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The Ontology of Mental Disorders; The Natural Ontological Attitude and Psychopathology

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Abstract

The network approach has become a popular and much-discussed model for conceptualising mental disorders. Its ontological assumptions however remain less debated. It is assumed by some of the main figures of the network approach that the successful use of a network model gives evidence for conceptualising mental disorders as network structures of interacting symptoms and that underlying the approach is scientific realism. In this paper, I contest the second assumption and argue we can adopt Artur Fine's natural ontological attitude instead. This approach can make equal sense of psychological practice at a lesser theoretical cost and argues against the appeal to scientific realism for wanting to validate our disorder concepts. The natural ontological attitude skews a priori philosophical programmes in favour of local theoretical discussion infused in scientific practice. This gives space to focus on specific issues that arise, like the first aforementioned assumption that a network model supports a network conceptualisation of mental disorders.

Keywords: natural ontological attitude, network approach, psychopathology, truth

The Ontology of Mental Disorders; The Natural Ontological Attitude and Psychopathology

One of the most difficult and central tasks in psychopathology is defining the object of study (Stein et al., 2021). What are mental disorders? The answer will vary depending on what you would like to know. Thinking about what mental disorders are is thinking about their ontology. Ontological questions are, very broadly, those philosophical questions that are about what exists and how that exists (Hofweber, 2023). One issue in this domain of psychopathology is whether mental disorders are even real. Where real generally means whether they exist independently of us. Just very briefly, realists about mental disorders hold that they are mind-independent entities, they are discovered (Brock & Mares, 2014). Anti-realism is a container term for positions that, on the other hand, see mental disorders as somehow inherently dependent on human activity. A title like professor is a clear example of a mind-dependent category. There were no professors before this position was acknowledged and the category of professor will cease to exist if we stop using it. With scientific concepts the story becomes more complex with the topic of mental disorders continuing to generate discussion of this kind.

Some positions try to step away from this realism-anti-realism debate. They argue that the debate is misguided or that science simply does not need that kind of ontological grounding. One such approach is the natural ontological attitude (NOA) proposed by Arthur Fine (1996b), an American philosopher of science. This philosophical attitude is based on the idea that if we have sufficient evidence for the existence of a scientific concept we can believe in its existence. Whereas a realist or anti-realist would interpret this existence further, NOA stays silent. This might sound undemanding, but we will see that it provides a constructive framework for scientific practice, psychopathology being no exception.

Moving further into the ontology of mental disorders there is another debate about whether they are best captured with a common cause or a network approach. These approaches are reflected by the use of latent variable and network models respectively. The former has been the dominant model for psychology in which symptoms and signs indicate the presence of an underlying latent entity or common cause (Borsboom & Cramer, 2013). So for example, depression is conceptualised as causing its symptoms. The latter, on the other hand, sees a mental disorder not as an entity causing its symptoms, but as a network of causally interacting symptoms caught in feedback loops. Thus, symptoms do not reflect but constitute mental disorders (McNally, 2021). The network approach in psychopathology is heavily associated with Denny Borsboom, a Dutch psychologist specialising in psychometrics.

We can picture these two debates I just mentioned as talking about different notions of the ontology of mental disorders. The common cause and the network approach say something about what mental disorders are. This ontology can then be further interpreted along realist or anti-realist lines. This is an important distinction to make explicit because an approach like NOA, which sees ontological debates about mind-independence or -dependence as nonsensical, can still, to a certain extent, allow for questions as to what scientific concepts exist and what they look like.

That there are two different notions of ontology becomes clear from the assumptions of the network approach. Network theorists argue that the successful application of network models to mental disorders forces us to reconceptualise them as a network of causally interacting symptoms. In addition to that Borsboom and Cramer (2013) and Richard McNally (2012) interpret the network approach in a realist way. These assumptions are not without critique. The first has been criticised by Bringmann and Eronen (2018) who argue that the latent variable model is not necessarily connected to the common cause approach and that it

cannot be clearly distinguished from network models. And the second has been addressed by Van Loo and Romeijn (2019) in a commentary on an article by Borsboom et al. (2018) about the network approach and reductionism. In this commentary, they argue that Borsboom et al. base their argument on a realist interpretation of scientific models, but that this might not be the best interpretation of the network approach.

