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'Dying of' vs 'Dying with' SARS-Cov-2: A Causal Pluralist's Reflections (Julian Reiss)

Critics of past and current anti-corona measures frequently claim that official death counts overstate the actual toll due to coronavirus because, so they say, everyone is counted who dies *with* the virus while there is in fact a much smaller number of patients who die *of* the virus. The argument evidently presupposes that there is an unambiguous distinction between 'dying with' and 'dying of'. In this paper I argue that this is not so. I do not deny that there are some clear cut cases of both. However, for the large majority of deaths related to coronavirus, 'dying with' and 'dying of' are very hard to distinguish. Importantly, the ambiguity arises at the conceptual, not the epistemic level. That is, even if we could know everything there is to know about a given case (a big if in the almost complete absence of postmortems), it would not be possible to determine whether it is one of 'dying with' or 'dying of'. The reason is that the new coronavirus has brought about a change in the relevant norms concerning protection against and treatment of a range of medical conditions.

Applying Evidential Pluralism to the Social Sciences (Yafeng Shan and Jon Williamson)

Since around the year 2000, philosophers of science have produced a great deal of interesting research on the role of mechanisms in science. One strand of this research concerns the role of mechanistic evidence in establishing causal claims. Russo and Williamson (2007) argued that in the biomedical sciences, a causal claim is established by establishing (i) that the putative cause and effect are correlated, and (ii) that there exists a mechanism linking the two which can account for this correlation. This thesis has the following important consequence: while quantitative studies (in particular, randomised controlled studies) provide excellent evidence of correlation and, in the right circumstances, can provide evidence of the existence of a mechanism, it is important to also consider other evidence of mechanisms when assessing a causal claim. This motivates a kind of evidential pluralism.

In medicine, this form of evidential pluralism has led to a proposed modification to evidence-based medicine, called EBM+. Parkkinen et al. (2018), for instance, developed procedures for evaluating mechanistic studies alongside clinical and epidemiological studies, when assessing the effectiveness of an intervention or when ascertaining the effects of exposure to an agent.

This paper argues that evidential pluralism applies equally to the social sciences, where it leads to new foundations for mixed methods research. In the social sciences, as in the biomedical sciences, establishing causation requires establishing both correlation and mechanism---social mechanisms, in this case. While quantitative association studies can provide some evidence of mechanisms, in addition to good evidence of correlation, other sorts of study also provide good evidence of social mechanisms---notably, certain qualitative studies.

We argue that there is scope to apply evidential pluralism to the social sciences. First we show that the lessons from evidence-based medicine can be carried over to evidence-based policy, and that evidential pluralism can provide an account of the assessment of evidence in evidence-based policy. We compare this account to that provided by realist evaluation, which also has a central role for mechanisms. Second, we use case studies to argue that evidential pluralism additionally applies to more theoretical social sciences research, and can be used to

elucidate the confirmation relations in basic social sciences research. Third, we show that evidential pluralism can provide new foundations for mixed methods research, because it offers a precise account of the need for mixed methods when establishing causation in the social sciences.

We then respond to two objections to the claim that evidential pluralism can be applied to the social sciences: one due to Julian Reiss and a second due to Francois Claveau. We conclude that evidential pluralism has much wider scope than originally envisaged, and sheds new light on the use of evidence in the social sciences.

Evidential Pluralism and Causal Inference in the Social Sciences (Rosa W. Runhardt)

This paper applies evidential pluralism to causal inference in the social sciences. There, evidential pluralism arose because each singular theory of causation has its scope limitations and seeming paradoxes. In the first part of the paper, I argue that there are contexts in social science where the standard view of evidential pluralism would lead us to accept mutually contradictory methodologies, using a concrete case study. In the second part, I present a refined theory of evidential pluralism that solves this issue.

My paper focuses on *process tracing*, a method common in political science. This method is an attempt to identify and verify the observable implications of a putative causal mechanism in one particular case study. The methodological details of process tracing are radically different depending on one's theory of causation. I will argue that in this context, accepting evidential pluralism would lead to logically incoherent advice.

One view of causal inference in process tracing is the 'interventionist view' (cf. Runhardt 2014), a counterfactual theory which claims one cannot observe causation in single cases. Another is the 'systems view', which claims that single case observations are the only trustworthy source of causal evidence. In fact, it explicitly warns against collecting evidence for counterfactuals (cf. Beach and Pedersen 2013), thinking such evidence is misleading at best.

The standard view of evidential pluralism says that evidence of a variety of kinds can strengthen our causal belief. For process tracing, we may take this to imply that although philosophers do not agree on what constitutes good evidence, we can take the evidence advised by both the interventionist and systems view and jointly use these pieces of evidence to inform our belief in the purported causal mechanism. However, this advice would be logically incoherent. What to do?

