2

The Right to Personal Identity

On Psychological Continuity and Narrative Identity

2.1 INTRODUCTION

This chapter considers the potential of neurorehabilitation to interfere with a person's identity, and hence its potential to infringe human rights that protect (different aspects of) personal identity.[1] It builds upon previous arguments and suggestions in the literature that some forms of interference with the brain, such as the use of brain stimulation techniques, can cause psychological changes that disrupt a person's identity.[2] Until now, this debate has focused strongly on the side effects of brain stimulation for therapeutic purposes, such as DBS in the treatment of Parkinson's disease.[3] We extrapolate this discussion to the context of criminal justice.[4] In addition to earlier *ethical* evaluations of brain stimulation vis-à-vis personal identity, scholars are now considering the *legal* protection that should be offered to personal identity in this context, particularly through human rights. Some have argued for the introduction of a specific human right for this purpose: a right to psychological continuity.[5]

The primary aim of this chapter is to investigate the relevance and implications of a right to personal identity for neurorehabilitation. How could neurointerventions, deployed in this context, affect personal identity? To what extent does human rights law protect against such effects? And what does this mean for neurorehabilitation in criminal justice? The answers to these questions plausibly depend on how one understands personal identity, something this chapter will discuss.

Much of the concerns about identity and brain stimulation voiced in the neuroethical literature appeal to a *psychological-continuity* account of identity.[6] We

[1] Some parts of the analysis in this chapter borrow from Ligthart 2024.
[2] DeGrazia 2005b; Schechtman 2010; Jotterand & Giordano 2011; Klaming & Haselager 2013; Lipsman & Glannon 2013; Cabrera, Evans & Hamilton 2014.
[3] DeGrazia 2005b; Schechtman 2010; Jotterand & Giordano 2011; Klaming & Haselager 2013; Lipsman & Glannon 2013; Cabrera, Evans & Hamilton 2014.
[4] See also Ryberg 2020.
[5] Ienca & Andorno 2017. Cf Ligthart 2024.
[6] See section 2.2.1.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

challenge, however, the idea that present forms of brain stimulation are likely to disrupt personal identity in this sense – at least as far as their potential use in criminal justice is concerned. Another influential account of identity in contemporary philosophy is the narrative self-constituting view, also referred to as *narrative identity*, which has been suggested to be more appropriate for capturing the moral concerns about brain stimulation and identity.[7] We consider this line of thought with a focus on brain stimulation in criminal justice. Furthermore, we consider whether and, if so, to what extent psychological continuity and narrative identity receive protection from established human rights and explore the implications for the neurorehabilitation of convicted persons.

This chapter proceeds as follows. Section 2 discusses the central concerns voiced in the literature about brain stimulation and personal identity and considers neurorehabilitation in that regard. We focus on the two (abovementioned) dominant accounts of personal identity that are central to the debate over neurotechnological brain stimulation: the (1) psychological-continuity and (2) narrative identity account. Section 3 investigates the human rights protection of personal identity and explores the implications for neurorehabilitation. Section 4 draws conclusions.

2.2 NORMATIVE CONCERNS ABOUT BRAIN STIMULATION AND PERSONAL IDENTITY

2.2.1 *Psychological Continuity*

In an influential contribution to the contemporary debate on the adequacy of human rights protection of our brains and minds, Ienca and Andorno make a case for reinforcing this protection, through the creation of specific "neurorights".[8] Among other things, they argue for recognising a right to psychological continuity, as "a special neuro-focused instance of the right to identity".[9] Part of their motivation for arguing this is that emerging neurotechnologies that stimulate and modulate human brain functions – such as tDCS, TMS and DBS – have the potential, in their words, to "cause alterations in mental states critical to personality (. . .) thereby affecting an individual's personal identity".[10] Some of these brain stimulation techniques are currently used in day-to-day clinical practice, for example, to treat neurological disorders such as Parkinson's disease and epilepsy.[11] Moreover, as mentioned in the introductory chapter, researchers are increasingly examining the

[7] DeGrazia 2005b; Schechtman 2010; Pugh 2020.
[8] Ienca & Andorno 2017.
[9] Ienca & Andorno 2017, p. 21.
[10] Ienca & Andorno 2017, p. 20. See also UNESCO, Executive Board, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of neurotechnology (6 April 2023), par. 7.
[11] Foltynie et al. 2024; Salama et al. 2024.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

potentials of brain stimulation beyond the context of standard medical care, including their use to reduce aggressiveness in forensic populations.[12]

Ienca and Andorno highlight that changing a person's brain functioning through brain stimulation "may have an impact on the psychological continuity of the person, i.e. the crucial requirement of personal identity consisting in experiencing oneself as persisting through time as the same person".[13] They substantiate this claim by referring to reports of the experience of different kinds of self-estrangement after or during treatment with DBS or following implantation of a BCI.[14] Some patients reported, for instance, that BCI implantation "made me a different person",[15] or that DBS treatment (in this case, for Parkinson's disease) made them "feel like a machine", reporting that "I've lost my passion. I don't recognize myself anymore".[16] Ienca and Andorno also cite studies that demonstrate that some individuals experience significant mental and behavioural changes as side effects following DBS – for example, increases in impulsivity and aggression, or changes in sexual behaviour – that may, in turn, and depending on the individual, cause them to experience self-estrangement and feel disassociated from themselves.[17]

Ienca and Andorno's claim that we ought to recognise a right to psychological continuity is also motivated by the expectation that the advent of brain stimulation techniques may open up possibilities for third parties to induce *non-consensual* personality changes. Brain implants like DBS bear the risk of being hacked by third parties aiming to exert malicious control over the user's brain activity.[18] Furthermore, in some contexts (e.g., the military and criminal justice), we can anticipate that brain stimulation might be administered on a mandatory basis, given that mandated undertakings are a frequent feature of these contexts. Ienca and Andorno thus argue for the recognition of a right to psychological continuity in order to protect persons against the potentially adverse effects non-consensual brain stimulation might have on their identity. They understand this right as "ultimately tend[ing] to preserve personal identity and the coherence of the individual's behaviour from non-consensual modification by third parties. It protects the continuity

[12] E.g., Sergiou et al. 2022; Knehans et al. 2022. Furthermore, Ienca & Andorno 2017 point to the context of the military and intelligence agencies, where (potential) human rights violations have been reported in relation to experiments involving brain electrodes, psychoactive drugs, hypnosis and brainwashing. See, for example, Ross 2007; Rickli & Ienca 2021.

