

# Developing a Theory of Transdisciplinarity that can Deal with Indigenous Knowledge: The Yolŋu Consultants Initiative

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## Introduction

Transdisciplinary research is increasingly suggested as the real deal, real world science. It matches a reality of complex real world problems by drawing on multiple disciplines for their solution, while maintaining the possibility for knowledge production through the interrogation and sharing of the scientific practices of those involved. This paper, which is confirmation paper, begins to develop a Theory of Transdisciplinarity that can Deal with Indigenous Knowledge. It is in four parts. [\[CLICK\]](#) First, I argue the scientific practices are simultaneously generative of objects, subjects and knowledge. Second, I argue that these practices are disciplinary in that they also guarantee that these objects, subjects and knowledge are reliable. Third, I introduce the Yolŋu Consultants Initiative and the questions it raises for my research. And lastly I begin to develop an empirical metaphysics analytic that facilitates the mutual interrogation of transdisciplinary research and the Yolŋu Consultants Initiative.

## The creation of phenomena [\[CLICK\]](#) [\[CLICK\]](#)

Ian Hacking's 1983 work *Representing and Intervening*<sup>1</sup> turned the practices of natural science on their head. Rather than the natural sciences reporting on the phenomena of the natural world, natural science 'created its own phenomena' in the lab.<sup>2</sup> In making this argument, Hacking draws on, and is drawn by, the history of physics. He notes in the late 19<sup>th</sup> century natural scientists began to describe their work as the demonstration and naming of 'effects'. Taking this new account of the sciences seriously, Hacking argues that the "truly instructive phenomena"<sup>3</sup> are the *effects* of scientific practice. These created phenomena are characterised by being *embodied* in devices and apparatus,

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<sup>1</sup> {Hacking, 1983 #103}

<sup>2</sup> {Hacking, 1983 #103} Chapter 13, "The creation of phenomena", pp 220-232.

<sup>3</sup> {Hacking, 1983 #103 @224}

*regular* in their production, *public* in their visibility, *potentially law-like* in their reliability, but perhaps *exceptional* in their novelty.<sup>4</sup> Hacking permits that under this definition, phenomena may exist outside the lab, such as stars and the habits of plants and animals. However, as his analysis concerns the history and philosophy of science, he maintains that the most important phenomena are those which are the creation of purposive experimentation.

Two decades later, in *Historical Ontology*<sup>5</sup>, Hacking continues developing his account of the generative nature of scientific practices. In this work, Hacking looks wider than the creation of phenomena to the constitution of subjects and objects in the sciences more generally. Hacking uses the term *ontology* precisely as it broadens the scope of his analysis to “[n]ot just things, but whatever we individuate and allow ourselves to talk about. That includes not only “material” objects, but classes, kinds of people, and indeed ideas.”<sup>6</sup> Hacking also makes explicit the necessity and importance of metaphysical commitments in the effectiveness of the sciences to generate new objects, new technologies and new forms of life. Returning to an example from his 1983 work, Hacking argues that when physicists account for their achievements as discovering or perhaps isolating a phenomena such as a laser,

“what they [the physicists] really mean is that the universe was made, from the very beginning, in such a way that the laser was there, *in potentia*. Such talk is a sure sign that we have passed from physics to metaphysics – and a very effective and natural metaphysics it is too.”<sup>7</sup>

While Hacking’s historical interests and scope differ from the empirical study I will soon introduce, the method of historical ontology, as an extension of the ‘creation of phenomena’ argument and as a specie of applied metaphysics, provides a useful conceptual tool to begin approaching the practices of transdisciplinary research. Specifically, I take from Hacking that scientific practices are generative of their objects, that they are simultaneously generative of knowledge and knowers, and that specific metaphysical commitments are embedded in their practices and their accounts. Returning to his early terminology, we could say metaphysics effect scientific practices, but are

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<sup>4</sup> {Hacking, 1983 #103 @226}

<sup>5</sup> {Hacking, 2002 #104}

<sup>6</sup> {Hacking, 2002 #104 @2}

<sup>7</sup> {Hacking, 2002 #104 @15}

equally effects of it.

### **Disciplinary Practices**

So now to scientific practice as disciplinary, and I want to focus more closely on the performance of experimentation. For Hacking, to “experiment is to create, produce, refine and stabilize phenomena.”<sup>8</sup> This is hard work, and it is important to know when the experiment is working (and not working). When an experiment is working it is creating both reliable knowledge and stable phenomena. Object and knowledge emerge at once. According to Hacking, learning to sense when reliable object/knowledges are emerging in practice is the crux of scientific training.<sup>9</sup> In *Knowledge and Power: toward a political philosophy of science*<sup>10</sup>, Joseph Rouse details the carefully performed and disciplined practices of science and scientific training. Rouse extends the function of the sciences from effecting phenomena to constructing “phenomenal microworlds.”<sup>11</sup> This much broader term is used to argue that “scientific knowledge is fundamentally local knowledge, embodied in practices that are not fully abstractable into theories and context free rules for their application.”<sup>12</sup> Hence, knowledge of a working experiment is also not abstractable and remains embodied in the apparatus of the experiment, including the bodies of the scientists, refined practices, generated texts, the context of the research and its institutional setting. To extend the achievements of science therefore, one must extend the microworld in which they are brought into being and known.

While both Hacking and Rouse are indebted to the work of Michel Foucault, where Hacking takes inspiration from genealogical investigation, Rouse develops the notions of technique and disciplinary practice in exploring the intricate and controlled worlds of science and experimentation. Knowing when an experiment is working is not the act of an independent mind. Rather, it is the outcome of techniques of surveillance,

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<sup>8</sup> {Hacking, 1983 #103 @230}

<sup>9</sup> {Hacking, 1983 #103 @230-231}

<sup>10</sup> {Rouse, 1987 #59}

<sup>11</sup> {Rouse, 1987 #59 @101}

<sup>12</sup> {Rouse, 1987 #59 @108}

examination and normalisation.<sup>13</sup> For Rouse, techniques of surveillance include sampling, recording, and monitoring, which make scientific practice visible in particular ways. Techniques of examination are the collating, filing, coding, and re-arranging of practices and symbols they produce. Techniques of normalisation include classification, categorisation, and comparison, that result in the maintenance of norms against which judgements are made. Recalling that scientific practice constitutes objects, subjects and knowledge at once, normalisation and classification effect and simultaneously judge *which* are valid objects, *who* are competent researchers, and *what* is reliable knowledge.<sup>14</sup> Moreover, as techniques are disciplinary *practices* these judgements are embedded in practice and are corrective and on going rather than punitive and definite.

In the account of scientific practices I am formulating, through Foucault, Hacking and Rouse, there is no *a priori* that establishes universal guarantees for reliable knowledge, not absolute metaphysics with a sound ontology and epistemology for all times and places. Rather the disciplinary practices continue to effect and be effected by the texts, inscriptions, material apparatus, institutional arrangements, and the ontic and epistemic commitments which all constitute the on going generative work of science and the validation of knowing when it is working.

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<sup>13</sup> {Rouse, 1987 #59 @220}

<sup>14</sup> {Rouse, 1987 #59 @224}

## **The Yolŋu Consultant's Initiative [\[CLICK\]](#)**

This may seem like a round about way toward my empirical study, but the production of reliable phenomena and knowledge is of fundamental importance to the Yolŋu Consultants Initiative. The initiative describes itself as piloting

“a new approach in confronting systemic disadvantage; strengthen[ing] the Yolngu communities' capacity to re-negotiate the terms of their engagement with outside institutions.”<sup>15</sup>

It does so by procuring funding for research relating to Yolŋu livelihoods and employs high achieving Yolŋu adults to undertake the research. The Initiative facilitates the research by organising workshops [\[CLICK\]](#) [\[CLICK\]](#), recording and documenting the workshops [\[CLICK\]](#) [\[CLICK\]](#), and developing reporting procedures [\[CLICK\]](#) [\[CLICK\]](#) [\[CLICK\]](#) [\[CLICK\]](#). To date, research into the use of multimedia in health interpreting and education, into gambling, financial literacy and mathematics education have been respectively commissioned by the Institute for Breathing and Sleep, Gambling Australia, ANZ Bank, and the government funded body on Science and Information Technology Mathematics Education in Remote and Regional Australia.

The Initiative is the most recent project in a trajectory I am calling ‘both ways’ research which has been occurring between Yolŋu and Western researchers in Arnhemland since the 1980s. ‘Both ways’ research has been constituted by action research for Aboriginalisation of schools and Yolŋu health, workshops on natural resource management between Yolŋu elders and Western trained scientists, and the development of digital technology for supporting Yolŋu collective memory and knowledge practices. In a recent article on this research trajectory, long time ‘both ways’ researcher Michael Christie characterises these projects as

“collaborations between different knowledge systems which involve partnerships, work “both ways”, and are consistent with appropriate modes of engagement and negotiation which underpin the secular dimensions of Aboriginal life.”<sup>16</sup>

Not only are the practices of the investigation directed ‘both ways’ but its accountabilities

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<sup>15</sup> {Verran, 2007 #109}

<sup>16</sup> {Christie, 2006 #89 @79}

are also. The research,

“fulfils the criteria for both Indigenous knowledge production and academic research ... [it] is something which has credibility both within the academy as academic research, and within the Aboriginal world as respectful, respectable, and useful.”<sup>17</sup>

Both ways research is therefore indebted to both Western and Yolŋu theories of knowledge. Researchers working in Western knowledge traditions have developed metaphors such as ‘different knowledge systems’ and ‘disparate knowledge traditions’ which open up space for multiple forms of knowledge insulated against the assimilationist drive of ‘universal science’. Yolŋu researches have used metaphors such as ‘ganma’, ‘galtha’ and ‘garma’ to talk about how differences are to be dealt with specific times and places in Arnhemland. Due to such efforts, difference has remained strongly foregrounded in all ‘both ways’ research.

‘Both ways’ research, however, has never been strong, and always dependent on much effort contributed by researchers in the natural and social sciences. The enthusiasm for indigenous cultural and political causes of the 1980s such as self determination seem more distant today. [CLICK] Governments are on the move, baited by more effective means of getting the job done. The academy is on the move also, and it is no less about getting the job done. In the current milieu, perhaps more in Europe but increasingly in Australia, notions of transdisciplinary and interdisciplinary research are being offered to the academy as an ‘unbeatable combination’. According to Marilyn Strathern,

“[interdisciplinarity] combines in itself two sets of values that Euro-Americans, and especially those of the British sort, find compelling. On the one hand is all the creativity contained in the idea of crossing boundaries with the innovative possibilities of making connections. On the other hand are the ‘shirtsleeves’, the logic of marshalling of experts to talk with one another to solve problems, and the practical sense of addressing issues that cannot be handled by one approach alone. It is an unbeatable combination.”<sup>18</sup>

Hence, there is an important part of transdisciplinary research that supports different knowledge practices. Nowotny favours transdisciplinarity over interdisciplinarity precisely because it names an activity that is transgressive of boundaries, be they institutional, methodological or theoretical.<sup>19</sup> The article by Christie I referred to earlier

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<sup>17</sup> {Christie, 2006 #89 @80}

<sup>18</sup> {Strathern, 2006 #79 @196}

<sup>19</sup> {Nowotny, 2003 #84}

was entitled ‘Transdisciplinary Research and Aboriginal Knowledge’ in which he positions ‘both ways’ research as transdisciplinary research precisely because it makes explicit the fundamentally transgressive nature of its practice and the importance of negotiating knowledge production and validation. I find this a particularly useful analogy because, firstly it is reasonable robust given the brief accounts of both transdisciplinarity and ‘both ways’ research, given above, but more importantly because enables a mutual interrogation of both transdisciplinarity and the Yolŋu Consultants Initiative. I wish to follow Strathern in her interrogation of interdisciplinarity/transdisciplinarity as a concept and tool for articulating research practice and theory.<sup>20</sup> The absence of research on emerging transdisciplinary practice itself<sup>21</sup> certainly favours this endeavour and makes it a timely investigation.

I am also inspired by the work of Elisabeth Povinelli. Her book, *The Cunning of Recognition*<sup>22</sup>, deals with what she calls the impasses of liberalism. These are instances when recognised and generally respected differences are forced together by the normative institutions of contemporary liberal democracies: the law and the economy. Her examples include Indigenous art, customary law and native title. These impasses emerge in these contexts when our moral sensibility of ‘what is right’ clash with our critical rational knowledge of ‘what is right’.<sup>23</sup> She argues that studying these impasses are interesting “only and exactly because of the way it works as a *generative* impasse in the liberal discourse about and institutions of cultural recognition.”<sup>24</sup> I feel Povinelli alerts us to the similarities between transdisciplinarity and liberal democracy. Both concepts bow to a loss of unity and embrace diversity. They both, however, rely on a notion of rationality and order that will somehow contain this diversity or manage it to achieve a goal (research problem solved, or harmonious stable democracy). My research therefore could also be said to be an investigation into the generative impasses of transdisciplinarity.

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<sup>20</sup> {Strathern, 2005 #80}

<sup>21</sup> {Weszkalnys, 2006 #95} {Franks, 2007 #94}

<sup>22</sup> {Povinelli, 2002 #41}

<sup>23</sup> {Povinelli, 2002 #41 @3}

<sup>24</sup> {Povinelli, 2002 #41 @9-10}

A mutual investigation into transdisciplinarity and the Yolŋu Consultant Initiative, therefore, is both timely and interesting. The empirical material provides insight into a contemporary instance of transdisciplinary research, while at the same time offering details with which to inform methodologies and theories of knowledge which can deal with collaboration between two very different knowledge traditions. Questions this research poses are ... [\[CLICK\]](#)

- How are negotiations over knowledge done in contemporary transdisciplinary research in Australia?
- How do Western and Yolŋu traditions work together such that knowledge is relevant and reliable for both?
- What kinds of metaphysical commitments do we need to provide an analysis that is open to new knowledges and knowledge practices in these contexts, and which is aware of itself in participating in these contexts?
- How might we account for knowledge production in a way that does not separate achievements from their context and difficulties from the potential for their resolution?

## Experimental Metaphysics

To recap, I began this paper using Hacking to argue that objects, subjects and knowledge emerge at once as scientific practice. Then, using Rouse, I argued these practices are disciplinary in that their generative work is simultaneously corrective, guaranteeing the validity of what is constituted. These set of ontic and epistemic commitments I now want to develop into an empirical metaphysics analytic that is open to all forms of constitution, is sensitive to the many practices of producing reliability, can be informed by empirical fieldwork and recognises its analysis as part of the on going research, in my case the Yolŋu Consultants Initiative. Bruno Latour's *Politics of Nature* begins to articulate such a metaphysics.<sup>25</sup> His "experimental metaphysics" has no settled *a priori* constitution of the common world. Rather collectives, a term similar to Rouse's microworlds, continually constitute themselves as two movements: taking into account and putting into order. Taking into account is generative, and transgressive while putting into order is corrective and disciplinary. These movements are not separate but are always working together in continual iteration. Latour argues that together they constitute new requirements or guarantees for the reliable constitution of a common world and shared knowledge. These requirements are; [\[CLICK\]](#)

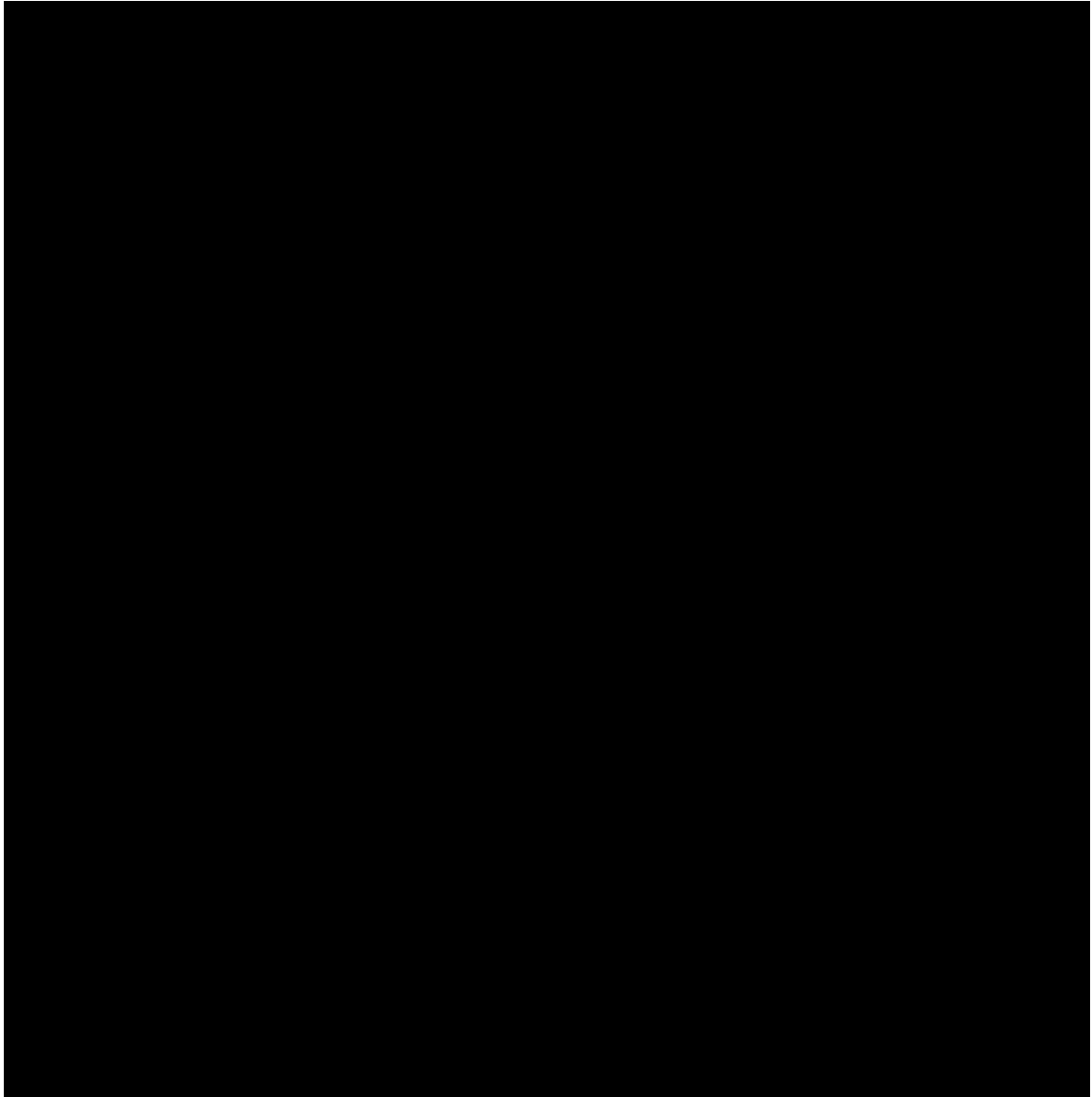
- that the collective is always open to a dynamic and irreducible exterior of potential entities,
- that all entities from the exterior can present themselves as relevant to the collective,
- that all entities must be presented on the same terms
- that the collective can achieve temporary closure by rejecting any entities that threaten the current collective life.

Each of these requirements or guarantees are performed and this enactment is what

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<sup>25</sup> {Latour, 2004 #34}

Latour calls the experimental metaphysics. Here is a diagram I have developed from *Pandora's Hope*<sup>26</sup> and the *Politics of Nature*.



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<sup>26</sup> {Latour, 1999 #29}

The squiggly arrow is the trajectory of the collective, always dynamic and always emerging. The squiggles, its generative transgressions producing new objects and knowledge and its disciplinary correction toward an stable arrangement that can go on, are the movements taking into account along the top and putting into order down the side. What this diagram does is pictorially locate the four requirements as the four practices which constitute the on going life of the collective. So we have perplexity – perplexity extends the number of new entities considered by engaging with the as yet uncollected exterior, ... consultation – consultation ensures that all new entities can be articulated ... hierachization – hierarchization flattens all entities so that they can be articulated in the same way, ... and institution – institution only accepts those entities which can extend the current ordering of the already gathered collective.

The bold line and arrow that graphs the current iteration is, in Latour's terms, mediated by diplomacy. That is, there is a role, a rather messy one, called diplomacy, that continues to pursue the experiment through iterations, that never lets the collective close or become fixed, that always tries to articulate the order of current collective life, but that never divides the collective, including removing the role of the diplomat from collective life. Diplomacy attempts to get at what is essential for the life of the collective and what is expendable. Diplomacy continually facilitates new relations and separations avoiding any absolute separation that results in a complete opposition of two sides which can only be at war over relevance and reliability.

To finish, this image allows me to understand my research as that of diplomacy. Through an experimental metaphysics I aim to generate and articulate stories of potential relations and separations in the practices that constitute the Yolju Consultants Initiative. These stories leave open the question of what the Initiative may enact but bring awareness to the variety of ways such transdisciplinary research may go one without losing the two important roles of transgression and discipline, or of constitution and reliability. As this diplomacy is in the iterative process that is the Yolju Consultants Initiative it hopes to inform an empirical metaphysics analytic that may help understand the emerging phenomena of transdisciplinary research more generally. Thank you...