The answer to this question forms the second part of my paper. I discuss that while one might be tempted to reject pluralism, the motivation that led to evidential pluralism in the first place still stands: there is no a priori reason to prefer, say, a system's view over an interventionist view as each has its own limitations. I argue that a pragmatic adaptation to standard evidential pluralism is more convincing. Instead of saying that each causal analysis benefits from differing sources of evidence, we should say that every *individual* causal analysis potentially benefits from a *different* source of evidence. Using a process tracing case study (Tannenwald 1999), I show that a scientist's aims and research question will help us choose the appropriate singular evidential theory.

Evidencing process-related claims in the social sciences (Derek Beach)

The social sciences have embraced the potential outcome framework, in which experimental manipulation in controlled settings is seen as the evidential gold standard. Here evidence of difference-making is gathered in the form of cross-case patterns of variation in values of causes, outcomes and control variables that enables counterfactual-based causal claims to be evidenced.

However, recent developments in the philosophy of science suggest that there is another, parallel evidential hierarchy that uses very different types of empirical material to evidence process-related causal claims (also termed mechanistic claims). Building on the Russo-Williamson thesis about mechanistic evidence (Russo and Williamson, 2007) and the productive account of mechanisms (Machamer, Darden and Craver, 2000), in this paper I adapt this literature to the social sciences. The crux of the challenge is to translate the theoretical language of entities and activities, and the empirical traces activities might leave (aka mechanistic evidence) into a practical framework that can also capture the social dimension of processes in which participant understandings and experiences also become relevant evidence for how social processes played out in real-world cases.

How Political Scientists Trace Processes (Christopher Clarke)

Process tracing is a method that political scientists use to hunt causes. Indeed, "process tracing is perhaps the tool of causal inference that first comes to mind when one thinks of qualitative methodology in political science" (Mahoney 2010). It "represents the empirical core of many, if not most, case studies" (Rohlfing 2010). So it is no surprise that political methodologists have started to pay process tracing a lot of attention. If indeed there are fundamentally diverse methods for hunting causes in the social sciences (rather than just econometrics, experiments and variants thereof) then process tracing is one of those methods.

But what exactly is process tracing? Everyone agrees that

- (C1) for a study to count as process tracing it must try to uncover the mechanism that produced a given outcome in a given case.

In addition to this criterion, some theorists explicitly offer or implicitly hint at the following criteria for what counts a process tracing:

- (F1) a study does not count as a process tracing study if it relies on numerical data;
- (F2) a study does not count as a process tracing study if it relies on evidence from cases other than the single case under examination;
- (F3) a study does not count as a process tracing study if it needs the probability distribution of some variable to take a particular form;
- (F4) a study does not count as a process tracing study if it uses statistical methods;
- (F5) a study does not count as a process tracing study if its results can be generalized;

I will argue that these criteria are false. But there is a grain of truth in these failed criteria, I argue, a grain of truth that is captured by the following criterion:

- (C2) to measure the mechanism in the case under examination, process tracing does need this mechanism to operate similarly across a wider population of cases.

I also examine the following putative criteria:

- (V1) a study only counts as a process tracing study if it uses diagnostic evidence to uncover the mechanism under examination;
- (V2) process tracing can use a very wide variety of evidence;
- (V3) process tracing relies on causal process observations.

I argue that criteria V1--V3 are vacuous: they do not place any substantive constraints on what counts as process tracing. So we are left with criteria C1 and C2 as the primary ways of defining process tracing. But on their own, the combination of C1 and C2 constitute an unsatisfactory definition of process tracing: too many different methods meet all three criteria for this to be a useful definition. This leaves us with the question: how then should we define process tracing?

The main bulk of the paper tries to build a better definition of process tracing. I do this by defining what it is for a study to use the method of concatenating the causes in a causal chain. I then look at five ways in which one might study any one of the links in a causal chain:

- (a) cross-case comparison
- (b) establishing temporal order
- (c) spotting causes qua events
- (d) hunting causal enablers
- (e) hunting irreducible traces.

I claim that one useful definition is to define process tracing as any study that uses concatenation. Another useful definition is any study that uses (c) (d) or (e) to hunt causes, whether or not it uses the method of concatenation.

Reformed Science of Well Being (Roberto Fumagalli)

Over the last few decades, much empirical and theoretical work across philosophy and the empirical sciences has been devoted to the definition and the measurement of wellbeing (e.g. Alexandrova, 2017, Griffin, 1986, Hausman, 2012). However, widespread disagreements remain regarding both the definition and the measurement of well-being (e.g. Alexandrova, 2018, Fleurbaey and Adler, 2016, Hausman, 2015). In fact, rather different positions are advocated about what role philosophical theories and empirical findings should respectively play in the science of well-being. Three competing positions

about this issue are especially prominent. *Theory-based approaches* (henceforth, TBAs) posit a sharp division of labour whereby philosophers should provide general theories of well-being, whereas empirical scientists should develop measures of well-being grounded on philosophers' theories (e.g. Angner, 2011, Sumner, 1996, Van der Deijl, 2017). For their part, *evidence-based approaches* (henceforth, EBAs) hold that the science of wellbeing should be grounded on "direct measures" of well-being and take "as a prime objective the quantitative study of the determinants of well-being" (Layard, 2010, 535; Bishop, 2015, Diener et al., 2009). Still differently, *coherentist approaches* (henceforth,

CAs) hold that the science of well-being should work “both from below - the existing empirical base - and from above - the relevant [philosophical] theories, and then synthesizing the two” (Alexandrova, 2017, xlii; Haybron and Tiberius, 2015).

The ongoing debate concerning the merits of these approaches has widespread implications not only for the definition and the measurement of well-being, but also for policy purposes. For different approaches support dissimilar definitions and measures of well-being (e.g. Adler, 2019, Fumagalli, 2016) and frequently have dissimilar policy implications (e.g. Fumagalli, 2019, Kahneman and Krueger, 2006). In this paper, I join the debate and argue that a radically modified version of TBAs - which I call *reformed division of labour* (henceforth, RDL) - overcomes all the major challenges faced by TBAs while circumventing all the major challenges faced by EBAs and CAs. This result does not *per se* exclude that the proponents of EBAs and CAs may improve or amend their approaches. Still, together with the major challenges that plague EBAs and CAs, it shifts the burden of justification on the proponents of those approaches.

The paper proceeds as follows. Section 2 outlines the main tenets of TBAs and explicates three major challenges faced by these approaches, namely: the challenge from *theoretical disagreements*, the challenge from *limited measurability* and the challenge from *construct pluralism*. Section 3 outlines the main tenets of EBAs and explicates three major challenges faced by these approaches, namely: the challenge from *measurement divergences*, the challenge from *normative uninformativeness* and the challenge from *conceptual thickness*. Section 4 outlines the main tenets of CAs and explicates three major challenges faced by these approaches, namely: the challenge from *underdetermination*, the challenge from *disciplinary conflicts* and the challenge from *theoretical collapse*. Section 5 outlines the main tenets of RDL and argues that RDL overcomes all the major challenges faced by TBAs while circumventing all the major challenges faced by EBAs and CAs.

Studying causal processes in the complex dynamics of child protection systems (Eileen Munro)

Using the example of a project on implementing reforms in 10 English child protection departments, the presentation examines the organisational system's influences on the quality of direct work with families and the issues raised in seeking to learn from whole system change about not only the causal factors but the mechanisms whereby the desired change was, or was not, achieved.

Evidential pluralism and extrapolation of causal claims in social sciences (Donal Khosrowi)

In social sciences, extrapolating a causal claim from a study population to another population of interest is a problematic issue. There are often many significant differences between both populations (and between their contexts). Given that statistical evidence in isolation seems unable to overcome those difficulties, some authors have argued that evidence of mechanisms would be a valuable resource (Steel 2008; Grüne-Yanoff 2016; Marchionni and Reijula

2019). The aim of this paper is to discuss whether and to what extent evidence of mechanisms could contribute to causal extrapolation in social sciences.

In order to analyse the potential contribution of evidence of mechanisms to causal extrapolation in social sciences, a distinction between a positive and a negative role of evidence of mechanisms is introduced. On the positive side, if the relevant mechanisms at work in the study and the target population are highly similar in the relevant aspects, the extrapolation of the causal claim is justified. On the negative side, if the relevant mechanisms at work in the study and the target population differ in relevant aspects, the extrapolation of the causal claim is not justified. For evaluating the actual relevance of each role, three aspects are considered: (i) the availability of a procedure for obtaining the necessary information about similarities and dissimilarities concerning the relevant mechanisms; (ii) how that scenario is affected by the difficulties faced by the mechanisms approach, and (iii) the identification of real cases that exemplify it.

In the first place, the negative scenario is discussed. It is argued that evidence of mechanisms can provide basis for concluding that the extrapolation of a causal claim is not justified. Firstly, comparative process tracing can provide the information required for the negative side's inference (Steel 2008). Comparing the relevant mechanisms in both populations in those aspects in which they are more likely to differ may result in the identification of a relevant difference between them. Secondly, the negative scenario is not severely undermined by difficulties such as masking or mechanisms' absence of regularity. It is unlikely that they compensate the identified difference (they would probably modify the effect, but not exactly compensating the identified difference). Finally, the main case study in support of the mechanisms approach to extrapolation in social sciences—i.e., the Bangladesh Integrated Nutrition Project (BINP)—exemplifies the negative scenario (Cartwright 2012; 2013).

