Pluralists about Pluralism? Different Versions of Explanatory Pluralism in Psychiatry.

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Abstract: In this contribution, I comment on Raffaella Campaner's defense of explanatory pluralism in psychiatry (in this volume). In her paper, Campaner focuses primarily on explanatory pluralism in contrast to explanatory reductionism. Furthermore, she distinguishes between pluralists who consider pluralism to be a temporary state on the one hand and pluralists who consider it to be a persisting state on the other hand. I suggest that it would be helpful to distinguish more than those two versions of pluralism – different understandings of explanatory pluralism both within philosophy of science and psychiatry – namely moderate/temporary pluralism, anything goes pluralism, isolationist pluralism, integrative pluralism and interactive pluralism. Next, I discuss the pros and cons of these different understandings of explanatory pluralism. Finally, I raise the question of how to implement or operationalize explanatory pluralism in scientific practice; how to structure the "genuine dialogue" or shape "the pluralistic attitude" Campaner is referring to. As tentative answers, I explore a question-based framework for explanatory pluralism as well as social-epistemological procedures for interaction among competing approaches and explanations.

1. Introduction.

In her paper *Explanatory Pluralism in Psychiatry: What Are We Pluralists about, and Why?* Raffaella Campaner presents a convincing defense of explanatory pluralism in psychiatry with a primary or main emphasis on what explanatory pluralism is in contrast to explanatory reductionism, be it reducing to the biological or psychological or social level – thus, eschewing hard reduction and hard emergence (cf. Kendler 2008, p. 700). In this contribution, I briefly revisit some of Campaner's examples of plurality and pluralism in psychiatry (section 2) and then I shift the focus to the variety of understandings of explanatory pluralism, explicating different versions of pluralism (section 3). In section 4, I discuss the pros and cons of these different versions of explanatory pluralism. Finally, in section 5, I raise the question of how to implement or operationalize explanatory pluralism in scientific practice; how to structure the "genuine dialogue" or shape "the pluralistic attitude" that Campaner is referring to in her paper. The overall aim of my contribution is to shift the focus from pluralism as a critique of reductionism towards analyzing the different existing versions of pluralism in science and how to implement them.

2. Plurality in psychiatric practice and the challenges it poses.

Analyzing plurality in psychiatry, Campaner starts with discussing several studies that have been performed about how models of psychiatric disorders are actually employed in medical practice by trainee psychiatrists, medical students, health professionals, service users and practitioners in psychiatry (cf. Harland et al. 2009, Brog and Guskin 1998, Colombo et al. 2003, and, Miresco and Kirmayer 2006). The different approaches to studying mental disorders are labeled as biological, cognitive, behavioral, psychodynamic, social, etc. These approaches are playing on *different levels,* within *different disciplinary fields,* e.g., epidemiology, psychology, neurology, genetics, or socio-economic inquiries, involving *different kinds of evidence*, e.g., biomolecular research, epidemiological studies, or first-person reports, and, *different focuses*, e.g., on populations, subclasses of populations, or individuals.

The studies teach us something about the existing plurality of models in psychiatry and the variety in use among current and future practitioners. We learn that even though the biological model might be the most strongly endorsed, model endorsement varies with disorder considered, so there is no exclusive commitment to any one model. Further, different health professionals and service users, i.e. psychiatrists, community psychiatric nurses, social workers, patients and informal caregivers, embrace different etiological models of disorders. In general, psychiatrists and psychiatric nurses were more in favor of the medical approach, while social workers in general tended to endorse the social model. Among patients there was a higher heterogeneity. The studies also show how the old mind-brain dichotomy is still alive and well, often unacknowledged, as well as the impact it has on attributions of personal responsibility.

The challenges this plurality poses for psychiatry are manifold. Adopting one of the models of disorders without being aware of it does seem to be far from optimal and might have dire implications. Employing different implicit explanatory models might, for instance, lead to conflicting assumptions that create misunderstandings (in communication, diagnosis and treatments) among psychiatric practitioners and other professionals in health care, as studies show (e.g, Colombo et al. 2003).

