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Open Access Journal

این مقاله با درجه علمی  $\hat{E}$  پژوهشی پذیرفته شده است.

جاویدان خرد، شماره ۴۲، پاییز و زمستان ۱۴۰۱ صفحات ۲۵۵-۲۷۱

## چرا یک طبیعی‌گرایی بسنده باید انگاره‌های هنجاری جوهری را در خود بگنجانند؟

اوزرتورکر\*

### چکیده

هم نوع علم‌گرایانه و هم نوع غیرعلم‌گرایانه طبیعی‌گرایی منکر آن هستند که ارزش‌ها، دلایل و معانی‌ای که به عنوان معیارهای هنجاری فهم می‌شوند، بخشی از محتوای تبیین‌های علمی و موضوعاتی برای تحقیق علمی‌اند. این دیدگاه ناشی از این فرض هرمنوتیکی است که مقوله‌های هنجاری جوهری که حیات انسان را می‌سازند فقط می‌توانند نوعی کار تفسیری داشته باشند و به این ترتیب نمی‌توانند بخشی از تبیین‌های علمی باشند. با این حال، با ظهور علوم اجتماعی مبتنی بر مدل، نیروی این فرض در حال تضعیف است. در این مقاله، من استدلال می‌کنم اگر علم یگانه‌فعالیتی است که می‌تواند فهمی کامل از جهان انسان به دست دهد، نسخه مناسب طبیعی‌گرایی باید به گونه‌ای باشد که اهمیت تبیینی معیارهای هنجاری را در خود بگنجانند. برای رسیدن به این هدف، من از سه مدل مبتنی بر عامل (ABM) در مطالعات علوم مربوط به اعتیاد کمک می‌گیرم تا نشان دهم هنجارهایی که از تفسیر ارزش‌ها، دلایل‌کنش و معانی زندگی معتادان در سطح فردی اخذ می‌شوند برای مکانیسم‌های اجتماعی تبیینی‌ای که به نحوی دینامیک پدیده‌های تبیین‌خواه را ایجاد می‌کنند، ناگزیرند. سپس با شرح بیشتر این استدلال نشان می‌دهم نسخه‌های غالب طبیعی‌گرایی یا دچار تناقض‌اند یا پیش‌پاافتاده‌اند. با توجه به این نتیجه غیرمنتظره، مسلماً نیازمند تلقی‌ای بسنده‌تر از طبیعی‌گرایی هستیم که به‌جد بتواند هنجاریت جهان انسان را لحاظ کند.

کلمات کلیدی: طبیعی‌گرایی لیبرال، طبیعی‌گرایی علمی، انگاره‌های هنجاری، تبیین علمی، تفسیر، علوم اجتماعی مبتنی بر مدل

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تاریخ پذیرش: ۱۴۰۱/۹/۱۷

تاریخ دریافت: ۱۴۰۱/۵/۱۰

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*The Semiannual Journal of Sapiential Wisdom and Philosophy*

Vol. 19, Number 2, autumn and winter 2023, Serial Number 42

### Why Must an Adequate Naturalism Accommodate Substantive Normative Notions?

PP: 255-271

DOI: 10.22034/IW.2023.389537.1678

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#### Abstract

Both scientific and nonscientific varieties of naturalism reject that values, reasons and meanings understood as normative standards appear as part of the content of causal explanations and are objects of scientific research. This view follows from the hermeneutic assumption that substantive normative categories comprising the human life can only do some sort of interpretive work and thus cannot be part of scientific explanations. However, with the advent of model-based social science, this assumption has been losing its force. In this paper, I argue that if science is the only activity that can give a complete understanding of the human world, the proper version of naturalism must accommodate the explanatory significance of normative standards. To this end, I will draw on three agent-based model (ABM) studies in addiction science to illustrate how norms that derive from interpretation of the values, action reasons, and life meanings of substance users at the individual level are indispensable to the explanatory social mechanisms that dynamically generate the explanandum phenomenon. Then I expand on this argument to show that the dominant versions of naturalism either contain a contradiction or are trivial. Given this surprising conclusion, we would

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Received date: 1/8/2022

Accepted date: 8/12/2022

surely need a more adequate conception of naturalism that can seriously consider the normativity of the human world.