In this paper, I want to look at the network approach from the perspective of NOA. In line with Van Loo and Romeijn (2019), I will argue that the approach does not need a realist interpretation to be viable and suggest NOA as an alternative. I will conclude that debates about whether the model supports a particular conceptualisation of mental disorders are the ones that matter and That NOA gives us the resources to do this at a lesser theoretical cost.

By adopting NOA I want to show that psychopathological practice does not depend on our idea of truth or the ontological commitments that accompany them. I want to counter the feeling that realism is a comfortable position as we can say that mental disorders are 'really' real. Kendler (2016) for example feels that "taking a "pragmatic" approach to psychiatric illness (and to all the tremendous pain it causes to the patients and their relatives) to this day feels disrespectful, as if I am not fully acknowledging the reality of their illness" (p. 6). With NOA, if we have sufficient evidence in believing the existence of our current disorders they exist. Once it is clear that this is enough to get by, the feeling of unease should hopefully go away.

To arrive at my claim I will in the first section discuss realist and anti-realist commitments and different theories of truth. For the sake of brevity, I will only focus on realism and pragmatism and their associated theories of truth together with the deflationary theory of truth. In the next section, I will explain NOA by contrasting it to the ideas discussed in the previous section and by showing how it makes sense of scientific and philosophical practice. Then in the final section, I will say more about the network approach and its

ontological commitments, discuss the criticisms of Bringmann and Eronen (2018) and Van Loo and Romeijn (2019), and set out the argument in favour of a NOA-infused network approach.

Theories of Truth and Their Ontological Commitments

There are two things I have to discuss before I explain NOA. These are theories of truth and their ontological commitments – forms of realism and non-realisms. Theories of truth are often presented with some ontological commitment, but a discussion about ontology also often invokes the concept of truth (Glanzberg, 2021). The correspondence theory, for example, is often paired with realism and pragmatism, as an epistemological approach, will say something about the role of truth. These theories generally try to answer the questions, what is truth? and what makes something true? but also what is the role of truth? And because science is often portrayed as aiming for the truth it is natural wanting to know what it exactly is you are aiming for.

Within the various positions on ontology and truth, there are numerous different theories. For my purpose, a general discussion of these positions will do because NOA will be against the whole realism-anti-realism debate and any substantial theory of truth (I will explain what I mean by this later on). The positions I will discuss are realism and pragmatism. Realism is the obvious candidate as it defends the position of mind-independence and is a popularly held theory. I will focus on pragmatism as the position for mind-dependence because some forms come very close to NOA so seeing the similarities and differences will prove insightful. As to truth, I will discuss the correspondence theory as it is often presented as the natural ally of realism and the pragmatic approach to truth put forth by Cheryl Misak. With that in order, I will then introduce deflationism as an alternative approach to truth, the one to which Arthur Fine is also committed.

Realism and Correspondence

Scientific realism can be split into multiple claims. Ontologically, it is an attitude that sees our scientific concepts as mind-independent – they refer to something in the external world. Epistemologically, it commits to the claim that our best scientific theories give us (approximately) true descriptions of parts of that external world. And semantically, it sees scientific entities (concepts, processes and the like) as truth-bearers, meaning that they can have the property of truth (Chakravartty, 2017). Very few realists believe we have direct access to the external world. But although we cannot be certain that our scientific concepts are true it is argued that we can still only make sense of scientific concepts if we postulate the existence of an external world to which they are connected. A well-known argument for this is the no miracles argument associated with Hilary Putnam. How do you explain the success of science? To not make it sound like an utter miracle realists argue that this success is best explained by our best theories giving (approximately) true descriptions of a mind-independent world (Chakravartty, 2017).

These true descriptions for the realist often consist of correspondence of the relevant part of science with a mind-independent entity. The idea of the correspondence theory is that a truth-bearer (a proposition) is true if it corresponds to a truth-maker, usually a fact. This is a very basic form of the theory as different truth-bearers, -makers and correspondence relations have often been proposed (David, 2022; Haig & Borsboom, 2012). Haig and Borsboom (2012) (who also figure in the discussion later), see the correspondence relation as a mapping of the relevant parts of the world. The truth-bearer, some kind of scientific entity, maps onto some fact or state of affairs in the external world.

