Does the heterogeneity of autism undermine the neurodiversity paradigm?

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Abstract

The neurodiversity paradigm is presented by its proponents as providing a philosophical foundation for the activism of the neurodiversity movement. Its central claims are that autism and other neurodivergent conditions are not disorders because they are not intrinsically harmful, and that they are valuable, natural and/or normal parts of human neurocognitive variation. This paper: (1) identifies the non-disorder claim as the most central of these, based on its prominence in the literature and connections with the practical policy claims that the paradigm is supposed to support; (2) describes the heterogeneity of autism at the behavioural and causal levels, and argues that at the behavioural level this encompasses ways of being autistic that are harmful in ways that cannot be not wholly attributed to discrimination or unjust social arrangements, challenging the claim that autism is not a disorder; (3) considers and rejects responses to this challenge based on separation of high- and low-functioning autism, separation of autism from co-occurring conditions, and viewing autism as part of an individual's identity. Two of these responses fail for reasons that are themselves connected with the behavioural and/or causal heterogeneity of autism.

KEYWORDS

autism, neurodiversity, heterogeneity, disorder, co-occurring conditions, identity.

1. INTRODUCTION

"Neurodiversity" has become a central concept in debates about the rights and interests of autistic people, and the corresponding obligations of parents and carers, practitioners, policy makers and researchers in health and social care, education, psychology and more.[1] The idea of a neurodiversity "perspective" or "paradigm" has been embraced by many autistic self-advocates and others who consider themselves to be their allies, and is promoted by self-advocacy organisations. It has, to differing degrees and in different ways, begun to influence more established autism charities and support groups, parents of autistic children, practitioners who work with autistic people, autism researchers, and politicians. Popular accounts such as Silberman's *NeuroTribes*[2] have brought the idea of neurodiversity to a wider audience and altered public perceptions of autism.

The idea of neurodiversity has also been a subject of fierce controversy. Some parents of autistic children and parent-led organisations, as well as some autism researchers and some autistic people, have accused neurodiversity advocates of presenting a sanitised view of what autism can be like and deflecting attention and resources away from the struggles of more severely affected individuals and their families.

Although ethical and policy issues related to autism have attracted significant attention from academic bioethicists and philosophers in recent years, relatively little of this has focused on the idea of neurodiversity itself.[3] It might be supposed that this relative lack of attention reflects doubts about the value of the concept and its ability to elucidate or ground ethical or political claims. Dismissing the topic on these grounds would, however, be mistaken. At the very least the neurodiversity perspective offers a corrective to the historical dominance of medical approaches to autism, opening up other ways of thinking about the interests and rights of autistic people.

The term "neurodiversity" is used in various ways. It can refer to the basic fact of human neurological variation (in much the same way that "biodiversity" refers to the fact of biological variation within an ecosystem), to a social movement aiming to bring about changes in the way societies view and respond to that variation (the "neurodiversity movement"), or to particular ways of thinking about the neurological or cognitive differences of which that diversity consists. The focus of this paper is on the last of these, often referred to as the neurodiversity

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[1] Many neurodiversity advocates prefer "autistic people" and cognate terms to "people with autism" for reasons discussed in section 6 below.

[2] Silberman, S. (2015). *NeuroTribes: The legacy of autism and how to think smarter about people who think differently*. London: Allen & Unwin.

[3] For a survey of work on ethical issues relating to autism, see Hens, K., Robeyns, I., & Schaubroeck, K. (2019). The ethics of autism. *Philosophy Compass*. *14*(1).

"perspective" or "paradigm" and understood as a set of claims about autism and other "neurodivergent" conditions, which according to its adherents "provides a philosophical foundation for the activism of the Neurodiversity Movement".[4] The paper will address one particular challenge to the neurodiversity paradigm that is at the heart of the controversy referred to above.

That challenge arises from the heterogeneity of the condition (or conditions) to which the neurodiversity paradigm is supposed to apply. Autistic people vary greatly in the difficulties and strengths that the condition presents, a fact that is captured in the (now rather clichéd) saying, "if you've met one autistic person, you've met one autistic person". This variability is reflected in current diagnostic criteria which define autism as a spectrum condition encompassing a range of different presentations formerly classified as distinct conditions, in the way those criteria have changed over time, and in the plurality of theories and causal hypotheses attempting to explain autistic traits. The heterogeneity of the autism spectrum is widely recognised as posing difficulties for researchers aiming to establish its underlying causes,[5] but it also presents a challenge for the neurodiversity paradigm. The suggestion that autism is too diverse for the concept of neurodiversity to apply may seem paradoxical, but if we look beyond the terminology and consider the purportedly general propositions about autism that are asserted by at least some formulations of the neurodiversity paradigm, then we will see that the paradox is only apparent.

The challenge to the neurodiversity paradigm will be greater insofar as its claims are taken to apply not only to autism but to other neurodivergent conditions such as attention deficit hyperactivity disorder (ADHD), Tourette's syndrome and dyslexia. However, in order to keep the arguments manageable, and reflecting the origins and preoccupations of the neurodiversity

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[4] Walker, N. (2014). Neurodiversity: Some basic terms & definitions. Retrieved from http://neurocosmopolitanism.com/neurodiversity-some-basic-terms-definitions/. While the terms "perspective" and "paradigm" are both used within activist and academic literature, the latter appears to have gained traction in recent activist accounts, and will be used in this paper. This choice of terminology is not meant to imply any view on the aptness of the intended analogy between the neurodiversity paradigm and Kuhn's idea of a scientific paradigm. On this, see Dwyer, P. (2018). On neurodiversity: Or, how to help people without calling them broken (Part I). Retrieved from http://www.autisticscholar.com/on-neurodiversity/; Walker, N. (2013). Throw away the master's tools: Liberating ourselves from the pathology paradigm. Retrieved from http://neurocosmopolitanism.com/throw-away-the-masters-tools-liberating-ourselves-from-the-pathology-paradigm/.

[5] Fletcher-Watson, S., & Happé, F. (2019). *Autism: A new introduction to psychological theory and current debate*. Abingdon & New York: Routledge (pp. 159-60); Waterhouse, L.H. (2013). *Rethinking autism: Variation and complexity*. London & Waltham, MA: Academic Press (pp. 3, 128-30).

movement, the arguments of this paper will mainly focus on the application of the neurodiversity paradigm to autism.

Section 2 examines the context and content of the neurodiversity paradigm, identifying – as far as is possible given its contested nature – its central or defining claims. Section 3 describes the heterogeneity of autism and the challenge that this poses to these central claims. Sections 4 to 6 examine consider and reject three responses to this challenge. The article concludes that the main claims of the neurodiversity paradigm are either not true of all manifestations of autism or lack a clear meaning that is helpful to the aims of the neurodiversity movement. This does not mean that the concept of neurodiversity itself should be abandoned, nor that many of the kinds of policy typically argued for by the neurodiversity movement should be abandoned. It does suggest that they should not be argued for by appeal to the mistaken claims of the neurodiversity paradigm.

2. WHAT IS THE NEURODIVERSITY PARADIGM?

A difficulty for any discussion of the neurodiversity paradigm is that there is no consensus about what exactly it is. It was characterised above as a way of thinking about autism and other neurodivergent conditions that is associated with and informs the activism of the neurodiversity movement. But, as noted by Robert Chapman, whose defence of the paradigm will be considered below, “the neurodiversity movement has no leader and no textbook, the arguments and claims its proponents forward are heterogeneous”.[6] Chapman’s solution is to focus primarily on one account that he judges to be the “most nuanced” in the literature, the account presented in a series of blog posts by the autistic activist and academic Nick Walker. However, while this may be satisfactory for a defence of the paradigm (which needs to show only that there is at least one plausible interpretation of it), a more critical account will be vulnerable to the charge of setting up a straw man, and therefore requires its identification of the core claims of the paradigm to be rooted in a somewhat broader range of literature. In this section I will consider three claims that occupy an important place in both activist and academic accounts: that autism is not a disorder, that it is a valuable part of human variation, and that it is “natural” or “normal”. Of these I will suggest that the first is most central.

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[6] Chapman, R. (2019). Neurodiversity theory and its discontents: Autism, schizophrenia, and the social model of disability. In T. Serife & B. Robyn, *The Bloomsbury companion to philosophy of psychiatry* (pp. 371–389). London & New York: Bloomsbury Academic (p. 372).