**Key words:** liberal naturalism, scientific naturalism, normative notions, scientific explanation, interpretation, model-based social science.

## 1. Introduction

In this paper my aim is to show why substantive normative notions, that is, moral values, normative reasons for action, and meanings broadly understood as an aspect of well-being, are indispensable to the proper conception of naturalism. To this end I first argue that if science is the only activity that can give a complete understanding of the human world, the proper version of naturalism must accommodate the explanatory significance of normative standards. Then I expand on this argument to show that the dominant versions of naturalism either contain a contradiction or are trivial.

Of course, there is lots of philosophical issues that are raised by metaphysical, epistemological or semantic implications of similar research in the context of naturalism. But I only focus on one particular issue and that is the issue of the adequate understanding of the human world among contemporary strands of naturalism in metaphysics. By “contemporary strands of naturalism”, I mean the scientific conceptions of naturalism, or, in Baker’s (2017) terminology, “Eliminative Naturalism” (p. 334), “Reductive Naturalism” (p. 337), and “Nonreductive Naturalism” (p. 337). Also, I mean recent nonscientistic varieties of naturalism, namely “Liberal Naturalism” (De Caro & Voltolini, 2010), “Near-naturalism” (Baker, 2013) and “Expansive Naturalism” (Ellis, 2014).

So here is our roadmap. This paper is divided into five main sections. First, I will provide the background against which my main research question is set in order to clarify the context of my research. Second, in order to develop a deeper understanding of the importance and relevance of my research question, I will make clear how this question is worth asking given its context. Third, I will explicate the research methodology I rely on in answering my question, and why this methodology is the most appropriate for my research. Fourth, I will describe the main lines of argument that I will rely in defence of my answer and consider some objections to my investigation. Finally, I will conclude with future research directions for the adequate version of naturalism.

## 2. Background

The naturalist problem of the accommodation of substantive normativities revolves around three main themes. The first theme concerns the extent of science in understanding human life. In the naturalism literature there is no consensus on whether science is the only path to a more complete understanding of social or human worlds. In fact, a negative answer to this question suffices for the isolation of nonscientistic brands of naturalism. We will see some examples further in this paper as to what propels nonscientistic naturalists to reject the view that the subject matter of science exhausts the subject matter of inquiry about phenomena.

The second theme, which is a corollary of the first, concerns the contemporary naturalistic approaches to the cognitive significance of substantial normative notions. In the context of philosophical naturalism, the question of the significance of substantive norms ultimately boils down to whether there is any need to postulate inherently moral entities or processes to explain certain phenomena. Both scientific and non-scientific camps agree that individual values, reasons and meanings are not objects of scientific research. That is, they neither characterize social data nor figure in successful explanation of social phenomena. We will also see further in this paper how the two main naturalist camps interpret the significance of these notions given this agreement.

Building on the first two, the third theme concerns the role of individual values, reasons and meanings in characterizing social phenomena. More specifically, the literature on the philosophy of social science does not univocally consider this normativity of human life as completely devoid of cognitive significance such that it may be of some exploratory use in analyzing intentional action. We will augment this possibility by turning to actual scientific practice to show how it can bring a new perspective to our notion of the significance of substantive normative notions.

Before dissecting these three themes more thoroughly, let me clarify my terms. I use 'science' as a generic term that applies to the natural and social sciences, even including the humanities driven by empirical evidence. And what I mean by "social or human worlds" is human ways of living that individuals construct through themselves, others, and day-to-day interactions with others.

The source of the first theme lies in an answer to the question "Can science provide a complete understanding of social worlds?". Alex Rosenberg, the paragon of an eliminative naturalist, contends that the social sciences are a sub-discipline of the biological sciences, which are in turn a sub-discipline of physics at or below the atomic scale (Rosenberg, 2009). So, on this view, everything human is significant because and only if they are fundamental physics. Next, we have reductive naturalists such as John Searle, according to whom everything human is significant because and only if they are ultimately explainable by fundamental physics (Searle, 2006). Nonreductive naturalists such as Hilary Kornblith, on the other hand, claim that the social science can provide such understanding in its independent domain, yet it doesn't concern itself with an individual person's values, meaning that such values are ephemeral for the final picture of the world (Kornblith, 1994). On the opposite, non-scientific end of naturalism, liberal naturalists such as David Macarthur contend that although unemployable for the purpose of scientific explanation individual normativity is

nevertheless significant (Macarthur, 2010). Near-naturalists like Lynne Baker and expansive naturalists like Fiona Ellis argue, respectively, that we only have first-person or religious understanding of human normativities which are beyond the purview of scientific explanation (Baker, 2013; Ellis, 2014).

