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Rol, Menno

*Published in:*  
Journal of Economic Methodology

*DOI:*  
[10.1080/1350178X.2019.1687163](https://doi.org/10.1080/1350178X.2019.1687163)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2020

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Rol, M. (2020). Ladders of abstraction, support factors, and semantics in the design of policies. *Journal of Economic Methodology*, 27(1), 89-92. <https://doi.org/10.1080/1350178X.2019.1687163>

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To cite this article: Menno Rol (2020) Ladders of abstraction, support factors, and semantics in the design of policies, Journal of Economic Methodology, 27:1, 89-92, DOI: [10.1080/1350178X.2019.1687163](https://doi.org/10.1080/1350178X.2019.1687163)

To link to this article: <https://doi.org/10.1080/1350178X.2019.1687163>



Published online: 11 Nov 2019.



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COMMENT



## Ladders of abstraction, support factors, and semantics in the design of policies

Menno Rol

Reply to Leonardo Ivarola

*Leonardo Ivarola recently published a paper in this journal (Ivarola, 2019) in response to Cartwright and Hardie's (2012) book 'Evidence based policy. A practical guide for doing it better' (henceforth EBP). He both discussed its alleged limitations and proposes to complement the approach of EBP. I am sympathetic to Ivarola's proposal to complement the idea defended in EBP, that causal principles should be abstracted in the right way and support factors be known, with a benchmark of alternative policy outcomes in light of the asymmetry of policy results. I do however take issue with what I see as a misrepresentation of the standpoints of EBP. It seems to me that the role of abstraction in EBP is more fine-grained than Ivarola grants and that he falls prey to a misunderstanding about the semantics of 'models for policy implementation', as he calls them. In this reply I will try to do justice to Cartwright and Hardie (i.e. give a proper representation of the role of abstraction and concretisation) and discuss how theories underlying an ex-ante policy recommendation relate to the world these theories explain (i.e. analyse the semantics of conceptual systems).*

### Menno Rol

Nancy Cartwright and Jeremy Hardie wrote their book on the premise that the best proof of the fact that a policy worked once – an randomised controlled trial (RCT) – tells us too little to know whether a similar policy works elsewhere. As they say, immediately in the preface: 'To make RCT's relevant you need a lot more information and of a different kind' (Cartwright & Hardie, 2012, p. ix). So they wanted to write 'a practical guide for doing it better'.

The book explains what kind of information is needed. Specifically, they propose two search strategies. First, policymakers must be aware that policies build on social mechanisms but under the condition of the right kind of support factors that come at the right time. So the challenge is to find these support factors as INUS conditions – the Insufficient but Necessary part of the Unnecessary but Sufficient set of conditions – for success. If the policy plus support factors are sufficient for its intended effect, then all the ingredients of it (of the 'cake', such is the metaphor they use) are necessary. On top of this, the social mechanism itself and the support factors must be specified at just the right level of abstraction. This is another matter than merely finding the necessary helping factors. The example of the World Bank's failing effort in the *Bangladesh Integrated Nutrition Program*, to imitate in Bangladesh the success of a policy carried out against infant malnutrition in India, the *Tamil Nadu Project*, shows the importance of abstraction. In rural Bangladesh mothers do not go to the market, fathers do. Families live under the roof and in the domain of the fathers' mothers, so the decision-makers are the mothers in law. Education of mothers does not help. As Cartwright and I have pointed out elsewhere (Rol & Cartwright, 2012), the abstraction needed goes from 'mother' to 'she who makes decisions about food'. The latter is more abstract, as can be seen by the simple fact that such a description applies to India just as well. But in Bangladesh concretisation leads to 'mothers in law', rather than to 'mothers'. A policy evaluator who does not notice this difference will provide useless evidence for the success of a programme against infant malnutrition.