Not a disorder

The coining of the term "neurodiversity" is usually credited to Judith Singer, an autistic scholar, who in 1999 described "a politics of neurological diversity, or neurodiversity", in which "[t]he 'neurologically different' represent a new addition to the familiar political categories of class/gender/race and will augment the insights of the social model of disability."[7] Singer was giving systematic expression to a view that she saw emerging in online autistic communities, in which electronic text-based communication had enabled autistic people to share experiences and ideas without the difficulties that many of them experienced with face-to-face communication.[8] Although the notion of neurodiversity that Singer found in those communities was, as expressed by the founder of the InLv email list in which her research was conducted, "different from the 'neurodiversity paradigm' that many contemporary activists subscribe to",[9] elements of the latter, including what I shall call the non-disorder claim, can be found in Singer's account. These include resistance to the characterisation of autism as primarily a set of "deficits" or "impairments",[10] insistence that the problems faced by autistic people, although related to differences in "brain wiring", are "exacerbated by the effects of social invalidation"[11], and a set of practical objectives focused on recognition, rights and service provision rather than medical interventions.[12]

While Singer does not explicitly deny that autism is a disorder, those who do make this claim often do so with reference to analogies with other social movements and identities similar to those that she drew. For example, Walker's account of the neurodiversity paradigm claims that "autistics are a minority group, no more intrinsically 'disordered' than any ethnic minority".[13]

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[7] Singer, J. (1999). Why can't you be normal for once in your life? From a problem with no name to the emergence of a new category of difference. In M. Corker & S. French, *Disability discourse* (pp. 59–70). Buckingham: Open University Press (p.64). This article drew on her master's dissertation, republished as Singer, J. (2017). *NeuroDiversity: The birth of an idea*. Although Singer may have been the first to write about neurodiversity in an academic context and to express its meaning in this way, the term (along with related terms such as "neurotypical") was already in circulation within the emerging online communities of autistics described in Blume, H. (1998). Neurodiversity. *The Atlantic*. Retrieved from http://www.theatlantic.com/magazine/archive/1998/09/neurodiversity/305909/.

[8] Singer (1999) op. cit. note 7, p. 65; Singer (2017), op. cit. note 7, pp. 53; Blume, op. cit. note 7; Blume, H. (1997). Autism & the internet or it's the wiring, stupid. Retrieved from http://web.mit.edu/m-i-t/articles/index_blume.html.

[9] Dekker, M. (2020). From exclusion to acceptance: Independent living on the autistic spectrum. In S.K. Kapp, *Autistic community and the neurodiversity movement: Stories from the frontline* (pp. 41–49). Palgrave Macmillan (p. 47).

[10] Singer (2017), op. cit. note 7, pp. 31–2.

[11] Ibid: 60.

[12] Ibid: 55–7.

[13] Walker (2013), op. cit. note 4.

Jaarsma and Welin argue that, for the same reasons that homosexuality was declassified as a psychiatric disorder, autism (at least in its "high-functioning" forms) "should neither be regarded as a disorder or a disability nor as an undesirable condition per se".[14] Ortega refers to neurodiversity advocates who believe that being autistic is like being gay, black or left-handed, in that "none are pathological conditions, only ways of being".[15] The reasoning implied by such analogies is that, as with homosexuality or membership of an ethnic minority, the only harm or disadvantage associated with autism is that which results from discrimination, and since a disorder is harmful by definition, autism cannot be a disorder.[16]

The non-disorder claim is also reflected at the level of policy and practice. Advocates of the neurodiversity perspective typically favour interventions that remove social and environmental obstacles to the flourishing of autistic people, while opposing medical and behavioural interventions that aim to "cure" autism or "normalise" autistic behaviour, screening to prevent autistic people from coming into existence, and research (e.g. into genetic markers for autism) that could facilitate these ends.[17] Opposition to such interventions is linked to the idea that interventions aimed at curing or preventing a condition are only appropriate where that condition is a disorder or disease, and are unnecessary for conditions that are not intrinsically harmful. This is also expressed in more rhetorical language, for example "regarding autistic individuals as fully persons rather than as broken beings in need of repair."[18]

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[14] Jaarsma, P., & Welin, S. (2012). Autism as a natural human variation: Reflections on the claims of the neurodiversity movement. *Health care analysis*. *20*(1), 20–30 (pp. 20, 22). These authors' defence of a "narrow" neurodiversity that applies only to high functioning autism will be considered below.

[15] Ortega, F. (2009). The cerebral subject and the challenge of neurodiversity. *BioSocieties*. *4*(4), 425–445 (p. 432).

[16] See, for example, Jerome Wakefield's influential account of disorder as harmful dysfunction, recently defended in Wakefield, J.C., & Conrad, J.A. (2019). Does the harm component of the harmful dysfunction analysis need rethinking?: Reply to Powell and Scarffe. *Journal of medical ethics*. *45*(9), 594 – 596.

[17] Kapp, S.K., Gillespie-Lynch, K., Sherman, L.E., & Hutman, T. (2013). Deficit, difference, or both? Autism and neurodiversity. *Developmental psychology*. *49*(1), 59–71 (p. 60); Bagatell, N. (2010). From cure to community: transforming notions of autism. *Ethos*. *38*(1), 33–55 (p. 44); Ortega, op. cit. note 15, pp. 426, 432. There are, it should be noted, many purported treatments for autism that are ineffective and/or demonstrably dangerous, and which there is therefore good reason to oppose irrespective of one's stance on "cure" and "normalisation". However, it is not only because of these risks that such treatments are opposed. For example, Applied Behavioural Analysis (a form of intervention that involves rewarding performance of desired behaviours or skills and – sometimes – punishing undesired ones) is attacked not only for its questionable evidential basis and use of punitive "aversives", but for repressing natural modes of expression and focusing too strongly on normalisation; see Kapp, S.K., et al., op. cit. note 17, p. 60; Ortega, op. cit. note 15, p. 429.

[18] Anderson, J.L. (2013). A dash of autism. In *The philosophy of autism* (pp. 109–142). Plymouth: Rowman & Littlefield Publishers (p. 127). Such language can be described as rhetorical because the converse claims are neither generally asserted by opponents of the neurodiversity paradigm nor do they follow from the statement that someone has a disorder or disease. Calling a person "broken" would widely be considered unwarranted even in virtue of a condition acknowledged to be a disease or disorder. This is not to diminish that fact that some scientists and philosophers have discussed autism in ways that does call into question autistics' personhood, or membership of the moral community; but it is misleading to conflate this with the question of whether autism is a disorder.

Although these judgements about policy and practice are linked to the non-disorder claim and confirm its importance within the neurodiversity paradigm, they are best viewed as putative consequences of the paradigm rather than included among its defining features. One reason for this is definitional: neurodiversity advocates such as Walker use the term "paradigm" (drawing, if only loosely, on Kuhn) to refer to:

> a set of fundamental assumptions or principles, a mindset or frame of reference that shapes how one thinks about and talks about a given subject. A paradigm shapes the ways in which one interprets information, and determines what sort of questions one asks and how one asks them. A paradigm is a lens through which one views reality.[19]

The paradigm is thus seen by its advocates as distinct from the wider conglomeration of views found in the neurodiversity movement, including its attitude to practical and policy issues, although providing a foundation for them.[20] Another reason for putting some distance between these views on practice and policy and the neurodiversity paradigm itself is that the former do not follow straightforwardly from the latter: questions about the appropriateness of medical or other interventions will depend not only on whether the condition they target is a disorder, or even whether it is harmful, but also on considerations external to the paradigm (and to the scope of this paper), including the effectiveness and risks of available interventions, the autonomous choices of people with the condition, the interests and rights of parents and prospective parents, societal interests, and the ethical significance of the treatment/enhancement distinction.

The question of whether autism is a disorder should also be distinguished from the related question of whether it is a disability. Some authors have conflated these questions or have framed arguments about neurodiversity in terms of disability in ways that have led to accusations of misrepresenting the neurodiversity movement.[21] It would be surprising for a

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[19] Walker (2013), op. cit. note 4. See also Chapman, op. cit. note 6, pp. 272–3; Dwyer, P. (2018). On neurodiversity: or, how to help people without calling them broken (Part II). Retrieved from http://www.autisticscholar.com/on-neurodiversity-ii/.

[20] See the quotation corresponding to note 4.

[21] Those who have framed the neurodiversity paradigm as denying that autism is a disability include Jaarsma, Welin, op. cit. note 14; Baron-Cohen, S. (2002). Is Asperger syndrome necessarily viewed as a disability? *Focus on autism & other developmental disabilities*. *17*(3), 186. Critics of this framing include Bailin, A. (2019). Clearing up some misconceptions about neurodiversity. Retrieved from https://blogs.scientificamerican.com/observations/clearing-up-some-misconceptions-about-neurodiversity/; Thinking Person's Guide to Autism (undated, accessed April 2020). Neurodiversity FAQ. Retrieved from http://www.thinkingautismguide.com/p/so-youre-doing-story-about.html.

movement that views itself as an extension of the disability rights movement[22] to deny that its members are disabled, but analogies drawn between autism and identities such as race, gender and sexuality, and the denial that it is a disorder, may seem to suggest such a view. The solution to this puzzle is that, like most disability rights activists, supporters of the neurodiversity paradigm understand disability in terms of the social model, according to which *impairments*, understood as biological or psychological characteristics of individuals, only become disabling in a social context of discrimination or failure to accommodate difference. As one of the social model's architects put it: "It is not individual limitations, of whatever kind, which are the cause of the problem but society's failure to provide appropriate services and adequately ensure the needs of disabled people are fully taken into account in its social organisation".[23] The claim, then, is that autistic traits are not *intrinsically* disabling; autism is not a disability in itself, but only in a social context where neurotypical modes of social interaction, communication and behaviour are valued above others, and where those who do not conform are discriminated against or in other ways socially disadvantaged.