Pragmatism

Pragmatism starts with the idea that our concepts cannot be separated from our experience (Misak, 2006) and are therefore mind-dependent. Pragmatism generally skews ontological theories about those concepts as that would involve making unknowable claims.

Pragmatic theories of truth, therefore, focus on our epistemological practices to better understand the concept of truth. This has led to various strategies, one being to define truth in epistemic terms, like William James' utility, and the other to focus on the use of truth, but not necessarily defining it as such (Capps, 2023). The latter strategy brings it close to deflationism, but according to Misak (2006, 2007), there is still a significant difference. She argues that both pragmatism and deflationism avoid talking about ontology and focus on the use of truth instead. Both positions start from the equivalence scheme (saying “p is true” is the same as asserting p). But where deflationists think generalization is the only use of truth (you can say “what she said was true” instead of having to reassert everything that she has said), pragmatists extend the discussion about the use of truth and want to make some general comments about its property. She adheres closely to C. S. Peirce’s (one of the important early figures of the movement) pragmatism which holds that

> when we say that we aim at the truth, what we mean is that, were a believe really to satisfy all of our local aims in inquiry, then that belief would be true. There is nothing over and above the fulfilment of those aims, nothing metaphysical such as “getting the mind-independent world right,” to which we aspire. (Misak, 2006, p. 400)

We can see that this idea of truth presented by Misak (2006) does not lend itself to a full-blown nature of truth. The aim for truth is identified with local scientific aims not cast in a definitive list.

One of the functions of truth in pragmatic accounts, like Misak’s, is to be a norm of inquiry. Capps (2023) summarises that

> the concept of truth plays an essential role in making assertoric discourse possible, ensuring that assertions come with obligations and that conflicting assertions get attention. Without truth, it is no longer clear to what degree assertions would still be assertions, as opposed to impromptu speculations or musings.

This means that invoking the concept of truth is regulated by certain norms and expectations. If you would have a discussion about climate change and the other gives substantial evidence against your claim that human contribution is nihil you cannot simply respond with “agree to disagree.” By doing that you would violate expectations, like the expectation that you will adjust your beliefs in the face of evidence.

Deflationism

Theories that see truth as a common property that can be ascribed to scientific entities are called substantive theories of truth because they give an account of its nature and thereby a unified explanation for why something is true. Deflationism is a different approach to truth. It argues that it is not a substantive property. Truths are true because of what they are about which becomes clear if we look at the equivalence schema, the starting point for deflationists. The idea of the equivalence schema is that p is true if, and only if, p. This is a very uncontroversial idea and could be the starting point of any approach to truth. What deflationists however say is that this schema is all there is to say about truth and that therefore saying that p is true is the same as saying p (Armour-Garb et al., 2023). This does not mean however that we should do away with truth. We need the truth predicate to make generalizations like "everything that has been said just now is true". Otherwise, the situation would be that for all p, if what has been said just now is p, then p. That would be a speaking disaster. Williams (1986) remarks that “the deflationary view is interesting, not because it offers new insights into the character of truth, but because it challenges us to say why we need any theory of truth along anything like traditional lines” (p.223). The burden of proof is thus placed on the inflationist.

Because truth is not a property of theoretical interest (the content of the proposition is what matters) deflationism is argued to be a neutral position regarding the debate between realists and anti-realists. If we take the schema again (p is true if, and only if, p), the debate is

about p. And even though truth figures in the discussion it can be shown that its role is only to make propositions tangible through its generalizing function (Horwich, 2005). Arthur Fine's argument, next to refuting substantive truth theories, must then also separately demonstrate why we should not interpret science along the lines of realism or anti-realism, which he does by pointing out circular reasoning on both sides.