[13] Ienca & Andorno 2017, p. 20. Note that when talking about the crucial requirement of personal identity consisting in *experiencing oneself* as persisting the same person over time, their concerns seem more related to narrative identity, rather than to psychological continuity (see section 2.2.2).

[14] See, for example, Gilbert et al. 2017.

[15] Gilbert, Ienca & Cook 2023, p. 786.

[16] Schüpbach et al. 2006, p. 1812. See also Kraemer 2013.

[17] Ienca and Andorno 2017 cite Frank et. 2007; Sensi et al. 200; and Houeto et al. 2002 – though these particular studies did not investigate whether those affected by the relevant side effects experienced self-estrangement.

[18] Ienca & Androno 2017, p. 21; Farahany 2023, p. 109 et seq; Pycroft et al. 2016; Ienca & Haselager 2016; Pugh et al. 2018. See also UN Special Rapporteur on Torture and other cruel, inhuman or degrading treatment or punishment, 20 March 2020, A/HRC/43/49, par. 31–32.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

across a person's habitual thoughts, preferences, and choices by protecting the underlying neural functioning".[19]

The idea of developing a right to psychological continuity to protect personal identity from unsolicited (neurotechnological) interferences by others has been picked up on by human rights treaty bodies, both in Europe and internationally. For example, in November 2019, the Council of Europe launched a Strategic Action Plan on Human Rights and Technologies in Biomedicine (2020–2025). One of the plan's concrete action points is to assess the relevance and sufficiency of existing human rights in view of emerging threats posed by neurotechnology, including threats to personhood and psychological continuity. This plan noted the need to assess "whether new human rights pertaining to cognitive liberty, mental privacy, and mental integrity and *psychological continuity*, need to be entertained in order to govern neurotechnologies".[20]A report commissioned by the Committee on Bioethics of the Council of Europe furthermore claims that a human right to psychological continuity would "offer solid normative ground to (. . .) preserve a person's self-determination and sense of personal identity from subconscious manipulation".[21] This report further adds that a right to psychological continuity "may become particularly important in the context of national security and military research, where neurotechnology applications that modulate personality traits (e.g., neurostimulation techniques) are currently being tested for combatant enhancement".[22] Other human rights bodies have noted the nature of the concern that some neurotechnologies might pose to psychological continuity, as it is characterised by Ienca and Andorno. In their 2024 report on neurotechnology and human rights, the Advisory Committee of the UN Human Rights Council highlights that "[p]atients having undergone deep brain stimulation have reported feeling a changed sense of agency and identity; thus, ensuring 'psychological continuity' may be important".[23]

We have been referring to "psychological continuity" as though the concept is widely known and understood. But while the concept of "psychological continuity" is familiar to ethicists and philosophers, it is not commonly invoked in human rights

[19] Ienca & Andorno 2017, p. 21.

[20] Committee on Bioethics of the Council of Europe, *Strategic Action Plan on Human Rights and Technologies in Biomedicine (2020–2025)*, Adopted by DH-BIO, 16th meeting (19–21 November 2019), p. 7 (emphasis added).

[21] Ienca, M., *Common human rights challenges raised by different applications of neurotechnologies in the biomedical field*, Council of Europe, October 2021, p. 61.

[22] Ienca, M., *Common human rights challenges raised by different applications of neurotechnologies in the biomedical field*, Council of Europe, October 2021, pp. 61, 62. This report mentions that neurostimulation techniques are being tested to see if they can "increase the ability of soldiers and other military personnel to perform with motivation and determination even under stress or in the absence of sleep".

[23] Advisory Committee, UNHRC, Impact, opportunities and challenges of neurotechnology with regard to the promotion and protection of all human rights, A/HRC/AC/31/CRP.1 (8 August 2024), par 27, footnote 36.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

law. As Ienca explains, the concept is borrowed from a specific philosophical understanding of personal identity found in psychological-continuity views.[24] One such view has been developed by John Locke. In developing his view, Locke's focus is on accounting for what preserves *numerical identity*,[25] or the persistence of a single entity over time.[26] Numerical identity concerns whether, for instance, Norah at the age of forty (time t_2) is the same person as Norah at the age of twenty (time t_1). Scholars often address this question by referring to the physical or psychological relations that obtain between the relevant entities at t_1 and t_2. Locke's account of personal identity appeals to a specific *psychological* relation. It appeals to the idea of "sameness of consciousness" – that is, that a person at time t_1 remains the same person at time t_2 if and only if they *share the same consciousness* at these two times.[27] Locke is admittedly unclear about what sharing the same consciousness means. But his remark that "for as far as any intelligent Being can *repeat* the Idea of any past Action with the same consciousness it had of it at first (...) so far it is the same personal self"[28] has led some to conclude that, by sharing the same consciousness, Locke means *remembering*.[29] As Shoemaker phrases it, on one interpretation of Locke, "a person – a moral agent – Y at t_2 is identical to a person X at t_1 when Y's consciousness 'can be extended backwards' to X, and this is typically taken to mean that Y *remembers* X's thoughts and experiences".[30]

The idea that a person remains the same person if and only if they remember their earlier thoughts and experiences has faced various objections. One objection is that it produces some logically impossible results. To illustrate, take the case of an elderly man who remembers the events of his middle years while forgetting the events his physical self experienced in its youth, and suppose that, *when* in his middle years, the middle-aged man remembered the events of his youth. Here, we have a situation where – if persistence of the self consists in remembering or sameness of consciousness – the youth is the same person as the middle-aged man, the middle-aged man the same as the elderly man, but the youth is *not* the same person as the elderly man, and this cannot possibly obtain. Assuming that identity is transitive, we cannot logically have A being equal to B, and B being equal to C, without A *also* being equal to C.

A prominent contemporary approach to avoiding this objection involves amending Locke's account such that memory plays a less central role in the preservation of

[24] Ienca, M., *Common human rights challenges raised by different applications of neurotechnologies in the biomedical field*, Council of Europe, October 2021, p. 61, referring to Van Inwagen 1997. See also Gilbert, Ienca & Cook 2023, p. 87; Report of the International Bioethics Committee of UNESCO, *Ethical Issues of Neurotechnology*, SHS/BIO/IBC28/2021/3Rev., 15 December 2021, par. III.1.2.

