

# *Methodological Individualism and the Epistemic Value of Macro-Explanations*

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## Abstract

In this paper we want to analyze causal explanations in the social sciences. If we assume that the social sciences apparently do provide successful and autonomous explanations, this assumption raises fundamental problems for the standard theory of explanation. These problems especially refer to the following issues: (1) Which theory of causation is adequate in these contexts? And (2), how are we supposed to understand lawlike generalizations—which are often denoted by the name of *ceteris paribus* laws—that are essential to causal explanation in the social sciences? We answer these questions in favour of an interventionist account of causal explanation. Contrary to the *ceteris paribus* approach to social “laws” (and its severe problems) we propose to see generalizations in social science as causal dependencies between social variables that remain invariant (or stable) under a certain range of interventions. Further we argue against methodological individualism that there are some social macro-explanations, which are the best explanations for the occurrence of a social state of affairs. We call this position a pluralism or pragmatism of explanations.

## Introduction

Methodological Individualism (MI) is a position shared by a vast majority of philosophers and social scientists. (MI) consists of (at least) these assumptions:<sup>1</sup>

<sup>1</sup> We understand (MI) as a position in social philosophy, which consists of two further assumptions, which are not important in this paper: (3) Atomistic assumption: All social properties are

1. **Ontological assumption:** *Everything in the social world (e.g. institutions, organizations, groups etc.) can be reduced to individual actions, i.e. the social world consists of, is identical with or is constituted by a complex arrangement of actions and dispositions to act.*

This assumption expresses an ontological reductionism<sup>2</sup> concerning the social world: an ontological individualism.

- 2 **Fundamentalist assumption:** *Descriptions and explanations in terms of actions are the best way to gain knowledge of the social world.*<sup>3</sup>

*Weak fundamentalism* is based on the explanatory principle: If *As* consist of *Bs*, we have the best—even if not the only acceptable—explanation for the occurrence of *A*-states of affairs, if we explain them as *Bs*. That means for the social world: If society is reducible to complex arrangements of actions, then action-explanations are always the best explanations for social phenomena. A *stronger version* of fundamentalism claims: Only micro-explanations are acceptable.

The above introduced fundamentalism is not to be confused with another assumption concerning macro-explanations in the social sciences: the so-called assumption of micro-foundation.<sup>4</sup> This assumption states:

*Macro-explanations (by themselves) are in most cases too weak and not satisfying. Additionally to the macro-explanation we need to (roughly) identify a causal mechanism on the individual micro-level that brings about the states of affairs that the terms of the macro-explanation refer to.*

The assumption of micro-foundation does therefore not entail (weak or strong) fundamentalism, because it might accept a macro-explanation as the best explanation for a social event on the one hand and it might still maintain on the other hand that we need causal information from the individual level. Micro-foundation admits social micro and macro terms in the *explanans* of a causal explanation. Let us have a look at an example. Take the following generalization as a part of a social macro-explanation:

Countries with a low Gross National Product (GNP) (per capita) have a high infant mortality rate.

intrinsic. (4) Methodological assumption: A scientifically acceptable action theory has to give exact predictions and explanations. See Kincaid (1996) and Heath (2005).

<sup>2</sup> As the formulation of the ontological assumption of (MI) indicates we do not want commit ourselves to any particular brand of reductionism for the purpose of this paper. Nevertheless we would argue for an identity thesis when we were asked to take sides.

<sup>3</sup> For a reconstruction of fundamentalist versus pluralist views see Pettit (1996) and Kincaid (1996).

<sup>4</sup> See Little (1998, 2007); Rössel (2007) from a sociological point of view. For a critical view on micro-foundation see Kincaid (1996).

What would a micro-foundation in this case consist in? The social scientist and philosopher Daniel Little proposes to proceed as follows:

The [micro] mechanism is presumably something like this. Low GNP causes low personal income and low state revenues. Low personal income entails low ability to pay for nutrition and health care. This leads to poor maternal health. Low government revenues entail low ability to pay for publicly funded health and nutrition programs. This also leads to poor average maternal health. But if the state devotes a substantial fraction of its resources to public health, these causal connections do not go through, and we should expect an exception to the rule. Thus the exception of Sri Lanka, which is a country whose per capita GNP is roughly that of India, but whose infant mortality is comparable to that of many European countries.<sup>5</sup>

So, citing causal information from the micro-level does strengthen the macro-explanation in question according to the view of micro-foundation. Here, fundamentalists clearly differ in the evaluation of the example: A strong fundamentalist would disagree, because he does not accept macro-explanations at all. The weak fundamentalist objects that we would not need the macro-explanation anymore if we were able to describe the micro-mechanism in more detail.

