BOOK OF ABSTRACTS

Interdisciplinary Futures: *Open the Social Sciences* 20 Years Later

19th and 20th January 2017, Lisbon, Portugal

Interdisciplinary Futures: Open the Social Sciences 20 Years Later
Calouste Gulbenkian Foundation, Lisbon, Portugal 19-20 January 2017

Thursday 19th January

08:30-09:00 Registration
09:00-09:30 Opening words
Dr. Guilherme de Oliveira Martins (FCG), Olivia Bina and Marta Varanda (ULisboa, INTREPID), Uskali Mäki (TINT)

9:30-10:30 **Immanuel Wallerstein**
Forty Years Later: Are the Social Sciences More Open?
10:30-10:45 Coffee & Tea
10:45-12:15

Auditorium 3
Session 1. The Gulbenkian Report, Disciplinary Boundaries and the Social Sciences

Christian Dayé and Christian Fleck: *After the Death of Progress: What drives the Social Sciences?*

Gianluca Pozzoni: *Beyond scientific parochialism: A post-positivist approach to the disciplinary divide*

David Byrne: *Open the Social Sciences - the Applied fields of social science*

Sala 2
Session 2. Interdisciplinary Research – Cultural Paradigms of Interdisciplinarity

Maria Jose Haro Sly, Julien Demelenne and Eric Mielants: *Latin-American "Buen Vivir/Good Living" contributions to opening the Social Sciences. Comments on the longue duree rigidity of social science disciplines.*

Czarina Saloma-Akpedonu: *Opening the Social Sciences to Problem-Solving Mode: The Challenge of Being Critical and Pragmatic*

Manuela Guilherme: *Research on research in Brazil: Interdisciplinary and intercultural inputs for meta-reflection on inter- and intra-national research group collaborations*

Sala 1
Special Session on SSH and ID in EU Research: Session 1 – Invited speakers to discuss the status and challenges of SSH and interdisciplinarity in EU Funding
Sala 1:
Keynote Peter Fisch (of peter-fisch.eu)
Keynote Angela Liberatore (ERC, EC)
Keynote Rosario Macario (IST, ULisboa)

12:15-13:15 Lunch
13:15-14:45

Auditorium 3
Session 3. Deflating Disciplinary Boundaries

Martina Merz and Sabine Maasen: *The Dynamics of Transversal Research Fields: Applying STS to STS*

Chris Bissel: *Convergence of the history and sociology of technology from the mid-1980s*

Mathias Siems: Mapping Legal Research: *An Example of a Discipline between Social Sciences, Humanities and Practice*

Sala 1
Session 4. The Social Sciences and their Epistemological and Ontological Shifts

Jorge Correia Jesuino: *Mediations*

Klaus Gärtner: *Cognitive Sciences and Their Epistemological and Ontological Shifts*

Diogo Silva da Cunha: *Communication Models, Communication Paradigms and Disciplinary Dialogue*

Olga Pombo: *Observations on Past, Present and Future Main Determinations of ID*

Sala 1
Special Session on SSH and ID in EU Research: Session 2 – Presentation and debate of LERU report on ID and DG R&I report on SSH in H2020:
Keynote by Katrien Maes (LERU)
Keynote by Philippe Keraudren (DG R&I)
Discussant: Doris Alexander, Research Development Office, Trinity College Dublin

14:45-15:00 Tea & Coffee
15:00-16:30

Auditorium 3
Session 5. Disciplines and Interdisciplinarity

Tomi Kokkonen and Magdalena Malecka: *The distinction between epistemic and institutional notions of discipline and why it matters*

Uskali Mäki*: Opening outwards: Interdisciplinarity as intellectual imperialism*

Mikko Salmela and Uskali Mäki: *Emotional tensions in interdisciplinary interaction*

Sala 2
Session 6. ID Research and Civil Society

Ursula Caser, Lia Vasconcelos and Filipa Ferro: *Panta Rhei - The Procedural Demand for an Iterative Design of Multi-Actor Engagement Processes*

Ana M. Vara: *Theoretical imagination and social protest—or how to make social theory out of a collective action framework: a view from Latin America*

Federico Brandmayr: *The social consequences of explaining human behaviour: strains between the institutions of causal connection and responsible action in contemporary France*

Sala 1
Special Session on SSH and ID in EU Research: Session 3 – Three break-out groups from the session's participants will identify questions and recommendations for the future treatment of SSH and interdisciplinarity in EU programming

16:30-17:00 Tea & Coffee
17:00-18:00 **Björn Wittrock**
Social Sciences In Their Contexts: Five Transformative Period
19:00 Conference Dinner

Friday 20th January

09:00-10:00 **Felicity Callard**
The social sciences, life sciences and humanities: shifting plate tectonics
10:00-10:15 Tea & Coffee

10:15-11:45

Auditorium 3
Session 7. Interdisciplinary Collaboration

Miles MacLeod and Michiru Nagatsu: *When might ID collaboration work in the Environmental Sciences: Models from Philosophy of Science*

Alkistis Elliott-Graves: *Walking the line: when disciplinary boundaries are good for interdisciplinarity*

Henrik Thorén and Johannes Persson: *Social Sciences for Sustainability? Bridges and Boundaries*

Sala 2
Session 8. Governing Interdisciplinarity

Violeta Argudo Portal: *Scaling up research infrastructures: bioinformatics and social sciences*

Maureen Burgess: *Fulfilling the promise of IDR-Overcoming the barriers*

Roderick Lawrence*: Interdisciplinary Futures: Beyond Claims, Conjectures and Contradictions*

11:45-12:00 Tea & Coffee

12:00-13:30

Auditorium 3
Session 9. Interdisciplinary Methods and Explanation

Virginia Ghiara: *Big data for mechanistic explanations*

Menno Rol: *How to build a scientific memory in social policy*

Emile Gayoso: *The naturalization of social sciences: a case study on semantic social networks analysis*

Sala 2
Session 10. Interdisciplinary Research Policies

Catherine Lyall: *Policy responses to Open the Social Sciences? Mixed messages for the academic community*

Bianca Vienni Baptista: *Cultural configurations and institutional conditions of inter- and transdisciplinary knowledge production at universities*

Barbara Hoenig: *European research funding, frontier research, and unintended consequences of interdisciplinarity in the social sciences*

13:30-14:30 Lunch
14:30-16:00

Auditorium 3
Session 11. Using Data in ID Research

Chiara Carrozza: *Re-conceptualizing social research in the 'digital era'. Issues of scholarships, methods and epistemologies*

Patricia Ferreira Lopes and Francisco Pinto Puerto: *The interdisciplinary study of Late Gothic heritage through the application of data technologies.*

Tanya Araújo and Elsa Fontainha: *The specific shapes of gender imbalance in scientific authorships: a network approach*

Sala 1
Special Session: SSH and interdisciplinarity in Portuguese Research: Panel

José Luís Cardoso (ICS - ULisboa)

Elsa Peralta (Centro de Estudos comparatistas - ULisboa)

Helena Sousa (ICS - U Minho)

Maria Paula Meneses (CES U Coimbra)

Rui Santos (FCSH- UNL)

16:00-16:30 Tea & Coffee
16:30-17:30 **Stephen Turner**
Digitalization and Disciplinarity: What Does "Open Science" Mean for Social Science?
17:30-18:00 **CLOSING PANEL**
Immanuel Wallerstein, Björn Wittrock, Felicity Callard, Stephen Turner

KEYNOTE LECTURES:

Forty Years Later: Are the Social Sciences More Open?

Immanuel Wallerstein, Yale University

Social Sciences In Their Contexts: Five Transformative Periods

Björn Wittrock, Swedish Collegium of Advanced Study

Despite perennial concerns among human beings about modes of regulating human interaction, governance and distributive contestations, the social sciences emerged as specific forms of practice in the late eighteenth and early nineteenth centuries. In the following century and a half the social sciences have gradually, if unevenly, been articulated and extended both in terms of knowledge claims and in terms of their institutional consolidation and their spatial extension.

In the course of the last two decades, the position of the social sciences has however become more precarious. Despite many claims to the contrary, I shall argue that this has less to do with epistemic uncertainties - although there are significant antinomies inherent in the presuppositions about the stability of social categories inherent in most social sciences – and more with transformations in the nature and reach of the agency and interactions of human beings in their global contexts.

The report "Open the Social Sciences" proposed an agenda for a deepening of collaboration across disciplinary boundaries between different social sciences. This agenda is still relevant and as urgent today as when it was proposed. In a concluding section I shall highlight efforts currently underway that seek to address these needs but also institutional and epistemic constraints counteracting these efforts.

The Social Sciences, Life Sciences and Humanities: Shifting Plate Tectonics

Felicity Callard, Durham University

That the university calls, today, for interdisciplinarity should not allow us to forget the long and rich twentieth-century history of intertwinements across disciplines and domains of enquiry. But if the concept and practice of interdisciplinarity, then, is hardly new, what do the moving plate tectonics of today's academic disciplines signify in terms of the state of, and future for, the social sciences? In this talk, I shall reflect on some of the interdisciplinary social scientific research I have been conducting in collaboration with other social scientists, with cognitive neuroscientists, with humanities scholars and with artists to analyse points of epistemological pressure. In particular, I reflect on what it would it mean for the social sciences to make progress, today, in understanding humans through the entanglements of what the sociological, phenomenological, physiological, cultural and environmental. In so doing, I shall consider how older models -- such as the 'bio-psycho-social' model of health and illness -- need to be reconfigured in order to do justice to the ontological challenges of thinking the human.

Digitalisation and Disciplinarity: What does "Open Science" Mean for Social Science?

Stephen Turner, University of South Florida

Open the Social Sciences was an attempt to rethink the social sciences by challenging aspects of the hierarchical, trickle-down, center-periphery disciplinary model that had dominated the social sciences, and which was taken to exclude voices from the global south and to be a barrier to interdisciplinary exchange. By chance, however, a different kind of "open" movement was developing at the same time, in the sciences but also elsewhere in the scholarly world, based on the newly developed world wide web and the digitization of scientific output both in the form of publication and data. Two related movements, Open Access (OA) and an extended view of access that eventuated in the model of Responsible Research and Innovation (RRI), emerged, together with organizational innovations known as Post-normal science and Mode II science. Social science played only a small role in these developments. This paper asks "why?" and discusses the difficulties faced by social science in participating in the larger Open Science movement, as well as the implications of OA in the narrow sense for the trickle-down disciplinary model

Session 1.

After the Death of Progress: What drives the Social Sciences?

Christian Dayé, Department of Sociology, Alpen-Adria Universität Klagenfurt, Austria
Christian Fleck, Department of Sociology, Karl-Franzens-Universität Graz, Austria

Philosophers of science and festive speakers agreed for a long time that a single normative ideal guided the path of the social sciences: the idea of scientific progress. For the sake of progress, it was said, the scientists' task was to accumulate bits and pieces of approved knowledge and to eliminate unprovable and false propositions. The mechanism in force resembled evolution's selection procedures or the efficient market hypothesis; and just like them, it presented a powerful ideology, providing the actors with an *illusio* (Bourdieu) that, by providing a normative infrastructure, integrated the scientific field.

Throughout the recent decades, however, the work of philosophers, sociologists, and historians science successfully dismantled the idea that scientific progress was the main driver of the development of the social sciences. Part of the contemporary unease, at least in some segments, with the very notion of "social science" stems from the fact that while the idea of progress had been dismissed, the voids that this dismissal created had not been filled again. If social science did not evolve according to the teleological path inherent in the idea of progress, how else did it develop? If social scientists were not guided by the ideal of progress anymore, what else did they believe in? What or who directs science and scholarship after the demise of this idea, as a norm and even more important: in reality?