The Natural Ontological Attitude

NOA is a way of looking at science. It essentially advocates against presupposed philosophical theories, and instead opts for local theory building, tying philosophy to science in an intimate way. In section two I introduced different theories of truth and two common ontological positions. To better understand NOA's position we should first look at Fine's arguments against realism and ant-realism. The general line of argument is that such interpretations of science lead to circularity (what is to be proven is already accepted in the premises).

One argument in favour of realism that Fine discusses is the no miracles argument I mentioned in the previous section. Realism is the best or only sensible explanation to explain the success of our best scientific theories. The argument is based on abductive reasoning (inference to the best explanation), which is the same reasoning commonly used in science. Thus, abductive reasoning is used to explain the success of abductive reasoning. This however leads to circularity as the conclusion that abduction yields (approximately) true explanations is already assumed in the premises. Arguing for scientific realism therefore must be based on a "more stringent" justification. However, an inductive (inference based on observation) argument will not do though as we cannot observe the connection between a theory and the world which would be needed to make such empirical generalisations (Fine 1986, 1996b). That we cannot directly observe this connection is, as I said earlier, a point also conceded by many realists.

The anti-realists cannot escape circularity either. An example is empiricism, a position that draws a boundary between what is observable and what is not. What makes this boundary circular is the fact that, according to the empiricist, science should dictate the border of observability. But, “we cannot know which parts of science to believe until we know which phenomena are observable. We cannot know that, however, unless we have reason to believe those parts of science which tell us what is observable” (Rouse, 1988, p. 295).

NOA’s Framework

Fine (1996b) wants to distinguish NOA from other philosophies of science. Instead of providing an explanatory framework of science, it gives an attitude for thinking about philosophical problems in science. Sometimes it becomes unclear as to what this exactly entails; denouncing presupposed global philosophical theories and working from within this cautiousness seems to be less like an attitude and more like a philosophical position. This also shows in the assertion that truth "cannot be explained or given an account of without circularity" (Fine, 1986, p. 149). In some ways, NOA goes beyond guiding and into stipulating. How we can use NOA and how this tension is played out hopefully becomes clear when we look at three themes that play a role in Fine’s philosophy; deflationary truth, open science and immersive philosophy.

From the rejection of a global ontological grounding of science and its concepts, Fine (1996b) adopts a deflationary account of truth. He accepts its usefulness in language but adopts a no-theory attitude towards it. The focus shifts to justification practices for believing in the existence of the concepts of science. Practices which do not need to invoke the concept of truth as a property. By deflating truth, Fine rejects it as the regulatory goal for science, but he does not replace it.

That is the anti-essentialism of NOA. Fine rejects realist and anti-realist interpretations of science and argues that there is no need for such meta-scientific interpretations. Scientists

use a multiplicity of methods and goals that cannot be easily collected under one unifying epistemological principle or goal. If we would want to give a general account of what science is such an account would always fall short of the depth of scientific practice. Science's "history and current practice constitute a rich and meaningful setting. In that setting questions of goals or aims or purposes occur spontaneously and locally" (Fine, 1996a, p. 148). Fine argues that this is where most of the work is done. Unifying interpretations will only restrict science. But this does not mean that it should be taken uncritically. An open science is also open to criticism and reflection. It is said that

> NOA regards science as open to various forms of reflection, forms that encompass many of the questions raised by philosophers, historians, sociologists, culture critics, and de like. NOA sees science as a reflective and open enterprise. Thus, NOA regards humanistic concerns with the sciences as continuous with reflective science, not as constituting a separate cultural world. (Fine, 1996b, p. 174)

This picture of science has clear consequences for how we do philosophy. Fine urges philosophers to focus on local investigations "so as to connect empathetically with the life world of the practice. The model here is that of anthropological and sociological fieldwork. These are endeavours where theory and practice join, indeed are often indistinguishable" (Fine, 1996b, p. 175). Emphasis is thus put on a close interaction between philosophy and science and on addressing the issues that arise from specific scientific practices. Presupposing a universalist framework as a way to understand scientific practice will not work. Philosophers should instead work from within or closely with the context of investigation (Fine, 1988; 1996b).