We hold that the ontological assumption of (MI) is true. If this is the case, the epistemological assumption becomes highly problematic: It is in blatant opposition to the practice of social science, that only action-explanations give the best explanations for why a social state of affairs is the case. The epistemological assumption leaves no room for many good explanations in social science. Pluralists argue for the value of macro-explanations merely with reference to a dualism of micro and macro properties. According to pluralists we have to explain macro-properties in a macro-vocabulary, because they are (ontologically) irreducible to micro properties. But this is not sufficient for a good theory of macro-explanation. We will offer a theory of explanation, which acknowledges that successful explanations in macro-concepts (e.g. institutional states of affairs) are possible and which is at the same time consistent with ontological individualism. We argue against the epistemological assumption of (MI) that not only social micro-explanations, but also social macro-explanations, fulfill all conditions which make something a good explanation. Further we take a pragmatic stance toward the assumption of micro-foundation: It explains how social scientists get evidence for many macro-explanations. But we do not want to commit ourselves to the a priori assumption that there could not possibly be a successful macro-explanation without being micro-founded.

In section 1 we argue that a weak fundamentalism has highly counterintuitive consequences. In section 2 we present the traditional model of explanation. Severe objections have been raised to this model and it undermines the plausible belief that social science explains something at all. In section 3 we give a positive

<sup>5</sup> Little cited after [Bartelborth \(2007\)](#), 136.

account, which is not exposed to the same objections as the traditional model. Additionally it explains how causal explanations in social science are to be understood and why macro-explanations are full-fledged explanations. In 3.1 we reconstruct Woodward's explanation theory in comparison with the traditional model. In 3.2 we discuss the advantages of that model over the *Ceteris Paribus* view of laws in the social sciences. Finally we argue for a pluralism of explanations in section 4.

## 1. Fundamentalism isn't plausible

Since we are ontological physicalists (like many fundamentalists), we assume that all actions and institutions are identical with arrangements of physical states of affairs. This leads to problems for the individualist as an advocate of (MI). According to the fundamentalist assumption of (MI) and its explanatory principle, we have to act as follows, if physicalism is true (this is a physicalistic argument against weak fundamentalism):

- (1) General explanatory principle of (MI): If *As* consist of *Bs*, we have the best explanation for the occurrence of *A*-states of affairs, if we explain them as *Bs*.
- (2) Social states of affairs are identical with physical states of affairs.
- ∴(3) If social states of affairs consist in physical states of affairs, we have the best explanation for the occurrence of social states of affairs iff we explain them physically.
- (4) Not social science, but theories of current physics explain why physical states of affairs occur.
- ∴(5) It is not social science but physics which best explains why something in the social world is the case.

This conclusion is not acceptable, because it is in sharp contrast to the practice in the social (and other special) sciences. This conclusion would force us to reject the epistemic value of the social (and other special) sciences *for purely philosophical reasons*. We are not willing to pay such a high price. To avoid any misunderstandings: Physicalists have to say, that for every social state of affairs, there is *in principle* a physical explanation. We have to distinguish two ways of talking about micro-explanations:

- (1) Because physicalism is true, we should *in principle* be capable of explaining a social macro-phenomenon in physical terms. But in fact we cannot. In this case we need either a theory for macro-explanations (weak fundamentalism) or have to say that nothing at all is explained in macro-terms (strong fundamentalism).

- (2) *In fact*, we can explain a macro state of affairs with a micro-theory. In this case it is not clear whether pragmatic reasons for the use of macro-explanations could exist (like avoiding high technical effort). Nevertheless, for both versions of fundamentalism it is clear that a feasible micro-explanation is always the best explanation.