[25] Locke/Nidditch 1975. See also Perry 2008.

[26] DeGrazia 2005a, Ch. 2.

[27] DeGrazia 2005a, pp. 13–14.

[28] Locke/Nidditch 1975, Book II, Ch. XXVII, par. 10 (emphasis added).

[29] Note that some dispute that Locke considered the sharing of the same consciousness to equate to remembering, see, for example, Behan 1979; Atherton 1983 and Winkler 1991.

[30] Shoemaker 2021, par. 1 (original emphasis).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

identity across time, and other mental features such as intentions, goals, beliefs, desires and similarity of character also assume significance.[31] Arguably, the most influential psychological-continuity account that so amends the Lockean view has been developed by Derek Parfit.

Parfit argues that for X and Y to be the same person at different times, there must be an overlapping chain of enough – that is, *strong* – psychological connectedness between X today and Y sometime in the past or future.[32] So, for Norah to be the same person as the Norah that inhabited her body twenty years ago, she must have a sufficient number of overlapping psychological features like desires, beliefs and intentions that persisted from each day to the next over these twenty years. Such an overlapping chain of strong psychological connectedness across time is what Parfit calls *psychological continuity*; and for Parfit, such strong connectedness exists "if the number of connections, over any day, is *at least half* the number of direct connections that hold, over every day, in the lives of nearly every actual person".[33] Hence, if a person loses *over* half the psychological connections one has to themselves – when compared to the connections that obtain within other persons – psychological continuity, and hence numerical identity, will be disrupted, and a different person will come to exist. Note that numerical identity is binary: either the person continues or ceases to exist; either the person keeps or loses their identity.

A psychological-continuity account of identity has enjoyed majority support in philosophy.[34] It has also been widely invoked in the ethical literature on brain stimulation techniques.[35] Scholars in this literature raise the same concern as Ienca and Andorno about these techniques, again drawing on empirical data to motivate the idea that brain stimulation has the potential to disrupt psychological continuity. For example, Holmen argues that some mental features central to psychological continuity – desires, beliefs and memories – seem already malleable through both pharmaceutical and neurotechnological means, and if changes to these features were effected in a "sweeping" or sudden and widespread manner, then we would have a disruption of numerical identity.[36] In the same vein, Vincent claims that there are "non-insignificant grounds to worry that direct brain interventions which implement large-scale changes in one fell swoop could sever

[31] See, for example, Shoemaker 1970; Lewis 1976; Parfit 1984.

[32] Parfit 1984, p. 206. See also Parfit 1971.

[33] Parfit 1984, p. 206 (original emphasis), adding in footnote 6: "This suggestion would need expanding, since there are many ways to count the number of direct connections. And some kinds of connection should be given more importance than others. (. . .) more weight should be given to those connections which are distinctive, or different in people (All English-speakers, for example, share many undistinctive memories of how to speak English)."

[34] DeGrazia 2005b, p. 265. But this account also received fundamental objections, e.g., from Schechtman 1996 (see below).

[35] Pugh 2020, p. 1659.

[36] Holmen 2022, pp. 743–744. Holmen refers to a study that found that downregulating brain activity in a specific brain area by non-invasive TMS had the effect of altering the targeted persons' political and religious beliefs; see Holbrook et al. 2016.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

psychological continuity", highlighting that "mounting empirical evidence substantiates the worry that direct brain interventions might have adverse effects on such things as authenticity and personal identity by significantly altering character and personality".[37]

Klaming and Haselager also conclude that brain stimulation techniques, specifically DBS, could disrupt psychological continuity and identity.[38] They discuss a study involving a patient who underwent DBS that successfully treated his Tourette's syndrome but who, twelve months following implantation of the DBS device, developed a dissociative response under certain stimulation amplitudes, wherein he seemed disconnected from himself and his identity.[39] The patient developed an alternate, childish identity state when the amplitude of the brain stimulation increased. Yet, when the amplitude of the stimulation decreased again, the patient's responses returned to "normal" and he was unable to recall what had happened during the increased stimulation of his brain.[40] According to Klaming and Haselager, this case "demonstrates that DBS can impinge on psychological continuity (in this case by having profound effects on behavior and memory) and influence an individual's personal identity to such an extent that an alternate personality state can be observed".[41]

Meanwhile, others have challenged the idea that neurotechnological brain stimulation would plausibly induce such global and radical effects on a person's psychological connections so as to disrupt psychological continuity.[42] For example, Pugh stresses that Parfit's psychological continuity account implies a high threshold and that "whilst ruptures to numerical identity may be evinced by severe neurodegenerative diseases like Alzheimer's, persons can also lose a considerable number of psychological connections whilst retaining numerical identity with a future person".[43] Against this backdrop, Pugh considers it implausible that DBS treatment would disrupt a patient's psychological continuity, as there is "little evidence to suggest DBS would typically have global effects on patients' psychological economies of the sort that would threaten a sufficient number of psychological connections for this to be the case".[44]

We suggest that Pugh's point has heightened relevance in situations where non-invasive brain stimulation is used to modulate behaviour and reduce a convicted person's risk of recidivism. Intervention in these sorts of cases can be expected to be highly targeted and appears to lack severe side effects. Present studies focus on the

37 Vincent 2014, pp. 30, 34.
38 Klaming & Haselager 2013.
39 Goethals et al. 2008. See also Zawadzki 2021 for discussion of this case.
40 Goethals et al. 2008.
41 Klaming & Haselager 2013, p. 530.
42 DeGrazia 2005b; Schermer 2009; Lipsman & Glannon 2013; Pugh 2020; Gilbert, Viaña & Ineichen 2021.
43 Pugh 2020, p. 1661.
44 Pugh 2020, p. 1661.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

use of tDCS for reducing aggression, delivering a low current to a specific brain region via electrodes on the scull for about twenty minutes.[45] The use of brain stimulation in this context does not appear to induce a global and radical effect on the person's psychological functioning.[46] Rather, it produces a targeted stimulation of a *specific* brain area associated with *specific behavioural inclinations*, such as reducing aggression. Thus far, studies on the use of tDCS for this purpose have not reported any severe psychological side effects. As Knehans et al. write in their literature review on tDCS for reducing aggressive behaviour,