Regarding the positive scenario, it is argued that its actual relevance is uncertain. Firstly, it is not evident whether a procedure for obtaining the required information is available. Given our limited knowledge about the relevant mechanisms at work in both populations, comparative process tracing faces relevant problems for specifying the degree of similarity between them (Reiss 2010; Howick et al. 2013; van Eersel et al. 2019). Secondly, the positive scenario seems to be seriously undermined by masking and mechanisms' absence of regularity. Even if the relevant mechanisms at work in the study and the target population are highly similar, disturbing mechanisms or changes in mechanisms' behaviour could modify the causal relationship held in the target population (Howick et al. 2013; van Eersel 2019). Statistical evidence could help to address some of those problems (Clarke et al. 2013, 2014), but its assistance is not usually available. Extrapolating causal claims is particularly relevant when we have limited access to the population of interest (e.g. the target population does not exist yet). Finally, in the debate about causal extrapolation in social sciences, no real case that exemplifies the positive scenario has been identified.

Causal inferences in economics and policy proposals: what are the implications of causal pluralism for policymaking (Mariusz Maziarz)

Recent studies suggest that moderate causal pluralism (the stance accepting different theories or definitions of causality) is the adequate epistemic view on causality in economics (cf.

Maziarz 2020; Maziarz and Mróz 2019; Shaffer 2015; Claveau and Mireles-Flores 2014). In my talk, I argue that the pluralism of evidence and the pluralism of concepts of causality has profound implications for the use of policymaking.

Econometric studies allow for uncovering probabilistic dependencies among variables. However, the use of observational data and the susceptibility of causal claims to the common-cause fallacy (e.g., Henschen 2018) does not allow to claim that the intervention on causes leads to changes in effects in accordance with the causal claim being used as evidence for policymaking. Therefore, ‘interventions’ (defined as policymaking relying on modifying the values of variables being related to the causal claim) may lead to spurious conclusions. However, this does not imply that probabilistic evidence is not useless for policymaking. On the contrary, I argue that such evidence can be used for policymaking, but only if ‘actions’ based on partial knowledge of causal structure do not interfere with the actual causal structure that produced the observed data. An example of policy action based on the limited knowledge of causal structure is insurance pricing. While it is not the redness of the car that makes drivers drive recklessly but probably a common cause (unobservable variable) that influences both preferences for the color of the car and reckless driving, such limited (and, in fact, false) knowledge can be successfully employed to acting in the world.

Similarly, even though mechanistic evidence is considered as needed for policymaking (e.g., Grüne-Yanoff 2016), even accurate but partial knowledge of mechanisms does not warrant the success of policymaking practice. The argument is as follows. Economists use theoretical (deductive) models to conjecture about mechanisms. These theoretical (deductive) models are sometimes considered as models of single mechanisms. Always, the representation of economic mechanisms is partial (Ylikoski and Aydinonat 2014). However, the number of mechanisms that operate in the actual world is higher.

Given that these different mechanisms can screen off or multiply their operation, predicting the effects of ‘interventions’ on the basis of mechanistic evidence is impossible unless one has knowledge of how mechanisms interact with each other. Another problem (which I label mechanist’s circle) occurs when one attempts at using causal claims supported with purely-theoretical models (i.e., deductive models that lack empirical input). In this case, policymakers should establish that the mechanism represented by the model operates in the target beforehand. However, the evidence required to do so may suffice, at least in some cases, to establish the causal claim on its own. Therefore, mechanistic causal claims can be employed as evidence for institutional reforms that promote the operation of a mechanism in the target but do not warrant the effects to follow.

Given this, accepting that moderate causal pluralism is an adequate epistemic stance on causality has severe implications for policymaking: different types of causal claims can only be used for different types of policymaking activity.

Why evidential pluralism is needed to avoid wishful thinking: an example from social policy (Ben Baumberg Geiger)

Most arguments for evidential pluralism within applied social science – where it is commonly termed ‘mixed methods’ – invoke either triangulation (that we are more confident if we see the same phenomenon from different perspectives) or complementarity (that

different methods can answer different questions). In this presentation I make a different argument: that reliance on a single method increases the risk of wishful thinking. I argue (following Helen Longino) that “background assumptions are the means by which...values and ideology are incorporated into scientific enquiry”, and that we require methodological diversity to make these assumptions visible. This does not happen through ‘triangulation’ where methods agree, but rather through ‘collisions’ that call into question each individual method’s findings. I illustrate this argument with reference to three types of evidence on the effectiveness of harsh vs. generous social security policies on labour market outcomes.