Identification of autism as a disability, in these terms, is consistent with the non-disorder claim, where a disorder is understood as an intrinsically harmful form of atypical functioning. It is worth noting, however, that the "social model" has been interpreted in various ways. The strongest versions (suggested by the previous quotations from Walker and Oliver, and by the neurodiversity paradigm's analogies with race, gender and sexuality) hold that the disadvantage associated with impairments is *wholly* a result of social conditions, while differing from one another over whether those conditions are primarily a matter of infrastructure and services or of cultural representation. More nuanced accounts (sometimes distinguished from the social model as "relational" or "interactional" models) view disability as resulting from the interaction of internal and contextual factors while acknowledging that the effects of the former cannot always be eliminated by changing culture and environment.[24] Each of these may be true of different traits, and the relative influence of individual traits and social factors may vary from case to case. A relational model, however, could recognise the importance of social factors in determining the impact of autistic traits without denying that they may sometimes be intrinsically disadvantageous.

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[22] Walker, N. (2016). Autism and the pathology paradigm. Retrieved from http://neurocosmopolitanism.com/autism-and-the-pathology-paradigm/; Singer (1999), op. cit. note 7, pp. 64, as quoted above.

[23] Oliver, M. (1996). *Understanding disability: From theory to practice*. New York: St Martin's Press (p. 32).

[24] Shakespeare, T. (2014). *Disability rights and wrongs revisited*. Abingdon: Routledge: 74-76.

Social value

While the non-disorder claim and the social model focus on the impact of neurodivergence on the individual, a second strand of thinking about neurodiversity focuses on its social value. This is sometimes expressed by comparing the value of neurodiversity for society with that of biodiversity for an ecosystem. As Chapman puts it, "just as biodiversity is crucial for the ecosystem to survive and flourish, so too, according to neurodiversity proponents, is neurological diversity similarly crucial for humanity."[25] Singer asks:

> Why not propose that just as biodiversity is essential to ecosystem stability, so neurodiversity may be essential for cultural stability? Why not strategically argue that the nurturing of neurodiversity gives society a repository of types who may come into their own under unforeseeable circumstances…[26]

Walker similarly writes that "[t]o embrace the neurodiversity paradigm is…to accept neurodiversity as a natural, healthy, and important form of human biodiversity – a fundamental and vital characteristic of the human species, a crucial source of evolutionary and creative potential."[27] In these accounts, neurological diversity appears to be valued instrumentally. For Anderson – who writes that "one should regard autistic neurology as worth valuing because each neurological structure contributes to the collective variety of human neurological diversity, in much the same way that each human culture contributes to cultural diversity and each of the hundreds of human languages makes a valuable contribution to human linguistic diversity"[28] – the value appears to be intrinsic.

Other commentators focus on the social value of particular attributes common among autistic people, including pattern-recognition, attention to detail, memory, focus, and lack of deference to convention. Retrospectively "diagnosed" historical figures such as Mozart, Newton, Einstein and Wittgenstein, and contemporaries (whether diagnosed or not) such as Bill Gates, Steve Jobs, Temple Grandin and Greta Thunberg are cited as exemplifying such traits. Baron-Cohen writes that "[s]ociety owes a special debt to those [autistics] who have innovated in the fields of technology, music, science, medicine, mathematics, history, philosophy, engineering and

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[25] Chapman, op. cit. note 6, p. 374.

[26] Singer (2017), op. cit. note 7, p. 67.

[27] Walker, N. (2013). Neuro-what? Retrieved from http://neurocosmopolitanism.com/neuro-what/.

[28] Anderson, op. cit. note 18, p. 127.

other systemizing fields”,[29] while for Silberman, focusing especially on the role that autistic people have played in information technology industries, “autistic people are fantastically imaginative. They're excellent pattern-recognizers. If we can harness autistic intelligence, we can make tremendous advances in our society and the way we view the world.”[30]

The latter approach – identifying the value of particular attributes – avoids the fallacy of inferring from the premise that a degree of diversity within a system is necessary to its survival or flourishing to the conclusion that every element within the system is similarly necessary, or that more diversity is always better.[31] It also suggests a connection between the social value claim and the non-disorder claim, as the attributes that are identified as valuable to society will in many cases also be good for the individual. These claims remain distinct, however, as there is no necessary alignment between traits beneficial to society and to the individual, and even where they do align, no guarantee that the benefits to the individual will outweigh any personal disadvantage associated with their autism.[32] Since the neurodiversity movement is primarily concerned with promoting the rights and interests of autistics and members of other neurodivergent groups, it seems plausible to say that the non-disorder claim is more central to the neurodiversity paradigm than the social value claim, and that the latter functions (as Singer indicates in the previously quoted passage) more as a political or strategic argument for accommodation and against prevention.

Natural and normal

A third claim that commonly features in academic and non-academic accounts of the neurodiversity paradigm is the claim that autism is “natural” or “normal”, the terms often being used interchangeably. Walker claims that neurodiversity “is a natural and valuable form of

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[29] Baron-Cohen, S. (2011). *Zero degrees of empathy: A new theory of human cruelty*. London & New York: Allen Lane (p. 84).

[30] Silberman quoted in Wadsworth, J. (2014). A different state of mind: embracing autism, Asperger’s and intellectual diversity in Silicon Valley. *Metroactive*. Retrieved from http://www.metroactive.com/features/autism-asperger-intellectual-diversity-silicon-valley.html,

[31] Singer commits this fallacy in a recent blog post, where she writes that her coining of the term “neurodiversity” was inspired by environmentalists who “used the word *Biodiversity* to argue that the most stable ecosystems are those that are most diverse, from which it follows that all species must be conserved”; see Singer, J. (2019). There’s a lot in a name... Diversity vs divergence. Retrieved from https://www.geniuswithin.co.uk/blog/theres-a-lot-in-a-name-diversity-vs-divergence/.

[32] The potential for traits to be beneficial to society but not the individual is discussed in the context of gene editing in Anomaly, J., Gyngell, C., & Savulescu, J. (2020). Great minds think different: Preserving cognitive diversity in an age of gene editing. *Bioethics*. *34*(1), 81–89. Relatedly, Garland-Thomson draws together arguments for conserving disability because of its potential to shape the way we perceive and think about the world, while recognising that these are challenged by the suffering upon which some aspects of this epistemic function depends; see Garland-Thomson, R. (2012). The case for conserving disability. *Journal of bioethical inquiry*. *9*(3), 339–355.

human diversity."[33] Kapp et al found that neurodiversity proponents "essentialize autism as caused by biological factors and celebrate it as a part of natural human variation".[34] For Robison, "neurodiversity is the idea that neurological differences like autism and ADHD are the result of normal, natural variation in the human genome."[35] Jaarsma and Welin identify the view that autism is a "natural variation among humans" as one of two key "aspect[s] of the neurodiversity claim".[36]

One difficulty in interpreting such claims is that their apparently interchangeable use of "natural" and "normal" conflicts with the ordinary meanings of these terms, suggesting that they are used for rhetorical effect rather than with any precise meaning. The assertion of naturalness appears to be intended to reinforce ideas about the value (or at least non-harmfulness) of autism, which, as we have seen, form part of the non-disorder and social value claims. However, as Mill famously observed, "nature" is typically taken to refer either to "the entire system of things" including humans and whatever they do, or to "things as they would be, apart from human intervention", and in neither sense can it provide a plausible guide to what is valuable or how humans should act.[37] In the first sense, the claim that autism is natural would be empty; in the second, it would exclude it having anthropogenic causes such as vaccines, pollution, or bad parenting, but would not entail any judgement about its value or harmfulness, or about what kinds of intervention would be justified. Alternatively, the claim that autism is a natural variation might relate to the idea of natural selection and that autistic traits have been selected for evolutionary advantage. However, this would entail only that autistic traits were functional during our evolutionary history, and not that they are beneficial either to the individual or society under current conditions.

Jaarsma and Welin distinguish between "statistical" and "evaluative" normality, but offer no analysis of the latter to distinguish it from claims about harmfulness or social value. "Statistical normality" refers to the frequency with which a property or characteristic occurs.[38] On this interpretation, to say that autism is a normal variation is to say that it is a common condition. Since the prevalence of autism is not a matter on which neurodiversity advocates and their opponents systematically disagree, any dispute about its statistical normality must be a

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[33] Walker (2014), op. cit. note 4.

[34] Kapp, S.K., et al., op. cit. note 17, p. 60.

[35] Robison, J.E. (2013). What is neurodiversity? *Psychology today*. Retrieved from http://www.psychologytoday.com/blog/my-life-aspergers/201310/what-is-neurodiversity.

[36] Jaarsma & Welin, op. cit. note 14, p. 21.