> [i]n four studies, no side effects were reported by the participants. In six studies, the reported side effects included itchiness, a tingling sensation, light-headedness, a burning sensation or warmth at the electrode site, and a pinching sensation or fatigue. One study reported a minor increase in stress levels in the participants if they sensed a tingling sensation during the stimulation. Out of these side effects, itchiness and a tingling sensation were the most common, and the other side-effects occurred rarely.[47]

Given the targeted nature of this type of non-invasive brain stimulation and the absence of (severe) psychological side effects in its trial use thus far, it is difficult to envisage how such an intervention could destroy over half of the psychological connections a person holds to themselves compared to a normal, actual person. Consequently, it is hard to imagine that reducing a person's aggressive tendencies in this way will interfere with the person's numerical identity such that the person ceases to exist. Of course, we cannot exclude the possibility that wrongful application or misuse of the technology might result in less targeted outcomes for criminal justice populations. We also cannot discount the possibility that unforeseeable side effects might occur even with targeted stimulation, such that severe psychological alterations may ensue in some cases. Nonetheless, *if used as intended* – that is, to target specific brain areas and specific, justice-relevant behavioural inclinations – the changes induced by brain stimulation within criminal justice contexts are unlikely to meet Parfit's threshold for disrupting psychological continuity and destroying numerical identity. Instead, the psychological changes are likely to be more "subtle".

Yet, it still seems as though eroding or destroying merely *some* psychological connections – for instance, by inducing changes to a person's intentions, goals, beliefs, desires and character – may *diminish* or *impinge on* psychological continuity and/or identity in a way that raises normative concerns. At one level, the case of a person who retains numerical identity, but who has fewer psychological connections with their earlier (same) self after a neurointervention, may raise an issue under the right to mental or psychological integrity (discussed in Chapter 3). At another, having fewer psychological connections with one's earlier self may still affect *identity* in other ethically and legally

[45] Knehans et al. 2022. See Chapter 1.
[46] See also Ryberg 2020, p. 72.
[47] Knehans et al. 2022, p. 12.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

relevant ways, even if it does not affect Parfitian psychological continuity or numerical identity. Some have argued that concerns about brain stimulation and personal identity might be better articulated within the alternative conceptualisation of *narrative identity*.[48] We consider this line of thought in the following section.

2.2.2 *Narrative Identity*

Marya Schechtman offers an alternative understanding of personal identity, which she argues can explain, unlike the psychological continuity account, why personal identity matters in the first place – that is, explaining our intuitions about the relation between personal identity and survival, moral responsibility, self-interested concern and compensation.[49] She develops a narrative self-constitution view of identity, according to which persons create their own identity by creating a coherent, autobiographical narrative: a story of their life.[50]

Narrative identity, Schechtman explains, is not an answer to what she calls the "reidentification question": the question of whether two entities at different times are one and the same entity (which Parfit and Locke are concerned with, and which we have previously referred to as numerical identity). Rather, it is an answer to the "characterization question": the question of which actions, experiences, values, beliefs, character traits – that is, "characteristics" – can be attributed to a given person. This characterisation question concerns the kind of identity that is at stake when people have an identity crisis, looking in the mirror and asking themselves: "Who am I really?". Questions that come under the umbrella of the characterisation question, Schechtman writes, are those that ask "which characteristics are *truly* those of some person (as opposed, say, to those which are his as a result of hypnosis, brainwashing, or some other form of coercion)".[51] Schechtman, then, describes the core of narrative identity as follows:

> According to the narrative self-constitution view, the difference between persons and other individuals (. . .) lies in how they organize their experience, and hence their lives. At the core of this view is the assertion that individuals constitute themselves as persons by coming to think of themselves as persisting subjects who have had experience in the past and will continue to have experience in the future, taking certain experiences as theirs. Some, but not all, individuals weave stories of their lives, and it is their doing so which makes them persons. On this view a person's identity (in the sense at issue in the characterization question) is constituted by the content of her self-narrative, and the traits, actions, and experiences included in it are, by virtue of that inclusion, hers.[52]

[48] Mathews 2011; Schechtman 2010; Goddard 2017; Pugh 2020.
[49] Schechtman 1996.
[50] Schechtman 1996, p. 93; Schechtman 2011.
[51] Schechtman 1996, p. 73.
[52] Schechtman 1996, p. 94.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

As this quotation clarifies, what determines a person's identity within this approach largely depends on how the person *experiences* themselves. It is about how people *process* their experiences into a coherent, autobiographical story of their lives.[53] This is not to say that just any random or unrealistic story people tell or believe about themselves determines who they are.[54] Not all narratives are identity-constituting, and Schechtman identifies some general constraints on precisely which kinds of narrative *are*, the two most important constraints being the (1) articulation constraint and (2) reality constraint.[55]

The *articulation constraint* requires that for shaping and retaining narrative identity, the person (the narrator) should be able to explain why they do what they do, feel what they feel and believe what they believe.[56] To quote from Schechtman, a person should be able "to articulate both the basic features of her history and life situation – the facts of her autobiography – and the way in which her life hangs together, providing explanations for why she has acted as she has and why things have unfolded as they have".[57] Elements of a person's narrative that they cannot articulate are still theirs, according to Schechtman. But they are "less fully" theirs, playing a different role in the person's life compared to articulated aspects of their self-narrative. They are "less attributable" to the person.[58]

The *reality constraint* requires that an identity-constituting self-narrative fundamentally coheres with reality. A person's self-narrative need not be completely accurate. It may and will contain (trivial) errors and inaccuracies, such as distortions and misremembering of facts. It must, however, "exhibit a fundamental grasp of what the world is like".[59] This is because personhood, in the sense Schechtman is concerned with, requires being able to engage in activities and interactions with others, and this in turn requires fundamental agreement on the most basic features of reality.[60] Views, beliefs and other characteristics that arise from profound delusions are ruled out as genuinely identity-constituting aspects of a person's narrative. As Schechtman clarifies, this "does not force us to conclude that psychotics are not persons – rather it allows us to dismiss the elements of psychotic's narratives that are out of touch with reality, and to recognize that their delusions interfere with personhood and diminish it".[61]

Both these constraints illustrate a general feature of Schechtman's narrative identity: that it *admits of degrees*.[62] Characteristics that the person cannot explain

[53] Schechtman 2009, p. 80. And at p. 81: "Self-narration involves *shaping* one's life into a coherent story as well as *conceiving* of it as such."
[54] DeGrazia 2005, p. 85.
[55] Schechtman 2009, pp. 82–83.
[56] Schechtman 1996, p. 114.
[57] Schechtman 2009, p. 82.
[58] Schechtman 1996, p. 119.
[59] Schechtman 2009, p. 83.
[60] Schechtman 1996, p. 119.
[61] Schechtman 1996, p. 127.
[62] Schechtman 1996, pp. 76, 80–89.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

are to be considered *less fully* theirs and are less attributable to that person. Gross errors of fact or interpretive inaccuracies will, moreover, *diminish* personhood. On Schechtman's view, "when a narrative is disrupted or discontinuous, the *degree* of identity is correspondingly decreased".[63] Identities are thus inherently dynamic, as individuals constantly change and evolve, while making sense of themselves by reconciling these changes into a coherent self-narrative.[64] Changes in narrative identity are consequently not necessarily problematic in and of themselves – people will always change in many different ways throughout their lives.[65]

As narrative identity is concerned with how people process their subjective experiences into a coherent, self-told story, this account seems well-equipped to capture (some of the) normative concerns regarding neurotechnology and personal identity. After all, most of these concerns reference the way people *experience* the acute or long-term (side) effects of neurotechnological brain stimulation, such as subjective experiences of self-estrangement.[66] Recall how persons have reported no longer feeling like themselves following DBS treatment – with some asserting statements like, "Now I feel like a machine, I've lost my passion. I don't recognize myself anymore"; "I feel like a robot"; "I feel like an electronic doll"; "I haven't found myself again after the operation", as well as patients perceiving sudden improvements after DBS as "my second birth".[67] Considering examples like these, Ienca and Andorno highlight that "people's *perception* of their own identity may be put at risk by inadequate uses of emerging neurotechnology" and that changing a person's brain functioning with brain stimulation may impact on "the crucial requirement of personal identity consisting in *experiencing oneself* as persisting though time as the same person".[68] As the Advisory Committee of the Human Rights Council put it: DBS patients "have reported *feeling* a changed *sense* of agency and identity".[69] On the face of it, these concerns seem to relate more to narrative identity than to psychological continuity.

After all, within the narrative self-constitution view of identity, Holmen explains, the relevant question is whether the effect of a neurointervention is a threat to the narratives that individuals construct about themselves.[70] Hence, when brain stimulation disrupts these narratives, by inducing an abrupt and radical change in how the person perceives, experiences or feels (about) themselves, it may possibly interfere with narrative identity.

[63] Schechtman 2009, p. 84 (emphasis added).
[64] Pugh 2020, p. 1662.
[65] Schermer 2009, p. 46.
[66] Gilbert et al. 2017.
[67] Schüpach et al. 2006.
[68] Ienca & Andorno 2017, p. 20 (emphasis added).
[69] Advisory Committee, UNHRC, Impact, opportunities and challenges of neurotechnology with regard to the promotion and protection of all human rights, A/HRC/AC/31/CRP.1 (8 August 2024), par. 27, footnote 36.
[70] Holmen 2022, p. 742.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

Schechtman herself sees the narrative view as a particularly useful framework in relation to psychological changes induced by DBS.[71] She argues that the acute changes sometimes experienced in this regard

> can disrupt a patient's personal narrative through both the rapidity and manner of change. The psychological changes brought about are so profound and occur so quickly that they can seem to break off one narrative – the story of a depressed person – and start a new one – that of a happy person.[72]

Recalling the articulation constraint, such abrupt and radical changes require an explanation. However, in cases of neurointervention, these changes are caused by direct stimulation of the brain as opposed to developing naturally from a person's intentions, beliefs, desires, emotions, values and plans. There is thus a *prima facie* tension with the articulation constraint, as a person subject to direct modification of the brain might not be able to articulate *just why* they now hold a certain attitude or desire – that is, they might not be able to identify the reasons justifying their holding such an attitude, or account for why they endorse it – even if they can detail that they adopted this attitude following DBS. Moreover, if the person in such a case came up with a story telling that the changes are a result of personal development, rather than of DBS, they would run afoul of the *reality constraint*, as such a self-narrative would be inconsistent with the basic, observable features of reality.[73]

Furthermore, apart from acute psychological changes, Schechtman argues that the long-term effects of brain stimulation could sometimes interfere with narrative identity too. Patients who report adjustment problems following such treatment often have difficulty perceiving their lives as the continuation of the life they were living before. They must reinvent themselves. As Schechtman puts it: "The metaphor of 'second birth,' while it can signify new beginnings, also signifies the loss of one's old identity."[74]

However, considering DBS to treat patients with Parkinson's disease, Baylis thinks it is unclear why a patient cannot satisfy the articulation constraint by including their consent to DBS in the patient's self-narrative.[75] What matters for narrative identity is whether personal events and experiences can be integrated into an identity-constituting narrative. Patients suffering from mental or neurological conditions may have good reasons to choose DBS treatment, which in and of itself affects their story and contributes to the dynamic and continuously evolving self-narrative. Hence, psychological changes induced by *consented* DBS need not diminish one's narrative identity by failing the articulation or reality constraint. Rather, they may well fit within the person's story, for example, of a patient combatting depression

[71] Schechtman 2009, 2010. Cf. Glannon 2009; Schermer 2009; Mathews 2011; Witt et al. 2013; Mackenzie & Walker 2015; Goddard 2017; Pugh 2020.
[72] Schechtman 2010, p. 137.
[73] Schechtman 2009, pp. 85–86, 2010, p. 137; Pugh 2020, p. 1662.
[74] Schechtman 2010, p. 138 (emphasis added).
[75] Baylis 2013, p. 522. Cf. DeGrazia 2005b.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

without success so far and who decides to try DBS. The abrupt and long-term changes induced by DBS, then, could be understood as caused by the patient's "desire to rid themselves of depression and their willingness to be treated in this way to do so", as Schechtman herself puts it.[76]

This can be different, though, when changes in the person's self-narrative result from force or oppression rather than free choice.[77] Unlike in cases of consent, when a person is forced to live according to constraints set by others who have fixed ideas about who the person is and who they should become, that person may no longer be able to contribute actively to authoring their own lives in a way consistent with their own interests, values, beliefs, desires and other personal characteristics.[78]

This could be particularly relevant to the use of brain stimulation in the context of criminal justice. This context is, in and of itself, coercive. Hardly anyone finds themselves in prison or forensic psychiatry out of free choice. Although convicted persons retain the possibility of making free choices, for example, to participate in a certain treatment or research study, the coercive context of criminal justice may affect the voluntariness of such decisions in some cases, which could, in turn, render the person's informed consent invalid.[79]

In the context of criminal justice, inducing abrupt psychological change by neurointervention, such as tDCS to reduce aggressiveness or sexual drive, *without valid consent*, seems to be a clear case of contravening the articulation constraint and could, therefore, diminish narrative identity. Obviously, the persuasiveness of this claim largely depends on the precise effects of the neurointervention in question. But we think it plausible that at least some types of neurointervention might have significant impact on the subject's self-narrative by altering personal characteristics (apart from possible side effects). One could think of a person convicted of assault, who experiences aggressive tendencies and outbursts since their adolescence, in fact, perceiving themselves as the aggressive "hothead" who always runs into trouble. When tDCS induces a significant and acute alteration of these aggressive characteristics in the absence of valid informed consent, the person's self-narrative will likely be disrupted, thereby threatening the person's narrative identity.

Whether such disruptions of a person's self-narrative will eventually affect their identity may, however, also depend on the person's long-term self-narrative, how neurointerventions are administered and the kind of support offered to the person receiving them. As Schechtman stresses regarding the clinical use of consensual DBS,

[76] Schechtman 2010, p. 138.

[77] Baylis 2013, p. 523. Like in a society where "a person's experiences will be significantly affected by stories others have constructed to restrict the range of narratives that can be appropriated and successfully enacted". As an example, Baylis mentions the threat to personal identity in this sense "experienced by women in a patriarchal society, by coloured people in a racist white society, and by gay people in a homophobic society".

[78] Baylis 2013, p. 523.

[79] For a discussion on this topic in relation to neurotechnology, see Pugh 2018.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

> [s]ince narrative is a dynamic notion, continuity of narrative is thoroughly compatible with even quite radical change. The important thing is that the change be understood in a way that makes it part of a coherent personal narrative, one that patients and their close associates can see as, overall, *self-expressive and self-directed*. The exact nature of the support required will vary from individual to individual.[80]

From a long-term narrative perspective, she argues, changes that "may look like a narrative break, up close, can be seen as a small segment of a continuous and self-expressive life narrative".[81]

Regarding neurointerventions in criminal justice, one can imagine a convicted person who has been trying to reduce their aggressive outbursts and to rehabilitate themselves for years without success. Whereas they tried cognitive behavioural therapy and are willing to take medication, if available, to become less aggressive, the idea of electrical stimulation of their brain frightens them. Therefore, they do, initially, not consent to treatment with tDCS. However, they are informed by the prison staff that consenting to this treatment could increase the likelihood of their being granted parole. Feeling forced, they eventually participate in tDCS. Ultimately, the intervention significantly reduces the person's aggressiveness and facilitates their successful social rehabilitation, something with which they are very happy. Or alternatively, consider that the person in this scenario *is* willing to try a tDCS treatment and *does* voluntarily submit to it, but that their consent is invalid because the information provided to them – such as about risks and (side) effects – is insufficient.

Perhaps, in these scenarios, the non-consensual neurointervention need not ipso facto diminish narrative identity, if the induced psychological changes ultimately fit within the person's broader narrative of transforming their old "criminal life" towards a new "crime-free life". Although the neurointervention might induce abrupt psychological changes in the absence of valid consent, these changes may still cohere with the person's broader aspiration and earlier efforts to attain successful rehabilitation, and may actually contribute to their attaining this personal goal – fitting within the person's self-expressive life narrative (e.g., getting rid of aggressive tendencies that have been too strong to control). Offering the appropriate support throughout the process of neurorehabilitation may prove essential in this regard, to enable the person to conceive of their life after neurotechnological treatment as a continuation of their life before the intervention.

As such, consent need not be the defining factor that determines whether neurostimulation threatens the person's narrative identity. Still, there might be cases where nonconsensual neurointerventions in a forensic context will not cohere with the person's self-narrative and, therefore, interfere with narrative identity. If that is the case, we have the question: Would such an interference be morally problematic?

[80] Schechtman 2010, p. 138 (emphasis added).
[81] Schechtman 2010.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

Interfering with narrative identity in criminal justice seems all but unique for neurotechnology. Being convicted for committing a criminal offence – especially the first time – may already have profound effects on the person's self-narrative, as will the execution of criminal sanctions, such as imprisonment.[82] As Hardie-Bick writes, "[a]lthough there are many lifecourse transitions that produce disequilibrium and require some form of readjustment, there are few transitions as difficult and demanding as adapting to life behind bars".[83] According to Ryberg, few (if any) theorists will accept the so-called "deep freeze view" on imprisonment – the view that assumes convicted persons remain totally unaffected by periods of incarceration.[84]

For example, studies have reported that those imprisoned frequently have (potentially) traumatic experiences, for example, due to violence often occurring in prison.[85] More generally, Cunha et al. highlight that imprisonment can be inherently damaging to mental health for a variety of reasons, including the "consequent disconnection from family, society, and social support, loss of autonomy, diminished meaning and purpose of life, fear of victimization, increased boredom, the unpredictability of surroundings, overcrowding and punitiveness, experiencing and witnessing violence, negative staff-prisoner interaction, and other aversive experiences".[86]

Apart from a wide range of damaging (psychological) effects, imprisonment can also change people's narratives positively. Drawing on interviews with former detainees, Maier and Ricciardelli write that "their narratives speak how imprisonment, by providing distinct space and time for reflection, functioned as a "hook" for self-change and the adoption of new narratives".[87] The key self-changes during imprisonment reported by the interviewees include "learning patience and being calmer; developing a drug-free narrative; realizing greater appreciation for loved ones; and gaining insights into their personal role in the path that led them to their incarceration".[88]

In fact, in criminal justice, we aim to trigger and induce narrative, mental and behavioural changes all the time, deploying different methods that range from deterrence and (solitary) confinement to mandatory resocialisation programmes, cognitive behavioural therapy, psychiatric treatment and the administration of psychotropic drugs including antipsychotics and antilibidinal medication.[89] Moreover, changing people's narratives and personal characteristics "for the better" – such as through reformation or correction – is arguably one of the primary objectives

[82] Flanagan 1981; Hulley, Crewe & Wright 2016.
[83] Hardie-Bick 2018, p. 576.
[84] Ryberg 2020, p. 73.
[85] Schnittker 2014; Piper & Berle 2019; Novisky & Peralta 2020.
[86] Cunha et al. 2023 (references left out).
[87] Maier & Ricciardelli 2022, p. 783. See also Crewe & Ievins 2020.
[88] Maier & Ricciardelli 2022, p. 779.
[89] See, e.g., Stevens 2012; Forsberg 2021.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

of imprisonment (in combination with rehabilitative/treatment programmes) and forensic commitment.[90] Often, these measures aim at getting the robber to stop robbing, the alcoholic to stop drinking and those with aggressive tendencies to reduce and control them. As Article 10(3) of the International Covenant on Civil and Political Rights (ICCPR) prescribes: "[t]he penalty system shall comprise treatment of prisoners the essential aim of which shall be their reformation and social rehabilitation".

Still, despite these intended and unintended changes in the convicted person's self-narrative through traditional criminal sanctions (both "positive" and "negative"), incarceration and forensic treatment are not typically conceived of as being wrong for interfering with people's personal identity. Non-consensual interferences that may lead to changes in identity in this sense are often considered justified, for instance, to punish and to prevent harm to others. Against this background, we agree with Ryberg that it is difficult to reject the non-consensual use of neurointerventions solely on the grounds of personality changes and frustrating the person's experiences and self-awareness, while at the same time accepting and adhering to the use of incarceration as a form of punishment.[91] Interestingly, a recent study on public attitudes towards incarceration and "neuronormalization" showed that the participants ($n = 248$) "were more supportive of neuronormalization and considered it more ethical" than incarceration. Also, they "considered neuronormalization to be a weaker form of mind control than incarceration and would lead to more change for the better".[92]

2.3 Human Rights Protection of Personal Identity: The Case of Neurorehabilitation

2.3.1 *Introduction*

As mentioned earlier, neurotechnologies that enable others to modify a person's mental processes – thereby, potentially interfering with their identity – have raised concerns in view of human rights. Three questions are relevant here: (i) does human rights law protect personal identity?, (ii) if so, to what extent? and (iii) what are the implications of this protection for the use of neurointerventions in criminal justice?

With respect to the first question, protecting people's personality and identity has a profound basis in human rights law. Article 22 of the Universal Declaration of Human Rights safeguards some essential conditions for dignity and the free

[90] For instance, as Ewing 2013, p. 73 writes, "[b]y the reformatory effects of punishment are generally understood any good effects punishment has on the moral character and outward habits of the man punished himself in abstraction from its effects on individuals other than the offender". See also Goffman 1961; Foucault 1975; Ellis 2012, p. 74.

[91] Ryberg 2020, p. 73.

[92] Denson, Griffiths & Smith 2024, p. 7. The authors describe "neuronormalization" as "brain-based treatments" for rehabilitation – something akin to neurointervention or neurorehabilitation as we have defined it (see Chapter 1).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

development of personality. Article 8 of the United Nations Convention on the Rights of the Child recognises children's right to preserve their identity. And in the European context, Article 1 of the Oviedo Convention (a legally binding instrument on human rights in the biomedical field) prescribes that the parties "shall protect the dignity and identity of all human beings".

Elsewhere, a right to identity is indirectly protected. In the Inter-American context, it is implicit in the right to privacy of Article 11 of the American Convention on Human Rights (ACHR).[93] The same applies to the right to privacy pursuant to Article 17 ICCPR, supporting the protection of the individual's identity and self-autonomy.[94] The Human Rights Committee has repeatedly emphasised "that the notion of privacy refers to the sphere of a person's life in which he or she can freely express his or her identity, be it by entering into relationships with others or alone".[95] The United Nations High Commissioner for Human Rights similarly recognises that "[t]he right to privacy is an expression of human dignity and is linked to the protection of human autonomy and personal identity".[96] Elaborating on the connection between privacy and identity, Nowak/Schabas write, "privacy protects the special, individual qualities of human existence, a person's manner of appearance, his or her identity. Identity includes, in addition to one's name, appearance, clothing, hair and beard style, gender, genetic code, feelings and thoughts, specific past, as well as religious belief and other convictions".[97]

In the European context, the ECtHR likewise considers the notion of private life in the meaning of Article 8 ECHR to encompass a "right to identity" and a "right to personal development", in terms of either personality or personal autonomy.[98] The protection of personal identity makes many appearances in the case law of the ECtHR,[99] ranging from the protection of gender, genetic and biological identity,[100] and also ethnic and religious identity,[101] to the protection of social and national identity.[102] Marshall observes that the case law of the ECtHR reflects, in

[93] *Obligaciones Estatales en Relación Con el Cambio de Nombre, la Identidad de Género, Y los Derechos Derivados de un Vínculo Entre Parejas del Mismo Sexo*, Advisory Opinion, Inter-American Court of Human Rights (24 November 2017) par. 87.

[94] Taylor 2020, p. 4. See also Mater & Murray 2025.

[95] *Coeriel and Aurik* v. *The Netherlands*, CCPR/C/48/D/453/1991, 8 July 1993, par. 10.2.

[96] High Commissioner, *The right to privacy in the digital age*, 13 September 2021, A/HRC/48/31, par. 7.

[97] Nowak/Schabas 2019, p. 467, with further references.

[98] ECtHR 15 January 2009, 1234/05 (*Reklos and Davourlis/Greece*), par. 39. Cf ECtHR 18 October 2022, 215/19 (*Basu* v. *Germany*), par. 2; ECtHR 30 January 2020, 50001/12 (*Breyer/Germany*), par. 73.

[99] Marshall 2016, 2022; Tamimi 2018; Harris et al. 2023, pp. 521–524.

[100] For example, ECtHR 1 December 2022, 57864/17, 79087/17 and 55353/19 (*A D and Others/Georgia*), par. 48; ECtHR 27 August 2015, 46470/11 (*Parrillo/Italy*), par. 158–159. See also Marshall 2016, p. 89 et seq.

[101] For example, ECtHR 27 April 2010, 27138/04 (*Ciubotaru* v. *Moldova*), par. 53; ECtHR (GC) 10 November 2005, 44774/98 (*Leyla Şahin* v. *Turkey*), par. 104. See also Marshall 2016, p. 142 et seq.

[102] For example, ECtHR 11 October 2018, 55216/08 (*SV* v. *Italy*), par. 54; ECtHR 25 June 2020, 52273/16 (*Ghoumid and Others/France*), par 43. See also Tamimi 2018.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

general, a kind of self-determined and fluid version of identity and personal freedom.[103] It acknowledges "the importance of building and retaining an ability and capacity that is each person's domain, to enable them to think reflectively without interference, to be in control of their own faculties, to decide their own plan of life".[104]

Marshall unpacks the protection of two general conditions of identity formation in the ECtHR's case law: that is, the protection of our minds and bodies.[105] These conditions link closely to the normative concerns voiced in the literature about neurotechnology and personal identity. As discussed in section 2.2, those concerns relate to the ability of neurotechnology to induce significant changes in a person's brain (body) and mental states (mind) – which according to some could disrupt *psychological continuity*, while according to others are better understood as a potential interference with *narrative identity*. The extent to which existing human rights protect both psychological continuity and narrative identity, and the implications of this protection for the neurorehabilitation of convicted persons, is discussed in the following sections.[106]

2.3.2 *Psychological Continuity*

To what extent do human rights protect psychological continuity? Elsewhere, one of us has argued that interference with psychological continuity in the Parfitian sense is likely to infringe (1) the right to identity and (2) the right to personal integrity, both protected under Article 8 ECHR and, to some extent, Article 3 ECHR.[107] In this section, we reflect on these rights, also in view of the ICCPR.

2.3.2.1 The Right to Identity

Human rights protection of psychological continuity has been considered essential to guarantee "the continuity across a person's habitual thoughts, preferences, and choices by protecting the underlying neural functioning".[108] It has been argued that a right to psychological continuity would protect against emerging technologies that can modify brain functioning and, ultimately, guarantee the coherence of people's behaviour and the preservation of their personal identity.[109] To some extent, protection of psychological continuity seems to be covered by the general right to identity, which is inherent in the right to privacy and private life. For example, in the case of *Odièvre* v. *France*, the Grand Chamber of the ECtHR emphasised that "Article 8

[103] Marshall 2009, p. 96, 2016, p. 241.
[104] Marshall 2022, p. 13.
[105] Marshall 2022, pp. 18–19. See also Marshall 2016, p. 237.
[106] As argued in section 2.2, in our view, narrative identity seems most relevant in this context.
[107] Ligthart 2024.
[108] Ienca & Andorno 2017, p. 21.
[109] Ienca & Andorno 2017, p. 21.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

protects a right to identity and personal development, and the right to establish and develop relationships with other human beings and the outside world. (. . .) The preservation of *mental stability* is in that context an indispensable precondition to effective enjoyment of the right to respect for private life".[110]

As it appears, the ECtHR considers mental stability to be an "indispensable precondition" for identity under the right to respect for private life. This can be taken to mean that destabilizing a person's mental states or capacities could obstruct the effective enjoyment of the right to identity. Although "mental stability" and "psychological continuity" are not identical,[111] they do share the feature that their preservation is an indispensable precondition for the safeguarding of personal identity. As discussed in section 2.2, disrupting psychological continuity is considered to destroy numerical identity, causing the person to cease to exist. If mental stability is required for preserving identity, then for sure psychological continuity is required too, as any breaches of psychological continuity are so heavy that they will certainly count as causing mental instability.

In her work on human rights protection of identity and personal freedom, Marshall writes that our inner mind – the personal space that produces our thoughts – needs security and legal protection to enable us to be our own person. Humans need the ability to fulfil their capacities; they need a personal space to develop themselves. If that space is the brain, Marshall argues, then

> how that brain develops or is allowed to develop in and through the societies or social spaces it finds itself in, are surely included, or ought to be, in the legal protection of any right to personal identity. This is in line with the right to private life protected in human rights treaties' provisions; an understanding that we have integrity in our own thoughts and conscience, within our body. Each person is entitled to retain an ability and capacity to enable them to think reflectively without interference; to be in control of their own faculties.[112]

Put differently, the formation and development of personal identity requires, among other things, the ability to freely develop and control our personal thoughts, beliefs, desires and other mental faculties – without restrictions or interference by others. For instance, considering Article 17 ICCPR, Nowak/Schabas state that identity, as part of privacy, includes feelings and thoughts, the forceful influencing of which constitutes a rights infringement, "e.g., by way of mandatory treatment with psychoactive drugs that changes personalities, by way of 'brainwashing' or other manipulation of the subconscious without the awareness of the person concerned".[113]

[110] ECtHR (GC) 13 February 2003, 42326/98 (*Odièvre/France*), par. 29 (emphasis added). See also ECtHR 6 February 2001, 44599/98 (*Bensaid/the United Kingdom*), par. 47.

[111] They may overlap, though. The ECtHR does not specify what it means with mental stability, leaving room for interpretation.

[112] Marshall 2022, pp. 18–19.

[113] Nowak/Schabas 2019, p. 467.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

If the right to personal identity covers the protection of brain development and mental stability, and if it aims to guarantee control over one's own mental faculties, then it is plausible that such a right covers the protection of a person's psychological connections to oneself, such as in terms of memories, intentions, beliefs, goals, desires and similarity of character. It is, then, plausible that the right to personal identity covers the protection of the person's psychological continuity.

The relevance of this protection for the neurorehabilitation of convicted persons may be limited, though – as far as psychological continuity is concerned. As argued in section 2.2.1, the mental effects of neurointerventions to reduce recidivism are, generally, too minor to induce a disruption of psychological continuity, at least in the Parfitian sense. That said, when in a specific case, for example, due to wrongful application or severe side effects, brain stimulation *does* induce a global and radical decline of the person's psychological connections – disrupting psychological continuity or otherwise adversely affecting a person's "mental stability" – the right to identity is plausibly infringed.

It is noteworthy that case law on the right to identity is still relatively scarce and highly casuistic. In human rights law, the concept of identity appears far less developed compared to understandings of identity in ethics and philosophy. For instance, although it is clear from the ECtHR jurisprudence that the protection of personal identity links to preserving the person's mental stability, a well-developed approach about what "mental stability" would require as a precondition of personal identity, has not yet been articulated. