Problematizing Disciplinarity, Transdisciplinary Problematics

Peter Osborne
Kingston University London

Abstract

This article situates current debates about transdisciplinarity within the deeper history of academic disciplinarity, in its difference from the notions of inter- and multi-disciplinarity. It offers a brief typology and history of established conceptions of transdisciplinarity within science and technology studies. It then goes on to raise the question of the conceptual structure of transdisciplinary generality in the humanities, with respect to the incorporation of the 19th- and 20th-century German and French philosophical traditions into the anglophone humanities, under the name of 'theory'. It identifies two distinct – dialectical and anti-dialectical, or dialectical and transversal – transdisciplinary trajectories. It locates the various contributions to the special issue of which it is the introduction within this conceptual field, drawing attention to the distinct contribution of the French debates about structuralism and its aftermath – those by Serres, Foucault, Derrida, Guattari and Latour, in particular. It concludes with an appendix on Foucault's place within current debates about disciplinarity and academic disciplines.

Keywords

dialectical, disciplinarity, generalization, humanities, philosophy, theory, transdisciplinarity, transversality

Disputes about the nature, borders and rationales of academic disciplines have a history as long as the disciplines themselves. Views differ as to how far back the genealogy of today's disciplines may most meaningfully be traced. The general consensus remains the mid-19th century, but a case for the 'long' 18th century can also be made (Valenza, 2009), with the late medieval university and the seven liberal arts (Kelley, 1997), or even the beginnings of the classical tradition – at least with respect to the

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Corresponding author: Peter Osborne. Email: p.osborne@kingston.ac.uk
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humanities – being cited in reaction against excessively 'discontinuous' histories of thought and intellectual practices. Which option one finds most convincing will depend upon the formulation of the problem of disciplinarity, within the present, from which one sets out. Yet whichever genealogy one adopts, it is increasingly clear that the history of intellectual disciplines is longer, more differentiated and more 'indisciplined' than has conventionally been presented in the stories that disciplines have told about themselves (Graham et al., 1983; Schaffer, 2013). However indisciplined the disciplines may always have been, though, few would dispute the fact that there has been a qualitative shift in the character of debates about disciplinarity, in relations between academic disciplines, and within disciplines themselves in European and North American universities since the mid-1960s; or that these developments have been associated with the most creative and far-reaching transformations of intellectual practices in the natural sciences, the social sciences and the humanities alike. Very few of the most important works in the area of 'theory, culture and society', for example, over the last 50 years, are 'disciplinary' in character, or representative of the disciplinary training of their authors.

Disciplinarity has become problematic in multiple and contested ways. What follows begins with a schematization of this process in terms of the multiplication of qualifying prefixes to which the term has been subjected in the course of these debates: inter-, multi-, trans-, de-, anti-, in-, meta- and post-. It proceeds – via a short history of transdisciplinarity, and an account of the distinctive conceptual structures produced by the transposition of the concept into the context of the humanities – to outline the two main and opposed philosophical traditions that have engaged with transdisciplinarity as the necessary consequence of the critique of philosophy itself. In each instance, it is attention to the practical bases of theoretical problems that leads to a transformation in disciplinary self-consciousness attendant upon transformations in the formulations of the problems themselves. The articles that follow in this special issue of *Theory, Culture & Society* reconstruct or represent the varying transdisciplinary problematics that structure the writings of a series of main figures in the structuralist, anti-dialectical and anti-humanist strand of French thought: Serres, Foucault, Derrida, Althusser, Guattari and Latour. They are succeeded by three anglophone case studies of transdisciplinary relations: in Feminist Theory, Gender Studies and Psychosocial Studies.

Disciplinarity and Its Prefixes

The main change in the nexus of disciplines, since the 1960s, has involved an intensification of interest in, and a proliferation of proposals for, *interdisciplinarity* and *multidisciplinarity*, of various kinds. The first of

these terms derives from the period between the world wars (Stills, 1986: 17–18), the second from shortly after the Second World War. Indeed, by 1939, 'interdisciplinarity' was apparently already being decried as 'modish and passé' (Schaffer, 2013: 60, citing Frank, 1988: 94) – as 'transdisciplinarity' is now (Lawrence and Després, 2004: 397; Mittelstrass, 2011: 329), despite the insistence on its 'pristine charm' ('not yet corrupted by time') by one of its main proponents, as recently as the mid-1990s (Nicolescu, 2002 [1996]: 1). Since the 1970s, the discourse of disciplines has become increasingly and successively differentiated and theoretically reflexive, with the introduction not only of the concept of *transdisciplinarity* – initially associated with the application of systems theory to educational policy and child development (Jantsch, 1970, 1972; Piaget, 1972) – but also of *anti-disciplinarity* (associated with the academic radicalism of the 1980s – Mowitt, 1992), *indisciplines* (Mitchell, 1995, 2009), *antidisciplines* (Pickering, 1993, 2013), *postdisciplines* – or at least, postdisciplinary academic practices (Messer-Davidow et al., 1993: 397–461; Nelson and Gaonkar, 1996b: 15) – and *de-disciplinarization* (Prost, 2009: 749–50; cf. Foucault, 1980: 39, quoted in Schaeffer, 2013: 63).[1]

The prehistory of the project from which the articles in this issue are an outcome further contributed to this categorial proliferation with the addition of *hegemonic disciplinarity* (Osborne, 2011a).[2] In the course of the project itself, however, we have come increasingly to think of *meta-disciplinarity* – understood as an overarching disciplinary function produced by the failure of certain supra-disciplinary dynamics to escape the bordered and hierarchically organized intellectual forms of an academic discipline – as the main obstacle to the production of genuinely transdisciplinary conceptual constructions in the humanities.[3] These are *re-disciplinarizing* dynamics, which subject de-disciplinarizing initiatives to existing institutional and conceptual forms, respectively. 'English' (or, in the USA, Comparative Literature) and Geography are perhaps the best examples of the former, hegemonic form, incorporating whole hosts of new theoretical developments from without into radically expanded versions of their former selves. Structuralism is the exemplary case of the latter, insofar as it came to function as a 'new transcendental philosophy' (Deleuze, 2004 [1967]: 174) and thereby, ultimately, restored in novel form precisely that theoretical primacy of philosophy over the sciences that it was initially pitted against. (Three of the articles in the current issue – Balibar, Cunningham, Alliez – address that issue directly.)

Two things in particular may be noted about this terminologically proliferating history of disciplinary self-reflections. First, there is a strong tendency in the use of these labels to produce a Whig historiography of disciplinarity, whereby historically successive forms appear necessarily superior to, or more progressive than, earlier ones, by virtue of the relative chronological closeness to the present

of their moments of emergence and consolidation alone. *The Oxford Handbook of Interdisciplinarity*, for example, progresses from 'Knowledge Interdisciplined', via 'Institutionalizing Interdisciplinarity', to 'Knowledge Transdisciplined', as its concluding part (Frodeman et al., 2010: Parts 3–5) – 'Institutionalizing Transdisciplinarity' presumably being delegated to the avant-garde of handbooks of transdisciplinarity (such as Hirsch Hadorn et al., 2008a). 'Rethinking interdisciplinarity' (Sperber, Nowotny et al., 2003–4) over the last decade, at least in the sciences, has thus generally required some kind of engagement with the discourses and institutionalized frameworks of self-consciously transdisciplinary research, even if only – like Barry and Born – to disavow the distinction in the act of acknowledging it.[4] There is certainly a problem here, insofar as the historicist naturalization of the history of forms of disciplinarity overdetermines critical discourse in advance, bracketting off the possibility of a critical approach to historical developments themselves. On the other hand, the weight of broader socio-economic and institutional determinations in the history of both academic disciplines and the debates about them – and there is a disjunction there – must be acknowledged, if an effective critical discourse about disciplinarity is to be produced. There is a tension here between sociological and epistemological perspectives, which is rarely confronted directly in the literature.