But it is not convincing that micro-explanations are *prima facie* and under all conditions *the best explanations* for the existence of a social state of affairs. We see no reason why the physicalist and the individualist (as an ontological position) should or even has to accept the explanatory principle of (MI). We have at least two options to react to the physicalistic argument against the explanatory principle: Either (i) we give up physicalism, what would be quite hard for a lot of philosophers, and keep the explanatory principle or (ii) we give up the explanatory principle and keep physicalism. We choose (ii).

## 2. Hempel's Model of Explanation

In our cognitive handling of the world we do not only want to know what the case is, but also why something is the case. We could formulate it this way: Often we want a *description* of *what* is the case and *explanations* for *why* it is the case. The logical structure of natural and social science explanations is in the view of many philosophers the same. Hempel<sup>6</sup> explicated this idea in his Covering-Law-Model (CLM) of explanation. The CLM distinguishes two kinds of explanation: Deductive-Nomological (D-N) and Inductive-Statistical (I-S) explanations. In both cases explanations have the form of an argument, with its premises as *explanans* and its conclusion as *explanandum*. Natural laws are understood as universally quantified, exceptionless sentences which describe regularities in the world. It is evident that laws in this sense cannot exist in social science. Its generalizations—if there are any—are surely not without exceptions. This insight conflicts with the assumptions that (i) explanations necessarily involve laws and (ii) special sciences are only legitimated as a science if they provide explanations.<sup>7</sup> This objection against the CLM can be formulated as a dilemma:

- (i) either the explanatory practices in the special sciences have no genuine explanatory value, because they do not contain strict natural laws;
- (ii) or there are explanations which do not depend on strict laws.<sup>8</sup>

The strong fundamentalist is committed to (i). On the contrary we think it is promising to opt for (ii). We believe to have good reasons, because (i) seems not

<sup>6</sup> See e.g. Hempel & Oppenheim (1948).

<sup>7</sup> For a reconstruction of this conflict see Earman et al. (2002), 297f, and Woodward (2002), 303.

<sup>8</sup> This dilemma is also formulated by Pietroski & Rey (1995), 85 and Hitchcock & Woodward (2003a), 2. The authors try to avoid the dilemma in different ways: Pietroski and Rey opt for (i), *i.e.* they give an account of *ceteris paribus* laws as strict laws with known interferences. Hitchcock and Woodward think that (ii) is true.

to be acceptable (and it is not the job of philosophers to decide whether social science explains something or not) and because we have a model of explanation which is superior to CLM and which can react to objections in a satisfying way.

### 3. Woodward’s Interventionist Model of Causal Explanation

#### 3.1. Reconstruction of Woodward’s Model in Comparison to CLM

Woodward<sup>9</sup> starts with the intuition that causal explanations are linked with our practical interests to change our environment according to our desires. Causal explanations are linked to these practical interests insofar as they guide our knowledge how we could *in principle* change the world. Causal explanations provide a special kind of answers to why-questions<sup>10</sup> such as “Why is it the case that  $p$ ?”: They answer what-if-things-had-been-different-questions (*i.e.* counterfactual questions). These answers enable us to detect patterns of counterfactual dependencies, *i.e.* they show us which factors the occurrence (or change) of *explanandum*-event actually depends upon and which factors it would depend upon in a hypothetical situation. Let’s reconstruct Woodward’s model in direct comparison to the CLM. In both models the lines (1) and (2) represent the *explanans* while line (3) stands for the *explanandum*.

Woodward’s model		CLM
(1) $X_1 = x_1, \dots, X_n = x_n$	antecedence conditions	(1) $C_1, \dots, C_n$
(2) $Y = g(X_1, \dots, X_n)$	generalizations/laws	(2) $L_1, \dots, L_n$
(3) $Y = y = g(x_1, \dots, x_n)$	<i>explanandum</i>	(3) $E$ .

$X$  and  $Y$  are variables<sup>11</sup>, *i.e.* they are determinable properties of individuals or systems—so they are not mathematical quantities in a strict sense. Often it is easy to translate the talk of variables into the (everyday) talk of events: Whether a system has the property  $F$  or not, can be easily represented by the values 1 (*i.e.* the system is  $F$ ) and 0 (*i.e.* the system is not  $F$ ) that a variable might have. Describing the values that variables may have is a generalization of the idea of

<sup>9</sup> Woodward (2003). Sandra D. Mitchell has developed a similar approach, which is built on the key notion of stability. Stability is similar to Woodward’s notion of invariance that we will introduce in this section. See Mitchell (2002). Reiss (2008) applies this approach to economic cases of explanations.

<sup>10</sup> The idea that explanations are answers to why-questions is due to van Fraassen. According to this approach it depends on contextual factors (knowledge, practical interests etc.), how we answer question of the type “why is it the case that  $p$ ?”. The context determines whether we understand a why-question as demanding for a causal explanation. Likewise it is contextually determined which causal factors we consider as salient for the occurrence of  $p$ . See van Fraassen (1980), 101 and Lewis (1986a), 215f and 226-228.

<sup>11</sup> Capital letters, like  $X$  and  $Y$ , stand for variables. Small letters, like  $x$  and  $y$ , stand for the values of a variable.

contrast classes<sup>12</sup>. The elements of a contrast class are those values that a variable might have—in a structural equation as in line (2). A slightly altered example by Ned Hall<sup>13</sup> is perfect to illustrate the connection between contrast classes and the values of a variable: Adam throws an apple towards a bottle and . . . the bottle shatters into a thousand pieces. What are the possible contrast classes? The answer depends on which aspects we want to emphasize, for example these aspects: Adam (or Eve) could have thrown (or not have thrown) the apple (or something else)—we may add (a little earlier or later) and (softer or harder)—and the bottle (or the snake) would have shattered (or he would have missed it) into 1000 (or just 2) pieces and so on. Evidently this example simplifies the issue because each relevant variable can only have two values. More complex descriptions contain variables with many values which are mathematically expressible. So we should understand line (1) in both models as the description of the actual properties of a system (the antecedence conditions  $C_1, \dots, C_n$  in CLM).

Line (2) in Woodward’s model represents an explanatory generalization<sup>14</sup> such as  $Y = a_1X_1 + a_2X_2 + U$ . It corresponds to the laws of nature  $L_1, \dots, L_n$  in CLM. It describes a non-backtracking counterfactual dependence between the  $X_i$  and  $Y$ . The fixed coefficients  $a_1$  and  $a_2$  describe *how exactly*  $Y$  depends on the  $X$ -factors. What do these variables stand for? Let’s take an example: Be  $Y$  the height of a palm tree,  $X_1$  the amount of fertilizer,  $X_2$  the amount of water received by the individual plant and  $U$  an error term. The equation is supposed to describe what the growth of the palm tree depends on. Looking at this example it is intuitively clear that the values of the variables involved can only change in a restricted domain. 2000 tons of fertilizer, e.g., would destroy the plant, *i.e.* the equation would not be *invariant*—as Woodward says—under this condition. There are further circumstances in which the relation between the growth, the amount of fertilizer and water does not remain invariant: a palm tree cannot grow infinitely high, a change in certain background variables (e.g. an extreme increase in temperature) has a deep impact on the factors represented in the equation, etc. So invariance refers not to any background variables, but exclusively to the variables in the equation. Line (3) therefore describes concrete values of a variable (e.g. 2 liters of fertilizer) in a structural equation as in line (2).

The lines (1) to (3) have to fulfill the following conditions:

- (i) The ascription of values to all variables has to be true.
- (ii) Counterfactual dependence is invariant under certain changes or interventions in the value of an  $X_i$ .

<sup>12</sup> Which counterfactual alternatives we contrast the occurrence of a state of affairs with is context-dependent. See van Fraassen (1980), 127; Lewis (1986a), 229; Pettit (1996), 232f; Hitchcock (1996).

<sup>13</sup>See Hall (2004). We supplement Hall’s example with van Fraassen’s famous Adam-Example for contrast classes. See van Fraassen (1980), 127.

<sup>14</sup>Woodward’s explanatory generalizations are called “causal principles” in the literature on causation. See Hausman (1998) and Pearl (2000).

Woodward means by counterfactual dependence a hypothetical situation in which the values of the variables in line (1) change in a way that the following counterfactual conditional is true: If the value of  $X$  had not been changed, then the value of  $Y$  wouldn't have changed either.