To better understand the second theme, let us look at some of the main reasons why there is ubiquitous agreement in the naturalism literature that values, action reasons and life meanings are not objects of scientific research. Briefly, the ontological reason is that substantial normativity does not figure in scientific laws; the epistemological reason is that substantial moral notions do not play a significant role in knowledge production in science; and the semantic reason is that successful scientific explanations do not refer to such notions. Given these three reasons, scientific naturalisms grant at most some interpretive or heuristic significance to this normativity. In other words, scientific naturalists consider substantive normativities as ultimately otiose to causal explanation of phenomena and for this reason dispensable. Nonscientistic naturalists, on the other hand, claim that, though otiose to causal explanation, being interpretively fruitful these normative notions are indispensable and significant within the nonsupernatural nonscientific realm, and, as a result, they aim to construct a more inclusive conception of nature or reality based on human experience. So, according to nonscientistic naturalists, science produces a value-free picture of the world as well.

As to the third and last theme, scientific and nonscientistic varieties of naturalism are not alone in assigning interpretive significance to human normativities. If we turn to the literature on the philosophy of social science, we see that it is in fact an established maxim, for example, in anthropology that the adequate characterization of human behaviour requires the concept of moral values, action reasons, and life meanings at the individual level within an interpretive (or qualitative) framework (Risjord, 2012). Of course, the scientific naturalism literature unlike its philosophy of social science counterpart puts a qualification upon this significance, namely its being dispensable once the causal explanations of related phenomena are found through generalizations. Notwithstanding this caveat, similarity is evident between these literatures with respect to their shared view that science can utilize human normativities to make some sense of intentional human behaviour. So far so good. But from which theoretical framework does this apparent concordance result?

### **3. Motivation and Aim**

In this section we unearth the underlying theoretical framework that brings scientific and nonscientistic naturalisms together in their inference to the claim that interpretation of substantive normative values, apart from characterizing intentional human behaviour, makes no genuine

contribution to its causal explanation. Then we motivate our investigation by weakening two main assumptions of this framework. After that, we continue with the purpose of this study.

We have two important clues indicating the presence of German hermeneutic tradition, more specifically, the thought of Wilhelm Dilthey concerning the philosophical origins of interpretive inquiry, on which a rare intersection between scientific naturalism and nonscientific naturalism supported by the philosophy of social science is based. The first clue is Dilthey's (1889/1883) insight that has still been playing an important role in dichotomizing the approaches to the social sciences into exclusively positivistic, or quantitative, and exclusively interpretive, or qualitative, research. According to this assumption, interpretation of individuality in the social sciences is as important as causal explanations of human behaviour through generalizations. While the former is utilized for the purpose of understanding, the latter is useful for prediction.

The second clue is another hermeneutic assumption borrowed from John Stuart Mill that in order to genuinely explain, statements expressing the relevant laws of nature and initial conditions must be entirely true, and that the more complete and more detailed those statements are the better the scientific explanation is (Mill, 1874/1843). According to this assumption, scientific explanation is to render the phenomenon to be explained causally expectable through deduction from lawlike generalizations or inductive support from the evidence.

So, the takeaway here is that to my knowledge there is no philosophical system other than Dilthey's thought that could bring scientific and nonscientific naturalism together in a way compatible with fundamental reflections in the philosophy of social science.

We now demonstrate why these two assumptions are limited, starting with the second one. The second assumption has one significant limitation, and, for our present purposes, this limitation suffices to weaken it: the traditional conception of scientific explanation does not answer to scientific research. This is because the laws of nature supposedly needed for explanation are entirely absent in many of the social sciences. Thus, this conception of scientific explanation does not make sense of social scientific practice. And it must because what scientific and nonscientific naturalisms alike mean by 'science' covers the results of any systematic empirical research. Accordingly, when scientific naturalists claim that philosophical inquiry must be grounded in scientific results, and when nonscientific naturalists contend that philosophical investigations may benefit from scientific results, what they refer is actual scientific practice.