A first important step is then to make the different implicit models explicit. Given the real implications they have, undoubtedly informing diagnosis, treatments, prevention strategies and other substantial decisions, this is crucial. Making the implicit models explicit will increase awareness of the different models at play, improve communication and lead to more consistency in dealing with mental health problems in practice.

Secondly, once the different models at play are made more explicit and users are aware of the existing plurality, the challenge is how to deal with the plurality in the best possible way – a challenge for both researchers and practitioners. Does the plurality have to be – and can it be – resolved? If not, and we would normatively endorse plurality and advocate pluralism, then how should that pluralism be understood or characterized? And how could it be implemented? Those are the questions that will be addressed in the following sections.

3. Different ways of dealing with plurality – contending versions of pluralism.

3.1. Explanatory pluralism versus explanatory reductionism.

Campaner addresses the questions just raised by discussing several pluralistic stances put forward in the elaboration of models of diseases and their explanation. She focuses in particular on the work of Dominic Murphy, Kenneth Kendler and John Campbell. Their accounts of explanation have several aspects in common, as Campaner notes, namely that they include multiple explanatory levels, avoid exclusive reduction to the biological level and acknowledge the irreducible role higher level explanations might play. This is one aspect of Campaner's characterization of explanatory pluralism, namely: "a. different sorts of explanations can be employed which identify causal factors at some specific level (e.g. neurobiological; psychological; socio-economic; …); they are compatible and can be integrated with one another." (Campaner, this volume) The second aspect of explanatory pluralism that Campaner highlights, is: "b. different general conceptions of what "to explain" amounts to can be embraced in the search for psychiatric explanations (e.g. exemplar-based; mechanistic; interventionist; …), which can be combined." Thus, Kendler's mechanistic account of explanation, Murphy's exemplar-based account and Kendler and Campbell's interventionist account can all be embraced and combined. The pluralist can emphasize that each of these accounts of explanation has its specific strengths and capabilities, as Campaner illustrates.

Thus, this characterization of explanatory pluralism shows how it is clearly opposed to explanatory reduction. First, there is no a priori privileged level of explanation. For instance, even though mental disorders might ultimately be expressed in the brain, the neurobiological level is not necessarily always the most appropriate level at which to explain a disorder. Second, there is not one correct way of providing explanation that should be the standard for all explanations; different general conceptions of explanations, e.g. mechanistic, interventionist, exemplar-based, should be considered and appreciated for their respective strengths. Campaner articulates what the advocates of explanatory pluralism have in common and contrasts it with reductive approaches. Next, she raises a question that might be the starting point to discuss different versions of pluralism, starting to highlight differences among explanatory pluralists, between understandings of explanatory pluralism.

3.2. Different understandings of explanatory pluralism.

Campaner raises the question whether the existing plurality is: (1) considered as eventually resolvable, i.e. explanatory pluralism is "only the acknowledgement of the existence and toleration of a diversity of current explanatory theories" and in the long run a complete explanatory picture will emerge, or, (2) is it rather "the idea that distinctive views will persist in the long run" and that a single, complete explanatory picture is very unlikely to emerge? In this section, I elaborate that it would be helpful to distinguish more than those two versions of pluralism, i.e. more than two different understandings of explanatory pluralism both within philosophy of science and psychiatry. I distinguish five different versions, namely *moderate/temporary pluralism, anything goes pluralism,*

isolationist pluralism, integrative pluralism and *interactive pluralism.* The first four of them are discussed by Sandra Mitchell (2009) and the last version of pluralism is mine.[1]

Moderate pluralism advocates to *"recognize and promote a temporary plurality of competing theories as means toward achieving unity of science in the long run."* (Mitchell 2009, p. 108). It is this version of plurality and pluralism Campaner refers to as temporary and resolvable. Mitchell herself cannot subscribe to this form of pluralism, as it eventually wants a single, true unified theory, (a monist goal) and this does not dovetail with the ontology of complex systems in which the multilevel structure encourages focused analysis at each level.