Talking about general and specific contexts can lead to some confusion. Because NOA is anti-essentialist and anti-dualistic it might look contradictory to talk about these opposing contexts. We should view it as a difference in the scale of the context in which we are

investigating. It thus means that looking from a global context is not necessarily a bad idea, it is a means to safeguard against applying presupposed standards to a given field to ensure the open character of science and philosophy.

The philosophical role that Fine sketches out for us seems to be inspired by Wittgenstein's *Philosophical Investigations*. Wittgenstein envisions philosophy as a kind of therapeutic work that involves careful consideration of language and the way we use certain words. He shifts the focus away from philosophical theory building and wants to counter the tendency of philosophers to try to get to the nature of a phenomenon (Wittgenstein, 1953/2009). A tendency that Fine also rejects in the discussion about truth. Fine makes his connection to a Wittgensteinian attitude even more clear by saying that questions like what is the aim of science "call for an empathetic analysis to get at the cognitive (and temperamental) sources of the question, and then a program of therapy to help change all that" (1996b, p. 148).

Ontological Deflationism?

A question that is still left unclear is whether NOA's rejection of the realism anti-realism debate, anti-essentialism and focus on small contexts of investigation leads to ontological deflationism. Just as with truth, a deflationist about existence denies that it is a substantive property. It does seem that way when Fine asserts that NOA has "no specific ontological commitments. It has only an attitude to recommend: namely, to look and see as openly as one can what it is reasonable to believe in, and then to go with the belief and commitment that emerges" (Fine, 1986, p. 176). So NOA in itself does not entail any ontological commitments in the way of describing how something exists. But can it be open to ones?

It seems that NOA puts ontological questions aside and out of the scope of science. Ontological questions though can be asked on multiple scopes. A relevant differentiation for

us is that between formal ontology and naturalised ontology. A formal ontologist seeks to formulate classifications of existence applicable to a large domain, some encompassing the whole world's structure. The debate between realism and anti-realism can be seen as an example of a formal ontological discussion. A naturalised ontology, in contrast, is relative to a certain scientific theory or framework (Arenhart, 2012).

To me, there is no immediate objection to allowing such ontologies under NOA and would argue against NOA being ontological deflationist. If we take again the global/local distinction we can see that the idea of focusing on specific scientific ontologies stands fits well into that. Just as with the local and the global, the difference between formal and naturalised ontology should not be seen as a hard boundary, but as marking "different scales for attacking an issue" (Fine, 1996b, p. 179). Arenhart (2012) for example mentions that they can be seen as serving different interests rather than as opposites. What we should be careful about is safeguarding the openness of science and welcome changes in scientific knowledge. Our ontologies should thus be in constant interaction with scientific practice and not take any fixed form.

A Non-Philosophical Attitude?

NOA's no-theory approach to existence and truth has also led to criticism and claims that Fine's attitude is non-reflexive and unphilosophical. Sharon Crasnow (2000), for example, questions Fine's use of natural and concludes that it pertains to a non-philosophical attitude. Then she argues that "Fine would seem to be presupposing that a philosophical approach must be global. In fact, it is the equation of "philosophical" with this particular sort of generalized and abstract description that is typical of the modernist philosophy that Fine is rejecting" (p. 120). Then she points out that it is possible that scientists and philosophers can hold realist and anti-realist attitudes (in the sense of NOA) that are not global and that avoid

the arguments of Fine which are orientated to philosophical positions. Crasnow sees NOA as a pro-science do-away-with-philosophy attitude.

I do not think that Fine sees philosophy as an enterprise of global approaches. NOA is contrasted with a “selfconscious, pragmatic, pluralistic, philosophical attitude” (p.131). To me, NOA captures all this as it is a consciously adopted attitude that is recommended as a pragmatic way of allowing for philosophical reflection in local contexts. Its pluralism shows in its contextual malleability and in the fact that it allows for “different NOAers to disagree about what exists, just as different, knowledgeable scientists disagree” (Fine, 1986, p. 176) showing the different justification practices and standards philosophers can take. I think part of the confusion about NOA derives from the word natural. Crasnow explores different possible meanings it could take and settles on it being uncontaminated by any metaphysical considerations. I can agree with this definition as Fine remarks: “thus the 'naturalness' of NOA, if you like, is the 'California natural'—no additives, please!” (p. 177). To Crasnow this entails an unphilosophical stance, but as I demonstrated, NOA adheres to her standards of a philosophical attitude with the role of the philosopher being redirected instead of abolished. If we can accept this direction in psychological theorization, which I think should not be a major difficulty considering the last decades of post-modernist critiques of philosophy and science, we could respond to the demand for close interaction between theory and practice by trying to legitimize the subdiscipline through this interaction and reflectivity instead of through the role of overseer.