As is the significance of actual scientific practice for our present purposes now clear, we may turn to the weakness of the first assumption.

This weakness concerns the fact that the implied hermeneutic gap between the interpretation of substantive normative categories comprising the human agency and the causal explanation of human behaviour fails to translate to much of social science which is a model-based activity. Especially with the advent of agent-based models (ABMs) that can integrate qualitative and quantitative information in a variety of ways, this assumption has lost much of its force. Thanks to such integration, it has now become a widely held view that ABM is a methodology that provides mechanistic explanations, which are a kind of causal explanation for the social sciences (Epstein, 1999).

So, given these significant limitations of the two shared assumptions of scientific and nonscientific naturalisms, it seems justified to wonder whether the interpretation of substantive normative values does make genuine contribution to the causal explanation of social phenomena. If it does, such values would qualify as an object of scientific research. And if so, then an adequate naturalism would have to accommodate them. Otherwise, our naturalism would have been explanatorily less comprehensive, thus less adequate, compared to a naturalism with substantive normativities. What is more, this accommodation requirement would in turn have important consequences for the contemporary strands of naturalism. So, our aim in this paper is twofold. On the one hand, we want to argue that if science is the only activity that can give a complete understanding of the human world, then the proper version of naturalism must accommodate normative values, action reasons and life meanings. On the other, we want to show that, if the aforementioned thesis is true, then contemporary scientific and nonscientific naturalisms either contain a contradiction or are trivial.

Having now reviewed the background of this research, as well as elucidated its motivation and aim, we now continue with a brief discussion and justification of this paper's methodology.

#### **4. Philosophical Methodology**

The methodology I rely on in answering my main research question, "Why must an adequate naturalism accommodate substantial normative notions?", is to use science to address philosophical questions. In the philosophical methodology literature, this approach is called naturalistic.

In this study I use science in the following way. I draw on results in model-based social science, addiction science in particular, as a way of understanding how the interpretation of first-person narratives about one's everyday life, especially the meaningful and value-laden narratives about life events, constitutes an essential feature of successful causal explanation of certain social phenomena.

I particularly choose addiction science because it is a discipline in which one's normative values, action reasons and life meanings can provide us with genuine insight into phenomena of interest, and hence be genuinely



explanatory and yield robust understanding. Moreover, as to the issue of the contemporary naturalist debate over the adequate understanding of the human world, this method is agreeable to the scientific and nonscientific naturalisms alike. This is rather obvious for scientific naturalism. And nonscientific naturalisms should have no qualms about this method either because it is perfectly compatible with their view that if an empirical work has philosophical import, then related philosophical investigations may, and perhaps should, draw on it (De Caro & Macarthur, 2010).

Since we now have covered methodology as well, let us turn to the main lines of argument that support my thesis. I also consider some possible objections to my view along the way.

### **5. Main Lines of Argument**

My positive argument, which motivates the need for a conception of naturalism that can seriously consider the substantial normativity of human life, consists of eleven lines. Let us start with the first line.

Suppose that science is the only path to a genuine understanding of human or social worlds. This assumption is easy to suppose for scientific naturalists such as Rosenberg, Searle and Kornblith because it is a fundamental part of the methodological doctrine of their conception of naturalism. It is important to note two qualifications about this assumption. First, it does not correspond to scientism, which is an “exaggerated trust in the efficacy of the methods of natural science applied to all areas of investigation (as in philosophy, the social sciences, and the humanities)” (Merriam-Webster, n.d.). So since, as mentioned in the background section, this paper’s use of the term ‘science’ covers the natural and social sciences, as well as the humanities driven by empirical evidence, we should avoid conflating this claim and scientism. Second, this paper’s use of ‘science’ indeed corresponds to the scientific naturalists’ conception of science (Rosenberg, 2009) with the advantageous caveat that it is free from the metaphysical baggage theirs carry, e.g., the unity of science hypothesis. Let us proceed with the second line of this argument.