Next, Mitchell distinguishes *anything goes pluralism* that represents "the advocacy of retaining all, possibly inconsistent, theories that emerge from a community of investigators." (Mitchel 2004, p. 85) Just like reducing a collection of analyses of the same phenomenon to one single model or theoretical framework, Mitchell finds retaining all theories that emerge equally unacceptable and not supported by actual scientific practice (Mitchell 2009, p.108). Instead, she wants to explore the middle ground between monism and anything goes where she distinguishes integrative pluralism from isolationist pluralism.

Mitchell herself advocates *integrative pluralism* (cf. Mitchell 2002, 2004, 2009).[2] Integrative pluralism takes into account both today's highly specialized (sub)disciplinary research and the need of integrating the respective findings concerning a phenomenon: "Developing models of single causal components, such as the effects of genetic variation, or of single-level interactions, such as the operation of selection on individuals (...) need to be integrated in order to understand what historical, proximal, and interactive processes generate the array of biological phenomena we observe. Both the ontology and the representation of complex systems recommend adopting a stance of integrative pluralism, not only in biology, but in general." (Mitchell 2004, p.81). However complex, and however many contributing causes participated, there is only one causal history that, in fact, has generated a phenomenon to be explained. Thus, according to Mitchell's integrative pluralism, "it is only by integration of the multiple levels and multiple causes (…) that satisfactory explanations can be generated." (Mitchell and Dietrich 2006, p. S78)

Mitchell opposes her integrative pluralism to *isolationist pluralism* or *"levels of analysis" pluralism.* According to this understanding of explanatory pluralism different questions invoke different explanatory schemata, and there is no need to consider explanations developed at levels other than their own or for intertheory relations among the levels. This limits the interaction between various theories offering explanations in a given domain and leads to isolation, according to Mitchell. "If there is no competition between levels, there need be no interaction among scientists working at different levels either. The problem with the isolationist picture of compatible pluralism is that it presupposes explanatory closure within each `level of analysis' and a narrowness in scope of

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[1] For other taxonomies of pluralism, see, e.g., Kellert, Longino, Waters (2006) and Van Bouwel (2009).

[2] It should be noted that the idea of (the possibility of) integration also appears in the first part (a.) of Campaner's characterization of explanatory pluralism (see section 3.1. above). Second, one of the authors discussed by Campaner, Kenneth Kendler, approvingly refers to Mitchell's integrative pluralism (cf. his 2005, p. 437).

scientific investigation that precludes the type of fruitful interactions between disciplines and subdisciplines that has characterized much of the history of science." (Mitchell 2004, p. 85)

There is (at least) one possible understanding of pluralism that Mitchell does not discuss and that I want to introduce here. Let us label it *interactive pluralism*. It is situated in between integrative and isolationist pluralism, as: (a) on the one hand, it claims that satisfactory explanations can also be obtained without integrating of multiple levels, so there is no integration imperative, and, (b) on the other hand, it does not discourage interaction as, in some instances, interaction and integration do lead to better explanations.

Placed on a continuum going from monism to *anything goes* pluralism, we thus have monism, moderate pluralism, integrative pluralism, interactive pluralism, isolationist pluralism and *anything goes* pluralism. This ordering reflects increasing strength of the pluralist position. All five versions of what explanatory pluralism is or should be will answer differently on the questions raised at the end of section 2 – and therefore it is important to go beyond the two versions of pluralism articulated by Campaner. In the next section, I will raise some questions about the three versions of pluralism that cover the middle ground between moderate/temporary pluralism and *anything goes* pluralism. This also gives us the opportunity to articulate some important differences.

4. Questioning and evaluating the different understandings of explanatory pluralism.

Having spelled out different possible understandings of explanatory pluralism, I would now like to discuss the question of whether any of these versions of pluralism is more convincing than the other ones. Below, I briefly raise some challenges concerning integrative and isolationist pluralism, and emphasize the benefits of interactive pluralism.[3]

4.1. Questioning Integrative Pluralism.

A first question concerning integrative pluralism asks whether integration is always necessary to obtain a 'satisfactory explanation', as Mitchell claims. Straightforward reduction might sometimes lead to very satisfactory explanations efficiently serving our explanatory interest (cf. Van Bouwel et al. 2011).[4] Integration might very well be a good heuristic advice or play a justificatory role, but why should it be a criterion for a satisfactory explanation?

Second, won't integrated explanations often provide us with too much information and therefore be less efficient in providing the answers we are looking for, in answering our explanation-

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[3] For a more extensive discussion and evaluation of different versions of pluralism, also see Van Bouwel (2009) and Van Bouwel (forthcoming).

[4] I use (a trade-off between) *accuracy*, *adequacy* and *efficiency* here as criteria to evaluate what a *satisfactory explanation;* (a) *accuracy* concerns the relation with reality, precise description, (b) *adequacy* refers to what the explainee expects from the explanation addressing the explanatory interest, and (c) *efficiency* points at the amount of work and/or information needed for the explanation (also see section 5.1, below).

seeking questions?[5] In his book *The Rise and Fall of the Biosychosocial Model*, Nassir Ghaemi (2010), discusses how this model for psychiatry included the idea that adding and integrating "more perspectives is always better". Eventually the approach was made unfeasible and uninteresting in practice by being too general and too vague. A similar evaluation has, for instance, been made about the developmental systems approach in studying human behavior (cf. Longino 2013). Integrative pluralism insufficiently acknowledges that explanations are always a trade-off between generality and preciseness, simplicity and realism, accuracy and adequacy, etc., depending on one's explanatory interests. Integrative explanations might be sometimes far too cumbersome, less efficient, and less adequate than possible alternative explanations.

Third, could the demand for integrated explanations not lead to losing *idioms/adequacy* in light of our explanatory interests, thus losing the capacity of answering some explanation-seeking questions in the most adequate way (*i.a.* strengthening hermeneutical injustice)?

Fourth, what would the integration imperative imply for *heterodox,* non-mainstream theories? What is the impact on the dynamics between research approaches? Think in particular about situations in which there is epistemic inequality, in which one research program at one level is a lot bigger and more elaborated than another one at another level and where integration risks minimizing dissent, overlooking diversity, eliminating differences and/or a homogenization in terms of the bigger one.[6]

4.2. Questioning Isolationist Pluralism.

A first question that should be raised concerning isolationist pluralism, is this: Does isolation always lead to better explanations? And, second, how can we know given the lack of competition between explanations coming from different approaches within this version of pluralism? According to Mitchell's characterisation of this position, the idea that some questions are better answered on one level and others on another leads to an isolationist stance with respect to the separate questions. Now, if there is no interaction or no intention of competition between levels, then there need be no interaction between scientists working at different levels either. Thus, this form of pluralism does not do much more than acknowledging plurality; it does not suggest any way of making the plurality epistemically as productive as possible.

Third, why do isolationist pluralists presuppose that interaction cannot be productive, while it is evident that fruitful interactions between (sub)disciplines have characterized much of the history of science as Mitchell mentions?

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[5] Note that the use of *efficiency* as a criterium is also present in Kendler's work: "Although humiliation is ultimately expressed in the brain, this does not mean that the basic neurobiological level is necessarily *the most efficient level* at which to observe humiliation" (Kendler 2005, p. 436)

[6] I think it is important to pay attention to the dynamics between different approaches and the scientific. Mitchell does not pay enough attention to this aspect in defending her integrative pluralism. As I argued before (cf. Van Bouwel 2013, p. 417), given that reductionism is one of the main targets of Mitchell (2009)'s work, it might be insightful to study *all* possible factors at play in sustaining reductionist research (e.g., genetic research in the health business) rather than nonreductionist alternatives, like environmental health research; it might not merely be because of the wide-spread spirit of Newtonianism that reductionism still flourishes? Moreover, if Mitchell wants to plead for more nonreductionist research in combination with the integration imperative (very likely benefitting the bigger players), it seems indispensable to understand the role of values in the selection and formulation of research questions as well as how to foster valuable alternatives to the mainstream research programs.

Fourth, as concerns the dynamics between research approaches, isolation, a lack of interaction between the mainstream/orthodoxy and the heterodoxy, e.g. in economics, seems to create a very static, non-productive situation in which, on the one hand, the traditional heterodoxy is aiming to become the new monist, the new mainstream, substituting the current orthodox one, while on the other hand, the orthodoxy or mainstream considers the heterodoxy as a constitutive outsider that proves the scientific status of the orthodoxy or mainstream (cf. Van Bouwel 2009).

4.3. Questioning Interactive Pluralism

Interactive pluralism, the possibility not discussed by Mitchell, might be a third option that avoids some of the worries about integrative and isolationist pluralism. Why?

First, where there is a presumption of reconcilability with integrative pluralism, and irreconcilability in isolationist pluralism, interactive pluralism considers the ir-/reconcilability to be an open question. In-depth analyses of scientific practice teach us that competing approaches often do not parse causal space in the same way (cf. Longino 2013). This is problematic for Mitchell's advocacy of integrative pluralism and its presumption of reconcilability in integrating multiple approaches in order to obtain the (one) causal history of the phenomenon to be explained.

Second, interactive pluralism questions whether integration would always lead to a better explanation as well as whether integration is necessary to obtain a 'satisfactory explanation'. As concerns the former, integrative explanations might sometimes be too general, vague and cumbersome, i.e., not always the most efficient. Mitchell does not take into account the adequacy and efficiency criteria in stipulating what is the most satisfactory explanation. As concerns the latter claim that integration would be necessary to obtain a satisfactory explanation, I mentioned above that we should rather consider the trade-off between accuracy, adequacy and efficiency of explanations in labelling what is 'satisfactory'. Always focusing on integration, irrespective of one's precise explanatory aims and needs in a given context, would — if even possible — unnecessarily complicate matters and even paralyze research and decision-making.

Third, even though integration is not imperative, interactive pluralism rejects isolation and endorses interaction and engagement, be it without the presumption of always reaching a consensus or an integration. Some (but definitely not all!) explanation-seeking questions might require a combination, integration or cooperation of models in order to address our explanatory interests as well as possible. The respective explanation-seeking questions can be channels of interaction between competing research programs. The interaction does not have to lead to integration, it might just help to refine the respective approaches as well as articulate the strengths and limitations of each of them.

Fourth, contrary to integrative pluralism, the mainstream and non-mainstream approaches start on equal footing. Even for heterodox approaches that cannot be easily integrated, the interaction with orthodox or other heterodox approaches is endorsed, because approaches are sharpened as a response to challenge and criticism, methodologies refined, concepts clarified, etc. Moreover, the interaction between explanatory approaches might also make the limitations of each approach evident by the articulation of questions that they are not designed to answer.

5. Philosophical frameworks for explanatory pluralism.

In section 2, we mentioned some of the forms of plurality one encounters in psychiatry as well as the problems that may cause. The challenge is to find productive ways to deal with this plurality. Campaner talks of promoting "a genuine dialogue between different standpoints" as well as "a pluralistic attitude". It raises the question of how to implement or operationalize explanatory pluralism in scientific practice; how to structure a "genuine dialogue" or shape "the pluralistic attitude"? A discipline might show plurality while all the individual researchers (or practitioners) are monist. Is the discipline in that case really subscribing to explanatory pluralism, making the best of the existing plurality? I do not think so. Therefore, in this last section, I would like to offer some philosophical tools or frameworks that might be helpful in implementing pluralism. First, on the basis of my research, mainly concerning explanatory pluralism in the social sciences, I have developed a framework for understanding explanatory pluralism which can help to elaborate some of the points made by Campaner about explanatory pluralism, as I will argue in section 5.1. Second, I suggest that another way to get more concrete about what a "genuine dialogue" would look like are Helen Longino's CCE-norms for critical interaction, which I will discuss in section 5.2.

5.1. A framework for explanatory pluralism.

On the basis of my analysis of actual scientific practice, mainly in the social sciences, I developed a framework for understanding explanatory plurality in scientific practice (see, e.g., Van Bouwel and Weber 2002, Weber and Van Bouwel 2002). The framework works as a tool to (a) *make the explananda as explicit as possible*, and (b) pay attention to the *underlying explanatory, epistemic interests*. This is imperative for clarifying discussions about competing explanations: there are many cases where two explanations of the same phenomenon are perceived as competitors, but actually have different *explananda*. The framework employs the erotetic model of explanation that regards explanations as answers to why-questions. Making the explananda as explicit as possible as well as paying attention to the different epistemic interests, can be achieved by explicating the explanation-seeking questions and their logic.

Analyses of explanatory practice in science teach us that different explanation-seeking questions or requests should be distinguished. I do not consider the questions and motivations mentioned here as the only possible ones, but I do believe they are omnipresent in scientific practice. At least five types of explanatory questions can be distinguished:

> (E) Why does x have property P, rather than the expected property P'?
> (I) Why does x have property P, rather than the ideal property P'?
> (I') Why does x have property P, while y has the ideal property P'?
> (F) Is the fact that x has property P the predictable consequence of some other events?
> (H) Is the fact that x has property P caused by a familiar pattern or causal mechanism?

First, explanation-seeking questions can require the explanation of a contrast, e.g., of the form (E), (I) and (I'). Contrastive (E)-type questions, for instance, can be motivated by surprise: things are otherwise than we expected them to be and we want to know where our reasoning process failed

(which causal factors did we overlook?). Contrastive questions of type (I) and (I') can be motivated by a therapeutic or preventive need; they request that we isolate causes which help us to reach an ideal state that is not realised now, comparing the actual fact with the one we would like to be the case (therapeutic need) or to prevent the occurrence of similar events in the future (preventive need).

The form of a *contrastive* explanation (i.e., an answer to a contrastive question) enables us to obtain information about the features that differentiate the actual causal history from its (un)actualized alternative, by isolating the causes that make the difference. This information does not include information that would also have applied to the causal histories of alternative facts.

Second, non-contrastive explanation-seeking questions, concerning plain facts, like (F) and (H), are also omnipresent in science. These non-contrastive questions can have different motivations. One possible motivation is sheer intellectual curiosity, with a desire to know how the fact "fits into the causal structure of the world" or to know how the fact was produced from given antecedents via spatio-temporally continuous processes. A more pragmatic motivation is the desire for information that enables us to predict whether and in which circumstances similar events will occur in the future (or the anticipation of actions of persons/groups). Another possible motivation concerns causally connecting object *x* having property *P* to events we are more familiar with.

The form these explanations of *plain facts* (answers to non-contrastive questions) have, shows how the observed fact was actually caused, which implies providing the detailed mediating mechanisms in a (non-interrupted) causal chain across time, ending with the explanandum. Alternatively, answering to the second motivation, the explanation can follow a covering law/law-based model.

By making the different possible explanation-seeking questions explicit, the motivation – explanatory interest – and the explanatory information required will be taken into account. Given that one phenomenon can be the subject of different questions, and that we want to answer these different kinds of explanatory questions in *the best possible way,* different forms of explanation are indispensable. In order to decide on *the best possible way*, we consider (trade-offs between) the criteria (a) *accuracy* or relation with reality, precise description, (b) *adequacy* in relation to what the explainee expects from the explanation addressing the explanatory interest, and (c) *efficiency* or amount of work and/or information needed for the explanation. To clarify these criteria and the idea that there often is a trade-off between them, let us compare explanations with maps. A subway map like the one of the Paris Metro is *adequate* for its users because it *accurately* represents specific types of features (e.g. direct train connections between stations, number of stations between two given stations, …) while other features are deliberately represented *less accurately* (the exact distances between the stations, the relative geographical orientation of the stations, …). If the latter would be represented more accurately, the map could become less *adequate* for its intended users and a perfectly accurate representation mirroring every detail would be utterly useless. Furthermore, one could make the map more accurate, less adequate (without being completely inadequate), but also a lot less *efficient* in use (e.g. by making it less abstract, providing more cumbersome, obsolete information or by being too demanding or complicated to use). Other maps (e.g. Paris' shopping or tourist attractions maps) require other kinds of information (relating to, e.g., distances, details about street names, house numbers, etc.) in order to be useful – the best trade-off between accuracy, adequacy and efficiency differs depending on the interests or desiderata at play. Thus, on the one hand, because of different interests or desiderata, it is impossible to make a map that is ideal in all