Ivarola represents these two search strategies, horizontal and vertical, as the specification of the components needed for a policy, and respectively, as finding out ‘if the causal principle has been characterised at the right level of description’. But Ivarola also claims that horizontal search requires lowering the levels of abstraction (Ivarola, 2019, p. 150). This, now, is a misunderstanding. Put in this way, horizontal search would become a case of *concretisation*, the reverse of abstraction. But the metaphor of horizontal is precisely meant to indicate that the level of abstraction does not change. According to Ivarola, in the horizontal search, ‘policy makers consider whether the support factors included in the studied population are needed in the target population as well’ (Ivarola, 2019). This consideration truly is an act of concretisation. In the *Tamil Nadu project* mothers being decision-makers was a support factor. In the *Bangladesh Integrated Nutrition Program* it was not. To get to mothers in law we must climb the ladder down and this is an essential part of vertical strategies. Perhaps this conflation of horizontal and vertical is at the root of the problems Ivarola detects in the approach of EBP.

On the other hand, the way he represents the vertical search is fair to EBP, but the import of abstraction remains underrepresented in the article. I will first lay out this import. Next, I will discuss the problems he sees in the EBP approach and show that these are the problems Cartwright and Hardie precisely detect themselves as the main problem in designing policies and also that their book has been written in order to deal with it. Thirdly, I will spot yet another misunderstanding, which has to do with the distinction between the epistemic value of our theories and the ontology of causal principles. I hope these three objections are sufficient to counter the issue Ivarola takes with EBP’s apparent shortcomings. Finally, Ivarola proposes an interesting addition to the guidance for doing it better: to consider a possible asymmetry of results in policy choice making. I will claim that this is an interesting proposal that deserves further examination.

Loosely spoken, to make the description of a concrete state of affairs more abstract is to leave out particular properties of the world and redescribe them in, as it were, a thinner way. Theorising requires abstraction. We do it because it often reveals surprising connections, like between corrosion and combustion or – Ivarola’s example – between a seesaw and a claw hammer. The redescription of the concrete ‘mother’ into ‘decision-maker for the choice of nutrients’ leaves out everything the idea of motherhood arouses in our minds, like the special care, the emotional bond, the biological relationship, etcetera. In India, where the intervention worked, mothers are these very decision-makers. In Bangladesh they are not. Concretisation in the case of the *Bangladesh Integrated Nutrition Program* implies finding out that fathers go to the market and mothers in law have a say. Such is the task of policymakers who want to make the policy work ‘here’, in Bangladesh, instead of ‘there’, in the study case of the *Tamil Nadu Project*. The interesting aspect of abstraction, then, is that starting from a false proposition about Bangladesh (teach the mothers and you’ll get results) one single abstractive step leads to truth (teach the decision-maker about what to buy in the market and you’ll get results). This property of abstraction – that it can help to move from falsity to truth – is what incentivised us to write our 2012 paper. (A more technical treatment of this property, in terms of possible worlds, was published in this journal a long time ago; see Rol, 2008).

Theories are needed but of course fallible. We may be wrong in our effort to abstract well. Trying to find a useful way of abstracting is the vertical search. The reason why Cartwright and Hardie elaborate this point so much is that the building of an evidence base for policy gives us so much information about past policies (studies) and so little about new cases (targets). They stress the unavailability of simple extrapolation of past results. Now, the largest chunk of Ivarola’s criticism is that the road a policy can take may deviate in unexpected ways. Therefore he stresses the need for ‘permanent interventions’, stretching beyond the mere intervention in the starting conditions. ‘Cartwright and Hardie’s cakes only provide information about what would happen in very specific situations... [their] approach is therefore static’ (Ivarola, 2019, p. 155). Note that these ‘cakes’ represent the policies plus the appropriate support factors and they are distinguished from other representations of causal processes, like linear chain models and directed acyclic graphs. What Ivarola in fact petitions is process evaluation and intervention adjustments in the process. Ivarola warns that the advice of