With these questions in mind, we re-read *Open the Social Sciences* (Wallerstein et al. 1996). A basic result from this reading is that there is a curious shift from the pre-1945 period to the period afterwards in how the authors treat both the idea of progress and the question what drives the social sciences. In all brevity, the argument shifts from an externalist to an internalist perspective. While in the early period, societal and cultural transformations seemed to drive the development of the social sciences, the crucial factors shaping these sciences after 1945 appear to be of intellectual origin. Also, we note that in contrast to the position taken in *Open the Social Sciences* , the intellectual core of social science disciplines does not consist in a departmentalization of cognitive objects, but in a departmentalization of cognitive tools, perspectives, and partly techniques. Based on this reading, we differentiate two types of intra-scientific progress: progress on the level of factual knowledge, and progress on the theoretical and notional tools used to capture a phenomenon. We then elaborate the following two theses: (1) In the social sciences, progress on the level of factual knowledge is more likely to take place in local, i.e. non-universal settings. (2) Disciplines, and not interdisciplinary fields, will remain the core loci where progress on the theoretical and notional tools takes place, because the latter resemble scientific-intellectual movements (Frickel and Gross 2005) and most often show a rather rigid patterns of semi-ideological closure when it comes to theorizing.

References:
Frickel, Scott, and Neil Gross. 2005. "A General Theory of Scientific/Intellectual Movements." American Sociological Review 70 (2): 204--32.
Wallerstein, Immanuel, Calestous Juma, Evelyn Fox Keller, Jürgen Kocka, Dominique Lecourt, V. Y. Mudkimbe, Kinhide Miushakoji, Ilya Prigogine, Peter J. Taylor, and Michel-Rolph Trouillot. 1996. *Open the Social Sciences*: *Report of the Gulbenkian Commission on the Restructuring of the Social Sciences*. Mestizo Spaces - Espaces Métisses. Stanford (CA): Stanford University Press.

Beyond Essentialism and Universalism: A Realist Approach to the Boundaries Between Disciplines

Gianluca Pozzoni, University of Milan

In 1996, the *Report of the Gulbenkian Commission on the Restructuring of the Social Sciences* identified, among other things, a red thread in the evolution of the social sciences that runs from the nineteenth-century application of the nomothetic model borrowed from the natural sciences to the post-WWII quest for universalism in making social scientific claims.

Recent "post-positivist" reassessments within the social scientific community seem to have self-consciously deviated from this lineage on the grounds of a dissatisfaction with the universalist reduction of all explanation to the nomothetic
model. This reduction, it is argued, was defended on the basis of an *anti-realist* approach which allowed for criteria of explanatory accuracy to be replaced by ones of nomological deductionism and methodological unity. Conversely, a reassessment is

advocated on the basis of a *realist* assumption that explanations can accurately describe the causal processes actually occurring in the social world and therefore should correspond to them.

Crucially, the *Report* saw the epistemological paradigm associated with the nomothetic and universalist picture of science as the main cause of the 'parochialism' that characterized the social sciences, the challenge to which ignited the demand to 'open the social sciences'. The *realist* framework, on the other hand, prescribes that science aim at representing the world and demands that the status of disciplinary boundaries be considered in terms of the actual degree of ontological heterogeneity of social phenomena: divides among the different 'special sciences' are epistemically justified to the extent that the social world is actually apportioned into 'regions'.

However, grounding the autonomy of the special sciences onto irreducible differences between kinds of phenomena may be seen as an *essentialist* position that reifies contingent sociological features of science and superimposes them onto the world. Drawing on this, universalism may still have some currency in the form of unificationism: insofar as comparable causal processes occur homogeneously across different kinds of phenomena, the argument goes, they can be analysed by means of univocal scientific methods and subsumed under a unifying explanatory theory. In the social sciences, this seems to be the main rationale for justifying the imperialistic tendencies of some explanatory models, the most prominent of which is perhaps the theory of rational choice.

While retaining the basic ontological insight about the division of scientific labour having an entirely contingent character, this paper will argue that other considerations must be taken into account while assessing the epistemic value of scientific unification. In practice, it will be argued, unification operates via successive reductions of particular explanations to increasingly more general ones, and this happens at the expense of explanatory realism: it is a long accepted fact of science that the generalizability of scientific claims implies their systematic violation in reality.

The reasons for this, it will be argued, lie once again in a disregard for realistic ontological assumptions about the make-up of the social world: unification via reduction assumes, overtly or otherwise, that some hierarchy exists between classes of phenomena, some of which (e.g. cognitive facts about human rationality) are assumed to be more 'fundamental' or 'basic' than others (e.g. more 'rarefied' social phenomena) and hence capable of explaining them away. Assuming such an ontological hierarchy, however, amounts to another form of *essentialism* akin to the ontological regionalism mentioned above.

The main claim of the paper, therefore, is that a realist, post-positivist approach to the status of disciplinary boundaries requires that the relationships between the various sciences be considered in the light of the actual relationships between the different kinds of phenomena they seek to explain.

Open the Social Sciences - the Applied Fields of Social Science

David Byrne, Durham University

Open the Social Sciences addressed examples of interdisciplinary work in the social sciences through a discussion primarily of Area Studies -- of work defined by reference to a geographical area, for example Latin American Studies. It did not really take account of the development of 'Field Studies', areas of academic work characterized by a field of policy intervention and / or governance. We might consider here particularly but not exclusively 'Health Studies' and 'Urban Studies' and take note of the long history in the UK of the Academic field / discipline 'Social Policy'. In this contribution the role of interdisciplinarity in these areas of Applied Social Science will be considered both in terms of overall review and with reference to a set of actual research projects / programmes with which the author has been or is engaged. The argument will draw: Applying Social Science (D.S. Byrne 2011 Bristol:Policy Press) which addressed the role of social science in politics, policy and practice using arguments from *Open the Social Sciences* and taking them forward through a sustained engagement with the complexity frame of reference. The latter element was developed in Byrne and Callaghan 2013 Complexity Theory and the Social Sciences: the state of the art London: Routledge.

If the social sciences are going to make a useful contribution to issues of enormous public concern they have to be both inter or even post disciplinary in academic style and engage seriously with the implications of the complexity frame of reference. This assertion will be illustrated by examples drawn from the following research project and programmes, all of which have had this character and which have addressed / are addressing classic wicked issues.

Health Inequality reduction in deprived localities in England -- see: Blackman, Wistow and Byrne: 'A Qualitative Comparative Analysis of factors associated with trends in narrowing health inequalities in England.' Social Science and Medicine 2011 72 12 1965-74 K4K4U (Knowledge for Use) EU Horizon 2020. When it comes to social policy, we don't really know how to put our research results to use. K4U aims to remedy this. K4U will construct a radically new picture of how to use social science to build better social policies Centre for Evaluating Complexity Across the Nexus -- Surrey -- a programme explicitly addressing issues of evaluating interventions in complex systems.

Session 2

Latin-American "Buen Vivir/Good Living" Contributions to Opening the Social Sciences. Comments on The Longue Duree Rigidity of Social Science Disciplines

Maria Jose Haro Sly, Federal University of Santa Catarina / New University of Lisbon
Julien Demelenne, École des Hautes Études en Sciences Sociales
Eric Mielants, Fairfield University

The process of institutionalization of the Social Sciences among the XIX and XX centuries and the creation of a 'modern' western liberal society led to the exclusion of different social realities and non-western Weltanschauungen, which were distant from hegemonic centers of production of knowledge. Indigenous Latin-American knowledge was rejected in name of the positivism and science in the way sciences were institutionalized. In last decade, the debate around the concept of Buen Vivir, (in its different expressions: Sumak Kawsay, for Quechuas, Suma Qamaña for Aymaras, and Teko Porã for Guaranis), enriched Latin-American epistemological debates. This emergence was associated with the necessity to define urgent problems related to the specific social and cultural context of the region. This inevitability of local knowledge in Latin-America initiated debates, not just in the region but also worldwide. The imperative of the opening the Social Sciences appears not only as a critic of disciplinary / interdisciplinary knowledge but also as a necessity of an intercultural approach against hierarchical structures of power within the World-System, its Eurocentrism and its intrinsically differentiation around class, gender, race, and culture.

Eurocentric hierarchy in the modern world system manifested itself not only in often discussed political, military and economic reality, but also in the dominant epistemology that emerged in Western institutions of higher learning that were created to interpret the West vis-à-vis 'the rest', but also to formulate specific public policies from which it could benefit, often parochialism disguised in universalist Truths.

In this paper, we would like to discuss the different approaches of this community-centric, ecological-balanced and cultural-sensitivity concept. It will focus on the rejection of the ontological distinction between humans and nature, and its possibility to offer a critical reflection on local and global problems such as ecological crises and pandemic diseases.

We will also raise questions about the ongoing artificial divides between the social sciences and what can be done to de-center traditional metanarratives about developmentalism and western notions of progress by critiquing the current epistemological status quo. Envisioning a different way of 'doing' social science should correspond with different attitudes and expectations about what it can be actually used for; we conclude our paper by arguing that an epistemological shift from 20th century century social science as an instrumental hegemonic project should evolve into a more critical a emancipatory and intercultural project. This will require both significant change for institutions as well as social scientists themselves.

Opening the Social Sciences to Problem-Solving Mode: The Challenge of Being Critical And Pragmatic

Czarina Saloma-Akpedonu, Department of Sociology and Anthropology, Ateneo de Manila University

This paper argues for more salience of the problem-solving mode in the social sciences. Just as mathematicians developed the arithmetic of complex numbers, which are numbers that do not exist in reality but are necessary for solving equations that have real-life applications, university-based social scientists should seek out spaces to see how an ideal situation could be while considering real-life conditions. In contexts where institutions and systems are well-established or in purely theoretical settings, social scientists can be infinitely critical. In scaling up social development initiatives in developing countries where institutions and systems are in varying forms of maturity,

the main goal, however, is to solve a problem. In many cases, solving a problem requires an implicit real-life experiment, a space, which enables these initiatives to integrate the knowledge produced during its implementation, and consequently results in solutions that closely respond to the needs of various groups. In such a context, social scientists working with social development practitioners are called to balance being critical with being pragmatic. They need to have the ability to handle surprise, or the unexpected; and mastery over hybrid culture during the implementation of a development project. An understanding of hybrid culture, or the presence of different logics -- of the traditional and the modern, and of varying epistemic traditions -- is useful in apprehending the potentials and limits of a problem-solving mode. This means eschewing standard end-of-project evaluations in favor of process-oriented assessments. This also means finding valid approaches to interdisciplinarity with each social scientist, from the vantage point of his or her discipline, exploring research questions that would not otherwise arise within the boundaries of this discipline, by borrowing not only from other disciplines but from other communities of practice. This paper substantiates the abovementioned points by analyzing a particular set of social development initiatives in the Philippines.

Research on Research in Brazil: Interdisciplinary And Intercultural Inputs for Meta-Reflection on Inter- And Intra-national Research Group Collaborations

Manuela Guilherme, Centro de Estudos Sociais, Universidade de Coimbra

This paper addresses interdisciplinarity from two perspectives, both on theoretical and empirical grounds. Theoretically speaking, interdisciplinarity is drawn from the approach taken to plurilingualism, intercultural communication/interaction and intercultural epistemological translation within the philosophical, political and sociological scopes about globalization/localization and internationalization of higher education and research. As far as the empirical data collection, the interdisciplinary composition of the research sample, namely Social Sciences and Humanities research groups, on the one hand, and Life Sciences research groups, on the other hand, has enriched this study and illuminated the complexity of working in between languages, cultures and epistemologies. This study may be considered as an attempt to open up the social sciences in that it advocates and promotes meta-reflection carried out by the research groups themselves on their own plurilingual, intercultural and epistemological experiences but also because it attempts to provide them with additional views from another field of interdisciplinary research, that of plurilingual and intercultural epistemological communication and interaction in globalized micro-contexts, that may support them in their research tasks. This paper gives account of the Principal Investigator's final reflections upon the data collected through an empirical study carried out with five research groups in three public universities in Brazil, Universidade de São Paulo (host university), Universidade Federal da Bahia and Universidade do Sul da Bahia. This project was developed throughout a span of 2 years (2014-2016), under the auspices of a Marie Sklodowska-Curie Outgoing Fellowship that also encompasses a one-year analysis and production period back in Europe (CES, Coimbra, Portugal), currently ongoing. The focus of this study with research groups, was upon language management, independent from language proficiency, on intercultural communication/interaction among research group members, as far as research tasks only were concerned, and on intercultural epistemological translation, mainly with regard to concepts and conceptual frameworks. This study and research experience abroad also provided the Principal Investigator with data and theoretical resources to develop theorisation of the concepts she has introduced in this research field, Intercultural Communication and Education. They are namely 'GLOCADEMICS', the project title, which is meant to focus on particular aspects of current notions such as 'Internationalization of Higher Education' and 'Science Diplomacy', in addition to 'Glocal Languages', which intends to counter and provide an alternative to the term 'Lingua Franca', and that of 'Intercultural Responsibility', which attempts to expand and complement the idea of skills aimed at promoting 'Intercultural Competence'. Nonetheless, this interdisciplinary research on research also accounts for the strangeness of interdisciplinary cooperation among researchers, not only between the natural and the social sciences but also on what entails language use, intercultural collaboration and epistemological diversity.

Session 3

The Dynamics of Transversal Research Fields: Applying STS to STS

Martina Merz, WIHO, Alpen-Adria-Universität Klagenfurt Wien Graz & University of Helsinki (TINT)

Sabine Maasen, TUM School of Education & Munich Center for Technology in Society (MCTS), TU Munich

One important manifestation of interdisciplinarity and openness in the social sciences and humanities are transversal research fields, which have become increasingly prominent over the last decades. As regards their intellectual outlook, they present themselves as post-disciplinary; as regards their institutional set-up, they are mostly organized as 'programs' or 'matrix-structures'. In stark contrast to science political demands for interdisciplinarity and societal relevance, the university structures and funding systems continuously enforce their re-orientation into a disciplinary format, albeit to varying degree in different higher education systems. The proposed talk will consider Science and Technology Studies (STS) as an exemplar for transversal research fields on the presupposition that STS has important insights to offer into these fields and their dynamics. It will draw on STS concepts in its analysis and, in this sense, constitute an application of STS to STS.

As a transversal research field, STS is characterized by, at least, three major tensions: First, by a tension between the search for an overarching intellectual identity and highly differentiated research fields due to the transversality of its object. Second, by a tension that underlies its search for broader institutionalization in the higher education system in contrast to the stark diversity of its institutional forms due to local specificities. Third, by a tension between becoming an academic practice complying with the acknowledged standards of the 'home disciplines' (notably sociology, history, philosophy) and being of significance outside academia due to its intermediate position between 'science' & 'society'.

A central objective of this talk is to understand how these tensions become accommodated and which effects they engender for a variety of situations. The talk will focus more specifically on the second tension (above), i.e. the one between the process of institutionalization at an international level and that of local contexts and take the two other tensions to be closely associated. For this purpose, we will present an exploratory empirical investigation. It involves qualitative case studies about a small number of STS units at selected European universities in terms of their local configuration with a focus on how chairs, departments, and study programs have developed.

Drawing on the above considerations, we propose the thesis that transversal research fields are at the same time fragile (as concerns their local institutionalization) and robust (viewed globally) if they succeed to keep their heterogeneity alive. For example, STS thrives on the diversities of science and technology -- be they epistemic, methodical, organizational or historical -- and, thus, by implication, maintains (and needs to maintain) its flexibility. The talk will conclude with a contextualization of its observations. In particular, it will ask how transversal research fields, taking STS as an example, relate to more 'traditional' disciplines from which they recruit its members and with which they continue to entertain durable relations. What, then, are the lessons learnt from this specific instantiation of changing cognitive structures, institutional contexts, and interdisciplinary interconnections?

Convergence of the History and Sociology of Technology from the Mid-1980s

Chris Bissell, Open University

In the Conclusion to the Gulbenkian Foundation Report we read: "What needs to be called for is less an attempt to transform organizational frontiers than to amplify the organization of intellectual activity without attention to current disciplinary boundaries. […] To be sociological is not the exclusive purview of personas called sociologists. […] Nor is it absolutely sure that professional historians necessarily know more about historical explanations, sociologists more about social issues, economists more about economic fluctuations than other working social scientists".

At the time of the Gulbenkian Report, there had already been significant convergence of the history and sociology of technology. The Society for the History of Technology (SHOT) had been formed in 1958 to encourage the study of the development of technology and its relations with society and culture. SHOT describes itself thus: "An interdisciplinary organization, SHOT is concerned not only with the history of technological devices and processes but also with technology in history—that is, the relationship of technology to politics, economics, science, the arts, and the organization of production, and with the role it plays in the differentiation of individuals in society".

Although this interdisciplinary nature was evident from the early days of SHOT, the mid 1980s saw a rather more radical shift. The first editor of the Society's journal, Technology & Culture, was Melvin Kranzberg, who wrote a paper in 1986 introducing

his ‘six laws’, which became seminal for much later work. His ‘laws’ are as follows (an elucidation will be given in the presentation):

1 Technology is neither good nor bad; nor is it neutral.
2 Invention is the mother of necessity.
3 Technology comes in packages, big and small.
4 Although technology might be a prime element in many public issues, nontechnical factors take precedence in technology-policy decisions.
5 All history is relevant, but the history of technology is the most relevant.
6 Technology is a very human activity-and so is the history of technology.

Around the same time an extremely influential conference was held in 1984 at Twente University, The Netherlands, on the Social Construction of Technological Systems. The extensive papers appeared in 1987, and demonstrated an enormous range of scholarship. In addition to methodological chapters, a set of case studies included: Portuguese expansion in the late 15th century; the development of synthetic dyes and Bakelite in the 19th and 20th centuries; the social construction of missile accuracy; medical imaging; sociology and cognitivism; and expert systems.

The current range of interest can be seen from recent papers in Technology & Culture. In addition to more traditional articles have covered: the pianist Glenn Gould and music technology; the ‘electronic church’ of Oral Roberts; questions of technology in Hayao Miyazaki’s 2013 film The Wind Rises; masculinity in the technology of printing 1960s – 1980s; how to glean culture from an evolving Internet; and pro-nuclear environmentalism. In addition there were reviews of books on: how engineers think; cultural histories of sociabilities, space and mobilities; and British art in the nuclear age. The cross- and interdisciplinary nature of the work of many contemporary historians of technology could hardly be clearer.

The Gulbenkian report has nothing to say about technology per se. There is a section on the ‘two cultures’, but it concentrates on topics such as non-linearity and complexity, irreversibility and the arrow of time’; nothing is said about the old ‘internalist / externalist’ debate, let alone the new convergence of science and technology studies with a whole range of social studies. This paper will attempt to redress the balance in the context of the twenty years since the publication of Open the Social Sciences.

Mapping Legal Research: An Example of a Discipline between Social Sciences, Humanities and Practice

Mathias Siems, Durham University
Daithi Mac Sithig, Newcastle University

The 'location' of academic disciplines is sometimes contentious: for example, in the United Kingdom, researchers in linguistics and media studies may either apply for funding to the research council for arts and humanities or the one for social sciences, depending on the specifics of their project. We suggest that legal scholarship is a field that is also torn between different dimensions. This proposal combines two papers on 'mapping legal research', a more conceptual and a more empirical one; of course, we will also reflect on the implications of our findings for the social sciences more generally.

The first paper aims to map the position of academic legal research, using a distinction between 'law as a practical discipline', 'law as humanities' and 'law as social sciences' as a conceptual framework. Having explained this framework, we address both the 'macro' and 'micro' level of legal research in the UK. For this purpose, we have collected information on the position of all law schools within the structure of their respective universities. We also introduce ternary plots as a new way of explaining individual research preferences. Our general result is that all three categories play a role within the context of UK legal academia, though the relationship between the macro and the micro level is not always straight-forward. We also provide comparisons with the US and Germany and show that in all three countries law as an academic tradition has been constantly evolving, raising questions such as whether the UK could or should move further to a social science model already dominant in the US.

For the purpose of the second paper we conducted an empirical survey of academic staff at two German law schools (Heinrich-Heine University Düsseldorf; Bucerius Law School), two UK ones (University of East Anglia; University of Edinburgh) and one Irish one (Trinity College, Dublin). We asked the legal scholars to indicate to what extent they identify with legal research as part of humanities, as part of social sciences, and as akin to the analysis of law in legal practice. In this paper we present and discuss our results, using tools of both classical and compositional statistics. We also relate our data to contextual information about these legal scholars (e.g., training, career stage) as well as institutional and country differences. Some of our findings are that international legal scholars tend to be closer to the social sciences and that younger

scholars and private lawyers tend to be closer to practical legal research. We also observe some signs of convergence since, across the five law schools, scholars told us that they tend to use practical legal research methods less often, and social sciences methods more often, than ten years ago.

Session 4

Social Sciences and their Epistemological and Ontological Shifts

This symposium discusses shifts in ID research within the Social Sciences and their overall implications. It will address ideas about ID in the Social Sciences as a whole, special research areas in particular and ID as a phenomenon. In this context, four papers will be dedicated to evaluate ID research and disciplinary relation changes within the Social Sciences and their relation to the Natural Sciences, particular cases such as changes in ID within Communication Studies and Cognitive Science, and general developments in past, present and future ID research.

In the first paper, the author will consider the Social Sciences in general. The investigation will assess the general role and implications of ID for the triangle of the Natural Sciences, Social Sciences and Philosophy. The focus will lie on the internal structure of the Social Sciences and how they epistemologically relate to the Natural Sciences.

After this general presentation, two specific research cases will be considered, namely Cognitive Science and Communication Studies. In the former case, the author will investigate a possible fading of ID in the particular area of interest and partially link this occurrence to the underlying framework of cognitive sciences. This is followed by an assessment of an alternative framework and its implications for ID. In the latter case, the author will examine paradigms and disciplinary components of the respective field. The focus will lie on the analysis of the difference between “models” and “paradigms” of communication and how confusion in this context may lead to indiscipline within ID research.

Finally, the last section of the symposium is dedicated to the essentials of ID, namely ID as a cognitive phenomenon, ID as a new disciplinary structure and ID as a cultural and civilizational trend. The author will provide an overview of the past, stress current concerns and point out future challenges for each case.

Mediations

Jorge Correia Jesuino, Centro de Filosofia das Ciências da Universidade de Lisboa, University Institute of Lisbon

When considering personalities within science we often think of Galileo, Copernicus, Einstein and sometimes Lavoisier or Darwin. It is however doubtful that academics like Weber, Durkheim, Freud or even Lévi-Strauss enter our perception of this pantheon of science. This may be the case because natural science -- although we sometimes think of Kant and some of his predecessors -- was of no concern for philosophers before the problem of demarcation thematized by the Vienna Circle. Around the same time, social scientists also started to get interested in how science works. The first to deal with this matter was Merton and soon after him the so called “new sociology of science” was born. In this context, it su ces to recall Bloor’s symmetry principle or the problematic laboratory studies conducted by Woolgar and Latour. Both, the philosophical and sociological, approach paved the way to a more complex pattern of a reflexive, as well as interdisciplinary, science of science.

In this paper, I will argue that the underlying agenda of this triangular dialectic between natural sciences, social sciences and philosophy has now become a vibrant, as well as controversial, field where inter-disciplinarity in the broad sense plays a central role. My presentation will focus on the specific case of social sciences and their internal disciplinary relations, as well as their epistemological links with the natural sciences. The so called “pecking-order” that demotes social sciences to the periphery does not seem to correspond to the present framework in which life sciences tend to replace physics as the benchmark of scientific excellence. New modes of knowledge production also led to a widening of the traditional interplay between academic disciplines, thus giving place to other triangles such as the thematic triangle of Science-Nature-Society or the institutional triangle of Science-Industry-Government. I will argue that, in this new context, Social Sciences play a more active and visible part without however introducing significant changes in the overall structure of science.

Cognitive Science and Its Changes in ID

Klaus Gärtner, Centro de Filosofia das Ciências da Universidade de Lisboa

It is often held that one of the best examples of ID, involving the Social Sciences, is Cognitive Science. Since its modern foundations all the way back to the 1940s and over its definite implementations in the 1970s, research mainly involves the following disciplines: Philosophy, Psychology, AI, Neuroscience, Anthropology and Linguistics. The main research framework of Cognitive Science is to argue that cognition is essentially computation. This means that the mind can be described as an information processing system involving mental representations. These representations are analogous to algorithms in a computer. Basically Cognitive Science holds that the mind manipulates information provided by its surroundings. This framework spawned important and vast ID research in the last decades.

Recently, however, it has been claimed that the ID character that de nes Cognitive Science might be fading. In a recent article, Leydesdorf[1] and Goldstone - in an analysis of the journal Cognitive Science -- argue that despite the success of this ID area and the ID claim of the researchers involved, research is increasingly integrated into Cognitive Psychology. As a consequence, one may ask the question whether or not Cognitive Science as whole will lose its ID character in the long run.

In this paper, I will argue that this does not have to be the case. To do so, I will have look at a new and growing research framework within Cognitive Science, namely Embodied Situated Cognition. This framework explicitly challenges the traditional idea that cognition simply means processing/manipulating provided information and claims that it should rather be understood as an organism's interaction with its environment. This action based program fundamentally claims that a) cognition is not something that happens only in the head and b) complex cognitive processes arise from the interaction of simpler sub-systems. It also means that representations are not essential to cognition anymore. I will argue here that this new framework also affects Cognitive Science's ID character not only by introducing new ways of linking the traditional research areas involved, but expanding to new ones.

[1] 1 Leydesdor , L., & Goldstone, R. L. (2013): 'Interdisciplinarity at the Journal and Specialty Level: The changing knowledge bases of the journal Cognitive Science' (in Journal of the American Society for Information Science and Technology, DOI: 10.1002/asi.22953)

Communication Models, Communication Paradigms and Disciplinary Dialogue

Diogo Silva da Cunha, Centro de Filosofia das Ciências da Universidade de Lisboa

In this paper, I will address the difference between communication paradigms and disciplinary components/expressions. The research area known today as ‘Communication Studies’ stems from a profusion of a wide range of different disciplines, disciplinary orientations and traditions. Its conceptual development as a discursive field owes a lot to the reorganization of very different -- sometimes even antagonistic -- backgrounds. I will start by laying out the difference between 'models' and 'paradigms' of communication. This means, I will consider some ideas about the process of communication and general frameworks of interpretation of that process. Then, I will show that there are two general models of communication -- even if we consider a wide range of possible changes in details -- and three paradigms.

In this context, I will show that the first two models and paradigms are overlapping. The first model is the so called 'information exchange model', and the first paradigm is the 'information paradigm'. For them 'communication' is interpreted in a mechanical and behavioristic way. Its primary criterion is the efficacy of intentions of a source of information. This model and the corresponding paradigm are closely connected to the relation between Engineering and Positivistic Sociology.

The second model is the so called 'interaction model', and the second paradigm may be described as 'culture, interaction and ritual paradigm'. Here 'communication' is understood in a more subjective and intersubjective sense. It is not a message, but a relation between beings socially and symbolically related. This paradigm originates from developments in Philosophy, Sociology of Knowledge and Communication.

Finally, the last paradigm is based on complex considerations. In a sense, it is a spinoff of the second paradigm, while at the same time, heading towards the first. This paradigm may be called “techno-culture and networks paradigm”. Disciplinarily

speaking, it results from the association of Philosophy and Sociology with political movements that mainly consider a widespread tide of Relativism of various kinds. At a great extent, this paradigm is itself part of an ideal liberation of a certain Victorian sense of "discipline". My paper ends with a critical reflection on how to treat ID in the light of the risks of indiscipline.

Observations on Past, Present and Future Main Determinations of ID

Olga Pombo, Centro de Filosofia das Ciências da Universidade de Lisboa

I will begin by underlining three main determinations of ID as an essentially cognitive phenomenon, as a new disciplinary structure and as a much large cultural and civilizational trend. In each case, I will try to make a much quick overview of its past roots, to stress some present concerns and to point to some future challenges. Even if up till now the word ID has not stabilized its meaning, even if ID is a universal password belonging to the vocabulary of scienti c research as well as of teaching, mass media and entrepreneurship, context, yet the word resist, stands firm and fights for its fundamental cognitive destiny. In fact, ID is above all an answer to the extreme specialization of scientific knowledge and a new model of pears communication, a crucial heuristic strategy and a response to the complexity level which science is today dealing with, a way of facing a new kind of urgent, global problems and a methodological procedure required for problem solving.

However, even if ID is occurs in huge quantity of new practices the fact is that it gives rise to few and fragile e orts of theorization. Why do disciplines accept to cross their concepts, their methodologies and their models but do not question the groundings of such ID crossings?

I believe that some critical issues concerning ID need be thought out. In this direction, special attention will be given to the following questions:

Why is ID such a fundamental determination of actual scientific endeavor and yet is so di cult to achieve? How to understand the main diffculties put forward to the practice of ID? We know that the classical rupture between natural explicative sciences and social comprehensive disciplines is being bridged. Is it possible that one of the reasons for that coming near is the interdisciplinary nature of social and human sciences? But, why is ID more close to social sciences and humanities than to natural sciences? Which features of social sciences and humanities are more akin to ID than those of natural sciences? Maybe the understanding of those reasons will help to fortify the practice of ID.

Session 5

The Distinction Between Epistemic and Institutional Notions of Discipline and Why It Matters for Thinking About Interdisciplinarity in the Social Sciences

Tomi Kokkonen, University of Helsinki (TINT)
Magdalena Małecka, University of Helsinki (TINT)

This paper analyses three cases of interdisciplinary interactions and exchanges -- in biological sciences, in humanities and in the behavioural sciences and discusses the philosophical challenges that these cases pose for the philosophy of interdisciplinarity. We show the conceptual difficulties that the concept of a discipline causes for the analysis of theoretical exchanges and transfers that take place in biology, humanities and the behavioural sciences. Then we suggest what lesson can be learnt from our analysis of these cases for theorizing interdisciplinarity in the social sciences.

Disciplines can be understood either as 1) a social phenomenon of institutionally structured division of labor (an institutional discipline), or as 2) a cluster of theories and research practices shared by epistemic communities (an epistemic discipline). The first understanding gives us (institutional) criteria for what disciplines are, whereas the second one presumes that researchers within a discipline share a high degree of general theoretical knowledge, practices of evaluation, shared research objects, and epistemic interests, to enable enough communication, internal critique, and spread of results. Given the presumed epistemic unity, epistemic discipline can be treated as the subject of knowledge production, as something that can have a unified image of a phenomenon (e.g. the economic view of markets, or the sociological view of markets) and that can change that image (e.g. Kuhn's and Lakatos' analyses). This would seem to give disciplines an additional epistemic role to those of smaller units of analysis (theory, model etc.) -- they would be epistemic superstructures. Interdisciplinary interaction of epistemic disciplines, as philosophers are used to think of them, could

affect the very conditions of knowledge production and the way scientific image of phenomena undergo a qualitative change (e.g. the interdisciplinary view of the markets would not only combine economic and sociological facts, but have a synthetic new image of markets).

We will argue, however, that such a notion of discipline is largely a fiction: the epistemic unity is weaker and the smaller units are more adequate for philosophical analysis. The institutional disciplines are typically not coherent in the epistemic dimension, but consist of research programs that may be competing or complementary, sometimes constituting a sub-disciplinary structure. The philosophical issues relating to triangulation of phenomena through different theories and sets of evidence have to do with the nature of theories, models, evidence, and explanation, which all emerge both within and between institutional disciplines. At the same time, institutionally interdisciplinary interaction would require precisely the kind of integration epistemic disciplines are supposed to do. We show this by considering three very different cases of institutional interdisciplinarity where the notion of epistemic discipline is problematic, and we suggest a fourth alternative as a model for interdisciplinarity in social sciences, for epistemic grounds.

The first case is the biological sciences. “Biology” is not a single discipline, but a highly organized cluster of disciplines that form a unified field. The second case is the humanities, in which conceptual frameworks, methods, and theoretical trends travel freely between autonomous institutional disciplines. The third case is the behavioral sciences, which seem to form a field of empirical studies done within several institutional subdisciplines that do not build one identifiable discipline (neither in institutional, nor in epistemic sense). All three examples fail, in one way or another, to be an exemplar interdisciplinarity for social sciences, but in ways that can be learned from. Our suggestion is an instrumentally pluralistic attitude to sub-disciplinary research programs and a proposal of conceiving interdisciplinary projects as new research programs, that should be combined with an active integrative work in the form of social theory and philosophy for a unified image.

Opening Outwards: Interdisciplinarity as Intellectual Imperialism

Uskali Mäki, University of Helsinki (TINT)

‘Imperialism’ is a metaphor occasionally used for certain kinds or instances of interdisciplinary relationship. Among the intuitions this is supposed to express are those related to expansion, intrusion, conquest, dominance, hegemony, and so on. Such relationship can prevail between two or more particular disciplines (such as economics and political science) or between groups of disciplines (such as between physical sciences and the human sciences). Imperialistic interdisciplinarity can be identi *Open the Social Sciences* (1996) devotes just one passing sentence to this phenomenon. It appears there is a gap to be filled in here. Very recently, scientific imperialism has been put on the agenda of philosophy of science, so it is inviting to draw on and expand on this literature (see Mäki 2002, 2009, 2013; Clarke and Walsh 2009, 2013; Mäki, Pinto, Walsh forthcoming 2016).

The paper first looks at the concept of scientific imperialism by reflecting on its two components, ‘scientific’ and ‘imperialism’; puts the interdisciplinary version of scientific imperialism on a larger map of versions; proposes identifying imperialistic interdisciplinarity as a characteristic of what I call outward-open (in contrast to inward-open) disciplines (Mäki 2016); and outlines a framework for identifying its various aspects. It then proceeds through two sets of questions. First, considering that interdisciplinary transfer / travel / trespassing happens all the time throughout science, what distinguishes imperialistic from non-imperialistic trespassing? My preference is to draw a vague line that is normatively neutral. Second, do normative standards of epistemic performance depend on whether trespassing occurs or not; and whether it is imperialistic trespassing or not? This divides into two further issues: a. The epistemic pursuits and alleged epistemic achievements of imperialistic science often look similar to those of non-imperialistic science (eg expansion, unification, novelty); should they be assessed differently, even in terms of different standards? b. The alleged failures in the epistemic (and perhaps other) pursuits of imperialistic science often look similar to those of non-imperialistic science (eg explanatory failure, crowding out of other lines of research); should they be assessed differently, even in terms of different standards? In answering such questions, I am generally attracted by the idea that imperialist science is to be judged by the same standards that we apply to all science, together with the generally advisable proviso that the standards and their application are often to be adjusted so as to be responsive to the peculiar characteristics of each specific type of case.

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Emotional Tensions in Interdisciplinary Interaction

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Uskali Mäki, University of Helsinki (TINT)

Emotions are an important yet often neglected aspect of interdisciplinary interaction, in both positive and negative sense. Thus, Boix Mansilla et al. (2015) have shown that cognitive, emotional, and interactional dimensions are intertwined and mutually constitutive in both successful and failed interdisciplinary interaction. In this presentation, we focus on the emotional dimension of interdisciplinary interaction, seeking to provide an empirically informed philosophical account of different kinds of emotional tensions in interdisciplinary research interaction, and the sources of those tensions.

We identify three sources of emotional tensions in interdisciplinary interaction. The first relates to disciplinary identities and cultures. The constitutive epistemic and organizational aspects of disciplines come together in disciplinary identities and cultures that are learned in interaction with senior colleagues and peers during academic socialization and reinforced at later stages of academic career (e.g. Perry 2007; Becher & Trowler 2001; Collins 1998). Accordingly, disciplinarily oriented researchers may have problems with interdisciplinary research that involves processing of complex or conflicting information, handling differing epistemic expectations, engaging in dialogue with intellectual adversaries, and negotiating goals, concepts, models, theories, and methods. While the sources of these problems lie in the cognitive domain of interdisciplinary interaction, the problems manifest as interpersonal tensions and feelings of being disrespected and mistrusted by others as well (Boix Mansilla et al. 2015).

The second source of emotional tensions is scientific imperialism. It promotes a competitive framing of interdisciplinary interactions instead of a cooperative one, leading scholars to discard or downplay other disciplinary perspectives in interdisciplinary research projects. Researchers in imperialistic disciplines perceive their discipline as epistemically and/or methodologically superior to imperialized disciplines that are perceived to be in need of enlightenment (Mäki, 2013). The emotions of imperialists are positive; confidence, pride, and feelings of superiority. In contrast, researchers in imperialized disciplines perceive themselves as victims of epistemic injustice (Fricker 2007; Rolin 2014), experiencing feelings of jealousy, fear, envy, anger, humiliation, and inferiority. Imperialist disciplinarity prevents interdisciplinary groups from reaching a common cognitive ground and a sense of collective mission that underlie the emergence of a group identity, mutual collegial recognition, and trust along with emotions of collective excitement and joy of discovery (Boix Mansilla et. al 2015).

The third source of emotional tensions is top-down management. There is some evidence that successful interdisciplinary research projects have been self-selected research groups operating in conditions of minimal bureaucratic concern (Boix Mansilla et al., 2015; Hollingsworth & Hollingsworth 2000) However, organizations may try to facilitate and incentivize interdisciplinary collaboration by top-down measures as well. Our empirical data from a small Finnish university suggests that the top-down strategy may create some emotional tensions that are not involved in bottom-up cases of interdisciplinary collaboration. Here, organizational constraints on the choice of collaboration partners within the university, competitive application and evaluation process of research proposals, insufficient resourcing of the selected research teams, and insufficient instructions from the administration about the structure of feasible

research units have been named by researchers as sources of emotional discontent during the process of introducing interdisciplinary research units into the university.

Finally, we suggest that emotional tensions in interdisciplinary interaction should be seen as adaptive 'fire alarms' of underlying cognitive and/or interactional problems in such interaction. Therefore, even if emotional tensions are negative as such, they can help the collaborators to address the underlying problems in time before they jeopardize the success of the project.

Session 6

Panta Rhei – The Procedural Demand for an Iterative Design of Multi-Actor Engagement Processes

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Lia Vasconcelos, MARE - Centro de Ciências do Mar e do Ambiente
Filipa Ferro Mediatedomain & MARE - Centro de Ciências do Mar e do Ambiente

The growing role played by active participation in public policy, reinforced by the adoption of the Convention of Aarhus in 1998 became more and more integrated in societal relevant projects and environmental planning processes. Unluckily an unfortunate combination of methodical uncertainty, time constraints and preconceived political intentions resulted in a lack of confidence and mistrust of these processes on the citizens´ and stakeholders´ side. Simultaneously experts and researchers developed severe doubts as to the relevance of the civil societies input and sometimes even open hostility towards any process of engagement. The attempt to introduce methodical strictness and standardised formats (like focus groups, scenario workshops, open space, fish-bowls, etc.) was a consequence in order to try and re-establish enthusiasm and trust on all sides. This strategy has failed. However, multi-actor and public engagement is today a cross-cutting demand in any science, technology or planning project. More and above all it is important to understand better the role of these processes in shaping a more inclusive, responsible and sustainable world and how they will affect established social relationships.

Also, the need to change behaviours and attitudes is currently pointed out as one of the cornerstones to produce real long-term positive impacts on major global issues that affect contemporary societies. In this sense we need trustworthy and effective processes to address complex problems that are able to sustain better policy decisions and at the same time to foster collective learning among all actors. Our action - focused on the engagement of multiple actors in the co-creation of sustainable solutions - has shown that the integration of different “knowledges' is not only an area for further advancement in science with real benefits for all involved parties, but in itself an expertise area (based on fundamental principles) that should be given more attention in order to ensure the quality of results on the one hand and the responsible and ethically correct intervention of these processes on the other.

Nearly 20 years of practical experience “in the field” confirmed that participatory processes have to be well planned from the beginning and must consider a number of influential aspects in all phases. However, they have to remain flexible at any moment. The choice of methodology, format, venue and logistics as well as recruitment and feedback strategies requires a constant adaptation to the ever-changing contexts of real-life along the projects´ lifetime.

“Panta Rhei - Everything changes and nothing remains still” is therefore the basic paradigm for the design of any successful multi-actor engagement process, that genuinely targets the creation of knowledge alliances between experts, stakeholders and civil society in order to support consensus oriented conflict management and collaborative decision making.

Insight in case studies (Cova da Moura -- Socio-territorial Intervention in Critical Neighbourhoods; MARGov -- Collaborative Governance for Marine Protected Areas; CIMULACT -- Citizen and Multi-Actor Consultation on Horizon 2020) will be presented and the authors will show how the consecutive lessons learnt led to a grounded sureness that the existing challenge of institutionalising and systematising the practice of engagement must not target to convince reluctant institutions to trial engagement but aim at the development of a collaborative community of practice.

Theoretical Imagination and Social Protest—or How to Make Social Theory Out of a Collective Action Framework: A View From Latin America

Ana M. Vara, National University of San Martin

Where does social theory come from? What is the source of theoretical imagination in the social sciences? In order to address this issue, most approaches have focused on previous authors or schools of thought—that is, on some kind of theoretical ancestor. Ancient thinkers influence modern thinkers, intellectuals influence experts, and so on. There are also some approaches that pay attention to the empirical matter analyzed as somehow having an impact on the theoretical framework developed in order to describe it.

In this presentation we intend to focus on a case of a theoretical framework developed by Latin American sociologists, which we think was inspired on a collective action framework.

We have described a collective action framework created in the early XXth century by Latin American intellectuals and writers with the purpose of making imperialism visible. This framework re-emerged in subsequent cycles of protest in the region, and became a master frame which we have named 'neocolonial counter-discourse on natural resources', since it evokes colonial times in order to denounce a neocolonial situation. It has a narrative matrix of four elements: a natural resource of great value; a local social group somehow related to it; a greedy, abusive foreigner; and a local accomplice (usually, local authorities).The story suggested by this framing is one of extreme exploitation: key words recurrently used are 'sacking' (in Spanish: saqueo), 'pillage' (pillaje), 'depredation' or 'plundering' (depredación). It is an injustice framing that talks about environmental inequality, and may be considered proto-environmentalist. It is also Latin Americanist and anti-imperialist. We have previously analyzed its presence in processes of frame alignment between social movements in episodes of social protest (Vara, 2013a and b) during the current cycle of environmental protest in the region (Vara 2012). We have also explored its dialogue with theoretical frameworks in the social sciences, such as 'the curse of natural resources', or Ulrich Beck's notion of 'global risk society' (Vara, 2016).

In this presentation, we intend to show how recent theorizations by Latin American sociologists, developed to describe and analyze processes that involve the exploitation of natural resources in the region, seem to be inspired by this master frame. Most notably, the theorizations around 'extractivism' and 'neo-extractivism', as well as the so called 'commodities consensus' (Svampa, 2013 and 2016). Notably, these theorizations have transcended the region, and are increasingly being quoted or evoked by North American and European social scientists who conduct research on Latin America.

The Social Consequences of Explaining Human Behaviour: Strains Between the Institutions of Causal Connection and Responsible Action

Federico Brandmayr, Université Paris-Sorbonne

After the November 2015 Paris attacks, various political actors pointed to the social issues that fostered radicalization, urging the government to improve the economic and social conditions of the underprivileged. Manuel Valls, the prime minister, responded to these claims by declaring that 'we should not look for excuses. We should not look for any social, sociological or cultural excuse because in our country nothing justifies [those acts]''. He also stated: 'I have had enough of those constantly looking for excuses and cultural or sociological explanations of what happened'. Moreover, several journalists and intellectuals intervened in the public sphere asserting the ideology of 'sociologism', justifying and legitimizing crime, school dropout, and joblessness, was spreading in France. These claims irritated many sociologists and social scientists, who felt their professional activities were being undermined and even threatened. They reacted, single-handedly or through the spokespeople of their scholarly associations, by defending the scope and value of their approach. In these instances of public defence of science, they faced a dilemma: either maintaining that to explain human behaviour does not imply any normative evaluation of the latter, risking in such manner to raise doubts on the usefulness of social sciences, or maintaining that the approach of social sciences teaches us to be less repressive with deviant behaviour, risking in this way to alienate sections of the general public that would not share this political recommendation. Accordingly, in various social settings, and through different methods and tools, social scientists drew and moved boundaries between categories such as theory and practice, science and politics, explanation and justification. The paper reconstructs these attempts and positionings, taking inspiration from studies on the ambivalence of scientists (Merton 1976), on boundary-work and professional ideologies (Gieryn 1983; Gieryn et al. 1985; Gieryn 1999) and on structural theories of intellectual fields (Bourdieu 1988; 1996). It draws on a variety of sources, including interviews with social scientists; a wide array of written and oral material;

and the results of a survey of French sociologists. The explanatory aim of the paper is twofold: shedding light on the ambivalence one can find in the definitions of sociology and social sciences given by various scholars (for example, the fact that they are considered alternatively as a neutral and normative enterprise), and accounting for the positioning of different segments of the French social scientific community along the axis of neutrality and advocacy. Finally, the paper assesses the view according to which in Western liberal societies the 'institution of causal connection' (Barnes 2000) is materialized by (social) scientists and academic institutions, whereas the 'institution of responsible action' is materialized by government executives, law courts and prisons. The paper argues that large sections of the social scientific community actually deploy accounts that are partly voluntaristic but attribute responsibility to different actors or entities than individuals occupying judicial and executive roles (for example, blaming governments instead of wrongdoers). As a result, the French controversy about 'sociological excuses' may be more correctly depicted as the confrontation - that can be intensified or soften by certain factors - of two competing moral perspectives.

Session 7

When Might ID Collaboration Work in the Environmental Sciences: Models from Philosophy of Science

Michiru Nagatsu, University of Helsinki (TINT)
Miles MacLeod, University of Twente

Interdisciplinarity is a strong policy imperative in the environmental sciences with much funding dedicated to encouraging researchers from civil engineering, atmospheric science, ecology, agricultural science, economics, geography, sociology, anthropology and so on to combine their expertise in order to manage pressing environmental problems and generate sustainable resource management practices. It is widely expected that solving many resource management problems, for instance water management problems, will depend on collaborations that cross social, natural and engineering science boundaries, since understanding the interactions between human behavior and environmental dynamics is likely critical for a successful management policy. In this paper we provide insights into the progressive methodology of interdisciplinary environmental science, in particular of model integration, drawing on the philosophy of science and empirical studies of scientific practice.

We focus principally on model-building strategies. In general building models across these disciplinary boundaries has proved difficult and prone to failure. Interdisciplinary research must deal with multiple constraints. These constraints can be institutional with respect to university promotional and peer-review structures; they can be psychological, with respect to the role disciplinary identities play in research and communication (Osbeck et al.); they can be cognitive, with respect to the differences over conceptual and methodological practices, and epistemic values which are not easy to adjust to suit interdisciplinary demands (see MacLeod 2016). And while science policy has generally focused on the institutional causes of interdisciplinary failure and success, there is much less understanding of what methodological and epistemological strategies contribute well when particular sets of disciplines attempt to integrate models, as well as what kinds of methodological and epistemological differences inhibit collaboration.

Lessons of successful cases need to be collated and analyzed in order to understand not just the institutional features, communication structures, participant backgrounds and so on which have contributed to their success, but also what conceptual and methodological strategies researchers have used to help find ways of integrating their background fields into productive and reliable scientific research platforms. Various model-building strategies and options are available to researchers when approaching an interdisciplinary problem, each have various affordances and drawbacks when it comes to managing the various constraints on interdisciplinary collaborations in environmental research. Our goal in this paper is to identify some of those options in current practice and to evaluate them with respect to their ability to overcome these constraints, and lead to viable and scientifically credible integrated problem-solving strategies.

In section 1 we explore what some of the constraints are underlying the difficulties of ID work in the environmental sciences, particularly the cognitive ones which a methodological strategy needs to handle in one way or another. In section 2 we look at three typical model-integrating strategies used in the environmental sciences. The first is a data-driven strategy whereby each group contributes to a single empirical modeling strategy; the second is a modular-assembling strategy whereby each group

contributes its model to assemble a whole complex model; the third is a substitutive-coupling strategy whereby each group attempts to combine basic modeling frameworks by exchanging components for better ones built by their collaborators. Such a framework should provide the opportunity over the long-run to put together more complex models that address more complex problems. In section 3 we will argue on the basis of some case studies and insights from the philosophy of science that the later options offers a credible alternative to the large-scale approaches usually advocated in approach to environmental problems. It offers some of the best affordances for handling the constraints that beset interdisciplinary work, leading to productive and scientifically rigorous integrated solutions to environmental problems.

Walking the Line: When Disciplinary Boundaries Are Good for Interdisciplinarity

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Interdisciplinarity is an indisputably important aspect of scientific practice, which has helped scientists overcome numerous theoretical and practical problems (Mäki, forthcoming). Achieving a certain level of interdisciplinarity in their research is something that natural and social scientists strive for. While this is often due to genuine benefits gained from interdisciplinary integration, it is sometimes due to pressure from departments, universities or external funding bodies. Indeed, the fact that concepts such as interdisciplinarity and integration have attained the status of 'buzzwords' is problematic, as the rhetoric often obscures the difficulties of achieving true interdisciplinarity and eclipses the importance of genuinely interdisciplinary research (O'Malley, 2013).

A good place to start, when attempting to address a phenomenon in an interdisciplinary manner, is to identify similarities between the two disciplines. If the two disciplines have 'enough in common', then there is good reason to expect the interdisciplinary approach to be fruitful. For example, it is often stressed that ecology and economics are naturally aligned, as they have a number of parallel concepts, including fundamental principles (economy or scarcity), interactions (competition), behavioural assumptions (maximizing fitness and utility) and organizing systems (ecosystems and markets) (Polasky & Segerson, 2009). These similarities do not have to be structural. Interdisciplinary research within the social sciences is based on the study of a common event or phenomenon (such as the Cold War or gender equality in the work-place) and a number of shared epistemological values (such as the importance of social structures and their effect on individual behaviour).

I argue that while finding sufficient common ground is a necessary pre-requisite for interdisciplinary research, overstating similarities between different disciplines can be counterproductive. In contrast, differences between disciplines should be taken into account in any interdisciplinary endeavour. I will focus on a negative consequence of inflating the commonalities between fields and show that in some cases, analysing differences between disciplines can lead to important insights that increase the overall understanding of the phenomenon under investigation.

My main example concerns the fields of economics and ecology. An important similarity between the two disciplines is their difficulty in making predictions that are both precise and accurate (Kirman, 2016; Peters, 1991). It has been shown that in ecology this is caused, to a large extent, by a type of heterogeneity (parts of the system manifest differently as causes of a phenomenon) (Elliott-Graves, 2016). Heterogeneity is also a feature of economic systems, hence an interdisciplinary project might do well to apply the reasoning of the former to the latter in order to explain the difficulty of prediction.

However, there are various forms of heterogeneity, which have different effects. A closer examination reveals that in ecological systems there is greater heterogeneity across systems than there is in the same system across time. This explains why the knowledge from one system does not necessarily apply to another system, though predicting how the system will behave in the future is not as problematic. In contrast, in economic systems it is generalizing across time that poses the greatest challenge to generalizations and predictions. Therefore, a critical interdisciplinary project ought to examine the type of heterogeneity in economic systems in order to determine its effect on prediction.

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Social Sciences for Sustainability? Bridges and Boundaries

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In *Open the Social Sciences* (OSS) the authors emphasise how the rising interest in complex phenomena in general, and of complex systems analysis in particular, have -- in the years after the Second World War -- to some extent narrowed the gap between the natural and social sciences. They write: "The conceptual framework offered by evolutionary complex systems as developed by the natural sciences presents to the social sciences a coherent set of ideas that matches long-standing views in the social sciences, particularly among those who have been resistant to the forms of nomothetic analysis inspired by the science of linear equilibria" (OSS, 64).

On this account the new-found interest in complex systems challenged entrenched conceptions of science itself within the natural sciences and, inadvertently, brought them closer to the social sciences. A new epistemology was in the making, one that catered to the interests and sensibilities of social scientists more closely. Without doubt one of the most significant intellectual developments of the last century can be associated with complexity and the dynamics of complex systems. As for instance Stephen Kellert has shown these ideas have by now touched and influenced a wide variety of fields and disciplines, in the natural and social sciences, as well as the humanities.

The mere proliferation of ideas, however, make for weak interdisciplinary connections by themselves and thus it can be useful to investigate more concrete attempts at establishing interdisciplinary connections between the social and natural sciences that build on notions of complexity and complex systems.

In this paper we survey one recent such attempt—the field of sustainability science—at connecting disciplines in the natural and social science as well as the humanities and try to evaluate the progress so far. This case is of particular relevance in this context, not only because it is an integrative project that explicitly targets disciplines that belong to all three "super-domains" but also as sustainability scientists have heavily relied on deploying a range of analogies, metaphors, and theoretical and methodological frameworks that share a systems-terminology—in particular the notion of complex adaptive systems. We focus on in particular on two influential, but rather different, such frameworks: integrated assessment modelling and resilience theory. Integrated assessment modelling is an interdisciplinary activity in which climate and vegetation models are combined with socio-economic models in order to investigate links between development and climate change. Resilience theory is a general theoretical framework originally developed by ecologist Crawford S. Holling that explains change—especially catastrophic change—and adaptation in complex (adaptive) systems in general.

In our analysis we look at both theoretical and social components of interdisciplinary integration. That is (1) to what extent these frameworks connect to theories and insights within relevant disciplines, and (2) to what extent members of relevant disciplines have been engaged with them. We argue that both resilience theory and integrated assessment modelling have considerable problems, albeit in different ways.

Session 8

Scaling Up Research Infrastructures: Bioinformatics and Social Sciences

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Research into the human diseases is now shaped by the fast-growing field of genetics, epi-genetics, and computer science that enables handling these vast amounts of information. Identification of rare or unknown disease patterns requires large scale databases. Current computer science developments, and the supremacy of "Big Data," or just digital data have originated the field of bioinformatics as a crucial field of research for the improvement of human health. Bioinformatics innovations have had direct implications for the functions and capabilities of research infrastructures such as biobanks, human-based biological repositories. These bodies directly address a combination of computer science and genetics — or molecular biology more broadly. The bioinformatics field seeks fundamental knowledge about human diseases, but also

problem-solving results. Correspondingly, biobanks also combine basic and applied science, converging academic and industrial quests. During this talk I aim to address the importance of looking at the implications of scaling up bioinformatics relevant research infrastructures, in order to show the relevance of social sciences in this field; while calling for reflection on inter/multi and trans disciplinary work. In addition to re-thinking how useful these categories are when doing research.

Presenting two key aspects: biobank's participants (donors) and privacy protection. To do so, specifically, I look at the European Commission aim of setting up a European network of public biobanks, the BBMRI-ERIC, established in 2013. Scaling up biobanks enables an efficient infrastructure for connection and sharing of bioinformation from different biospecimens beyond national borders, in order to map, code, and compare these samples, functioning as data points, for a better understanding of human diseases. These queries have reached a pointed importance as the scientific community, and corporate enterprises demand scale up. In response, European national biobanks aim to collect bioinformation at a larger scale. In this paper I argue that scaling up biobanks leads to an exacerbation of already existent and unresolved governance challenges found in national biobanks.

Significantly, the European project is analogous to two other initiatives, the US "precision medicine" initiative launch by the National Institutes of Health in 2015, and the foundation of the Global Alliance for Genomics and Health in 2013. Precision medicine is an emergent and controversial approach that seeks to improve disease treatment and prevention through combining research on genetics, lifestyle, and environmental causes. It is based on the creation of connected large-scale databases that depend on individuals willing to share their medical records and genomic data. The Global Alliance for Genomics and Health was launched with the aim of working towards a common, harmonized framework for "responsible, voluntary, and secure sharing of genomic and clinical data." Therefore, the European network of biobanks has been framed by a broader demand from industry no less than from academics for large-scale databases for clinical research. This emergent demand revealed a lack of articulation and harmonization among existing research databases of this type.

The case study presented provides an analysis of a groundbreaking and implemented project, bringing some light to the current paucity of studies on the systematization of research infrastructures globally. When approaching biobanks, several areas of social and ethical complexity are at stake, corporate uses of bioinformation, medicine as a public good, and the complexities of research infrastructure geographies, not least. Therefore, the significance of this talk is to provide a brief analysis of the BBMRI-ERIC case study as a way of enabling thought, and better understanding of the digital expansion of research infrastructures; inevitably questioning how to tackle a fast-growing social and governance challenge that cannot be understood isolated and delimited by disciplinary categories or institutional boxes.

Fulfilling the Promise of IDR-Overcoming the Barriers

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Doris Alexander, Trinity College Dublin

This paper argues that the impact and value of interdisciplinary research (IDR) is contingent on the recognition of key requirements at the macro-, meso- and micro-levels in the Higher Education and research landscape. In particular, aspects such as Early Stage vs. Late, gender, interdisciplinary inclusivity, and research engagement must be supported by individual researchers, research performing institutions, and funding agencies.

The paper will draw on conclusions from an event organised by Trinity College Dublin and Dublin City University in early summer 2016 (See further information about this event funded by the Irish Research Council here: https://www.tcd.ie/trinitylongroomhub/events/details/2016/2016-06-01interdisciplinarity.php) examining how IDR can enable researchers to achieve deeper impact for their work. The event focused primarily on IDR from the standpoint of Arts and Humanities and Social Science researchers working in an Irish HE context. Participants came from a broad disciplinary base and the findings have relevance for all disciplines including the Social Sciences in the context of the 20 year anniversary since the publication of the report Open the Social Sciences: Report of the Gulbenkian Commission on the Restructuring of the Social Sciences. The conclusions that will be presented in this paper were drawn from both papers presented and peer discussions during this event.

More than ever before, there is heightened attention on the impact that investment in research can deliver. A great deal of expectation has been placed on the potential of IDR to deliver greater impact then can be achieved by researchers working within single-disciplinary configurations and consequently to effectively address the grand challenges that global society is faced with. There is real evidence to show that IDR can

achieve greater impact. From an Irish perspective a study carried out in Trinity College of the top Irish publications cited in the Altmetrics.com database revealed that nearly all of them were interdisciplinary in nature. Elsewhere in the UK a study showed that nearly two-thirds of REF impact cases drew on research from multiple disciplines.

The promise of what IDR can achieve has a number of different drivers including the requirements of government funders for accountability around the initiatives they fund, the move towards Open Science/Citizen science, and the growth in alternative metric structures that track and measure the impact of research. Most recently the Bratislava Declaration of Young Researchers called on the EC and member states to put in place mechanisms to facilitate and equally reward diverse forms of mobility including Interdisciplinary mobility.

However care needs to be taken that the wider research community can fully partake of the opportunities presented by engaging in IDR. It was clear from the engaging with key actors at the Dublin event that we should not assume that the structures and conditions that support and incentivise researchers from different disciplines to come together to address complex problems are currently in place or indeed can be put in place easily. This paper will highlight some of the problems as well as seek to identify a number of ways that these conditions and structures can be better enabled.

Interdisciplinary Futures: Beyond Claims, Conjectures and Contradictions

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Three common misconceptions about the relations between disciplinary competences and methods and interdisciplinary research will be discussed in this paper. These misconceptions have been conceptual barriers for the comprehension, the institutional support, and the funding of interdisciplinary research in the social sciences and the natural sciences. They have hindered the call for collaboration between disciplines made in Open the Social Sciences in 1996.

The first misconception concerns the hegemony of integration attributed to interdisciplinary research. Many authors have claimed during the last 20 years that integration is a prerequisite for and outcome of interdisciplinary research and that integration distinguishes this kind of research from disciplinary contributions. This claim can be challenged according to the epistemology of interdisciplinary research published not less than 40 years ago. For example, the contribution of the Swiss psychologist Jean Piaget (1897 -- 1980), among others, proposed a plurality of different modes of interdisciplinary research. His contribution showed that integration is not a prerequisite but one mode and outcome.

The second misconception is the conjecture about the substitution of disciplinary competences by interdisciplinarity. Since 1996, some authors have claimed that interdisciplinary research replaces disciplinary research and these two types of research are mutually exclusive. In contrast, cases of interdisciplinary research projects illustrate the mutual interaction between uses of disciplinary competences and skills and, simultaneously, a convergence towards other researchers trained in different disciplines. The sharing of information, knowledge and know-how during collaborative research projects does not question the relevance of disciplinary competences and skills but these are applied in a different context than conventional disciplinary research. This context requires a new capacity to combine these competences and skills rather than simply juxtapose them.

The third misconception stems from criticisms of disciplinary specialisation, a subject addressed at length in Open the Social Sciences. This misconception is founded on the proposition that interdisciplinary research requires generalisation in contrast to specialisation. Since 1996, there are conjectures that generalists will replace disciplinary specialists in interdisciplinary research projects. While some authors argue for the dismantling of disciplinary silos, others claim that disciplinary competences and skills are not valued in interdisciplinary research. In contrast to these viewpoints, interdisciplinary research can be interpreted as a kind of knowledge production involving multiple disciplinary competences and skills, as well as professional know-how, in order to analyse complex subjects and situations that are not contained within the knowledge domains of any single discipline.

In 1996, Open the Social Sciences did not envisage the strength of these misconceptions. Indeed the report did not present a definition or a succinct history of interdisciplinarity. (It refers to multidisciplinarity without defining it). None-the-less, the genesis of interdisciplinarity in the social sciences about a century ago has enabled advances in our knowledge of a range of topics in the field of people-environment relations. For example, human ecology has the capacity to transgress disciplinary boundaries between the natural and social sciences in order to provide multiple interpretations of ‘the ecological crisis.’ Consequently, the either/or dichotomy of the

current debate on disciplinary versus interdisciplinary research discussed in the special issue of Nature (16th September 2015) needs to be surpassed. This paper argues that disciplinary and interdisciplinary research can and should coexist. This convergence requires more than the institutional reform of universities proposed in Open the Social Sciences. It also requires a fundamental rethinking of the praxis of research within, between and beyond disciplines.

Session 9

Big Data for Process Tracing

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In recent years, the emergence of big data has become a dominant theme within discussions of the future of the social sciences. It would be hardly denied, indeed, that big data has opened up new opportunities for research. For instance, it is now possible to collect data about social media interactions, product preferences, and a person's geographic location, which gives scientists access to vast amounts of information previously unavailable. Comprehensibly, this possibility has caused great excitement among those who aspire to enhance our causal understanding of the social world. At the most basic level, big data allows social scientists to systematically and quantitatively investigate social phenomena: after the so-called data deluge, the availability of "dependent" and "independent" variables has increased considerably. Furthermore, the access to big data might offer great insights into causal mechanisms.

In this paper I explore how big data can enhance social scientists' ability to discover causal mechanisms through the method of process tracing. Process tracing is an "umbrella term" that covers three different research purposes and two methodological approaches. To begin with, process tracing can be used to (i) test whether a causal mechanism is operating in a case, (ii) build a theory about a causal mechanism between two or more factors, (iii) crafts a sufficient explanation of a particular outcome (Beach and Pedersen 2013). Moreover, evidence of mechanisms can be gathered both through a case-oriented methodology and by means of experiments (Guala 2010).

With the aid of three case studies, I explore some ways in which big data can contribute to achieving each of these objectives through one of the methodological approaches mentioned above. In the first case study, data on mobile phone communications is used to test the hypothesis according to which the economic equilibrium of a country is caused by the movement of migrant workers (Blumenstock and Donaldson 2013). The second case study deals with the formulation of a theory about a causal mechanism linking the gender composition of a team and the team's output. In this situation particular devices, called sociometric badges, are used to collect empirical material in order to detect observable manifestations of the operating causal mechanism (Olguín and Pentland 2010). Finally, the third case study aims to explain a specific outcome, the continuous growth of the population living in the biggest slum in Nairobi. To pursue this goal, evidence from mobile phone data is gathered to find a sufficient cause of the outcome (Wesolowski and Eagle 2009).

This investigation paves the way for further research on the role that big data will play in the future of both quantitative and qualitative studies in the social sciences. In addition, it allows us to imagine an upcoming scenario where the process of causal discovery will transcend disciplinary borders, and the social sciences will be characterized by blurring boundaries between quantitative and qualitative methods.

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How to Build a Scientific Memory in Social Policy

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In the social sciences the call for evidence based policy is relatively recent. This development in the view on what makes social science worth its salt gained ever more ground in the years after the foundation of the Gulbenkian Commission. Social scientific ideas inspiring policy interventions are not any longer accepted without some proof of whether the interventions can work. This is less obvious than it may seem: many non-complementary and even juxtaposed social theories continue to coexist. This obstructs our learning of the working principles that social policy can lay hands on. Is evidence based policy going to change this?

While claims about what to do in labour market policies, criminological interventions, or other areas of social policy are taken seriously only if empirically founded, most empirical research of what policy works focusses on mere impact measurement. The difficulty of this limited focus is that we do not gain much knowledge of how to use the knowledge about the effects of particular interventions in other contexts and at other times. Large quantitative investigations with treatment and control groups are the rule. The idea is that with impact analysis we can somehow try to capture causes. Crucial in this idea is that the internal validity of experimental and quasi-experimental research be the driving force in the evaluation of interventions. However, I shall make the point that internal and external validity tends to trade-off: In most cases an internally valid test result comes at the cost of usefulness in other contexts. How so?

The trade-off happens if the quest for internal validity brings about the treatment of contextual variables -- that helped to make or fail the intervention -- as competing with the intervention instead of necessary for its success. This is because investment in internal validity takes the form of correction for bias and this inclines to obscure the role of contextual factors rather than to expose it. As helping factors make or break the intervention, they should rather be treated as causal factors of interest. I claim that, only then, the conclusions of the (quasi)experiment can serve to gain knowledge of working principles in a variety of contexts.

To be sure, correction for bias is necessary and impact analysis useful; but only if the evaluation of the success of an intervention is theory driven. Explanatory theories provide insight, both in the mechanisms that drive the intervention and in the contextual conditions for their effect. In other words, there must be research into how working principles operate in a variety of contexts -- or how they fail to do this. If no theoretical hypotheses guide the questions of evaluation research, we are left with little more than meaningless intervention-impact couples lacking any cognitive value.

In my paper I will discuss the conditions required for the useful employment of theory. Firstly, a rich ontology is needed and preferably one that roots in interdisciplinary perspectives. Secondly, this ontology should stretch beyond phenomenology, that is, it must allow for causal talk. Thirdly, ex ante explanatory hypotheses are to be the starting point of evaluation research and testing them the object of it.

Evidence based social science can only be useful for building a scientific memory -- and hence for any hope to ever design effective policies -- if at least these three conditions are met.

Towards a Naturalization of Social Sciences: A Case Study on Semantic Social Networks Analysis

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Contemporary sociology and anthropology have been deeply influenced by works whose main challenge was to overhaul the distinction between nature and culture. These include the emblematic research lead by Bruno Latour or Philippe Descola, the first in the field of the sociology of science and technology (Latour, 1991), the second in what he calls himself an 'anthropology of nature' (Descola, 2005). Both authors agree to move the border that social scientists previously placed between naturals beings and cultural beings to a dotted line which separates humans from non-humans, these latter constantly weaving complex links to the first ones and forming 'hybrid networks'.

In their introduction to the book Naturalism versus constructivism (de Fornel & al., 2007), de Fornel and Lemieux seek to overcome the sterile opposition between 'constructivism' and 'naturalism' and call for a 'non-reductionist naturalization of social sciences'. The authors identify two possible routes for such a conversion of social sciences. The first one would be a praxeology concerned with institutions not as abstract social constructs but in action. The second one with the approach proposed by Descola, Latour and Callon and is called a 'metaphysicalist comparatism', which would allow to 'never lose sight of that the naturalist-constructivist metaphysics is not the only possible method to refer to the existing'.

In this paper, we propose to consider, in light of these theoretical distinctions, the path followed by a stream of research emerging in social sciences: the semantic social networks analysis. This field of research has emerged from the convergence of methods from science of complex systems and sociology. In particular, French researchers from the former Centre de recherche en Epistémologie Appliquée (CREA) in the Polytechnique School have developped both a conceptual framework and methodological tools (an online platform allowing socio-semantics corpus analysis) in order to give an empirical basis to the concept of 'epistemic communities'. First confined to the analysis of scientific communities (Roth, 2005; Cointet, 2009), this model has been gradually extended to other data, particularly those produced by the Internet users (Taraborelli & Roth, 2011 ; Cardon & alii, 2014).

The greatest ambition of this stream is clearly expressed in one of the first PhD thesis is this domain about 'co-evolution in epistemic networks': 'Agents producing and exchanging knowledge are forming as a whole a socio-semantic complex system. Studying such knowledge communities offers theoretical challenges, with the perspective of naturalizing further social sciences, as well as practical challenges, with potential applications enabling agents to know the dynamics of the system they are participating in.' (Roth, 2005).

It seems to us that these approaches show a very thorough formalization of the actor-network theory since it is based on the joint analysis of 'individuals' and 'concepts', *id est* humans and non-humans, the latter being objectified, made actors with their representation as nodes in socio-semantic networks. In addition, the researchers of this current, first trained in mathematics, physics and complex systems, are claiming a 'naturalization of the social sciences' project calls an epistemological questioning and debate among practitioners of sociology.

Thus, relying both on a corpus of documents representative of the development of this line of research, and on a study of the diffusion in European social sciences institutions of the ideas, tools and researchers supporting the semantic social network analysis, we propose to highlight the methodological and epistemological concerns of the expansion of this research field for social sciences[2].

[2] In comparison with the use of other new quantitative methods in sociology like multi-agents models, which have already provoked reactions in the social complex systems analysis community (Venturini & alii, 2015)

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Session 10

Policy Responses to "*Open the Social Sciences*"? Mixed Messages for the Academic Community

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One might be forgiven for assuming that 'interdisciplinarity' is the new zeitgeist in academic research and, increasingly, in higher education teaching (e.g. Lyall et al., 2015). The term is ubiquitous but also contested (Callard and Fitzgerald, 2015).

Powerful voices have lent weight to interdisciplinarity over the past decade, described as 'vital' for universities (Commission to the Council and the European Parliament, 2006) and recognised as a global research phenomenon (Global Research Council, 2016). Yet, for every policy statement and publication promoting this 'new' mode of research and teaching there are vocal detractors.

Recognition of the need for interdisciplinary research to address global, societal challenges is accelerating, underpinned by an array of policy statements and funding schemes designed to facilitate this form of research (e.g. the UK Research Councils' Global Challenges Research Fund and the European Union's Horizon 2020). At the same time, there is a burgeoning literature on the many challenges posed by interdisciplinarity, especially for those trying to foster an academic career. Interdisciplinary research is by no means regarded as 'mainstream' and, indeed, has been described as 'career suicide' by some.

This presentation will discuss some of the paradoxes within recent policy statements in the UK such as the Stern Review of the Research Excellence Framework and the British Academy's 'Crossing Paths' report and the mixed messages that these present, especially for early career researchers, where the British Academy urges its constituency to 'develop an academic home and remain attached to it' even while being encouraged to engage with those working in different disciplines. Other commentators embrace earlier commitments to interdisciplinarity arguing that 'Postponing interdisciplinary work to the time a researcher is well established means that such research is generally pursued as a side activity' (Sperber, 2003, quoted in Henry 2005).

If we want to capture the creative potential of interdisciplinary research, how should we best address these mixed, policy messages? How, as a community, should we manage the contradictions between the institutionalisation of IDR (peer review, training, etc.) and supporting what Klein calls the 'mission for insurgency' inherent in interdisciplinarity?