possible situations. On the other hand, not all maps are equally good, as one can make claims of superiority that are bound to specific situations. The same can be said for forms of explanation.[7]

To sum up, an explanation is an answer that should be evaluated in relation to a question that is a specific request for information. The precise meaning of the question is therefore important. Making the explanation-seeking questions as explicit as possible may show that, given that explanatory interests and contexts select distinct objects of explanation, a social phenomenon can be subject of very different explanation-seeking questions. Consequently, different answers/explanations are required in which the most *accurate*, *adequate* and *efficient* explanatory information (in relation to the explanatory interest) is provided. Thus, different forms of explanation on different levels are indispensable to answer the respective explanation-seeking questions in the best possible way.

Returning to the plurality discussed by Campaner, a framework such as the one just presented explicating the logic of explanation-seeking questions is a way to compare competing explanations and to raise awareness about plurality. Different models are helpful in addressing different questions; one model may describe some facets extremely well, while making abstraction of, or even distorting, other facets – facets that might be the focus of other models. Explaining why person P is alcohol-dependent, for instance, might then lead to distinguishing explanations-seeking questions such as: (a) Why is person P addicted to alcohol, while person Q, who also drinks alcohol regularly, is not?; (b) Why does person P drink 10 units of alcohol per day, rather than 2 units?; (c) Was person P's alcohol addiction predictable?; (d) Are people like person P often addicted to alcohol?[8] Besides making the differences between explication-seeking questions explicit and, as such, helping to see what different kinds of causal information are required, the framework also highlights the different epistemic, explanatory interests underlying the explanation-seeking questions, be it prevention and public health, individual therapy, curiosity, etc. Different actors in the psychiatric context, e.g., clinical researchers, basic behavioral researchers, public health services, etc, have different interests and motivations, looking for different information that can be found in the most accurate, adequate and efficient way possible in different models. It is very unlikely that one and the same model would always be the most accurate, adequate and efficient given all (current and future) epistemic, explanatory interests. This makes plurality an epistemic virtue.

Finally, using this framework for explanatory pluralism does enable the dialogue and addresses the need for integration prominent in the literature on explanatory pluralism in psychiatry. However, integration is not understood here as a requirement on the level of the explanation, as an imperative to integrate explanations, but rather on a meta-level as agreeing about how to disagree or how to spell out disagreement within a common framework. Making the explanation-seeking why-questions and their underlying epistemic interests explicit, this framework helps to stipulate the strengths and weaknesses of the respective conceptions of explanation and levels of explanation in answering the

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[7] Also see Van Bouwel and Weber (2008) for more about these criteria.
[8] More examples related to medical sciences and using the framework for explanatory pluralism can be found in De Vreese et al. (2010).

explanation-seeking why-questions while taking into account (the trade-offs between) the criteria of accuracy, adequacy and efficiency.[9]

5.2. Framing the "genuine dialogue"?

A second way in which we can explicate the idea of a "genuine dialogue" and further the implementation of pluralism in science, consists in stipulating norms that guide the interaction among competing approaches or competing models of mental disorder in psychiatry. The finality of these norms is not so much to arrive at one integrated model of mental disorder, but rather to enable interaction that might sometimes lead to local integration, but might also lead to a clearer articulation of differences among models. Thus, there is no imperative for integration, but rather an imperative to interact and learn from each other, without losing the strengths of one's own angle or approach. Certain norms can frame the interaction as a meta-consensus or meta-agreement within which disagreement and plurality can flourish.