By highlighting these themes I hope I demonstrated that NOA is a reciprocal attitude that requires an active back-and-forth between theory and practice and between larger and smaller contexts. There is certainly a place for theoretical and philosophical considerations only not the presupposing kind. Now we should see that this is what the network approach to mental disorders needs.

NOA instead of Realism for the Network Model

Mental disorders cannot be separately identified from their symptoms so they cannot be the cause of these symptoms. From this assumption, Borsboom and Cramer (2013) set out the basics of the network approach. They argue that because of the indistinguishability of disorder and symptoms a common cause approach, inferred by the latent variable model, does not best represent the structure of mental disorders. It is further argued that the latent entity model is that it does not satisfy local independence of symptoms. That means that covariance among symptoms should not arise from interactions between them, but instead reflect the common cause and so disappear when conditionalizing for the disorder. However, this is not what the results show (McNally et al., 2015; Borsboom & Cramer, 2013). The network approach is based on the dependence of symptoms and describes the relationship between disorders and their symptoms as that of a whole and its parts. A disorder emerges from the causal interactions among symptoms (Borsboom & Cramer, 2013). A network model is represented as a web of nodes, the psychopathological symptoms, and edges, referring to their interactions. It should be said that there are various methods in network modelling (McNally, 2021), so there is no one network model.

Realism and the Network Approach

A distinction is to be made between approaches and models. Network models are said to support the network approach and latent variable models the common cause approach. It is commonly held that the successful application of network models together with the local independence argument justify the network approach. In addition, some authors explicitly align the network approach with scientific realism. McNally (2012), for example, claims that "networks are empirically discovered, not formed by theorists who construct them to suit certain purposes … the causal system perspective is ontologically realist as it presupposes mind-independent phenomena discoverable via network analyses" (p. 839). In another article

he says that the network approach is “ontologically realist about symptoms as these have existential referents” (McNally, 2016, p. 101). Unfortunately, he does not further explicate these claims or what he exactly means by existential referents, but we can assume that he again means mind-independent phenomena. “There is definitely something real about mental disorders” proclaimed Borsboom and Cramer (2013, p. 115). This does not necessarily have to be interpreted as a claim to realism, but later in the text, they point out that the network approach aligns well with Kendler's soft realism which sees mental disorders as clusters of certain properties (Kendler, 2016). It thus seems that real here is meant in a realist way.

Two Critiques of the Network Approach

The claims that the model supports the approach and that the approach should be interpreted through the lens of realism have been contested, the first by Bringmann and Eronen (2018). I want to highlight three points. Firstly, they argue that there is no clear boundary between latent variable and network models. They advocate for a more flexible interpretation of common cause models in which they do not need to adhere to local independence. They say that: “if A and B have a common cause, then that common cause has to explain some of the covariance of A and B, but not necessarily all of it” (p. 609). Because when we start with the assumption that there is a common cause then this is no reason to think that symptoms must be locally independent. This gives room to a continuum in which it has to be seen how many direct causal links can be added between symptoms. the stark dichotomy presented in the network literature thus evaporates. Secondly, it is argued that the latent variable model should be distinguished from the common cause approach (McNally [2015] indeed equates a latent variable with a latent entity, for he says: “in recognition of the limitations of the common cause view and the latent variable model that accompanies it” [p. 837]). In psychopathology, the focus lies on identifying contributing factors that together make up a heterogeneous aetiology instead of finding a root cause for the different disorder

categories. This is perfectly consistent with positing a latent construct. Evidence against a common cause approach does therefore not lead to a rejection of the latent variable model. And thirdly, Bringmann and Eronen (2018) make is that latent variable models do not need to be interpreted as causal models, but instead can be seen as an interpretation of empirical data. They say that