[37] Mill, J.S. (1874). *Three essays on religion*. New York: Henry Holt & Company: 64

[38] Jaarsma & Welin, op. cit. note 14, p. 24.

disagreement about how high this figure must be to count as "normal." But why should neurodiversity advocates care about what seems to be a purely semantic issue? One reason might be that the concept of disorder implies a deviation from the norm, so to assert that autism is normal is to deny that it is a disorder.[39] However, since some conditions that *are* generally considered to be disorders (arthritis, for example) are more common, and therefore more normal in the statistical sense, than autism, we must conclude either that being statistically abnormal is not necessary for a characteristic to count as a disorder, or that autism is sufficiently uncommon to meet this condition. Moreover, any such frequency threshold for what can count as a disorder would seem arbitrary and disconnected from the substantive reasons that neurodiversity advocates have for wanting to deny that autism is a disorder, which, as we have seen, are to do with questions of harmfulness and the appropriateness of intervention, not with frequency.

There is, in addition, a tension between insistence on regarding autism as "normal", in the statistical sense, and the central aim of the neurodiversity paradigm, which is to offer a way of conceptualizing and responding to states that *do* differ from the norm; states that are, in the terminology associated with the paradigm, *neurodivergent*. To deny that autistic people can meaningfully be described as statistically non-typical would be to obscure this focus.

It would appear from the discussion in this section that the most central component of the neurodiversity paradigm is the claim that autism (along with other neurodivergent conditions) is not a disorder. This claim is explicit in influential presentations of the paradigm, and it connects with rhetorical expressions commonly used by neurodiversity advocates, their endorsement of the social model of disability, and their opposition to curative and preventive interventions. The non-disorder claim is best understood as denying that autism and similar conditions are intrinsically harmful or disadvantageous. The following section will examine the challenge to this claim arising from the heterogeneity of autism. Claims about the positive social value of such conditions provide additional support for the political goals of the neurodiversity movement, potentially offering instrumental reasons for society to accommodate rather than seek to eliminate autistic traits. However, given that the neurodiversity movement is about advocacy for the rights and interests of autistics, these are

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[39] A defence of this requirement (albeit in relation to disability rather than disorder), as well as a recognition that its application can be "messy" in the context of changing human capacities, is given in Glover (2006). *Choosing children: Genes, disability, and design*. Oxford: Clarendon Press (pp. 10-13). For an opposing view see Savulescu, J., & Kahane, G. (2011). Disability: A welfarist approach. *Clinical Ethics*. *6*(1), 45–51.

better seen as supplementary political arguments rather than core elements of the paradigm. Finally, arguments from naturalness or normality are as problematic here as in other areas of ethics and are most plausibly viewed as rhetorical expressions of the aforementioned claims.

3. THE CHALLENGE OF AUTISM HETEROGENEITY

The heterogeneity of autism, understood as the wide and complex variation in its behavioural manifestations, has been increasingly recognised as a challenge to the scientific study of autism.[40] This section examines ways in which that heterogeneity also challenges the neurodiversity paradigm as expounded in the previous section. The argument that the neurodiversity paradigm cannot satisfactorily deal with the full range of ways in which autism manifests is not new, and has been debated within activist and academic literature. The discussion here will attempt to clarify that argument and to lay the foundations for assessment of some responses to it.

A discussion of the heterogeneity of autism needs to start from some account of what autism is. Views about the essential nature of autism are controversial and have changed over time, but the nearest thing we have to a standard working definition is the diagnostic criteria contained in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). This, along with its World Health Organisation counterpart, the *International Classification of Diseases*, provides the framework within which clinicians diagnose autism. It also reflects a wide range of current scientific and clinical thinking, and maintains a broad continuity with influential accounts of autism going back to the original descriptions by Kanner and Asperger. Thus, even if we eventually conclude that some other factors are more basic to autism than the diagnostic criteria picked out by the DSM, we should expect those factors to be linked to the current criteria and to pick out many of the same individuals as autistic.[41]

It might be objected that defining autism in terms of the DSM begs the question against the neurodiversity paradigm, since the DSM is rooted in a medical approach to the conditions it defines and has as its purpose the definition of these conditions as mental disorders. However,

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[40] See note 5.

[41] This is not to endorse what Waterhouse (op. cit. note 5, p.388) calls on 'originalist' account of autism (i.e. one which "returns to Kanner's 1943 definition of autism as the original and correct basis for diagnosis") but merely to insist that in order for meaningful communication to take place there must be some continuity between successive definitions.

it is possible to draw on the DSM's account of the traits that characterise autism as a way of provisionally fixing the scope of the condition while remaining agnostic about whether it constitutes a disorder in the sense denied by the neurodiversity paradigm. A pragmatic distinction of this kind presumably lay behind the decision of the Autistic Self-advocacy Network, an organisation that supports the neurodiversity paradigm, to become involved in the negotiation process leading to the formulation of the DSM-5 criteria.[42]

The DSM-5 diagnostic criteria accommodate a wide range of ways of being autistic. Individuals diagnosed with autism spectrum disorder (ASD) must satisfy two top-level criteria: "[p]ersistent deficits in social communication and social interaction across multiple contexts" and "[r]estricted, repetitive patterns of behaviour, interests, or activities" (RRBs).[43] Each of these criteria can be satisfied in different ways: the first by deficits in social and emotional reciprocity, nonverbal communication behaviour, and ability to maintain and understand relationships; the second by stereotyped or repetitive motor movements, insistence on sameness and inflexible adherence to routines or ritualised patterns of behaviour, restricted interests of abnormal intensity, and hyper- or hypo-reactivity to sensory inputs and or unusual interest in sensory aspects of the environment. While the manifestations of the first (social communication) criterion might all be related in some way to a person's ability to read and respond to others' states of mind, there is a big difference between, for example, an "absence of interest in peers" and problems of reciprocity and communication leading to difficulty in maintaining desired relationships, or between having few words of intelligible speech and articulating one's thoughts fluently but struggling to interpret figurative language or negotiate the to-and-fro of conversation. The second (RRB) criterion can be satisfied by (amongst other things) the repetitive motor movements (e.g. flapping, spinning or jumping) often referred to as "stimming" and said by many autistics to be a way of regulating sensory overload or emotions, or by the intense "special interests" that can appear as intellectual strengths for many autistics; such traits need not coincide and appear to be qualitatively quite different.[44]

The breadth of these diagnostic criteria can also be viewed in historical context. In the 1940s, Asperger, in Germany, and Kanner, in the US, both used the term "autistic" to describe children

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[42] Kapp, S.K., & Ne'eman, A. (2020). Lobbying autism's diagnostic revision in the DSM-5. In S.K. Kapp, *Autistic community and the neurodiversity movement: Stories from the frontline* (pp. 167–194). Palgrave Macmillan.

[43] American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association (p. 50).

[44] See Fletcher-Watson & Happé, op. cit. note 5, p. 33; Waterhouse, op. cit. note 5, pp. 6–8.

exhibiting abnormalities in social interaction and repetitive behaviours.[45] Kanner's account provided the foundation for subsequent research leading up to the inclusion of autism the third edition of the DSM in 1980.[46] Asperger's work, on the other hand, remained largely unknown in the English-speaking world until discussed by Wing in 1981.[47] His account differed from Kanner's in placing more emphasis on the strengths of the children he described, and less on linguistic impairment, and therefore came to be associated with a "high functioning" form of autism.[48] Thus, the introduction of "Asperger's Disorder" in DSM-IV (1994), as a diagnosis related to Autistic Disorder but applicable to individuals with average or higher intelligence and no language delay represented a broadening of the overall range of recognized autistic conditions. The merging of these diagnostic categories into the single diagnosis of ASD in DSM-5 maintained that breadth while recognising that the distinction between them lacked explanatory significance and was not consistently applied by diagnosticians.[49] In DSM-5, differences in presentation are to be marked not by different diagnostic labels, but by specification of the level of severity ("requiring support", "requiring substantial support", or "requiring very substantial support") for each of the two headline criteria, and the presence or absence (and if present, the nature) of intellectual impairment and language impairment.[50] Specification of intellectual impairment should take account of the often-uneven intellectual profile of a child or adult with ASD and include separate estimates of verbal and nonverbal skills, while specification of language impairment should distinguish between receptive and expressive language skills.

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[45] Asperger, H. (1991). 'Autistic psychopathy' in childhood. In U. Frith, Autism and Asperger syndrome (pp. 37–92). Cambridge: Cambridge University Press; Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous child*. *2*, 217–250.

[46] On the relation between Kanner's work and the development of the DSM diagnostic criteria see Sanders, J.L. (2009). Qualitative or quantitative differences between Asperger's disorder and autism? Historical considerations. *Journal of autism and developmental disorders*. *39*(11), 1560–1567 (pp. 1560-61).

[47] Wing, L. (1981). Asperger's syndrome: a clinical account. *Psychological medicine*. *11*(1), 115–129.

[48] Unlike Kanner, Asperger (op. cit. note 45, pp. 69-70) describes no cases in which language is absent. He notes that the language of his subjects has an "unnatural" feel and is deficient in the expression of affect through volume, tone and flow. He appears to attribute this to underlying difficulties of social interaction rather than viewing it as a separate problem of communication. See also Sanders, op. cit. note 46.

[49] Fletcher-Watson & Happé, op. cit. note 5, p. 32; Sanders, op. cit. note 46. This also reflected much earlier findings by Wing (who coined the term "autistic spectrum") and Gould, that among children displaying the main features of autism, many did not fully match the descriptions given by either Kanner or Asperger, and no clear boundaries could be drawn to separate different subgroups; see Feinstein, A. (2010). *A history of autism: Conversations with the pioneers.* Chichester & Malden, MA: Wiley-Blackwell (p. 175); Wing, L. (1993). The definition and prevalence of autism: A review. *European child & adolescent psychiatry*. *2*(1), 61–74; Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of autism and developmental disorders*. *9*(1), 11–29.

[50] American Psychiatric Association, op. cit. note 43, pp. 51–52.

It can be seen from the last two paragraphs that the DSM-5 criteria allow for a wide range of quantitatively and qualitatively different ways of being autistic. They suggest, despite the name given to the diagnostic category, that autism is not so much a "spectrum" (with its connotation of a linear variation) as a multi-dimensional "landscape",[51] "space",[52] or "constellation".[53] The challenge this poses for the neurodiversity paradigm is that within this space there are people whose very significant challenges appear not to be wholly social, and to be appropriately described as disorders. As Chapman puts it, these "more so-called severe conditions" are presented as "obviously pathological" and therefore as evidence that the neurodiversity paradigm is flawed.[54] This is not only of theoretical interest, since a misclassification of such conditions may lead to inadequate support or treatment. Some parents of autistic children complain that "[n]eurodiversity advocates ignore the harsh realities of severe autism, and want to forget about my sons and others like them."[55] Neurodiversity advocates may truthfully respond that they campaign for better support for all autistics, not only the more able, but here we must attend to the distinction between the neurodiversity movement and the neurodiversity paradigm. Even if activists within the movement campaign for all autistics, it may be that views to which many of them subscribe – that autism is not a disorder and that the associated disadvantage is socially caused and is best addressed by social rather than medical means – are unhelpful to some of the most profoundly affected.

The key question for assessing the neurodiversity paradigm, given the analysis in the previous section, is whether denial of the intrinsic harmfulness of autism is plausible across this varied landscape.[56] Some differences in a person's manner of communication and social interaction

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[51] Glover, J. (2014). *Alien landscapes? Interpreting disordered minds*. Cambridge, Massachusetts: The Belknap Press (p.131).

[52] Hacking, I. (2006). What is Tom saying to Maureen? *London review of books*. *28*(9). Retrieved from https://www.lrb.co.uk/the-paper/v28/n09/ian-hacking/what-is-tom-saying-to-maureen.

[53] Hearst, C. (2015). Does language affect our attitudes to autism? Retrieved from http://www.autismmatters.org.uk/1/post/2015/01/does-language-affect-our-attitudes-to-autism.html.

[54] Chapman, op. cit. note 6, p. 379.

[55] Quoted in Costandi, M. (2019). Against neurodiversity. Retrieved from https://aeon.co/essays/why-the-neurodiversity-movement-has-become-harmful.

[56] One issue raised by this question is that the constituents of the good life, and therefore what counts as a benefit or harm, may differ between autistic and neurotypical people (as well as between people more generally); for example, people may have different levels of motivation towards friendship (or certain aspects thereof) and therefore be differently affected by its presence or absence. This is discussed as a problem for the construction of a philosophical theory of wellbeing applicable to autistic people in Rodogno, R., Krause-Jensen, K., & Ashcroft, R.E. (2016). 'Autism and the good life': A new approach to the study of well-being. *Journal of medical ethics*. *42*(6), 401–408. However, the kinds of harms referred to in the argument below do not depend on any general theory of wellbeing but relate directly to autistic people's experiences. As such, this is consistent with Rodogno et al's view that an account of autistic wellbeing must begin by attending to and interpreting autistic people's experiences, for example by noting activities that produce security, engagement and flow, on the one hand, and anxiety, depression and irritability, on the other.

need not be disabling at all in the absence of discriminatory attitudes (for example, the assumption that unusual patterns of speech indicate low intelligence or that lack of eye contact indicates lack of interest). This also applies to repetitive physical behaviours that may cease to be disconcerting to others if correctly understood as functional responses to anxiety or sensory difficulties. Narrowly focused interests may be harmless or even beneficial, depending on the nature of the interests and the degree of narrowness. However, other characteristics, such as inability to tolerate the sensory stimulation produced by common environments, more substantial social and communication difficulties (which can make it difficult to maintain desired relationships), and a tendency to panic or become distressed about minor changes to routine, may require, in addition to an absence of overt discrimination, positive interventions such as the provision of quiet spaces, designated “autism friendly” times during which shops or other services reduce lighting and sound levels, assistive communication technology, or support workers, in order to be rendered non- (or minimally-) disabling.

Advocates of the neurodiversity paradigm are often among the strongest supporters of such measures, but the fact that positive interventions are needed suggests that the traits that render them necessary may be intrinsically disadvantageous. A counterargument to this is that the absence of such measures is itself unjustly discriminatory, and that it is this, rather than the presence of autistic traits, that is responsible for the disadvantage. Everyone has certain infrastructure and resource needs without which they would be disadvantaged, and, it may be argued, autistics are disadvantaged because society unjustly fails to provide for the particular needs of this minority.

This argument turns the claim that autistic traits are not intrinsically disadvantageous into the moral claim that they would not be disadvantageous in a just society. However, even a just society has to make hard choices and cannot fully meet the needs of all groups, firstly because scarcity of resources forces societies to prioritise between competing needs, and secondly because modifications of the social and physical environment designed to accommodate people with one type of impairment are sometimes detrimental to those with other types.[57] Thus, the failure to provide for particular needs is not necessarily unjust, and even if all autistic traits could be individually rendered harmless by modifications of public infrastructure or provision of resources to individuals, there is no reason to take the simultaneous provision of all such

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[57] Shakespeare, op. cit. note 23, pp. 37–8; Kahane, G., & Savulescu, J. (2009). The Welfarist Account of Disability. In K. Brownlee & A.S. Cureton, *Disability and disadvantage* (pp. 14-53). Oxford: Oxford University Press (pp. 40-42).

measures as the baseline for assessing their intrinsic harmfulness. Additionally, some characteristics, including more severe manifestations of communication and sensory difficulties and issues with impulse and attention control, may remain significantly disabling even when all possible forms of support have been provided, and to a degree that outweighs any counterbalancing advantages.

I have so far considered the heterogeneity of autism in terms of the range of behavioural traits that make up the autistic "landscape" and indicated how this challenges the claim that autism is not intrinsically harmful and therefore not a disorder. However, it can also refer to variation in the underlying mechanisms or causes that give rise to these traits. Heterogeneity at this level is also relevant to the claims of the neurodiversity paradigm in ways that will become apparent in the following sections.

The framing of autism as a unitary diagnosis despite its heterogeneity is based on the assumption that there is some underlying reality common to these different manifestations.[58] This assumption underpins the expectation that scientific study of autism as a discrete phenomenon (for example, conducting studies of participants with an autism diagnosis) will uncover causes and treatments. However, this search has so far proved elusive.

At the psychological level, various explanations of autistic behaviours have been proposed, including impairments in theory of mind (ability to accurately attribute mental states to others, sometimes linked to the capacity to empathise, although the latter can have different meanings), in central coherence (ability to perceive complex things as wholes rather than collections of parts, and to grasp the significance of context rather than remaining fixated on detail), and in executive function (ability to regulate attention and behaviour, switch between tasks and inhibit impulses).[59] Other theories that are favoured by some neurodiversity advocates for their apparently more favourable assessment of autistic capabilities include the "intense world" theory, according to which autistics have heightened perception, attention and memory, which can lead them to withdraw from the sources of painful sensory and cognitive overload,[60] and "monotropism", which postulates a tight focus of attention on a small number of highly-

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[58] Hens, K. (2019). The many meanings of autism: Conceptual and ethical reflections. *Developmental medicine & child neurology*. *61*, 1025-1029 (p. 1025).

[59] Fletcher-Watson & Happé, op. cit. note 5, chapters 6 & 8.

[60] Markram, K., & Markram, H. (2010). The intense world theory – A unifying theory of the neurobiology of autism. *Frontiers in human neuroscience*. *4*(224), 1–29. Markram, H., Rinaldi, T., & Markram, K. (2007). The intense world syndrome – An alternative hypothesis for autism. *Frontiers in neuroscience*. *1*(1), 77–96.

aroused interests, resulting in difficulty with tasks that require broadly distributed attention.[61] Other recent theories include "enhanced perceptual functioning", which shares the weak central coherence model's assertion that autistics have a bias towards "local" perception but without taking this to be based on a deficit at the "global" level,[62] and "HIPPEA" (High, Inflexible Precision of Prediction Errors in Autism), which postulates that in comparing predictions with experience autistics fail to discount irrelevant discrepancies or to take sufficient account of context, leading them to update their mental models too frequently and to adopt models that are over-specified and not generalisable.[63]

There is, however, no consensus in favour of any one of these accounts. None of them readily accounts for all the behaviours that are taken to be characteristic of autism, and there is increasing recognition that there may not be a single explanation. It seems likely that an adequate explanation of autism will need to refer to several of these (and/or other) mechanisms, and that the significance of each will vary from case to case.

Biologically, there is likewise no single clear underpinning for autism. At the neurological level, differences in brain size (overall and in particular regions) and differences in structural and functional connectivity have been found between autistic and neurotypical populations. However, there are also wide differences within the autistic population, and, given brain plasticity, it is not clear which differences are causes and which are effects of autism.[64] Moreover, there is evidence that different neurological features are associated with different autistic traits.[65] It is also well established that autism has a strong genetic component, but studies indicate that many different genes are involved and that there is relatively little overlap between the genes responsible for the different elements of the autistic phenotype, suggesting that that the individuals labelled autistic may simply be those in whom the traits that we associate with autism happen to coincide.[66]

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[61] Murray, D., Lesser, M., & Lawson, W. (2005). Attention, monotropism and the diagnostic criteria for autism. *Autism*. *9*(2), 139–156.

[62] Mottron, L., Dawson, M., Soulières, I., Hubert, B., & Burack, J. (2006). Enhanced perceptual functioning in autism: An update, and eight principles of autistic perception. *Journal of autism and developmental disorders*. *36*(1), 27–43.

[63] Van de Cruys, S., Van der Hallen, R., & Wagemans, J. (2017). Disentangling signal and noise in autism spectrum disorder. *Brain and cognition*. *112*, 78–83.

[64] Fletcher-Watson & Happé, op. cit. note 5, pp. 54–7.

[65] Happé, F., Ronald, A., & Plomin, R. (2006). Time to give up on a single explanation for autism. *Nature Neuroscience*. *9*(10), 1218–1220 (p. 1219).

[66] Waterhouse, op. cit. note 5, pp. 9–10.

The lack of success in finding either a causal mechanism at any of these levels or effective treatments has led some researchers to question the utility of a single diagnosis. Fletcher-Watson and Happé note that “many people now talk of ‘the autisms’ to reflect the belief that different individuals have different biological paths to autism.”[67] Happé and Ronald suggest “that research has been hampered by the assumption that the different symptoms that define autism proceed from the same cause” and propose that autism “consists of a collection of fractionable characteristics” that co-occur at above-chance frequency but can also be found in isolation and may sometimes be better studied as such.[68] Waterhouse goes further, arguing that not only do the characteristics that define autism lack a common cause; they share causal underpinnings with many other characteristics and conditions, including those that are commonly described as “co-occurring” with autism, “including but not limited to intellectual disability, attention deficit/hyperactivity disorder symptoms, perceptual problems, motor disorders, epilepsy, and language development problems.”[69] Autism, she argues, should therefore be thought of as neither a single disorder nor a distinct set of disorders, but rather as a set of “symptoms” associated with many different conditions.

These critical assessments may undermine the view of autism as *a* disorder (singular and separable from other conditions), but leave untouched that the idea that the conditions that give rise to autistic symptoms are disorders or that autistic traits are sometimes intrinsically harmful. This is reflected in Waterhouse’s conclusion, that “disbanding the concept of autism as a unitary disorder” should involve “acceptance of the totality of an individual’s symptoms as part of the disorder of that individual.”[70] I will argue below that this aspect of autism heterogeneity – the diversity of causal pathways leading to autism and lack of clear boundaries between autism and other conditions – makes it harder to defend the non-disorder claim, as some want to do, by appealing to a more narrowly defined notion of autism.

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[67] Fletcher-Watson, Happé, op. cit. note 5, p. 52.

[68] Happé, F., & Ronald, A. (2008). The ‘fractionable autism triad’: A review of evidence from behavioural, genetic, cognitive and neural research. *Neuropsychology review*. *18*(4), 287–304 (pp. 287, 300). Studies have disagreed about whether there is in fact a correlation between the different autistic characteristics; see Waterhouse, op. cit. note 5, p. 269.

[69] Waterhouse, op. cit. note 5, pp. xi, 206, 270, 433.

[70] Ibid: 270.

4. RESPONSE 1: “NARROW” NEURODIVERSITY

The problem for the neurodiversity paradigm highlighted in the previous section is that the non-disorder claim, and more specifically the claim that autism is not intrinsically harmful, cannot be generalized across the autistic landscape. Autism takes a wide range of differing forms, including some that are reasonably described as mere difference and others where, as Frith puts it, it would seem perverse to deny their debilitating nature.[71] This is a practical as well as a theoretical problem, since a conception of neurodiversity that denies real disabilities or characterizes them as merely social is likely to deprive some people of the support and resources that they need. This concern is central to Jaarsma and Welin’s engagement with the neurodiversity paradigm, but rather than viewing it as a reason to reject the paradigm altogether, they defend what they call a “narrow” conception of neurodiversity, one which applies only to those with “high-functioning” autism, and maintains, in contrast, that “people with low-functioning autism are extremely vulnerable and their condition justifies the qualification ‘disability’.”[72]

At first sight this may appear to be an attractive solution that recognizes and responds to the heterogeneity within autism. However, the distinction upon which it depends is controversial and problematic. Jaarsma and Welin write: “We will in many places distinguish between ‘high-functioning autists’ and ‘low-functioning autists’. There seems to be a partial consensus on this distinction: if autists have an IQ in the normal range (or above), they usually are said to have high-functioning autism (HFA).”[73] But this distinction is strongly opposed by many advocates of the neurodiversity perspective, and rendered problematic by some of the considerations discussed above.[74]

Autistic self-advocates have opposed the distinction between high-functioning and low-functioning autism for at least three reasons: (1) it downplays the difficulties faced by and

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[71] Frith, U. (2008). Autism: a very short introduction. Oxford; New York: Oxford University Press (p. 38).

[72] Jaarsma, Welin, op. cit. note 14, p. 28.

[73] Ibid: 21.

[74] It is worth noting, however, that some of the early advocates of neurodiversity similarly limited it to less “severe” cases. Singer (2017, op. cit. note 7, p.15) has noted that her initial focus was only on Asperger’s and that she views neurodiversity as an alliance of different “neurotribes” characterised by “simple” neurological variations, a term often used to indicate those with less severe impairments. Jaarsma and Welin’s wider aim of opposing the merging of Asperger’s Disorder into Autism Spectrum Disorder was also shared by many self-styled “Aspie” activists concerned about the stigma associated with the latter diagnosis. The fact that most neurodiversity activists now oppose the division of the autistic spectrum on the basis of severity or levels of functioning suggests that despite its medical orientation, the DSM retains a strong influence on the way that neurodiversity activists view the boundaries of their “identity”.

support needs of those who are labelled high-functioning; (2) it underplays the abilities and potential of those labelled low-functioning and so leads to assumptions of incompetence and failure to provide appropriate support; and (3) it is used to undermine identification across the spectrum and the ability of those labelled high-functioning to engage in advocacy on behalf of those who are less able to speak for themselves. Detailed examination of these claims is a topic for another paper, but the following observations provide some support for this critical stance.

The first and second points are a mirror image of Jaarsma and Welin's reasons for adopting the narrow conception of neurodiversity: Jaarsma and Welin argue that, applied across the spectrum, a disorder model of autism will underestimate the abilities of the high-functioning and a neurodiversity perspective will underestimate the support needs of the low-functioning, while the self-advocates' critique claims that relying on the high/low-functioning distinction is liable to underestimate the support needs of those labelled high-functioning and the abilities of those labelled low-functioning. This may especially affect those who are close, on one side or the other, to what is inevitably an arbitrarily-drawn boundary, but it also reflects the fact that complex and varying combinations of abilities and needs are found across the spectrum; thus, a crude division into high- and low-functioning categories may be just as misleading as an assumption of uniformity, especially when made on the basis of a variable such as IQ, which has been found to be an "imprecise proxy" for the functional abilities of people diagnosed with autism.[75]

This is an aspect of the same complexity that led the authors of DSM-5 to conclude that Autism Spectrum Disorder should replace the separate (but not consistently distinguishable) diagnoses of Asperger's Disorder and Autistic Disorder. DSM-5 does provide for identification of different levels of severity, but in a more nuanced way than the binary division endorsed by Jaarsma and Welin.[76] Although DSM-5 indicates that a diagnosis of ASD should specify the presence or absence of intellectual impairment (and language impairment), it calls for a descriptive account of any such impairment, taking account of the often uneven profiles of individuals with ASD, rather than a single numerical score. More importantly, it does not derive the level of "severity" directly from these impairments, but defines it in terms of the level of

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[75] Alvares, G.A., Bebbington, K., Cleary, D., Evans, K., Glasson, E.J., Maybery, M.T., … Whitehouse, A.J. (2019). The misnomer of 'high functioning autism': Intelligence is an imprecise predictor of functional abilities at diagnosis. *Autism*. *24*(1), 221–232 (p. 227). See also Lim, C. (2015). Accommodating autistics and treating autism: Can we have both? *Bioethics*. *29*(8), 564–572.

[76] This is partly due to lobbying from the pro-neurodiversity Autistic Self-advocacy Network; see Kapp & Ne'eman, op. cit. note 42.

support needed by an individual, assessed separately in relation to each of the main diagnostic criteria. Even this, however, is an oversimplification, given the very different traits covered by each of the main criteria, as discussed in the previous section.

The third criticism of the distinction between high- and low-functioning autism is more political. Some autistic self-advocates view this distinction as delegitimising their efforts to advocate on behalf of those autistics who are less able to speak for themselves.[77] In particular, they are critical of parents of "severely" autistic children who deny that they have anything to learn from the experiences of autistic self-advocates on the grounds that adults who can describe and analyse their experiences and offer advice on the treatment of autistic children must be functioning at a level that makes their experience irrelevant to "low-functioning" autistic children.

It would be mistaken, given the acknowledged differences between autistic individuals and the importance of the personal knowledge that parents usually have of their own children, to assume that such experience will always be relevant or that parents should always defer to the advice of autistic adults. Nevertheless, the testimony of adult autistics is an important resource that can help parents, practitioners and researchers to understand the needs and capabilities of those who are (at least currently) less able to express their own needs. To dismiss it on the assumption of a fundamental difference between high-functioning and low-functioning autistics would be to ignore both the developmental aspect of autism (many adult autistic who are able to reflect upon and describe their childhood experiences would themselves have been considered low-functioning at the time) and the diverse combinations of abilities and difficulties that affect autistic people and which mean that the apparently high-functioning may share many experiences with those whose difficulties are more visible.

These points show that, contrary to Jaarsma and Welin, there is not a consensus on the distinction between high- and low-functioning autism. Their attempt to resolve the "paradox" of neurodiversity by limiting the scope of the neurodiversity perspective to high-functioning autistics ignores the complex, multi-dimensional nature of autism, and is liable to result in harms on both sides of the divide that mirror the harms that it is intended to avoid. Their stated motivation is to protect "high-functioning" autistics from the stigma associated with disability or disorder, but the solution they propose is contrary to the preferences of many who are

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[77] For example, see the blog *We Are Like Your Child*, http://wearelikeyourchild.blogspot.co.uk/.

labelled as such, and, in addition, an approach that tries to distance more able autistics from those who are less able is likely to make the label of autism *more* stigmatizing for those in the latter category.

Given that the difficulties with Jaarsma and Welin's strategy arise partly from the use of a crude measure such as IQ to partition a complex array of differing abilities, it might be tempting to dispense with such indicators and simply define high- and low-functioning autism according to whether, overall, the benefits of an individual's autistic characteristics outweigh the harms or vice versa. However, such a definition would turn Jaarsma and Welin's narrow neurodiversity into a tautology claiming that autism is a disorder only in those cases where it is harmful. In practical terms this approach would not add anything of substance to a case-by-case assessment of individuals' abilities and needs – except perhaps to increase the stigma of those labelled "low-functioning".

5. RESPONSE 2: CO-EXISTING CONDITIONS

A second strategy for defending the neurodiversity paradigm against the problem of autism heterogeneity is to argue that the most harmful aspects of autism, those which appear to be suitable candidates for medical treatment and to warrant characterising autism as a disorder, are not actually part of autism but are co-occurring conditions.[78] In this vein, Chapman writes that:

> the neurodiversity paradigm does not, after all, dismiss or overlook the suffering autistic people typically face. At least on Walker's account, the paradigm explicitly allows for, say epilepsy, or seizures, to be cured. Since these kinds of things are not, after all, part of the autism (i.e., they are different conditions that exist in the same person).[79]

Neurodiversity blogger Maxfield Sparrow makes a similar point, citing "anxiety, stomach problems, sleep issues, etc. "as co-occurring conditions that are "separate from autism itself".[80]

At a practical level, attributing the harmful phenomena experienced by autistics to different conditions allows advocates of the neurodiversity paradigm to approve treating them

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[78] The term "comorbidity" is sometimes used in this context, but is generally avoided by those making the argument described here because of its implication that the conditions it describes are diseases or disorders.

[79] Chapman, op. cit. note 6, p. 380.

[80] Sparrow, M. (2018). Are co-occurring conditions part of autism? Retrieved from http://www.thinkingautismguide.com/2018/08/are-co-occurring-conditions-part-of.html.

medically. It also means that such phenomena will not count as counterexamples to the core claim of the neurodiversity paradigm that autism lacks the intrinsically harmful character necessary to qualify as a disorder.

This argument appears to have some plausibility in relation to Chapman's example, epilepsy, a condition with distinct symptoms that exists independently of autism even though it occurs more frequently in autistics.[81] Chapman focuses on epilepsy, along with intellectual disability and self-injurious behaviours, in response to a version of the heterogeneity objection put forward by Manuel Casanova, which questions the relevance of the neurodiversity movement to autistics "riddled with seizures, self-injurious behaviors, or tremendously diminished cognitive processing".[82] However, Casanova also lists a wider range of harmful phenomena, including mood disorders, impaired attention, and sensory abnormalities. It is not clear that all of these, still less other ways in which autism can be harmful, can be so easily set aside.

For example, while impaired attention is often associated with attention deficit hyperactivity disorder (ADHD), difficulties with the allocation of attention and other cognitive resources can also be a feature of autism when other diagnostic criteria of ADHD are absent. Attention-related difficulties are associated with executive dysfunction and monotropism, two of the psychological mechanisms postulated as causes of autistic behaviours. Similarly, low mood (including anxiety, which is frequently characterised by neurodiversity advocates as a co-occurring condition for which medical intervention may be appropriate) and self-harm may result from diagnosable conditions separate from a person's autism but may also be directly related to frustrations and distress arising from core autistic traits including social and communication difficulties as described in the previous section, and the effects of narrow attention and sensory overload.

There is also a more general problem for the strategy of assigning intrinsically harmful phenomena to co-occurring conditions arising from the heterogeneity of autism at the causal level. This strategy will only be sound if its proponent can give a clear account of what is part of autism and what is a co-occurring condition. Consider the following imaginary dialogue:

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[81] Waterhouse, op. cit. note 5, p. 207.

[82] Casanova, M. (2013). The neurodiversity argument: Good intentions resting on a shaky scientific foundation. Retrieved from http://corticalchauvinism.com/2013/06/11/the-neurodiversity-argument-good-intentions-resting-on-a-shaky-scientific-foundation/.

> "Autism isn't intrinsically harmful."
> "But X is a feature of autism that can be intrinsically harmful."
> "X can't really be a part of autism because it's intrinsically harmful."

This is an example of the No True Scotsman fallacy, in which a counterexample to a general claim is excluded by an arbitrary narrowing of the term to which the general claim applies, turning the initial generalisation into a tautology.[83] To retain the substance of the initial generalisation, we would need a substantive reason for excluding the counterexample that does not presuppose the truth of the claim that the counterexample is challenging. As we saw in the previous section, however, the heterogeneity of autism at the causal as well as the behavioural level casts doubt upon the possibility of drawing non-arbitrary boundaries between autism and other psychological conditions.

As Happé and Ronald argue, the suggestion that different behavioural features have different causes supports the "fractionation" hypothesis, whereby what we call autism is actually the co-occurrence of separate behavioural features each with their own causal mechanisms. Waterhouse notes that "the expression of autism nearly always occurs with one or more additional non-diagnostic symptoms".[84] If these observations are correct, then the decision as to which of a range of characteristics are and are not included in autism is essentially arbitrary. It may be based on above-chance co-occurrence (unless this just reflects the fact that our existing definitions lead us to look for the cases where the different characteristics coincide), but since the argument here is about characteristics that do tend to co-occur with those that are accepted as being autistic traits, this would not provide an objective reason for excluding harmful ones from autism itself.

6. RESPONSE 3: AUTISM AS IDENTITY

It is often claimed by advocates of the neurodiversity paradigm that autism is a part of an autistic person's identity. Chapman, for example, writes of autism and other neurodivergent types as "intimately related to the formation and constitution of the self."[85] This idea is also apparent in the reasons given by neurodiversity advocates for preferring "identity-first" ("autistic person" or "autistic") rather than "person-first" language: autism, it is said, is part of

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[83] For example: "no Scotsman wears pants under his kilt." "But MacDonald does." "Well, if he does then he isn't a true Scotsman."
[84] Waterhouse, op. cit. note 5, p. xi.
[85] Chapman, op. cit. note 6, p. 375.

the person, like sex or sexuality, not, like a disorder, a separable (and possibly regrettable) fact about them, so we should no more talk of a "person with autism" than a "person with femaleness" or a "person with homosexuality".[86] The idea of autism as part of an individual's identity suggests another way of defending the assertion that autism is not intrinsically harmful.

The earliest and best-known articulation of this argument comes from Sinclair's article, originally published in 1993:

> Autism isn't something a person has, or a 'shell' that a person is trapped inside. There's no normal child hidden behind the autism. Autism is a way of being. It is pervasive; it colors every experience, every sensation, perception, thought, emotion, and encounter, every aspect of existence. It is not possible to separate the autism from the person—and if it were possible, the person you'd have left would not be the same person you started with.[87]

Sinclair's argument is aimed at convincing parents who might be inclined to wish that their child did not have autism that this really amounts to wishing that their child did not exist and that they had a different, non-autistic child instead. Its relevance to the non-disorder claim lies in its suggestion that a person cannot be harmed by their autism because there is no comparator state in which they are better-off. This suggestion can be interpreted in stronger or weaker forms, depending on how "identity" is understood.

In the stronger version, which appears to be Sinclair's view, autism is a component of a person's numerical identity such that without the autism that person would literally not exist. But why should we think this? Sinclair's reason seems to be the pervasiveness of the way that autism affects the individual's experience. This assumes a psychological account of personal identity, according to which a loss of psychological continuity of sufficient magnitude can result in the existence of a different person in the same body. Thus, Sinclair thinks that that a person who ceased to be autistic would cease to exist and be replaced by a different person.

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[86] For example: Sequenzia, A. (2013). I am autistic. Retrieved from http://autismwomensnetwork.org/i-am-autistic/; Sinclair, J. (2013). Why I dislike "person first" language. *Autonomy, the critical journal of interdisciplinary autism studies*. *1*(2); Zoe. (2012). Disability first: autism is not an accessory. Retrieved from http://illusionofcompetence.blogspot.co.uk/2012/08/disability-first-autism-is-not-accessory.html; Brown, L. (2011). Person-first language: Why it matters (the significance of semantics). Retrieved from http://www.thinkingautismguide.com/2011/11/person-first-language-why-it-matters.html. It should be noted, however, that not all autistic people share either this linguistic preference or the view that autism is part of their identity; see e.g. Williams, D. (2013). Autism, identity first language, and identity. Retrieved from http://blog.donnawilliams.net/2013/12/30/autism-identity-first-language-and-identity/.

[87] Sinclair, op. cit. note 86, p. 1.

However, two facts undermine this argument. First, the most plausible psychological accounts of personal identity hold that it can be maintained by overlapping chains of psychological links, even if no direct connections exist. Thus, while Sinclair's argument might hold in the (highly implausible) case of an intervention that resulted in the sudden disappearance of a person's autistic traits, it would not hold for a more gradual, step-by-step change. Second, following Locke, psychological accounts of identity usually focus on continuity of memory (including continuity maintained through a series of overlapping memories) rather than other psychological attributes. Thus, provided a person retained sufficient memory of their earlier state (or could be linked to the earlier state via a chain of overlapping memories), their behavioural dispositions or quality of experience could change radically, and even suddenly, without them becoming a different person.

A weaker version of the argument connecting autistic identity with an absence of harm rests not on the idea that one would literally be a different person in the absence of one's autism, but on the idea of identity as comprising the aspects of oneself that one considers most important, that pick out the kind of person one wants to be, that are linked to a sense of personal integrity or narrative, or that link one to others to whom one feels connected as part of a community. The claim here would be that if being autistic contributes to one's identity in one of this cluster of senses, then it provides something of value that will outweigh any difficulties and distress that might be attached to it.

This may be true for some autistic people, but it cannot be generalised. Some autistics publicly oppose the neurodiversity movement because they do not identify with their autism in this way, and would want to be "cured" if that were possible. It could be that such people are failing to see the value that could be obtained from embracing their autism as an identity, or it could be that not all personalities are compatible with such identification. Either way, this identification is not something that could be imposed. Moreover, even for someone who does identify with their autism and lives a more fulfilling life as a result, this does not entail that they are better off than they would be if they were not autistic. This might depend on the counterfactual under consideration; for example, ceasing to be autistic as a result of treatments in adulthood after growing up autistic and identifying as such through one's formative years could be very different from imagining how one might have been had an early intervention changed the course of one's development. And just as the discontented autistic might be mistaken about the possibilities open to them if they embraced their autism, so the person who identifies with their autism could, like anyone contemplating a transformative change, be mistaken about the kind of life that effective treatment of their autism, were it possible, could result in. The point here is that there is no necessity that embracing one’s autistic traits as part of one’s identity in this weaker sense will outweigh or cancel any disadvantage attached to those traits, and so neither the stronger nor the weaker versions of the identity argument show that autism cannot be harmful.

7. CONCLUSION

The neurodiversity “paradigm” or “perspective” is characterised by its advocates as comprising certain basic claims about the nature of autism and other neurodivergent conditions that shape the way we view them and provide a “philosophical basis” for the activism of the neurodiversity movement. I have argued that the heterogeneity of autism not only challenges these claims directly but also undermines arguments that are often used to respond to this challenge. The main focus of this paper has been on the claim that autism is not a disorder but merely a difference, which itself rests on the claim that it is not, in itself, harmful or disabling. This is the most central of the claims comprising the paradigm in terms of its prominence in the literature and its connections with the practical policy claims that the paradigm is supposed to support.

The claim that autism is not a disorder is based on the proposition that autistic traits are not harmful to those that have them except insofar as they are subject to discriminatory treatment (for example in the form of discriminatory attitudes or material conditions that unjustly favour the neurotypical majority). However, it is increasingly recognised in the scientific literature and reflected in current diagnostic criteria that autism comprises a complex array of traits which can manifest in very different ways. Some ways of being autistic are benign (or would be in a society that was more accommodating of neurological difference) but others are disadvantageous to those that have them in ways that are not only a matter of discrimination or injustice. This makes the unrestricted claim that autism is not a disorder both theoretically unwarranted and potentially damaging to those whose needs for support go beyond the removal of discrimination.

Responses to this objection often restrict the scope of the non-disorder claim in one of two ways. One approach, favoured by Jaarsma and Welin (but opposed by many neurodiversity advocates), restricts the claim to “high-functioning” or “mild” autism, allowing that “low-functioning" or "severe" autism may properly be considered a disorder. However, the complex heterogeneity of autistic traits makes any simple division into high- and low-functioning subgroups on the basis of measures such as IQ untenable and potentially more stigmatising than the general labelling of autism as a disorder that the division is intended to address. The other approach, favoured by Chapman, defends the application of the non-disorder claim to autism as a whole by reclassifying intrinsically harmful traits as co-occurring conditions, separate from autism. However, this requires a non-arbitrary and non-circular way of drawing the boundary between autism and other conditions, when as Waterhouse and others have shown, there is a great deal of overlap of both the manifest "symptoms" and the underlying causes. I also considered whether the common view of autistic traits as part of an autistic person's identity can counter the objection to the non-disorder claim, concluding that a strong interpretation of this identity claim is implausible while a weaker version fails to establish that autism is never intrinsically harmful.

The argument made in this paper is not that autism is always a disorder but that it sometimes is, or at least that it sometimes has the intrinsically harmful character that is necessary for a condition to count as a disorder. Rather than denying this or attempting to divide autism into benign and harmful variants, the interests of autistic people may be better served by recognising that advantages and disadvantages can exist across the autistic landscape and that the magnitude of the latter (and therefore the net effect of a person's autism) may depend on both intrinsic and/or social factors. A weaker form of neurodiversity perspective could be defended not as a general claim about the relative importance of these factors, but as a commitment to giving each its due, and to recognising and promoting the strengths that autistic people often possess.

These arguments do not diminish the value of the concept of neurodiversity as an evaluatively neutral way of referring to the fact of human neurocognitive variation within and beyond autism. Nor do they undermine the value of a neurodiversity movement that aims at promoting the rights and welfare of people whose place within this landscape causes them to be disadvantaged. The main goals of the neurodiversity movement – equal rights, respect, resources for support and accommodation of autistic differences, educational and employment opportunities, removal of stigma, and a greater role for autistic voices in decisions that affect them individually and collectively – do not depend on denying that autism can be intrinsically harmful, and are not advanced by exaggerated or false claims to this effect. To suggest that the non-disorder claim is necessary to justify these goals would be to justify stigmatisation and unequal treatment of people with conditions, for example many physical illnesses, that are uncontroversially disorders.

Rejection of the strong neurodiversity claim does undermine a (perhaps hypothetical) argument that medical interventions for autism (as opposed to co-occurring conditions) should never be offered, simply because there is no disorder to treat. However, this would be a weak argument anyway, given the weight that is normally given to autonomy in treatment decisions and that we know there are some autistics who would choose medical treatment of their autistic traits were it available. To counter this, it is not enough to assert that those individuals are mistaken; rather, it would need a substantive argument that offering such treatment would cause harms to others sufficient to justify curtailing the individual's autonomy.

ACKNOWLEDGEMENTS

I am grateful to Eve Garrard for extensive discussion of the topics covered in this paper and for comments on drafts, to Monique Jonas for comments on an earlier draft, and to two anonymous referees for helpful suggestions. A precursor of this paper was presented at the 29th European Conference on Philosophy of Medicine and Healthcare in Ghent in August 2015 and benefitted from comments by Kristien Hens and Pier Jaarsma.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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