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Cultural Configurations and Institutional Conditions of Inter- and Transdisciplinary Knowledge Production at Universities

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In the last decades, the call for interdisciplinarity (ID) and transdisciplinarity (TD) has permeated discourses in science and higher education policies. A major problem is that ID and TD are still not mainstream: they are rarely supported by funders of scientific research, are rarely taught in higher education curricula, and they are not recognized by many academic institutions. At the same time there is a call for re-defining the role of science and universities in society. Academic institutions should take over more responsibility to actively tackle pressing societal challenges through ID and TD knowledge production. The concept of Transformative Science is a promising perspective to strengthen ID and TD at universities.

The paper presents the progress done in the project entitled 'Challenges in interdisciplinary and transdisciplinary knowledge production: institutions, cultures and communities'. This research investigates challenges ID and TD knowledge production, focusing on processes of institutionalization, cultural transformations and the characteristics of communities.

The starting points for this research are two universities that have tackled the challenge of incorporating ID and TD in their institutional structure and study programs: the Center of Methods (Leuphana University Lüneburg, Germany) and the Espacio Interdisciplinario (Universidad de la República, Uruguay) (UdelaR).

In these two case studies, the historical background of the formation of institutions, cultures and communities and the current state of ID and TD knowledge production are being analysed to develop strategies that enable ID and TD at universities. The research integrates three core concepts (institutions, cultures and communities) with two crosscutting axes: (i) epistemic living spaces and (ii) interculturality, which serve as frameworks for the empirical analysis.

This paper presents the methodological strategy; which takes ethnography as the main research method. This way of knowing, by studying with things or people instead of making studies of them, has long been key to understand the relevance of anthropology. The research forges a new approach to understand the relation between movement, knowledge and description.

The main issue addressed here is to rethink ethnography as the main method to obtain: (i) an analysis of the relevance of this method to be applied to ID and TD knowledge production process, (ii) a reflection on the role that Social Sciences and Humanities may play in ID and TD research and (iii) the contribution that Science, Technology and Science Studies (STS) can make to a transformative science.

Insight should contribute to university policies that foster their contribution to pressing societal challenges and their role in transforming societies. In this paper, we will present first results on fostering and hindering aspects in creating ID and TD institutions within the two universities that serve as case studies. Besides policy analysis we are particularly interested in the formation of ‘in-between spaces’ that are shared by persons inhabiting diverse epistemic living spaces (Felt et al. 2009; Felt, 2015) and the process of building temporary and enduring ID and TD communities. The main outcome of this study, which is partially presented here as this is on-going research, is to contribute to the construction of a field of research named 'Studies on Inter- and Transdisciplinarity' (SIT) within the framework of Science, Technology and Society Studies.

European Research Funding, Frontier Research, and Unintended Consequences of Interdisciplinarity in the Social Sciences

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European funding allows science policy actors to directly influence what previously was mainly the task of national, regional and local research councils: the definition of research problems and knowledge content. In the social sciences, European funding has always been interested in enabling problem-oriented, interdisciplinary research of supranational scope instead of sponsoring disciplinary-specific knowledge that usually mediates problem choice. This also entailed to acknowledge the ability of the social sciences to respond to social problems far beyond the narrow scope of purely academic contexts of generating knowledge. Whereas from the mid-1990s onwards, the Research Framework Programmes of the European Union fostered interdisciplinary, mission-oriented public research in the social sciences, recent initiatives of 'excellent science', such as those represented by the European Research Council (ERC), more explicitly aim at the frontiers of research which are by definition interdisciplinary, open to be pursued in all fields of science.

For the envisaged type of knowledge resulting from innovative research processes, the ERC regards three characteristics as constitutive: its fast growth, inter-disciplinary nature, and high risk. It is intertwined with a particular faith of European research policies in exclusively benefits of research undertaken at large scales and of extended scope. So what counts as knowledge of 'European excellence'? What about cognitive commonalities in research funded by the ERC? How might supranational funding affect scientific disciplines differently, in particular by promoting inter-disciplinarily and large-scale research?

This paper critically engages with some anticipated, but also unintended consequences of interdisciplinary in the social sciences in general, and for sociology in particular, as potentially resulting from European research funding programmes. The main thesis concerning interdisciplinary is that sociology to a greater extent than other social scientific disciplines may be vulnerable to external pressures toward exporting its

knowledge to interdisciplinary applied 'social studies'. The latter are addressed by European research funding's claims towards fostering frontier research. Concerning large-scale research, effects of entirely decoupling social scientific research from its local contexts of relevance at worst might lead to the societal irrelevance and de-legitimation of public social science altogether.

These assumptions on potential unintended effects of funding upon knowledge content are comparatively scrutinised in a case study on social scientific research funded by the ERC from 2007 to 2015 in three disciplines: sociology, economics, and history. The comparative inquiry on different meanings of frontier research in the disciplines is based on applying and integrating a combination of research techniques such as bibliometric analyses of knowledge growth, content analyses of research projects, and semi-structured interviews with excellent researchers in the (social) sciences and humanities.

Session 11

Re-Conceptualizing Social Research in the 'Digital Era'. Issues of Scholarships, Methods and Epistemologies

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This communication addresses the challenges and opportunities associated with the emergence of a relatively new sub-discipline, or, better, community of practices, within the social sciences: digital sociology. Digital sociology has come to identify an emerging area of sociology that examines many aspects of digital society, opening at the same time the space for a reflexive analysis about sociological thinking (interrogating taken-for-granted presumptions of who or what constitutes the "social") and sociological professional practices.

Indeed, the challenges and opportunities that digital technologies and cultures present to social scientists go far beyond dissemination, accessibility and recognition of scholarship. One of the main contentions of several social scientists that are engaging in contributing to digital sociology is that the same research practice of social sciences can extend in new and exciting directions. This does not mean that traditional research methods and topics need to be discarded but, rather, that social scientists could both investigate the emerging approaches that can be adopted for digital social research (delving into how these various approaches contribute to the production, shaping and interpretation of the social) and continue to interrogate, possibly to innovate, the traditional methods and their ability to respond to digital societies. In some respect, this calls into question the need for not simply learning how to use new technologies and devices, but also to think with them, in order to approach the digital not as a neutral or free-floating technological abstraction but as relational, social, and embedded.

For this purpose, as social scientists Evelyn Ruppert, John Law and Mike Savage suggested, scholars coming from the social sciences and the humanities need to "get their hands dirty" and explore the affordances of digital technologies in terms of how do these tools collect, store and transmit numerical, textual, aural or visual signals and how they work with respect to standard methods in social science. Indeed, digital social research, sociologist Noortje Marres has claimed, could be approached as an open-ended process of redistribution of methods among a diverse set of non-human and human agents, in which a wide range of expertise, knowledge and skills come to interact and collaborate, crossing the borders of traditional disciplinary fields of knowledge.

Drawing on rich empirical material (collected through interviews, focus groups and participant observation) coming from the research project "The importance of being digital: exploring digital academic practices and methods', funded by the Portuguese Fundation for Science and Technology (FCT), this communication focuses situated experiences and experiments towards reconceptualising research in the digital era, in terms of scholarship, methodology and epistemology, exploring and questioning the challenges and opportunities that interdisciplinary research poses in this context.

The Interdisciplinary Study of Late Gothic Heritage Through the Application of Data Technologies

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The Late Gothic heritage architecture in the Iberian Peninsula, as in other historical periods, is the result of a network of relationships between European circumstances and events. To understand the complexity of its network is necessary an interdisciplinary view and a multifocal analysis in order to organize a large number of sources and heterogeneous historical data to observe and interpret their relationships. Works, quarries, transport of materials, construction techniques, teachers and patrons trips, scientific resources, they can be seen related in various ways, showing relational 'maps' and/or “graph” that were impossible to obtain through traditional resources.

This paper is the result of an investigation conducted by the present authors in the ETSA of Seville, in collaboration with other Centers and Research groups: Late Gothic Network, CulturePlex Lab at the University of Western Ontario, GPAC research group at the University of Basque Country and the Faculty of Geography and History at the University of Seville. Different institutions, disciplines (architecture, geography, archaeology, history, computer science, data science and intelligent science) and tools designing new methods to improve the perspective in the field of heritage and culture by considering social, political, economic and cultural evolutions. The process of interdisciplinary teamwork itself is part of our objectives and it´s progress is highly perceived throughout the development of the research. Although in the first year of research most of the time was devoted to structuring our own disciplinary 'languages', this also helped us to better understand the different fields and facilitate our communication in generating and processing the documents and information we needed.

Technological development has allowed us a breakthrough in documenting heritage through new digital tools capable of designing relational information models. In this project we demonstrate how all different historical information could be organized and structured in two digital models - GIS and Graphs -- in order to generate a more comprehensive and flexible understanding through a combined knowledge of space, time and actors. On the one hand, the GIS model consider the constructive and territorial context of the phenomenon of late Gothic, with information associated to each element spatially referenced; on the other hand, the model based on Graphs contemplates the relationship between the agents involved in the architectural production and its activities between mid-s. XV and the first half of s. XVI. The fact that the management of these tools is still not very common in the heritage field, especially with this approach, encouraged us to create our own structure and work method - very different from what has been carried out.

In this sense, the use of multiple methods and the development of an interdisciplinary research has allowed us to achieve three important aspects: promote different perspectives on the subject allowing a wider view about the case of study; work with a large variety of variables; provide multiple analyses, which increases the validity of the research that remains open and upgradeable. Therefore, what we seek is to provide new methods and new approaches that do not override other traditional systems but enrich the discussion on the past and its relationship with the inheritance, and make it possible to influence on societies’
capacities for transformation.

The Specific Shapes of Gender Imbalance in Scientific Authorships: A Network Approach (*)

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The research intends to contribute to the differences of research collaboration and interdisciplinary participation by gender. Focusing in Economics, a scientific subject strongly connected to other scientific domains, and constructing five categories of articles in a gender authorship perspective, this study addresses both issues: research collaboration and interdisciplinarity.

Gender differences in collaborative research have received little attention when compared with the growing importance that women hold in academia and research. Unsurprisingly, most of bibliometric databases have a strong lack of directly available information by gender. Although empirical-based network approaches are often used in the study of research collaboration, the studies about the influence of gender dissimilarities on the resulting topological outcomes are still scarce. Here, networks of scientific subjects are used to characterize patterns that might be associated to five categories of authorships which were built based on gender. We find enough evidence that gender imbalance in scientific authorships brings a peculiar trait to the networks induced from papers published in Web of Science (WoS) indexed journals of Economics over the period 2010--2015 and having at least one author affiliated to a Portuguese institution.

Our results show the emergence of a specific pattern when the network of co-occurring subjects is induced from a set of papers exclusively authored by men. Such a male-exclusive authorship condition is found to be the solely responsible for the emergence of that particular shape in the network structure. This peculiar trait might facilitate future network analysis of research collaboration and interdisciplinarity.

Regarding interdisciplinarity, our findings seem to contradict the hypothesis that women have more propensity to inter-disciplinary research collaboration. Moreover, we found that academic women in Economics compared with their male counterparts reveal preference for the subjects Environmental Sciences, Management and Political Sciences and that, conversely, the subjects Social Sciences, Mathematics and Finance display higher frequencies in papers either inclusively or exclusively authored by men. Our main contribution relies in the adoption of a network approach allowing to uncover the emergence of a specific pattern when the network of scientific subjects is induced from a set of papers exclusively authored by men. Such a male exclusive authorship condition is found to be the solely responsible for the emergence of that specific shape in the structure of the network. Moving away from a star motif together with the loss of centrality of the subject Management have an important bearing on the structure of the male exclusive authorship network: when papers authorship includes just men, the larger distances between subjects in the network become even larger and this is mainly due to a decrease in the relative number of papers having Management as a secondary subject.

(*) Araújo, T. & Fontainha, E. (2017). The specific shapes of gender imbalance in scientific authorships: a network approach, Journal of Informetrics, 11(1), 88-102.

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