> the terms "network model" or "common cause model" are rather empty in this context. The network approach is not introducing new kinds of models, and network models are understood so generally that also common cause models fall under them. Therefore, testing the network approach has nothing to do with a specific modelling framework per se, but rather amounts to just testing the basic hypothesis that symptoms are (causally) interacting with each other over time. This hypothesis can be tested without the artificial framework of network versus common cause (or latent variable) models. (p. 612)

The models are thus more useful tools for picturing symptom interactions than a representation of what mental disorders are. This point is also made by Van Loo and Romeijn (2019) in a reply to an article by Borsboom et al. (2018) that argues that the network approach does not allow for a successful reductionist explanation of mental disorders.

Van Loo and Romeijn (2019) point out that Borsboom et al. (2018) have a realist interpretation of what models do. In the target paper, it is argued that unlike the latent variable model, the network model does not lead to reductionism of mental disorders to brain states. A reduction that is seen as detrimental to making progress in psychopathology. Because in network models there is no common cause a reduction like that will fail. This argument can be made only by picturing disease models as true representations of what mental disorders are. However, "rather than maintaining realism in the service of an argument against reductionism, we would do better to reconsider this realism itself." Progress in

psychopathology needs flexibility in research methods to adequately deal with the complex being of mental disorders. A realist interpretation of models will hamper that progress as it will restrict model choice. So instead, network models should again be seen as insightful tools instead of a representation of the structure of mental disorders (Van Loo and Romeijn).

These doubts about the network approach pose serious strains on how it should be best interpreted. Bringmann and Eronen (2018) criticize whether the application of the network model can give justification for the interpretation of the network approach and Van Loo and Romeijn (2019) whether the network approach should be based on scientific realism. As I showed, some network theorists explicitly link the network approach to scientific realism, but they do not put forward detailed arguments or make clear whether it is a necessary link. In other papers, however, Borsboom, together with Haig (2012), does give a detailed account of realism with the correspondence theory of truth in the context of psychology. So here we might find why the network approach should be interpreted in a realist way.

Truth, Science, and Psychology

Haig and Borsboom (2012) look at scientific practice and argue that the correspondence theory makes the best sense of it. They take criticism as a key activity of doing science and analyse it at multiple levels: the procedural, the data, the phenomenal, and the causal level. At the procedural level, the researcher reports how the research was carried out. This for example includes sample size and experimental set-up. Questioning whether the research indeed used 100 participants is questioning whether the report corresponds to what actually happened, say Haig & Borsboom, not whether that statement coheres with other beliefs or is useful to belief. The same goes for the data level where doubts about the correctness of the data are about whether "the world might have been such that the statement under consideration *fails* to correspond to it, which is only a meaningful assertion if there also exists a statement that *does* correspond to the world" (p. 281). Next is the phenomenal level

where a phenomenon is "a robust empirical fact about cognitive test scores—which is an appropriate object for scientific explanation. It is natural to express such phenomena as empirical generalisations" (p. 282). Say you found that third-year psychology students have significantly better critical thinking skills than first-years and you want to claim that this phenomenon holds for all psychology students at the faculty, making such an empirical generalization would be to claim something about the world and about the correspondence between the finding and a fact. Lastly, the causal level is about giving an explanation for these empirical generalisations. We might for example conclude that the gain in critical thinking skills is partly due to the active engagement of students in research skills courses. Making such a claim involves believing that there is active engagement, that this leads to better critical thinking and that if it would be absent there would be less of an increase in critical thinking. If it would be the case that there is active engagement, but there is no attributable increase in critical thinking the claim would be falsified. Haig and Borsboom argue that that only makes sense if the causal claim is taken to be “a possible candidate for truth” (p. 286).

> From this analysis they claim that
>
> the perspective of correspondence truth underscores the problems in assigning truth values to causal assertions in a way that pragmatist, social constructionist, or postmodern perspectives cannot do. From the latter points of view, there is no essential difference between the propositions "52 undergraduate students participated in the research project" and "*g* causes the positive manifold.” But of course, there *is* an essential difference between these statements, and only by using the concept of correspondence truth can one elucidate this difference: the causal claim involves a complex truthmaker, which involves a reference to alternative states of affairs that could have been, whereas the procedural claim involves a simple truthmaker which only refers to the world as it is. (Haig & Borsboom (2012, p. 286)

So the procedural, the data, the phenomenal, and the causal level are essential parts of doing research. These levels require different kinds of truthmakers that only the correspondence can supply. With their analysis Haig and Borsboom (2012) provide a positive argument for the correspondence theory, seeing it as the best option to make sense of scientific practice. But they do leave open the possibility for a deflationary account and invite others to take up that challenge; Asay (2018) responded.

Asay (2018) argues that deflationism equally makes sense of scientific practice but at a lower theoretical cost. And secondly, he suggests that Haig and Borsboom's points are more about realism than about truth. His general argument for deflationary truth is captured by the statement that

> when we criticize someone's claim as not being true, we are criticizing the claim itself, and not tangential claims about various systems of belief. That insight, I believe, is what Haig and Borsboom are hoping to express. It is an insight, however, that is best explained by deflationism. When we challenge the *truth* of each other's assertions, we are challenging the assertions themselves, not some property they may or may not have. (p. 389)

Both the argument of Asay and of Haig and Borsboom is about their theories being the best explanation for what scientists actually do, exemplified by the act of criticism.

Asay's second claim is that most of the arguments of Haig and Borsboom are carried by their commitment to realism. "It is the nature of the truthmaker that matters – not how that truthmaker may or may not fit into some theory of truth" (Asay, 2018, p. 393). And indeed they say that

> in asserting that the researcher may be wrong about the data, we assert that the world might have been such that the statement under consideration *fails* to correspond to it, which is only a meaningful assertion if there also exists a statement that *does*

> correspond to the world… This underscores exactly the point of correspondence truth: the truthmaker is a relevant part of the world, rather than of the researcher (Haig & Borsboom, 2012, p. 281).

Even though they acknowledge that realism and correspondence theory need not go together their argument does rely on a commitment to realism.

If we follow Asay's (2018) point that not our theory of truth but our view of the nature of existence is actually what matters in explaining scientific practice we should look at how NOA deals with these levels of theory Haig and Borsboom (2012) put forth. What do researchers do when they criticise something? If we look again at Asay's quote; "when we criticize someone's claim as not being true, we are criticizing the claim itself, and not tangential claims about various systems of belief" (p. 389). Indeed when I would argue against the claim that the active engagement of students in research skills courses has a direct effect on critical thinking I argue that the effect does not exist. And in making this claim I do not need to refer to a mind-independent reality. A NOA'er relies on the same justification practices and from them can judge whether they are justified in believing in the existence of a certain effect or phenomenon or the like. They will act according to those beliefs just like a realist. If you think active engagement leads to better critical thinking, as a teacher who has critical thinking as one of their learning goals you would want to increase engagement. So just as deflationism for Asay, NOA makes sense of scientific practice at a lesser theoretical cost.

With NOA not much changes to what network theorists do. Doing research into the causal structure of symptoms of specific disorders and discussions about what a model supports and how the network approach translates to clinical practice are all encouraged. What is also encouraged is to critically assess whether theory is supported by research and whether contexts of investigation are appropriate in scale.

Conclusion

People suffer from mental disorders and one of the major goals for psychopathology is to help those people. One way of doing that is by trying to understand what mental disorders are. The network approach is a promising new way of looking at mental disorders, but there are ontological issues that need to be worked out. How does NOA help? It shows that it does not need to commit itself to a presupposed, general ontological position. But instead encourages local investigation and discussion. I took the network approach as an example to show that realist (or anti-realist) commitments do not further discussion and should not be used a validation for the approach. If we are justified in believing that (most) mental disorders are best seen as a system of causally interacting symptoms, then they are. No deeper ontological discussion needed. And so it will be for the rest of psychology too. And if someone worries this would make psychology a lesser science remember that NOA was proposed with physics in mind.

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