Helen Longino's (2002, pp. 128-135) four norms, for instance, might be considered as framing a dialogue among competing scientific approaches, organizing a framework for critical interaction. Although these norms are rather vague, they might be a good starting point:

> 1. *Venues for criticism.* There must be publicly recognized forums for the criticism of evidence, of methods, and of assumptions and reasoning. This norm also warns for the limitations of forums, e.g. because of commercial interests.
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> 2. *Uptake of criticism.* Response and change, i.e. "the community must not merely tolerate dissent, but its beliefs and theories must change over time in response to the critical discourse taking place within it." (*id.*, 129).
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> 3. *Public standards.* This norm ensures that critical discourse is nonarbitrary; the standards regulate discursive interaction, and as they are public, not just implicit, they help both defenders of a certain claim and their critics to identify their points of agreement and disagreement and structure the process in which problems are handled. Longino adds that these standards are not static, but may themselves be criticized and transformed.
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> 4. *Tempered equality of intellectual authority.* The community must be characterized by equality of intellectual authority, a norm that warns that social, political, and economic privilege and power ought not determine epistemic privilege and power. This norm is meant to impose duties of inclusion.

Adding these norms to the set of methodological norms in science enables a productive dialogue among the plurality of approaches and is conducive to:

- Criticizing background assumptions from a variety of perspectives, making the assumptions of an approach visible; values and interests are not eliminated or purified, but are addressed by more and different values and interests;

- Sharpening the investigative resources proper to each approach as a response to challenge and criticism, refinement of methodologies, clarification of concepts, … ;

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[9] For more on our approach to scientific explanation, see Weber et al. (2013). Let me also mention that this approach fits well with Interactive Pluralism (however, developing this point as well as the relation of the framework to the other versions of pluralism, goes beyond the scope of this paper).

- Explicating the limitations of each approach by the articulation of questions that they are not designed to answer; the limited range of an approach's concepts and methods, by making their respective epistemic interests or values explicit, etc.; rival approaches – depending on different concepts, methods, etc. – are shown to have empirical successes as well, be it in relation to other questions or driven by other interests and values;

- Providing a forum for capable contenders of the orthodoxies, the mainstream approaches.

Moreover, the dialogue has no a prior commitment to monism or integration; maintaining the possibility of alternative rules of data collection (including standards of relevance and precision), inference principles, epistemic interests, values and aims of inquiry.

Longino's account is one way in which the "genuine dialogue" might be framed and plurality might be made as productive as possible. I hope future philosophical research will focus more on this kind of approaches to plurality – be it to refine Longino's account or to develop fruitful alternatives that will help implement pluralism.

6. Conclusion.

In this contribution, I, first, wanted to distinguish different versions of explanatory pluralism that exist in the literature, as well as discuss some of the pros and cons of these different versions. Explicating five different versions of pluralism elaborates on Campaner's distinction of two different versions of pluralism, one being explanatory pluralist and the other, implicitly, explanatory reductionist.

Second, in my evaluation of the different versions of pluralism, I raised several critical questions concerning *Integrative Pluralism* – a version of pluralism that made its way into the literature on explanatory pluralism in psychiatry (cf. Kendler 2005). *Interactive Pluralism* was presented as an alternative understanding of pluralism that does not have the problematic features *Integrative Pluralism* has.

Third, I pointed out some problems plurality engenders in practice both in research and clinical practice, but also the epistemic virtues of plurality. In order to make plurality as virtuous as possible in practice and advance pluralism, we should develop philosophical tools that help us with the implementation of pluralism. I suggested that my question-based framework for explanatory pluralism as well as Helen Longino's social-epistemological procedures for interaction might be interesting points of departure and show us a fertile future direction for philosophy of science in its dealing with plurality.

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