Now, it is either that (i) a scientifically robust description of human agency must refer to normative standards that derive from meaningful and value-based everyday life, or that (ii) such normative notions are just a heuristic for analyzing human behavior. One objection against this claim may be that in addition to (i) and (ii), there may be other alternative functions of substantial normative notions that are worth considering in relevant contexts. Or that they might have no function at all. Notwithstanding, insofar as these notions do have a function, the possibility that they might have a function not properly captured by this claim does not constitute a serious objection. My point is that these notions broadly construed are either essential for a more complete characterization of

human behaviour or that they at most help generate alternative hypotheses for analyzing human behaviour. Indeed, it would rather be a pressing objection if, scientifically speaking, they were completely useless. But, again, as mentioned in the background section, at least in certain contexts within sociology and anthropology, it is in fact a rule of thumb that understanding human behaviour requires something like the concept of normative standards. And to my knowledge the claim that normative standards are scientifically useless are neither implied by the results of actual scientific practice, nor there is a strong argument against the scientific use of such notions in the context of philosophy. So far so good.

Let us now focus on (i): so, if it is true that normative standards must figure in an adequate description of agency, it implies that they must also figure in a successful scientific explanation of related social phenomenon or an outcome of human action. Otherwise, how could we genuinely explain each outcome of human action without even once utilizing the essential concepts that constitute the general category of human? Think of it this way. If a characterization of human agency is incomplete without such normativities, say, in a certain research field in addiction science, then we would not be able to genuinely explain addictive behaviour to certain substance without incorporating substantive normative notions as parameters or mechanisms into our discussion.

We now proceed with the fourth line which comprises (ii). If it is true that human normativities are only of exploratory use for analysis purposes, it implies that they must enter into consideration for an adequate understanding of the target phenomenon after all. This is because researchers can use them, for example, as a placeholder to generate alternative explanatory hypotheses until they reach a more comprehensive understanding of the phenomenon.

So, our intermediary conclusion is that in either case, that is, (i) or (ii), science can, and perhaps must, utilize individual values, reasons, and meanings to make some sense of or explain social phenomena. This is a promising start.

Now, the line of reasoning so far pursued is seamlessly transferrable to the contemporary naturalist debate about the proper description of human worlds. In fact, nonscientistic naturalists, liberal naturalists to be more exact, appeal to the aforementioned intermediary conclusion as the *modus tollens* of scientific naturalism. More specifically, nonscientistic naturalists argue that if science is equipped to explain whole of reality, then it must employ substantial normative notions for explanation; yet since such notions cannot figure in scientific or causal explanation, science cannot explain whole of nature. Scientific naturalists in return turns this *modus tollens* into *modus ponens* to argue against the reality of such normativities. Thereafter the primary focus of the debate among nonscientistic naturalists

shifts toward the question of which conception of philosophical naturalism is the most effective in allowing us to count real the value-laden, meaning-saturated aspects of the world we inhabit. This debate concerns the need for recourse to some interpretive framework to understand the value we find in the world.

The direction of this latter debate seems to me unmotivated due to the hand-waviness of the initial debate between scientific and nonscientific naturalists. That is, neither scientific nor nonscientific naturalists in the first place *try to show* that no interpretive framework of human normativities can be explanatorily useful or that substantial normative notions cannot be an object of scientific research. This is rather taken for granted. But perhaps we are too hasty in dismissing outright the explanatory importance of normative values, action reasons and life meanings.

At this point we arrive at the seventh line: it is evident that successful treatment of explanatory importance of substantial normative notions in understanding certain social phenomena is a prerequisite for more adequate naturalist account. This point is important because no adequate naturalism can be developed without first directly tackling the issue of the explanatory usefulness of individual normativities within science through a methodology that is satisfactory to both scientific and nonscientific naturalisms in order not to talk pass each other. This is in part because determination of this issue in such a way may suffice to justify the boundaries separating different conceptions of naturalism without falling prey to metaphysical disputes such as the reducibility of anthropology to physics which are shunned by most streams of naturalism. If such normativity is indispensable to scientific explanation of a certain phenomenon, the line between non-reductive and liberal naturalism might become fuzzy for example. Or, if it is not, then how should we conceive the difference between liberal and religious naturalisms in a principled way?

However, no contemporary conception of naturalism reports an in-depth investigation of this issue. Scientific and liberal naturalists assume that values have no explanatory force because they lack causal powers or because the structure of the normative accounts of scientific explanation such as deductive-nomological model or causal mechanical model cannot capture them. Near-naturalists and expansive naturalists however assume that one aim of science is to produce a value-free, third-person, entirely objective image of the world as a result of which science has nothing to do with values. So, the former two views eschew this issue as obsolete, while the latter two interpret it differently to expand the concept of nature (Ellis, 2014).