EBP requires unchanging scenario's. I do not think this is the case. There is nothing in EBP at odds with his plea. Cartwright and Hardie will not oppose adjustments along the road. The point is that their appeal for a vertical search aims to cope with these problems. EBP has exactly been written because past policies will not be trustworthy blueprints for policy implementation and, therefore, a deeper insight is needed into what ingredients must do the trick. The fallibility of our efforts to understand the world does not compromise either the vertical or the horizontal search. Hence the term 'search'. At best, we have a heuristic, not an algorithm that clinches every causal factor. Finding good policies is an open endeavour, not a closed procedure and both vertical and horizontal searches are ongoing business. There is no reason to presume EBP is essentially static in its approach, nor that EBP ignores 'that a policy may fail or deviate from its intended course' (Ivarola, 2019, p. 161).

One reason, according to Ivarola, that 'the implemented policy's expected results will not be guaranteed beforehand' (154) is that the intended policy with its support factors is like a theorem. The real world of the policy is material or causal, but Cartwright and Hardie's cakes are logical in kind. Theories about what policies might work are essentially 'not about causal contributions but about logical relations' (Ivarola, 2019). Hence the inability for a proposed policy to cope with an ever-changing world. This is a remarkable claim. Of course, any theory or explanation uses logical relationships and is, as such, an explanation of the world, not the world itself. This distinction boils down to the familiar one between epistemology and ontology. Ivarola's suggestion is, apparently, that the cakes in the realm of the conceptual – but that deal with the world of policy – entail a smaller number of logical possibilities than so many possible states reality itself can take, because the cakes are not the material world itself. This would mean that logical possibilities form a subset of real possibilities.

In fact, it is the other way around. The number of logical possibilities always exceeds the number of nomological possibilities by far. A Kripke-style semantics can immediately show this. It is logically possible for a universe to have no gravity or morphological curvature. But the nomologically possible worlds demarcated by physics exclude such a universe. Our best theories describe causal relationships such that they are logically strong in the sense of Popper: in the process of truth approximation, they exclude as many logical possibilities, well ... , as possible (Popper 1963, pp. 385–388). So it seems that Ivarola conflates the two ends of semantics: the denotation and the denoted. Abstract descriptions are about causal relationships but are themselves conceptual systems. These conceptual systems must be logically coherent, otherwise, the physically and socially possible worlds would never form a subset of the set of logical possibilities.

EBP succeeds in giving advice on how to do it better even though Cartwright and Hardie admit that '[i]t is not here to provide an exhaustive and systematic guide to thinking of everything' (EBP, 72). The fact that any theory is always a conceptual system is not the obstacle: its logical coherence does not prevent it from explaining something about the material world. The fact that any theory is always fallible is an obstacle but there is very little we can do about not being God. Therefore EBP says 'we suggest that you set about constructing cakes, good and bad, and searching out the requisite ingredients in them [...] as best as you can' (EBP, 72). Thus you can answer interesting questions: are there many ways in which a policy makes a good (or a bad) contribution, are there other policies that produce the same result? What happens in the absence of certain support factors, will nothing happen or less?

I end with a positive note. Ivarola may in my view be misguided in his criticism, he nevertheless does an interesting proposal: to consider a possible asymmetry of results. If the consequence of a failing policy is grave while there is little to gain, then the asymmetry is negative. One would be inclined not to bake a cake. If there is much to gain and little to lose, the positive asymmetry indicates otherwise. This proposal, which is as Ivarola grants originally from Nassim Taleb (2012), makes a lot of sense. It is a plea to benchmark proposed policies to possible alternative outcomes. I expect Cartwright and Hardie welcome it.

## Disclosure statement

No potential conflict of interest was reported by the author.

## Notes on contributor

**Menno Rol** Lectures Philosophy of Social Science at the University College Groningen (UCG) and the Faculty of Social and Behavioural Sciences, Department of Sociology, of the University of Groningen (UG), the Netherlands. His current research interests comprise social scientific concept formation, the relation between theoretical concepts and the world, specifically between social theory and the practice of policy-making.

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