

Recursive ethnography, for instance, is an ontological strategy that rejects the dualist thesis as an exhaustive account of reality, proposing instead – for heuristic purposes – to treat concepts and things as an identity.[3] The aim here is not to invent a better ontology to replace that of Cartesian modernism, but to generate methodological openings that might admit differences other than those anthropology already anticipates. Recursive approaches advocate ethnography as the method through which these other forms of alterity might emerge, on the basis of its generative relationality (its production of insights through comparison). In recursive terms, ontological difference is less a property of mental, linguistic or cultural schemes "out there" conditioning human apprehension of material reality, than an artefact of comparative relations. The aim of recursive arguments is thus not to establish ontological alterity as empirical fact – for instance by mapping divergent assumptions about reality onto groups of people. Rather, the ambition is to advance a methodology genuinely open to the unexpected and the otherwise; one that precisely refuses to place a bet either way when it comes to the question what is? (Pedersen 2012, contra Heywood 2012).

Analogously, our work on relational database systems required us to compare different ways of relating and introduced us to unanticipated kinds of digital objects. Of the two systems on which we have collaborated, one is a digital research environment called KIWA, built for researchers studying the histories, aesthetic qualities and material construction of ethnographic museum objects from Oceania. The other is Te Rauata, a digital *taonga* repository built by and for Te Aitanga a Hauiti, a Māori tribe from New Zealand, to record and extend the reach of their cultural treasures and *whakapapa* or genealogy. These database systems are designed to be partly connected, so as to exchange information about a specific range of objects (museum artefacts that originated in Hauiti's

1. The phrase comes from philosopher Gilbert Ryle's critique of Cartesian dualism.
2. The phrase "radically essentialist" was used in the volume *Thinking through things* (Henare [Salmond], Holbraad and Wastell 2007) to….
3. As the philosophers Paleček and Risjord (2012) argue, this refusal to subscribe to a scheme-content dualism clearly distinguishes their arguments from those forms of relativism demolished so persuasively by Donald Davidson.

tribal territories and are now held overseas). Alongside material uploaded into Te Rauata directly by Hauiti people, their repository incorporates a "gateway" through which information about relevant collections can be channeled from the KIWA digital research environment to the Te Rauata server at Uawa, within Hauiti's tribal territory. And, in acknowledgment of the reciprocal ties established through these projects, Hauiti has offered to share tribal knowledge of their *taonga* through Te Rauata with KIWA, which in turn has the capacity to feed this information on to holding institutions.

At the outset of these partially conjoined initiatives, we imagined that KIWA and Te Rauata might take the form of a single digital research space on a Cambridge-based server that would accommodate diverse artefacts of knowledge – much like most other databases arising from partnerships between museums and indigenous communities (Hogsden and Poulter 2012a). As work progressed, however, it became clear that KIWA's artefact-centric structure, in which digital objects are linked by further objects embodying relations between them, would not work for Hauiti. Through a series of workshops and discussions (Fig. 1), it emerged that Te Rauata was envisaged as an entirely separate system, the structure and ontology of which would enable Hauiti to maintain *mana* and control over their *whakapapa*, the generative and emergent constellation of relations that are both the substance and conditions of possibility for Hauiti's ongoing existence (Salmond 2013). The different relational modes at work in the two systems became clear when Hauiti explained that nothing – no digital object – could enter Te Rauata without already being part of a system-internal relationship. The *a priori* condition of everything, including every object in the database, is its enmeshment in the *whakapapa* ties that make it what it is. Both database systems are thus relational, but differently so. Whereas KIWA's objects are *connected* by relations, Te Rauata is relational "all the way down," as it were – nothing inside it is not already related.

Hauiti's notion of digital *taonga*, furthermore, unsettled assumptions about contrasts between both digital surrogates and born-digital objects, and "virtual" and "real" things (Hogsden and Poulter 2012b; Salmond 2012). Whereas both KIWA and Te Rauata exploit digital objects' unique capacities – their mobility and reproducability, for instance – each system produces quite distinct kinds of things. KIWA's digital objects are artefacts of a distinctively museological sensibility, in which digital "surrogates" stand for the (fragile, difficult to access) "real" things that were seen, studied and photographed on fleeting visits to far-flung institutions. This is reflected in KIWA's user-interface, which allows researchers to assemble "collections" on a "workbench" for the purposes of drawing visual and textual connections, subjectively comparing the visible qualities of objects and associated information. In Te Rauata by contrast, when users click on a particular "thing" (artefact, landscape feature, document, video of a performance, etc.), its relations to other things are visually activated, including its emplacement within *whakapapa* in the form of specific genealogies. In this scheme, the fundamentally relational character of every thing in the system is made visible, and Hauiti users are implicitly invited to position themselves within these constellations; to approach things from the perspective of their own particular *whakapapa*. The *taonga* status of an object, digital or otherwise, extends from these perspectival relations and the assiduity with which they are maintained, such that:

> Artefacts that have become detached from their stories and *whakapapa* are only potential *taonga* until these connections are re-animated and the object is restored as the living face of those relationships (Ngata, Ngata-Gibson and Salmond 2012).

Digital objects relating (to) images, events, art forms, artefacts and language are therefore valued in their own right not least for their capacity to help maintain and restore the relational perspectives (*whakapapa*) that transform potential *taonga* into actual ones (virtual or otherwise). The concept of digital *taonga* thus underscores the relational nature of Hauiti *taonga* in general, to the point that – in certain ways – distinctions between "real" and "virtual" forms disappear.[4] Far from mere "ghosts in the machine," standing in for properties held to attach to "real" material things, such objects stand on their own account in relation to others, as both the substance of, and conditions of possibility for, the dynamic unfolding of *whakapapa*.

The different relational modes in play in KIWA and Te Rauata thus generate different kinds of digital objects (including relations) that allow different relational perspectives (subjective and otherwise). For developers comparing the two systems with a view to enabling them to share information, for instance, KIWA and Te Rauata appear as different worlds that require the invention of a third space (further programs or ontologies) to enable them to relate and share information – or, more correctly, to reprocess each other's data into their own terms. A user reading Hauiti accounts among other information about an artefact within KIWA, however, would not see the ontological work going on in the background to extract those digital objects from the relations that define them in Te Rauata, enabling them to assemble them with other objects in KIWA's artefact-centric schema. And a user of Te Rauata would *only* see those same objects from within the relational constellations in which they themselves are positioned. Whereas a developer compares the systems relative to one another and relative to a scheme (database ontology), in other words, users see each others' systems only *relationally*, that is through and within the different relational perspectives that constitute each digital environment. The comparisons entailed in building these systems – including developers' experimental switching back and forth between these perspectives, as well as the code that mechanically compares digital objects in order to translate them from one system to another – have itself produced new concept-things, not least digital *taonga* and the ontologies – digital and otherwise – that emerge through them and through which they emerge.

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4. Hence the interest in virtual repatriation – the returning of digital "surrogates" of museum objects to indigenous communities in place of the objects themselves. It would be a mistake, however, to assume that enthusiasm for such initiatives springs from a perceived *equivalence* between digital and material objects. For Hauiti, digital objects are valued in their own right, and thus may acquire *taonga* status, but this does not render them adequate substitutes for *taonga* in other (including material) forms.

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