Yet the issue is neither obsolete nor does beg for a different interpretation, if we turn to detailed philosophical examinations of

scientific practice which is, as mentioned, perhaps the only strategy agreeable to all brands of naturalism. Turning to actual scientific practice allows us to realize that deductive nomological and causal mechanical models of explanation associated with Mill (1874/1843) (and Hempel (1965)) and Salmon (1984), respectively, are not applicable to wide range of scientific research because much of science is model based and models are full of idealizations and abstractions. There is no one normative philosophical account of explanation that fits all areas of scientific research. Much research investigates highly complex phenomena that can be approached from numerous theoretical perspectives of varying nature. One such method is ABM prevalent in social scientific research. In the field of substance abuse prevention, for example, ABMs can develop successful causal explanations through value-based normative standards (Agar, 2004). Indeed, such norms are essential for explanatory purposes in this discipline because, in the absence of first-person understanding of reasons, meanings and values that in-depth interviews with substance users can provide, the ability of ABMs to capture relevant mechanisms and generate explanandum phenomena bears little or no explanatory value (Tubaro & Casilli, 2010).

In short, no incorporation of value, meaning or reason-based interpretive data into these models means no adequate description of related social phenomenon, which in turn means no robust characterization of mechanisms responsible for the phenomenon, hindering successful explanation that would otherwise be possible. So, the takeaway is when augmented by ethnographic data derived from a first-person understanding of substantial normative concepts, ABMs analyze norms as a plausible causal explanatory mechanism making sense of related phenomena. That is, by bringing interpretation into scientific practice ABMs provide causal explanations. And, as its name suggests, first-person understanding is indeed a value-laden perspective.

Let us now see a bit more details about this process. First, relevant details about how ABMs in much of social science work. ABMs work by identifying and characterizing social mechanisms that connect agents, actions and outcomes first and then bridging the micro, meso and macro levels of analysis. In addition science in particular, substance users' values and reasons, including how their moral values change, what the different reasons for such change are, or how their conception of meaningful activity evolve through life, are collected from each individual agent by interpretive methods and captured by ethnographic field data, whereby researchers gain a first-person, empathetic understanding of the significance of the relevant norm for the explanation of the macrolevel phenomenon. Then these norms along with other relevant social mechanisms that are also empirically corroborated are represented by the model to dynamically generate and thus explain the substance abuse phenomena.

What is important for our purpose here is that these norms have explanatory power at the macrolevel due to their being grounded in a precise interpretation of individual values and motives for action at the individual level. Even so that without interpreting the agents' first-person perspective, researchers would not be able to judge which characterization of a mechanism is relevant to their research question, resulting in a failure to connect actors, actions and outcomes. In addition, if the computer simulation of the concepts do not interact as the normative content of the same concepts does in the ethnographic interpretation, the actors would not genuinely reflect what they are supposed to represent, resulting in an invalid generalization whereby hindering the link between micro, meso and macro levels. In short, ABMs cannot properly function in addiction science without a broad interpretive framework that assists model-building and helps define research questions, identifies individual behavioral rules and patterns of inter-individual interaction, and compares results from simulations and fieldwork.

I now draw on three related ABMs to illustrate how norms that derive from a first-person interpretation of the value change, reason change, and meaningful activity change of substance users at the individual level are indispensable to the explanatory social mechanisms that dynamically generate the explanandum phenomenon (Moore et al., 2009; Lamy et al., 2011; Hoffer et al., 2012).

The anchor that ties these three studies is that they develop three related ethno-epidemiological data driven models of social and environmental agents, that is, ABMs that include both biologically motivated and socially meaningful behaviour for explaining the complexity of substance addiction. The process of developing models in all three studies is guided by the same two principles, the logic of which is already mentioned above. In all three studies, ethnographic research describes substance addiction from individual perspectives, roughly focusing on the question, "How did young substance users conceptualize the balance between the benefits of their drug use and any associated harms?" (Moore et al., 2009, p. 1993). In all three studies, interpretation of interviews with individual agents suggested to researchers that substance users move through distinct stages of involvement in substance use depending on their change in moral values, in appraisals of their reasons for certain course of action, and in life meanings.

Related to this last point, the important thing is that by encapsulating these normatively-based components and capturing their inter-evolutions over time, the ABMs have been developing a robust framework for successfully exploring explanatory mechanisms of the phenomenon of substance abuse. And in these three studies one such mechanism is

grounded in the change in normative perspectives of individuals, without which a more accurate representation of phenomena would be lacking. So, these three studies are crucial for our present purposes because they develop a framework for synthesis of interpretive and quantitative data for predicting and reducing substance harms through ABMs that integrate ethno-epidemiological data.

Hence, it is now clear that the proper construal of naturalism must consider the explanatory significance of substantive normativities. So, we can finally bring this line of reasoning to its logical end: if science is the only path to a genuine understanding of the human world, adequate version of naturalism must accommodate the explanatory force of these normativities. Good. But what is the upshot of this conclusion? Here it is: according to the results of actual scientific practice, substantive normative notions appear as an essential feature in causal explanations of a complex phenomenon and are an object of scientific research. This insight is important precisely because no dominant variety of naturalism could genuinely accommodate it. Let us now see how this is so.

As a matter of doctrinal commitment, even the most relaxed version of scientific naturalism, namely nonreductive naturalism, denies that we need recourse to some kind of interpretive framework to explain an outcome of human action (Kornblith, 1994). Then nonreductive naturalism rejects the explanatory significance of value-based norms. But, since the scientific versions of naturalism including nonreductive naturalism by its standard definition adhere to the view that science is the only path to a genuine understanding of human worlds, this paper's conclusion, that is, if science is the only path to a genuine understanding of the human world, then the adequate version of naturalism must accommodate the explanatory force of these normativities, entails that scientific naturalisms must also adhere to the explanatory significance of such norms, which results in a contradiction. Hence, given this conclusion, the scientific brands of naturalism contain a contradiction.

For they do not commit to the doctrine that only science yields a genuine understanding of human worlds, liberal naturalism, near-naturalism and expansive naturalism could coherently accommodate this conclusion. Yet if these nonscientistic varieties of naturalism do so, they will take one big step toward committing to the claim that the methods and procedures of science are in principle equipped to explain human life, which is a characteristic thus a constitutive principle of scientific naturalism. Here the rub lies in the main motivation of these nonscientistic projects: the explanatory insignificance but interpretive significance of values, meanings and reasons.

More specifically, any commitment to an interpretively grounded explanatory importance of these categories would render the nonscientistic

naturalisms so close to a scientific one, whereby the nonscientific projects would lose their inceptive motivation, and *ex hypothesi*, become trivial metaphysical theses. However, unless they commit to it, their main tenet that values, reasons and meanings understood as normative standards cannot appear as part of the content of causal explanations and be objects of scientific research will turn out to be false.

Therefore, nonscientific naturalisms unlike their scientific counterparts have an additional option: instead of living with a contradiction, they may choose to become trivial. All in all, none of the six main brands of naturalism can genuinely be considered as an adequate naturalism. Okay, but where do we go from here? We now conclude this paper with implications for future studies of philosophical naturalism.

#### **6. Future Research and Conclusion**

There have been collaborative attempts in various branches of philosophy excluding general philosophy of science as to how to find desiderata to constrain the ways in which we might engineer our conception of philosophical naturalism. As this research indicates, we might actually benefit greatly from the philosophy of science literature in general in reconsidering our doctrinal commitments concerning naturalism, and vice versa, if we consult the results of actual scientific practice.

Moreover, since there is now, for example, mixed methods research in social science by which interpretive and causal research comes together, the hermeneutic gap between explanation and interpretation (or understanding) might not be as wide as it was conceived in the end of nineteenth and the beginning of twentieth century by nonpositivistic thinkers. Again, turning to actual scientific practice with a philosophical eye might help us reconceive this relation as well. Finally, as it is legitimate to ask the source of our normative values, it is legitimate to ask the source of our philosophical views. All our philosophical ideas ultimately go back to a theoretical framework which may or may not currently be in use. Acknowledging how that framework evolved through time may help us update our philosophical ideas, which, in turn, might shed a new and pressing light on the theory itself.

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