What does it mean to change the value of a variable? It means to *intervene* into the value of a variable. Intervention is a technical term for Woodward.<sup>15</sup> An intervention is an exogenous causal influence on the  $X_i$ , which changes  $Y$  only by influencing the  $X_i$ . In other words: the  $X_i$  must be direct causes of  $Y$ .  $X$  is a direct cause of  $Y$  iff  $X$  changes the value of  $Y$  while all other relevant variables are held constant. Interventions are heuristic suppositions: they are manipulations that can be carried out by a human being in an idealized experiment—even if human beings would never be practically able to perform this manipulation. Idealized<sup>16</sup> interventions are supposed to make true counterfactual conditionals.<sup>17</sup> Put in this way, interventionism is a theory about why we think that counterfactual conditionals (and in the end their possible world semantics) are true. We learn to produce and prevent  $X$ -events. If we can control the boundary conditions to such an extent that we can be sure that we really produce or prevent  $X$ -events, then we scrutinize whether (i) we can produce  $Y$ -events by producing  $X$ -events and (ii) whether we can prevent the occurrence of  $Y$ -events by preventing  $X$ -events. By our actions and omissions we learn what would be the case in a counterfactual situation.<sup>18</sup> Woodward's model is designed to allow philosophers to stay close to the factual explanatory practices in the sciences.

### 3.2. *The Advantages of the Interventionist Account*

Contrary to the D-N-interpretation, Woodward counts on explanatory generalizations (as in line (2) of the model) and not on strict universal laws. These generalizations usually do not have the properties that Hempel (and other empiricists) demand as necessary conditions for the lawlikeness of a statement. Most importantly many explanatory generalizations are not exceptionless, universally quantified statements.<sup>19</sup> But can these generalizations provide explanations? According to Woodward the most promising answer goes along the following lines: We must understand what explanations do. And what do explanations do? Explanations answer actual and counterfactual why-questions. To answer these questions

<sup>15</sup> This concept has been established by [Spirtes et al. \(2000\)](#), [Hausman \(1998\)](#) and [Pearl \(2000\)](#).

<sup>16</sup> Such interventions are idealized, because we might be able to imagine that we could change the values of a variable, e.g. events in a galaxy far beyond our reach. Evidently we cannot perform the interventions technically—which is not only true concerning galactical events but also for many everyday events. The interventions are merely ideally possible, because we abstract from practical and theoretical limitations.

<sup>17</sup> See [Hitchcock & Woodward \(2003b\)](#), 183, and [Keil \(2000\)](#), 431-457.

<sup>18</sup> [Hitchcock & Woodward \(2003b\)](#), 183.

<sup>19</sup> Although Lewis agrees with the interventionists on the concept of causation, he denies that generalizations are necessary for causal explanation. The general idea that generalizations are essential for the business of explanation is a view that is shared by CLM and interventionism. Lewis seems to deny even the general idea. See [Lewis \(1986a\)](#), 239f.

is not an absolute issue (*i.e.* reserved for strict laws), but one coming in degrees.<sup>20</sup> The interventionist account is able to distinguish degrees of explanatory power (in context-dependent explanatory practices). Explanatory generalizations might differ (i) in their domain (e.g. biological or social systems) and (ii) in the range of interventions under which they would remain invariant. So interventionists have a promising argument against the CLM.

Following Woodward we can also interpret the so called “non-strict laws” in social science explanations fruitfully. The interventionist approach to causal generalizations avoids the following problems which overshadow the notorious *Ceteris Paribus* Laws (CPL) account for “laws” in the special sciences. A CPL is usually expected to be expressible in the following logical form: “CP for all  $x$ : if  $Fx$ , then  $Gx$ ”. To take the example from the introduction: “CP, countries with a low GNP (per capita) have a high infant mortality rate.” But what is “CP” supposed to mean? The attempts to answer this question have not been extraordinarily successful. The most common translations of “CP” are “(all) other things being equal” or “if disturbing factors are absent”. These translations point out to different meanings of the CP-clauses: (1) the *comparative* meaning and (2) the *exclusive* meaning. Further it makes sense to distinguish between (i) *definite* and (ii) *indefinite* exclusive CPL.

(1) **Comparative CPL:** The comparative reading of CPL holds that (i) all causal influences on the relevant variables (e.g. rational action) are known and (ii) we can hold some of these factors (*i.e.* the value of variables) constant in our description. *Strictly speaking*, condition (i) is never fulfilled if we consider “laws” in the social sciences, since we do *not know all* the causes of rational action, price, popularity of leaders etc. But *loosely speaking*, comparative CPL stand for a practice that is quite common in the social sciences: the method of *abstraction*. We abstract from certain causal influences when we hold certain variables constant—commonly they are considered exogenous variables. Although this is an important topic in the philosophy of the social sciences, it does not concern the issue that most philosophers have in mind when they talk about CPL.

(2) **Exclusive CPL** do not hold known causal factors constant, but they exclude disturbing influences. In this case “(all) other things being equal” seems to mean “all other things being right”, as Cartwright<sup>21</sup> points out. Unfortunately the exclusive reading of CPL leads into a dilemma: (i) either they are impossible to formulate (with the means of a special science), or (ii) CPL are empirically vacuous statements.<sup>22</sup>

<sup>20</sup> For a defense of this idea see Lange (2000), chapter 8, and Lange (2002), 416.

<sup>21</sup> Cartwright (1983), 45.

<sup>22</sup> For the standard reconstruction of this dilemma see Earman et al. (2002), Schurz (2002) and Woodward (2002).

(i) **definite, exclusive CPL:** They are impossible to formulate, if the absence of disturbances is understood in a way that there is a causal factor  $F$ , which is not endogenously described in the CPL and which further guarantees two things: (1) the CPL is a true statement and (2) we have to add  $F$  to the antecedents in order to decide whether the CPL is true. The factor  $F$  is often called a “completer”<sup>23</sup>, *i.e.*  $F$  is a necessary but not sufficient cause for a factor  $H$ , which is explicitly mentioned in the consequent of the CPL. A further factor  $G$  is also a necessary and not sufficient cause for  $H$ , which is explicitly described in the antecedent of the CPL. Only if  $F$  and  $G$  occur together, they are a sufficient causes for the occurrence of  $H$ . Disturbing factors are, e.g., present, if the occurrence of  $F$  is prevented (or changed) in way that there is no longer a sufficient cause for  $H$ . In other words, according to the completer theory, “CP, for all  $x$ : if  $Gx$ , then  $Hx$ ” really means “For all  $x$ : if  $Gx$  and  $Fx$ , then  $Hx$ ”. The criticism of the completer account is obvious: If we understand exclusive CPL in a way that certain (or even all) completers have to be made explicit in the antecedent of a CPL, then we are simply not always able to fulfill this requirement. *Firstly*, there are epistemological objections to this reading: we cannot fulfill this requirement, because in fact we do not even know all social influences on actions—and even if we knew all factors in some cases, it might still remain a severe problem to identify a completer. The issue is even more bugging if we remind ourselves that the social sciences do not apply fundamental theories as physics does, but special science theories. Social factors can be causally influenced by (infinitely many possible) non-social, e.g. physical, events. And those physical events are evidently beyond the epistemic scope of a social science. Natural disasters and collective insanity (caused by an infection) are extreme examples of disturbances, which lead to exceptions in a social CPL. But let us, for the sake of the argument, leave those epistemological worries aside. Taken for granted that we are omniscient beings, we face a *second* difficulty: if we compensate the exceptions of a CPL by adding the completer to the antecedent conditions, we finally end up with a highly specified strict law. But this law statement lacks an important virtue of generalizations in science: its application is narrowed down to very few situations—in the worst case to a single one. This would be a second unfortunate outcome.

(ii) **Indefinite, exclusive CPL:** If we prefer not to understand CPL in a definite way, we are in trouble with the second horn of the dilemma: If we do not explicitly state the conditions (e.g. completers) under which a CPL is true, non-strict laws are in danger of turning out to lack empirical content. Indefinite, exclusive CPL seem to be tautologies: nothing prevents us from translating the CP-clause “CP, all agents act rationally in respect to their beliefs and desires” as “All agents act rationally—unless they do not”, because agents do not always act rationally

<sup>23</sup> For different versions of the completer account see Fodor (1991); Hausman (1992), chapter 8.1; Pietroski & Rey (1995). For criticisms see Woodward (2002), Earman & Roberts (1999), Earman et al. (2002), Braddon-Mitchell (2001) and Schrenk (2007).

(in the same degree). The latter sentence is an analytic truth that does not have empirical content. This would, of course, be a fatal outcome to the philosophical analysis if non-strict laws, because they would not be testable.

How can we avoid this dilemma? We propose not to understand generalizations in the social sciences according to the CPL-approach. Interventionists simply have to say that causal generalizations (i) do *not* remain invariant under *every* range of interventions and (ii) do *not* apply to *every* domain. Statements that fulfill these requirements do have empirical content, because they answer important why-questions. E.g., Little's case study (see introduction) *does* have empirical content and *does* answer why-questions, *i.e.* provides explanations, for economists. Nevertheless economists may willingly admit that such generalizations need (i) neither hold for every value of the variables in question, *i.e.* not for every range of interventions. (ii) Nor do they need to apply to every situation.

#### 4. Pluralism: Autonomy and Epistemic Value of Macro-explanations

In section 1 we argued that the fundamentalist thesis of (MI) has counterintuitive consequences. Contrary to the CLM we stated in section 3 that real explanations in a non-physical vocabulary are possible (and actually the case). Woodward's model generally allows successful macro-explanations without having or needing a "micro-foundation". We do not need a micro-explanation of a macro-event to be entitled to give a macro-explanation of why the macro-event occurred. Nevertheless we happily acknowledge that micro-foundation is often a successful way to increase the explanatory power of macro-explanations in social scientific practice. Now we want to argue explicitly for explanatory pluralism on this basis. The concepts of "higher-level" theories enable us to pick out counterfactual dependencies between event-types—and therefore provide information—which we can *either* micro-explain in principle, *or* which we actually can micro-explain, but still prefer a macro-explanation for pragmatic reasons (see section 1). Of course, this does not only apply relative to the physical level of explanation: social macro-concepts, that refer to e.g. institutional events, pick out other counterfactual dependencies (given the current state of inquiry in the social sciences) than social micro-concepts, because these counterfactual dependencies remain invariant under *another* range of interventions. Social macro-concepts—when used in true sentences—do pick out patterns in the world that are indispensable information for explanations. These concepts are epistemically valuable and (given our current knowledge) indispensable, because their meaning differs from the meaning of micro-concepts. This difference in meaning allows us to detect fine-grained or detailed patterns and more coarse-grained (*i.e.* abstracting from details) patterns. With this in mind, we have an argument for pluralism:

- (1) Causal generalizations are sufficient for good explanations.
- (2) Macro-explanations contain causal generalizations

- (3) If there is a causal generalization (*i.e.* an invariance under a certain range of interventions) on the macro-level and we have no micro-explanation for it, then this means that we cannot epistemically reduce this macro-explanation to a micro-explanation.
- (4) Given our current knowledge there are causal generalizations that we cannot describe on the micro-level.
- ∴(5) We have good macro-explanations that we cannot epistemically reduce to a micro-explanation. This is an epistemic fact given our current knowledge.
- ∴(6) Pluralism is true.

This conclusion shares one opinion with the weak fundamentalist: We need a theory of macro-explanation, because they are good explanations. But we disagree with her, that we should *always* prefer a micro-explanation to a successful macro-explanation. From our point of view the fundamentalist is in need of an additional argument that excludes the possibility of situations where we prefer macro-explanations for pragmatic reasons.<sup>24</sup> Further, pluralism does not contradict ontological reductionism. Rather pluralism supplements the idea of reductionism, because it tells us a good story about the epistemic virtues and the autonomy of different kinds of conceptual reference to the same world.

## References

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<sup>24</sup> Ontological physicalists are not committed to believe that micro-explanations are always better than macro-explanations. Chalmers (1996), 43, also argues against the thesis that a macro-state should be best micro-explained: “Reductive explanation is not the be-all and end-all of explanation. There are many other sorts of explanation, of which some shed more light on a phenomenon than a reductive explanation in given instance. [...] Even though this [macro] behavior might be explainable reductively, a high-level explanation is often more comprehensible and enlightening. Reductive explanations should not be seen as displacing these other sorts of explanation. Each has its place.” Chalmers’ point is this: the principally possible micro-explanations are not supposed to provide the best explanation (from a physicalist point of view). Micro-explanations do other work: They are “mystery-resolving”, because they show us that social or mental states are nothing mysterious (unlike freefloating souls), but a complex configuration of physical states.

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