Nonetheless – and this is the second feature of the recent literature – there is a growing acknowledgement of the internal complexity of the concept of an academic discipline, with often discrete intellectual, institutional and political aspects. It is useful at this point to recall something of the historical semantics of 'discipline'. Discipline (from the Latin, *disciplina*) pertains to the disciple: its context is the master/pupil relationship. 'Disciplines discipline disciples' (Barry and Born, 2013a: 1). Disciplines are institutional forms for the generational transmission of intellectual practices – traditions handed down and also therefore, of course, betrayed. (Betrayal is one of the meanings of *traditio*.) In this respect, in the medieval university, disciplines (as the practice of a disciple or scholar) was *opposed* to doctrine – or what we would now call 'theory' – which was the property of a doctor or teacher; although the two were nonetheless bound together, since it was doctrinal/theoretical content that the disciples/scholars studied and disseminated (cf. Prost, 2009: 750–51, citing Shumway and Messer-Davidow, 1991: 202). This is not unconnected to the disruptive role played by 'theory' in the transformation of disciplines in the anglophone humanities and social sciences in the 1970s and 1980s.

This primary meaning of discipline as subjection to an authoritative set of practical norms, which impose order on the mind and body – and of self-discipline as the cultivation of habits and forms of care of the self (scholarship as a discipline of the self) – is in tension with the more recent use of the term to refer to those departments of knowledge, academic

subjects, methods and fields of study that became the basis of the depart-
mental structure of the modern university (Appadurai, 1996: 30–31).[5]
This departmental definition of disciplines according to subject matter
and methods of study displaced the authority of the individual doctor,
teacher or professor onto the rules governing the production, reproduc-
tion and socialization of knowledge: in particular, those of the
professional association and the academic journal, which came, in
turn, to regulate the market in academic jobs (Post, 1999: 752–5).
In the process, the departmental conception of discipline introduced a
disciplinary concept of research, which, from a semantic standpoint,
contradictorily seeks theoretical innovation through disciplinary
practices. This is an effect of the condensation of the production of doc-
trine/theory (construed now, on a natural-scientific model, as 'research')
into an expanded conception of disciplines, within the Enlightenment
conception of the university as a domain of free inquiry (Kant, 1996
[1784], 1979 [1798]). Yet disciplinary structures play a relatively minor
role in *fundamental* research in the natural sciences, where the general
concept of 'science' (in its combined theoretical and experimental sense)
and the pursuit of specific problems play the main role (Biagioli, 2009:
819–20; Mittelstrass, 2011: 330–31), often generating new disciplines.
Indeed, it was precisely the generality of the concept of science, theoret-
ically constituted via the philosophical sub-discipline of the epistemology
of science, which was the motor of the transformation of a range of
disciplines in the humanities and social sciences ('the human sciences')
in France from the 1950s through to the 1970s, via the alternatively
trans- and meta-disciplinary ('doctrinal') concept of 'structure'.
Transposed into the context of the humanities and social studies, this
concept of science posed new problems for disciplinarity, to which
Guattari's development of a 'French' concept of 'transdisciplinarity as
transversality' was perhaps the most innovative response (see the text
by Guattari, and the introduction to it by Goffey, in this issue). The
transformative dynamic of this concept of science – radicalized by
its translation into an anglophone context to which it was initially
quite 'foreign', and mediated by different national contexts – was then
repeated in different ways in the anglophone humanities, from the 1970s
onwards.

  In the institutional context of the humanities, in universities structured
by departments, 'research' is an ambiguous category, since it is at once
opposed to and contains 'scholarship' in an unstable and untheorized
manner.[6] Research in the humanities, one might say, is a post-
Enlightenment production of doctrine, contradictorily subject to, on
the one hand, the relativity of belief necessary to free inquiry and, on
the other, institutionalized forms of disciplinary procedures, to which it
must simultaneously conform (in order to be recognized) and transgress,
in order to be original or 'innovative' – hence, it must not transgress them

too flagrantly. In this latter respect, disciplines function as constraints on research, as 'limits to discovery' (Mittelstrass, 2011: 330). Despite these contradictions, however, the departmental definition of the disciplines remains strong because the department is a highly effective self-reproducing institutional machine for training and hiring academics and providing the means of career advancement. Nonetheless, under conditions of increasing research intensity, there is an growing tension between the employment of academics and the organization of teaching in the disciplinary department, on the one hand, and the internal intellectual dictates, organization and funding of research, on the other.[7] The primary disciplinary function of constraint appears to contradict the intellectual function of free inquiry on which the self-image of the modern research university is based. Hence the rhetorical political progressivism of anti-, in-, de-, inter- and transdisciplinarities in academic politics since the 1960s, in which academic freedom functions metonymically for political freedom and the humanities have come to appear as the metonym for the liberal cultural function of the university itself. In Arjun Appadurai's words:

> while many colleges and universities have increasingly become factories for specialized research, applied interest, and professional credentializing, the humanities have become the critical site for the idea that the University is also about thought and reflection, cultivation and conscience, disinterest and abstraction, literacy and cosmopolitanism. (Appadurai, 1996: 27)

And within the humanities, one might add, the inherent 'uselessness' or non-'vocational' status of philosophy has made it the symbolic representative of the intellectual freedom of the humanities itself. (Non-vocational, that is, in the recent instrumental-economic sense of 'vocation', rather than in its original religious one.)

The practical humanism of this line of thought stands in uneasy relation to the anti-humanism of the theoretical resources with which it is often pursued – a gap over which a bridge named 'Foucault' is most frequently cast.[8] But whatever one makes of that tension (and it can certainly be a productive one, as well as a source of incoherence), 'indiscipline' about disciplines has undoubtedly become a marker of the defence of the broader cultural function of universities – as well as a feature of advanced research organizations – under the conditions of a departmentally structured disciplinary system that has remained largely unchanged for over a hundred years (Abbott, 2001: 122 – see also Becher, 1989). Indeed, for some in the humanities there is a necessary relation between the two, embodied in a conception of cultural studies as involving 'a deep concern with how objects, discourses and practices construct possibilities for and constraints on citizenship', and a consequent

commitment 'to the ongoing critique of disciplinarity and to the redefinition and recombination of disciplines in response to new or newly recognized historical realities' (Nelson and Gaonkar, 1996b: 7, 14; see also, Hall, 1990). The emphasis on citizenship as the focal point of political concern comes out of the North American context, although one can imagine a possible European equivalent (Balibar, 2004); a UK one is harder to envisage. It has the virtue of drawing attention to the fact that any such political-intellectual project of ongoing disciplinary critique and reorganization 'violates . . . the unwritten and unsigned pact post World War II disciplines made with state power' in the USA (Nelson and Gaonkar, 1996b: 2), and with US foreign policy in particular. When it comes to the supra-disciplinary dynamics of the organization of research, the question of the state and the political rationale of research cannot be avoided.

It is in order to escape the constraints of disciplines on research, as 'limits to discovery', rather than as limits to freedom, that research has *de facto* increasingly become organized in supradisciplinary and often periodically organized project-based centres, and especially, more recently, in policy-based, transnational, multi- and aspiringly transdisciplinary research organizations. It is in this context that the concept of transdisciplinarity emerged and developed, as a product of methodological self-reflection on new research processes. Before we come to the rather different approach to the concept of transdisciplinarity represented by the articles in this issue, it will be useful to schematize the main stages of the established history of the concept to date.

Transdisciplinarity: A Brief History

In the course of its short, less-than-50-year history, we can trace three main and two secondary discourses about transdisciplinarity in the sciences. The main ones are: (i) a systems-theoretical approach to producing 'an integral education/innovation system' (Jantsch, 1970: 7; Kim, 1998; Somerville and Rapport, 2000); (ii) a sociological science-policy approach to new forms of knowledge production (Gibbons et al., 1994; Nowotny et al., 2001; Nowotny, 2003); and (iii) a literature about research methodology in the collaborative solution of 'life-world' problems of environmental sustainability and health (Thompson Klein et al., 2001; Pohl and Hirsch Hadorn, 2007; Hirsch Hadorn et al., 2008), of which Guattari's transdisciplinary initiatives may be considered a deviant forerunner (Goffey, 2015). The secondary discourses are: (iv) a cosmological conception of transdisciplinary knowledge, based on a notion of 'levels of reality' derived from quantum physics (Nicolescu, 2002, 2008); and (v) a periodizing discourse in the philosophy of science, which is in various respects also postdisciplinary (Balsiger, 2004; Biagioli, 2009; Mittelstrass, 2011 – see also Funtowicz and Ravetz, 1993).

All of these discourses are historically, and especially institutionally, closely related, but they nonetheless have distinct intellectual profiles. It was the passing institutional dominance of the fourth, cosmological conception from the mid-1980s to the mid-1990s, as a result of UNESCO's co-sponsoring of large international events with Nicolescu's Centre International de Recherches et Études Transdisciplinaires (CIRET), leading to the First World Congress in Transdisciplinarity in 1994, for example, that to a significant extent discredited the concept of transdisciplinarity within science studies, as tending towards a mytho-poetic discourse on the unity of nature. In fact, sponsorship by large international organizations has been central to the propagation of the discourse of transdisciplinarity from the outset (its 'founding' moment in the OECD meeting in Nice in 1970), and in the late 1990s Yersu Kim, Director of the Division of Philosophy and Ethics at UNESCO, went so far as to declare UNESCO itself 'a transdisciplinary organization' (Kim, 1998: 3). This highlights the policy-based managerial imperative behind the aspiration for the production of new forms of integral knowledge (Somerville and Rapport, 2000), and the dangers of overly abstract, typological epistemological classifications and models, along with insufficiently politically examined practical presuppositions. These are certainly weaknesses from which the literature suffers, as a whole, but especially in its more programmatical declarations. (The International Congresses of Transdisciplinarity are prone to concluding Declarations.) It was not until Gibbons et al.'s *The New Production of Knowledge* (1994) that the concept of transdisciplinarity acquired a more concrete, conceptually and empirically grounded historical status as a constituent element in what they called 'Mode 2 knowledge production'.

Whereas the systems-theoretical literature on transdisciplinarity tends towards a meta-disciplinary form of supra-disciplinarity, embodied in the idea of 'a common system of axioms for a set of disciplines' (the generic definition adopted by the First OECD International Conference on Interdisciplinary Research and Education), the second main discourse, the sociological literature in science policy, focuses on large-scale social problems – mainly generated by environmental factors associated with globalization – viewed as amenable to scientific solutions. The specifically 'transdisciplinary' aspect of the research process here derives from its basis in problems that are initially identified and formulated externally to the scientific process itself and cannot be adequately addressed by disciplinary knowledges, their simple combination in multi-disciplinary units, or interdisciplinary interactions (see Hirsch Hadorn et al., 2008b). Transdisciplinarity is thus associated here – and this is the core of its dominant institutional reality – with a form of knowledge production that has its basis in broader social processes to which it is ultimately responsible, and from which it cannot ultimately be disengaged. This is a specifically European conception to the extent to which it has as its

historical presupposition a certain kind of social-democratic, 'educational' welfare state, of which it represents a technocratic variant. Whereas the systems-theoretical version of transdisciplinarity, and its cosmological (spiritual and ethicist) variant, is institutionally associated with UNESCO, the sociological-science-policy version is associated with European Union science policy, and the European Research Council in particular (Helga Nowotny was the President of the European Research Council [ERC], 2010–2013), along with the Swiss National Science Foundation (which sponsors a Swiss Transdisciplinarity Award) and the Swiss Academy of Arts and Sciences (Thompson Klein et al., 2001; Pohl and Hirsch Hadorn, 2007).[9]

Transdisciplinarity is sometimes treated as if it is simply the same thing as Mode 2 knowledge production, but it is actually only one of the latter's five main features, albeit a result of its first distinguishing characteristic: namely, that this is a form of knowledge that is *produced in contexts of application*, and therefore cannot be classified according to a distinction between basic and applied research, where 'basic' research is understood (perhaps erroneously) to be disciplinary in orientation. As a result, such knowledge is taken to be 'heterogeneous' in its institutional origins, and to involve a multiplicity of social actors beyond universities (private corporations, think-tanks, hospitals, charities, etc.). Fourth, such knowledge is consequently understood to be reflexive with regard to social accountability (traceable back to its starting point in societal needs and the multiplicity of its social 'stakeholders'). Hence, finally, it is subject to novel types of quality control, involving extra-scientific social criteria, including public participation. This is very much a speculative extrapolation of a tendentially emerging sociology of technoscience, with a strongly prescriptive social-democratic content, ideologically standing out against – while nonetheless practically mediating – the neoliberal corporate tide of the 1990s. It is addressed to governments, supranational research organizations and the general public, and proposes a vision of society ('the knowledge society') as much as, if not more than, of science itself. This latter aspect was extended in the subsequent volume, *Re-thinking Science: Knowledge and the Public in an Age of Uncertainty* (Nowotny et al., 2001), which sets out from the thesis of the 'scientification of society'. Central to this notion is the idea (borrowed from Bruno Latour) of a transition from a 'culture of science' to a 'culture of research', in which 'Science is certainty; research is uncertainty' (Nowotny et al., 2001: 2–3). This polemical distinction between 'science' and 'research', presaging a new conception of 'science *as* research', leads into the third, most recent main discourse on transdisciplinarity, which focuses on the detailed methodologies of collaborative research in solving both fundamental intra-scientific problems (Biagioli, 2009; Mittelstrass, 2011) and 'life-world' societal problems, largely to do with environmental sustainability and health. It is in line here with the

trajectory of development theory itself. By the 1990s, the post-Second World War development paradigm of modernization theory (closely tied to postwar US foreign policy) had begun to be displaced (or at least accompanied) within international organizations by a human rights-based concept of 'sustainable development'.

This practically-oriented literature – of which the Guattari–Latour line is a more philosophically reflective, hyper-theoretical version (see Alliez in this issue) – is primarily made up of methodological reflection on detailed transdisciplinary case studies; and it is related to the secondary, periodizing discourse in the philosophy of science (the last of the five established discourses on transdisciplinarity identified here). This discourse within the philosophy of science has two main components: first, a framing emphasis on the non-disciplinary and problem-based character of the concept of science; and second, a strong sense of the redundancy of the Kuhnian concept of a paradigm, and hence of the idea of 'normal science' of which it is a part. The stress on research process is in line with a shift within the philosophy of science away from Kuhn's dualism of revolutionary and normal science, towards Lakatos's concept of research programmes (Lakatos and Musgrave, 1970); while the sense of contextual contingency and methodological flexibility aligns transdisciplinary practices with the methodological 'anarchism' of Feyerabend's 'anything goes' (Balsiger, 2004; Feyerabend, 1978a [1975], 1978b). More closely connected to the transdisciplinary problematic itself is the concept of 'post-normal science' developed by Funtowicz and Ravetz in the context of ecological economics, which centres on conditions of 'system uncertainty' and the notion of high 'decision stakes', which require 'extended peer communities'. The crossing of disciplinary boundaries is construed within this literature less in terms of specific sets of transformative or constructive exchanges than as a dissolution of disciplinary frameworks as such. Ironically, it is precisely this conception of a dissolution of existing disciplinary frameworks that raises the spectre of re-disciplinarization via the new 'discipline' (in its original sense) of a methodologically standardized transdisciplinarity.

Concentration on these more concrete aspects of policy-orientated collaborative research processes, in a greater variety of contexts, has disengaged the concept of transdisciplinarity from any necessary relationship to the other features of Mode 2 knowledge production, and made it a self-contained methodological topic.[10] And there is a large and still growing, increasingly detailed literature about it in journals such as *Science and Public Policy*, *Research Policy*, *Higher Education* and *Futures*. The general framework of these debates, however, continues to be something like a more generic and less politicized version of Mode 2 knowledge production (see, for example, Russell et al., 2008), with contributors making more fine-grained distinctions only within particular areas (see, for example, Mobjörk, 2010; Jahn et al., 2012).

The overwhelmingly common feature, both epistemologically and politically, is an instrumental, technocratic humanism.

The concept of problem-solving upon which this emergent conceptual consensus is based centres upon *policy-based* reformulations of life-world problems, which are construed in such a way as to be amenable to *technological* and other instrumental solutions (cf. Osborne, 2011a: 16). The established discourse of transdisciplinarity is thus overwhelmingly *positive* and *organizational*; it is a discourse of the *state*, albeit often in practice of state-like entities on a supranational scale, which lack the means of programmatic enforcement of the classical nation-state. It nonetheless presumes state agency, or at least state-stimulated agency, as the bearer of its practical rationality. In this respect, it has lost the more radical socio-political content associated with many of the interdisciplinary initiatives in the 1970s and '80s. In particular, it requires that one imagine as the agency of science policy a 'better', educational, social-democratic welfare state. In reality, however, European states are in the process of disimbursing themselves of a variety of knowledge-producing and educational functions (this is the neoliberal aspect of 'heterogeneity'), in the name of getting closer to 'worldly' problems. ('The world has problems, but universities have departments', in Brewer's much-quoted phrase – Brewer, 1999: 328). Nonetheless, at the same time, these states want to maintain control over the form of the process of disimbursement, a form of control that is still legitimized, classically, via the notion of 'the public interest' (this is their residual statist aspect: neoliberal statism) – a public interest that the state nonetheless declares itself impotent to fulfil.

It is interesting in this regard that when Hessels and van Lente did a quantitative citational analysis of seven diagnoses of the current state of scientific knowledge production offering themselves as alternatives to the framework of Mode 2 knowledge production, the most cited was that of 'academic capitalism' (Hessels and van Lente, 2008: 743 – the emblematic text was Slaughter and Leslie, 1997). This directly contradicts the optimistic democratic-statist presentation of the normative dimension of public scientific accountability in much recent literature on transdisciplinarity, which projects a passing beyond consultation, towards local participation in problem definition. Such discourses tend to abstract from both the politics and the historical context of problem definitions, in favour of idealized democratic models, supported by a small number of highly localized (and dubiously generalizable) examples. This is related to an almost complete lack of fundamental theoretical work on the *concept of a problem*. Is a problem something that requires the positing of practical solutions, or is a problem, primarily, something that defines a shared field of inquiry (a problematic), the investigation of which may take radically unexpected turns, leading to a reproblematization – critical or otherwise – of the original issue?[11] This lack of theoretical work on the concept of a problem is a symptom of an exclusive focus on knowledge

production as 'research process' to the neglect of concepts: concept construction and theory construction. The established literature on transdisciplinarity lacks an account of the internal dynamics of specifically transdisciplinary concepts – or concepts in their transdisciplinary functioning – beyond the idea that they address problems rather than disciplinary objects. And it has no developed concept of a problem. Ironically, it thus shows little interest in how concepts with sufficient generality to address basic societal problems actually function transdisciplinarily 'across' the disciplinary terrains from which they draw, linking the discourses of different disciplines together through non-disciplinary problems, and *transforming the meaning of their basic concepts*, in a manner quite different from any merely interdisciplinary engagements.

Transdisciplinarity and the Humanities

The project of which this issue is a part takes a different approach to transdisciplinarity, in several respects. First, it sets out from a different starting place: those theoretical developments in the anglophone humanities since the 1970s that are based in the reception of the French and German theory of the 1960s and after. These are theoretical forms, we propose, that are in one way or another transdisciplinary in character. The great books of European theory in the second half of the 20th century all exhibit hitherto unexamined transdisciplinary conceptual dynamics. Horkheimer and Adorno's *Dialectic of Enlightenment* (1947), Beauvoir's *The Second Sex* (1949), Sartre's *Critique of Dialectical Reason* (1960), Levi-Strauss's *The Savage Mind* (1962), Foucault's *Words and Things* (1966 – translated as *The Order of Things*), Derrida's *Of Grammatology* (1967), Deleuze and Guattari's two-volume *Capitalism and Schizophrenia* (1972, 1980), Habermas's *Theory of Communicative Action* (1981) and Sloterdijk's *Critique of Cynical Reason* (1983) – to name only a selection – are books that cross disciplines with a confidence and facility that belie the complexity of the exchanges between the different knowledges out of which they are constructed, in widely differing and often unstated ways (cf. Osborne, 2011a: 15). Nearly all of these texts either predate the established discourse on transdisciplinarity, with its myth of origin in Nice in 1970, or were produced independently of it, although the questioning of disciplinarity was very much a part of their theoretical self-consciousnesses. Meanwhile, their anglophone reception took place in a series of disciplinarily specific contexts (especially literary studies), which, while they acknowledged – indeed, sought out – the disciplinarily disruptive and transformative forces of these texts, were nonetheless largely unconcerned to theorize these disciplinary dynamics, immanently, other than in terms of a libertarian anti-disciplinarianism,

for which the simple word 'theory' was the marker (Mowitt, 1992; Cusset, 2008 [2003]; Osborne, 2011b: 19–26).

The disciplinarily *specific* dynamics of the radical theoretical generalities of these texts was thus obscured. In retrospect, however, this unconsciousness of the transdisciplinary structures of 'theory' may be seen to have played a crucial role in the *transnationalization* of intellectual traditions in Europe and beyond, since it facilitated its *translational* role in the relative de-nationalization of what Derrida called 'philosophical nationalities' (Derrida, 1982 [1968]: 111; see also Derrida, 2004 [1990]: 1–80). 'Theory', we might say, was the unconscious historical anticipation of the effect of globalization on intellectual life. National intellectual cultures, today, are post-national articulations of specific transnationalizing transdisciplinarities; hence the reactive ideological fervour of nationalisms, political and intellectual (cf. Osborne and Alliez, 2013: 8).[12]

Gibbons et al.'s *The New Production of Knowledge* addresses 'The Case of the Humanities' in Chapter 4. It is claimed there not only that 'many of the developments of Mode 2 can also be found in the humanities', but that they are 'perhaps more typical of the *traditional* humanities than they are of the natural and many of the social sciences'. Indeed, they claim, transdisciplinarity, in particular, is 'endemic' (Gibbons et al., 1994: 90–93, emphasis added). These claims place the humanities at the forefront of Mode 2 knowledge production, despite their more or less complete absence from the literature, other than in this short and highly schematic overview itself.[13] However, on closer examination they are less than convincing. This is, first, because the humanities are taken to be largely only 'serendipitously' Mode 2, on the grounds that their historical 'resistance to scientification' (Romanticism) was a resistance to Mode 1 knowledge production in the sciences. Secondly, 'the shape of trandisciplinarity' here is taken to be no more than a 'growing fuzziness of disciplinary boundaries'. Yet, as is well known, recognition of the fuzziness of boundaries is an effect of precisely the kind of over-rigid and hierarchical 'disciplinary boundary work' that is a primary characteristic of Mode 1 knowledge production (Gibbons et al., 1994: 93, 106). The reduction of transdisciplinarity to 'fuzziness' of disciplinary boundaries is a serious intellectual collapse. As the reference to the 'traditional' humanities shows, along with the corresponding emphasis on the hermeneutical issues of 'contextualization and meaning', no account is taken here of the fundamental transformations in the anglophone humanities since the 1970s; of their theoretical and purportedly 'scientific' nature; or of their sources in French and German philosophy and critical theory. Yet it is precisely these developments that introduced radical forms of transdisciplinary conceptual functioning into the humanities.

Prior to these developments, and the humanities centres in research universities in the USA to which they gave rise, along with the emergence and disciplinary dissemination of cultural studies in the UK, USA and

Australia, there had been little theoretical debate in the English-speaking world about the unity or epistemological basis of the disciplines that had made up humanities' faculties since the founding of modern universities in the mid- to late-19th century. This unity had largely evolved empirically, taking the form of a series of modifications and additions to the Renaissance *studia humanitatis*, out of which, after Romanticism, 'history' and 'literature' emerged to become the dominant disciplines in the 20th-century humanities, displacing classics, law and an English-language philosophy that, in the course of the 20th century, largely retreated into a self-imposed analytical isolation.[14]

In methodological terms, the unity of humanities' disciplines was largely a negative one, deriving from their mutual difference from the experimentally defined natural sciences. The underlying positive correlate of this distinction in a difference between the natural and the human, with its (displaced theological) roots in Renaissance humanism, was given a transcendental legitimation in Germany in late 19th-century neo-Kantianism, in the difference between the Marburg and 'southwest' or Baden Schools, and in Dilthey's notion of the *Geisteswissenschaften* – a term he popularized, and a notion with which he is associated, but which was originally coined to translate the 'moral sciences' of David Hume and J.S. Mill (a rarely acknowledged lineage) into German. In the intellectual culture of British empiricism, the distinction tended to be simply taken for granted, whether celebrated (Matthew Arnold) or bemoaned (C.P. Snow's 'two cultures'). In this respect, it is ironic that it was primarily a French structuralist '*anti-humanist*' conception of the human sciences that revivified the anglophone 'humanities'. The contradictory convergence of this anti-humanist movement with the introduction of an anthropological conception of culture into literary studies in the Hogart/Williams strand of cultural studies in Britain was subsequently mediated by the critical transformation and 'post-humanist' extension of anthropology itself, including crucially, empirically, into science studies. Latourian/Callonian actor-network theory is the end product of that trajectory (see Latour, 2005).[15]

What is usually meant by the 'anglophone humanities since the 1960s' is a disciplinary matrix that is unified by the incorporation through translation of European – predominantly French – theoretical texts. And the main manner in which its previous disciplinary formation was problematized, at a structural level, was via a new generic notion of 'science', and its critical aftermath (often misleadingly labelled 'post-structuralism'), in particular. While in Germany, the broadly overlapping *Geisteswissenschaften* and *Kulturwissenschaften* (the term preferred by the southwest neo-Kantians) were considered to be methodologically distinct from the natural sciences by virtue of the transcendental constitution of their object domains, both Hume's conception of 'moral sciences' (such as Adam Smith's political economy) and Comte's positive

social philosophy modelled themselves, methodologically, on the natural sciences – despite the culmination of Comte's thought in a 'religion of humanity'. In this respect, it has always been a function of the social or human sciences in Britain and France to act as a problematizing go-between, between the humanities and modern concepts of science. Whilst initially the social sciences tended to be located *within* the humanities, differentiated there from 'the arts', they have become increasingly independent, especially in the eyes of research councils, despite the continuing uncertainty about their epistemological status. (Philosophy of the social sciences hardly exists as a sub-discipline of the philosophy of science, these days – an effect, perhaps, of its previous connections to the Marxist tradition.) In this respect, there is actually a much closer affinity between French 'theory' and Anglo-American scientific and technological intellectual culture than there is between the latter and the formation of German critical theory and literary criticism out of the fragments of Marxism and its German idealist and Romantic philosophical ancestors.

Given the prioritization accorded to problem-definition in contexts of application within the model of Mode 2 knowledge production, one might have expected its approach to the humanities to have included more of an account of the way in which the life-world gives rise to humanities-specific problems, beyond those general questions of meaning and communication associated with the classical role of the humanities in the cultivation of the liberal self. To do that, however, would require stepping down from the standpoint of the state, conceived as the technocratic political representative of a national segment of humanity, to raise more political questions about different social subject positions, their competing socio-economic and cultural needs, and the forms of knowledge production associated with them – including the desire for freedom at a collective as well as an individual level. It is in this context that Guattari's writing on transdisciplinarity appears as something like a more radically social and political, ontologized version of the established discourse, which, furthermore, it largely anticipated.

The Introduction to the dossier on 'Trandisciplinarity in French Thought' that functioned as the pilot for the project of which this issue is a part opened with the confident declaration: 'The concept of transdisciplinarity is not part of the *explicit* discourse or self-consciousness of "French thought"' (Osborne, 2011a: 15, emphasis added). So we believed at the time. Subsequent investigation has revealed this to be a partial truth, at best. Philologically, we find the term in the work of both Michel Serres and Félix Guattari – samples of which we translate here (see Mercier and Goffey) – and it is in no way a merely philological occurrence. Guattari had begun to apply the principle of transversality to the relationship between disciplinary knowledges as early as 1965 in his organizational work with the Federation of Institutional Study

Groups and Research (FGERI) and the Centre for Institutional Study, Research and Training (CERFI). And the FGERI's journal, *Recherches*, founded in January 1966, explicitly promoted a radically cross-disciplinary programme (Dosse, 2010: 76–79). In fact, François Dosse recounts Jean Oury, the psychoanalyst and mentor to Guattari, telling him that François Tosquelles, the Catalan psychiatrist, 'talked about . . . transdisciplinarity' in the context of their early development of institutional analysis at the Saumery clinic between 1949 and 1953 (Dosse, 2010: 43) – although it seems highly unlikely that the term itself was used at that time. (There is no evidence of which I know that it was.) Nonetheless, there is a clear conceptually transdisciplinary trajectory there, running from the La Bordean institutional analysis of the mid-1960s, via the Institut Polytechnique de Philosophie at the University of Paris 8 (Vincennes) – a philosophy department that was effectively constituted as a part of left politics – to that undoubtedly transdisciplinary text, *Capitalism and Schizophrenia* (1972, 1980), and beyond. And it involved a quite different politics from the technocratic social democracy of the more recent, established conception: a post-Trotskyist, anti-authoritarian communist politics of groups, from the Left Opposition in France in the mid-1960s to the post-autonomia of the 1990s. This is a radical post-Sartrean version of the transdisciplinary implications of Marx's critique of philosophy, routed through the organizational analysis of institutional psychotherapy. This leads to the second of the main differences from established discourses of transdisciplinarity of the approach adopted in this project: the centrality of the question of the relationship of transdisciplinarity to philosophy, and the philosophical critique of disciplinary philosophy, in particular.

Transdisciplinarity and the Critique of Philosophy

If the literature on the mutual dependence of academic disciplines – beyond the hierarchical modeling of the structure of the university into faculties – only begins in earnest in the interwar period (1918–1939), in the wake of the founding of modern research universities and the critique of specialization, one powerful model of these relations nonetheless dates back to the early 19th century: the dialectical model of interdisciplinary research, which has its source in Hegel's idea of an *Encyclopedia of Philosophical Sciences*. When Max Horkheimer took over the directorship of the Institute for Social Research in Frankfurt in 1931, his inaugural address characterized 'the current intellectual situation' as one in which 'traditional disciplinary boundaries have been called into question and will remain unclear for the foreseeable future'. His response was to take up once again the task of Hegelian philosophy as modified by Marx's critique of Hegel – that is to say, by the critique of any

independent or 'self-sufficient' (*selbstständlich*) philosophy – and transform it into the research agenda of an interdisciplinary materialism, the 'ultimate aim' of which was 'the interpretation of the vicissitudes of human fate – the fate of humans not as mere individuals . . . but as members of a community'. The task, in other words, was to 'put a large empirical research apparatus in the service of socio-philosophical problems' (Horkheimer, 1993 [1931]: 1, 10).[16] The dialectical – that is to say, totalizing – form of presentation of the results of this interdisciplinary research appears here as itself the dialectical product of the critique of the idealism of philosophy as such. In Marx and Engels' words, in *The German Ideology*:

> When reality is depicted, philosophy as a self-sufficient (*selbstständlich*) branch of knowledge loses its medium of existence. At its best its place can only be taken by a summing up of the most general results, abstractions that arise from the observation of the historical development of men and women. Viewed apart from real history, these abstractions have in themselves no value whatsoever. They can only serve to facilitate the arrangement of historical material, to indicate the sequence of its separate strata. . . . our difficulties begin only when we set about the observation and the arrangement – the real depiction – of our historical material, whether of a past epoch or of the present. The removal of these difficulties is governed by premises . . . which only the study of the actual life-process and the activities of the individuals of each epoch will make evident. (Marx and Engels, 1970: 48, translation amended)

Marx and Engels famously left undetermined here the method of 'summing up the results', but Marx's own subsequent 'study of the actual life-process and the activities of the individuals' of capitalist societies, in *Capital*, authorized Horkheimer's modified – historically open-ended – return to a dialectical form of presentation: 'a continuous, dialectical penetration and development of philosophical theory and specialized scientific praxis'. 'Philosophical theory' here means both the reflective articulation of concepts constituted at the highest level of abstraction ('the most general results') and the formulation of questions corresponding to that level of abstraction: that is to say, the level of the social, and ultimately, the historical 'whole'.

> . . . the question today is to organize investigations stimulated by contemporary philosophical problems in which philosophers, sociologists, economists, historians, and psychologists are brought together in permanent collaboration.

These questions will not be definitively answered, as such, rather: 'these questions themselves become integrated into the empirical research process; their answers lie in the advance of objective knowledge, which itself affects the form of the questions' (Horkheimer, 1993 [1931]: 9–10). In other words, there is a reflexively iterative process of problem definition, investigation and reformulation, very much like that which structures today's self-consciously transdiscipinary research.[17] Retrospectively, this is a transdisciplinary, as well as a multi- and interdisciplinary, research agenda (all transdisciplinary research involves certain elements of multi- and interdisciplinary research) precisely because of the role of 'philosophical theory' in constituting the most general concepts, to which the most general social and historical problems – the pragmatic basis of the research agenda in social needs – correspond. This 'philosophical theory' (which is itself an interesting phrase) is not part of a disciplinary, in the sense of an autonomous or self-sufficient, philosophy. Philosophy may 'live on because the moment to realize it was missed', as the famous opening line of *Negative Dialectics* has it (Adorno, 1973 [1966]: 3), but it cannot live on in a purely or a strictly ('self-sufficiently') philosophical form. Nor, one might add, can it live on in a *purely negative* form either, without being reduced to the mere shadow of a false self-sufficiency. Rather, here it becomes the conceptual medium of transdisciplinarity, using the materials of the philosophical tradition as conceptual resources for transdisciplinary constructions.

Transdisciplinary concept-construction is a post- and proto-philosophical activity, in the wake of the critique of disciplinary philosophy's false self-sufficiency. On the model of Marx's critique of political economy, it gives socio-historical meaning to idealizing, abstract social forms of universality that were previously misrecognized as purely philosophical concepts: 'subject' and 'person', for example, the meaning of the generality of which must be produced trandisciplinarily, across the domains of philosophy, economics, law, anthropology, religious studies and psychoanalysis – to name only the main disciplinary instances. Transdisciplinary concepts acquire a philosophical *appearance* as the developing theoretical generality produced by their cross-disciplinary functioning approaches a total disciplinary universality; philosophical concepts acquire a transdisciplinary actuality to the extent that their empirical interpretation crosses a multiplicity of disciplines in a manner that reconstitutes them, as the relational product of these crossings.[18]

The main differences of Horkheimer's early project from current discourses of transdisciplinarity concern the central articulating role of 'philosophical theory' and the location of the social – and hence 'problems' – within the historical, philosophically construed. Established discourses of transdisciplinarity show little interest in questions of concept constitution, conceptual relations and conceptual critique. Rather, they displace relational issues onto questions about the organizational form of

the research process. On the other hand, in its materialist post-Hegelian role, dialectical logic is presented by Horkheimer as functioning as a kind of neutral medium of 'general scientificity' (there are shades of 'systems theory' here). Yet the totalizing project – however open-ended, and especially in its historical form – carries with it philosophical presuppositions of its own, which have to be argumentatively redeemed, in relation to the ongoing transdisciplinary totalization of knowledges. This is not the kind of argument that today's transdisciplinary researchers are likely to engage in, since it goes beyond the empirical criteria required by their model of knowledge. It was, however, the main point of contention in the argument between Sartre's existential post-Hegelianism and structuralism in postwar French thought. Structuralism appears there as a new and non-dialectical model of general scientificity. In the structuralist displacement of materialist and existential Hegelianisms, the same set of problems about disciplinarity appears in a new form. Structuralism implicitly aspires to the status of a transdisciplinary discourse (call it 'science') yet, even more perhaps than Horkheimer's 'philosophical theory', it faces the danger of performing a *meta*-disciplinary role, which is indifferent to the specificities of the disciplines it crosses. This is the famous role of structuralism as a 'new transcendental philosophy' (Deleuze, 2004 [1967]: 174) or even, ultimately, a new rationalist metaphysics (Badiou).

This danger can be countered only by a strict immanence in the construal of the 'trans-' (the *movement* across disciplines), whether this immanence be historical (in a capital-logic version of post-Hegelianism, perhaps) or that of the synchronic naturalization of transversality in a Guattarian, post-structuralist, anti-dialectical version – in which Sartre's temporalization/de-temporalization/re-temporalization is replaced by the topological spatiality of territorialization/de-territorialization/re-territorialization. Such immanence means that concepts are *retrospectively*, *artificially* and *temporarily* grasped in their unity, qua concepts. The problem of what *appears* as a strictly philosophical – meaning a 'purely' conceptual – universality thus cannot be dissolved empirically, but is rather re-posed and rendered more complicated.

This is a post-structuralist model of transdisciplinarity that did not emerge directly out of the critique of philosophy as such, but rather out of the critique of the re-transcendentalization of the concept of structure. In the particular case of Guattari, it appears as the immanently philosophical dimension of a social critique of the Lacanian psychoanalytical problematic. It is thus to a great extent free of the repetitive structure of the 'German' problem of philosophy's dialectical relations to its non-philosophical others. Here, it seems, these relations can be theorized without privileging the standpoint of the philosophy that has been left behind (see Alliez, 2011). This is a great *philosophical* advantage.

An approach to transdisciplinarity from the standpoint of the theoretical transformations of the anglophone humanities by variants of

French and German theory thus offers us two basic transdisciplinary problematics: dialectical and anti-dialectical. It is some of the conceptual resources of the structural, anti-dialectical, anti-humanist one that we present in Part 1 of this issue.

This Issue

We set out, surprisingly perhaps, from Michel Serres. The early, broadly structuralist work of Michel Serres remains largely unknown in English. Yet, as Lucie Mercier explains in the introduction to her translation of his text here, Serres produced a philosophical reinterpretation of structuralism, by cross-reading it with Leibniz's metaphysical system, that is so theoretically innovative as to contain a multiplicity of discrete philosophical trajectories, within its system of sytematicities. It is the radical relationality of this project that makes it structurally transdisciplinary: both at the level of Serres's constructive translational practice (as read by Mercier) and within it, in his construal of transdisciplinarity as 'relative exteriority', in the passage translated here. It is the *pre*-disciplinary character of Leibniz's work, perhaps, that renders its transposition into the disciplinary networks of structuralism so radically transdisciplinary.[19]

Serres's attempt at a Leibnizian metaphysical totalization and transformation of the field of structuralism throws an illuminating retrospective light on the disciplinary dynamics at work (and play) in both Foucault's and Derrida's attempts in the mid-1960s to forge theoretical frameworks that would retain something of the post-philosophical generality of the structuralist problematic while avoiding falling back into becoming a 'new transcendental philosophy'. Here, Étienne Balibar and David Cunningham examine the different quasi-transcendental logics of generalization in Foucault's concept of the *episteme* and Derrida's concept of *writing*, respectively – with regard to their undoubtedly transdisciplinary dynamics. Nina Power explores the converse idea to Cunningham's transdisciplinary interpretation of Derrida's concept of writing, and indeed of philosophy itself: the idea of *reading* transdisciplinarily; in particular, the Althusserian symptomatic reading as a transdisciplinary reading. Here, Althusser is read back through the politics of the Sartrean concept of reading that he was writing against.

As noted above, with Guattari we reach the point at which transdisciplinarity becomes explicitly thematized in French thought, in part as a working practice, and in part as a reaction against the institutionalization of interdisciplinarity. Here, Andrew Goffey translates into English, for the first time, a late text in which the transdisciplinary problematic is both embraced and relocated within a generalized ontology of transversal relations. Goffey's introduction contextualizes the piece within the overall trajectory of Guattari's thought. The question of what happens in French thought to the interrogation of disciplinarity through the critique

of structuralism after Guattari is a moot point. One answer is Bruno Latour (whose work, as we have seen, Nowotny et al. draw upon in *Re-thinking Science*): first, with actor-network-theory and now *An Inquiry into Modes of Existence* (2013) – his dramatologically collective project, which returns to an engagement with explicitly philosophical discourses. Here, Éric Alliez traces the transdisciplinary threads from Guattari through to Latour, throwing a Guattarian light on Latour's new disciplinary incarnation. With Latour's *Inquiry*, the transdisciplinary legacy of structuralist anti-humanism finds its terminal point in a return to a new philosophy. In the context of Serres's Leibnizian attempt to construct its ultimate systematicity, from which we set out, this may also be seen as the closing of a certain circle.

The final three articles, making up Part 2 of this issue, on 'Transdisciplines', present case studies of the emergence of discrete trans-disciplinary fields in the 1980s and 1990s, which became proto-disciplines – Feminist Theory, Gender Studies and Psychosocial Studies – out of politically-based critical reproblematizations of existing fields and 'dead' or outmoded concepts, respectively. Stella Sandford takes up the consti-tution of the transdisciplinary concept of gender in the context of the antagonistic relationship of the dominant disciplinary form of philoso-phy to feminist theory as such. Disciplinary philosophy resists feminist theory, it is argued, because it cannot incorporate the necessarily trans-disciplinary content of its concepts, which derive from its relationship to feminism as a political practice. In a strict disciplinary sense, 'feminist philosophy' thus appears as a 'contradiction in terms'.

In a complementary investigation, Tuija Pulkkinen examines the dis-tinctive structure of Gender Studies as a dialectically 'transdisciplinary discipline' produced by a particular form of political intervention into academic discourse. Gender Studies, it is argued, 'is not the study *of* gender so much as an intervention *into* the prevailing understanding of gender'. The specificity of gender studies here, as an intervention, is compared with Derrida's attempt to intervene into the institution of philosophy through the creation of a transdisciplinary Collège International de Philosophie – an episode to which Cunningham also refers.

Lisa Baraitser takes Judith Butler away from the familiar role of her work in the queering of gender studies, to consider *The Psychic Life of Power* (1997) as a foundational text in the 'transdiscipline' of Psychosocial Studies. The basic mechanism of transdisciplinarization identified here is not reproblematization via politicization, but 'temporal drag': the reproblematizing recovery of 'out of date' concepts that con-tinue to impose themselves on us, to the point of requiring the construc-tion of a whole new field of operation for them to work within.

Transdisciplinary problematics, then – multiple and diverse, but each programmatically translating the critique of disciplinary limitations into

new traversal constructions, constructing new concepts through the transformation of problems.

Appendix

Foucault on Academic Disciplines and Disciplinarity

Given the overwhelming influence of Foucault on the politics of the anti- and de-disciplinarizing imaginary, especially in the USA – no one else has so effectively reasserted the primary meaning of discipline as constraint – it is useful to take a quick look at Foucault's own writings on specifically academic disciplines.

Foucault is both an inspiration to, and a red herring within, the literature on disciplinarity. He is an inspiration, first, because of the radical indeterminacy of the disciplinary character of his own writings. From the standpoint of the established division of disciplinary labours, he appears as in some sense a historian – a historian of 'systems of thought', he insisted, rather than 'ideas'; yet his history is no more the history of 'the historians' than his history of thought partakes of the history of philosophy. (Indeed, his rejection of the term 'history of ideas' was intended as a polemical rejection of the hegemony of the history of philosophy within the history of ideas in France.) Nor is Foucault a 'philosopher' in a disciplinary sense. He appears a historian to philosophers and as a philosopher (or, at least, a 'theorist') to conventional historians (Takács, 2004; Castel, 1994). As such, he has become for some an exemplar of *inter*-disciplinarity: a Colossus striding 'between two disciplines'. For others, his writings have been received as a general theoretical resource, available to each and every discipline in the humanities and social sciences (see, for example, Goldstein, 1984; Ball, 1990).

Complementing this image of exemplary interdisciplinarity is a sense of Foucault as being radically and explicitly anti-disciplinary in his academic politics, broadly derived from his construction of the concept of disciplinary power in *Discipline and Punish* – although a literal translation of *Surveiller et punir* would, of course, have moderated this reading, since it is the question of visibility which is largely at stake there, in the study of the prison as a disciplinary machine, rather than disciplinarity per se. Nonetheless, discipline appears in this imaginary very much as the opposite of freedom. A discipline is an exercise of 'disciplinary power': 'the art of correct training' (Foucault, 1977 [1975]: 170). It is an almost exclusive emphasis on a negative sense of disciplinary power as a technique of domination that is the red herring in the debate about Foucault and academic disciplines.[20]

However, this is all too superficial a reception, since it both ignores Foucault's own writing on specifically academic disciplines and it identifies the disciplinary power of the 'strict' discipline of the prison with

that of academic disciplines – on the basis of the use of the same term – via the analogy between the prison and the school; an analogy that *is* convincing on its own terms (especially today with the virtual militarization of schools as academies in the UK), but that is a rather different issue.

In brief, with regard to Foucault's writings on academic disciplines of the late 1960s in *The Order of Things, The Archaeology of Knowledge* and *The Order of Discourse*, two things stand out. First, the construction of the concept of the episteme in *The Order of Things* appears primarily as exemplary of both the transdisciplinary – rather than inter-disciplinary – thrust of the structuralist project *and* the danger of the restitution of a meta-disciplinarity that it contains (see Balibar's contribution to this issue). Indeed that danger is balanced there, rhetorically at least, by an oscillation with the alternative danger of a complete dissolution of disciplines into positivism. This epistemologically negative view of disciplines is reinforced by the priority of discourses over disciplines in *The Archaeology of Knowledge*, and the exclusion there of disciplines from the set of relations between knowledge, science and formalization. In short, in *The Archaeology of Knowledge*, transdisciplinary *savoir* trumps disciplinary *connaissance*. In the section entitled 'Positivities, Disciplines, Sciences', in the chapter 'Science and Knowledges', Foucault writes:

> If one calls 'disciplines' groups of statements that borrow their organization from scientific models, which tend to coherence and demonstrativity, which are accepted, institutionalized, transmitted and sometimes taught as sciences, could one not say that archeology describes disciplines that are not really sciences, while epistemology describes sciences that have been formed on the basis of (or in spite of) existing disciplines?

> To these questions I can reply in the negative. Archaeology does not study disciplines. At most, such disciplines may, in their manifest deployment, serve as starting points for the description of positivities; but they do not fix its limits: they do not impose definitive divisions upon it; at the end of the analysis they do not reemerge in the same state in which they entered it; one cannot establish a bi-univocal relation between established disciplines and discursive formations. (Foucault, 1972 [1969]: 178–9)

In a return to his previous discussion of the psychiatric discipline in *Madness and Civilization*, he continues: 'The discursive formation whose existence was mapped by the psychiatric discipline was not coextensive with it, far from it: it went well beyond the boundaries of psychiatry. [...] positivities are not merely the doublets of established disciplines'

(Foucault, 1972 [1969]: 179–80). He then proceeds to ignore disciplines altogether in his articulation of the history of the relations between knowledge, science and formalization, in epistemes, conceived as discursive organizations of the elements of positivities.

Second, however, this negative picture is at least partially countered, or counter-balanced, in *The Order of Discourse*, his inaugural lecture at the Collège de France, where disciplines appear as one of the three principles of internal constraint upon discourses (the other two are the commentary principle and the author principle), which are at the same time 'infinite resources for the creation of discourses' (Foucault, 1981a [1971]: 61). The discipline principle is 'a principle which is itself relative and mobile; which permits construction, but within narrow confines':

> a discipline is defined by domain of objects, a set of methods, a corpus of propositions considered to be true, a play of rules and definitions, of techniques and instruments: all this constitutes a sort of anonymous system at the disposal of anyone who wants to or is able to use it, without their meaning or validity being linked to the one who happened to be their inventor. [...] what is supposed at the outset is...the requisites for the construction of new statements. For there to be a discipline, there must be the possibility of formulating new propositions ad infinitum. (p. 59)

> Still further: in order to be part of a discipline, a proposition has to be able to be inscribed on a certain type of theoretical horizon....Within its limits, each discipline recognizes true and false propositions, but it pushes back a whole teratology of knowledge beyond its margins....In short, a proposition must fulfil complex and heavy requirements to be able to belong to the grouping of a discipline; before it can be called true or false, it must be 'in the true', as Cauguilhem would say....It is always possible to speak the truth in the space of a wild exteriority, but one is 'in the true' only be obeying the rules of a discursive 'policing' which one has to reactivate in each of one's discourses. (pp. 60–61)

The 'positive and multiplicatory role' of disciplines is thus dependent on their 'restrictive and constraining function' (p. 61). There is a mutual dependence of negative and positive functions here that will come to characterize Foucault's later conception of power, but similarly to that conception, it is wholly misleading to focus on the negative functions alone. There is thus little textual ground for attributing to Foucault a one-sidedly anti-disciplinary stance with regard to academic disciplines, although he does undertake a quasi-structuralist epistemological critique

of them, in the direction of a generically discursive transdisciplinarity that nonetheless still runs *through* them. Inter-, multi- and trans-disciplinarity all depend upon the reproduction and development of the disciplines they stand between, multiply or cross.

Finally, in the late move from an emphasis on techniques of domination to technologies of the self – but without Foucault himself explicitly noting the significance of the change for his concept of disciplines – the relationship of these technologies to truth ('self technology implies a set of truth obligations'; Foucault, 1981b: 177) effectively recodes disciplines as techniques of the self, which for the first time place them in a relationship not only to creativity (the creativity of constraint) but to freedom. The philosophical use of this freedom is conceived by late Foucault in terms of the notion of *problematization* – specifically, 'critical reproblematization' (Schwartz, 1998). It is through this concept that Foucault's work can be used to problematize the very concept of a problem that we find in the hegemonic, technocratic conception of transdisciplinarity.

Acknowledgement

Notes

1. The conventional attribution for the coining of the term 'transdisciplinarity' is the first OECD International Conference on Interdisciplinary Research and Education, in Nice in 1970, the proceedings of which were published as Apostel et al. (1972; see also Thompson Klein, 2004: 515; Barry and Born, 2013: 8). Jantsch (1972), Lichnerowicz (1972) and Piaget (1972) all use the term in their papers there. Its first published instance, though, seems to be in the earlier version of Jantsch's paper that appeared in *Policy Sciences* in 1970.
2. 'Transdisciplinarity and the Humanities: Problems, Methods, Histories, Concepts, 2011–2013' (AH/1004378/1): http://fass.kingston.ac.uk/research/crmep/projects/transdisciplinarity/. Part I of the current volume presents results from the 'French theory' side of the investigation – following in the wake of a more conceptually orientated pilot (Balibar et al., 2011a, 2011b). A future publication, on romantic transdisciplinary, will constitute its 'German' partner.
3. The first version of this argument was outlined in Osborne (2009).
4. 'Whatever the strengths of the concept of transdisciplinarity, in view of the continuing disputes both over its provenance and over its kinship with or difference from interdisciplinarity ... we attempt neither to define nor to arbitrate between the two terms. Instead, we take "interdisciplinarity" to be a generic expression, while recognising that interdisciplinarity and transdisciplinarity are indigenous concepts with variable significance in particular circumstances' (Barry and Born, 2013a: 9–10). Nothing further is heard of it thereafter.

5. In German universities the main 'social unit' was always, and to some extent remains, 'the individual chair and its associated structures – the seminars and the research institute or laboratory. Each unit supporting an apprenticeship grouping ... composed of advanced students and assistants but not other chair-holders' (Reese, 1995: 545, quoted in Prost, 2009: 752 n. 2). It was only when the German model of the research university was exported to the USA at the end of the 19th century that the department became the main 'social unit', as it remains today, despite all of the institutional upheavals in teaching and research since the 1960s. Meanwhile, the American research university is itself now increasingly being adopted, globally, as an institutional model.

6. For the genealogy of the concept of research, see Clark (2006).

7. Regarding the institutional power of departments, despite their constraining role on the development of research, one might note the extraordinary timidity of the concluding recommendation of Immanuel Wallerstein's Gulbenkian Report, *Open the Social Sciences* (1996): that it should become more regularly possible for an academic's tenure to be split across two departments.

8. See the appendix to this article, 'Foucault on Academic Disciplines'.

9. However, it should be noted that – like the broader interest in interdisciplinarity – this remains largely a policy *aspiration* in this context. Despite the encouragement of the funding body, an empirical study of interdisciplinarity in projects in the Fifth Framework programme of the EU found 'disappointingly few projects that seemed ... to be clearly interdisciplinary' (Bruce et al., 2004: 457).

10. For the argument that the five main components of Mode 2 knowledge production (of which transdisciplinarity is one) need to be disaggregated and considered separately, see Hessels and van Lente (2008).

11. On the Bachelardian concept of the problematic, central to both the philosophy and practices of the sciences in France in the second half of the 20th century – for which the problem both precedes and structures the subject and object of thought and, in its clarified form, is 'the active summit of research' (Bachelard, 2012 [1949]: 30), see Maniglier (2012b). On Foucault's concept of problematization, see Castel (1994) and Schwartz (1998).

12. See Spivak (2003) for the broader context of the struggles over the transformation of Comparative Literature and Areas Studies in the USA, from their Cold War formation into the fluid complexities of a more polycentric, yet economically capitalistically unified, world 'after-1989'. (In the USA, the Cold War formation of Area Studies effectively functioned as the spatial – that is, geopolitical – correlate to the temporal science of history, reduced in its turn to modernization theory.) Spivak's Derridean background is, of course, in no way coincidental to the central role she has played in these debates.

    Translation is a type of travel, and it might be thought that, in so far as it is a book about travel between disciplines, Bal (2002) is a text about transdisciplinary concepts. However, oddly, Bal understands transdisciplinarity to involve the presupposition of 'immutable rigidity, a travelling without changing' (p. 35): precisely the opposite, in fact, of everything that is most productive about the term. Her example is narrative (pp. 10–11), which she thus, again oddly, thinks of as immutable in this way. The book traces movements of various concepts across disciplines, and is thus effectively about transdisciplinarity, in this regard; or at least, it contains materials for reflection on transdisciplinarity. But its piecemeal empirical approach to theory forgoes any theoretical reflection of that kind.

13. In Thompson Klein's wide-ranging typological work on the differences between inter-, multi- and transdiscipinarity, the humanities fit firmly into her model of interdisciplinarity (Thompson Klein, 2005).
14. See Stuart Hall's remarks on the 'uselessness' of British philosophy to the emergent practice of cultural studies (Hall et al., 1997: 26–7).
15. Interestingly, in his essay on 'Science Studies and the Humanities', Biagioli (2009) sees the future of the humanities largely within science studies itself.
16. For a detailed account of this process, and its difference from Horkheimer's later, better known (1937) model of 'critical theory', see Dubiel (1985).
17. The three topics through which Dubiel focuses his analysis of this research agenda are: '1. The transformation of the relationship between philosophy and the positive sciences. 2. The dialectic of the internal and external generation of problems. 3. The transformation of the relationship between science and society' (Dubiel, 1985: 119–20).
18. Cf. the role of philosophy in cultural theory outlined in Osborne (2000; see also Osborne, 2011b).
19. Cf. Hacking (2004: 194). Interestingly, Hacking also took Leibniz as his role model. However, he conceives his own practice as a deviant practice of disciplinarity: 'applying my discipline in different directions'.
20. The most thoughtful pieces on this topic are Chandler (2009) and Wellbery (2009).

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Peter Osborne is Professor of Modern European Philosophy and Director of the Centre for Research in Modern European Philosophy, Kingston University London.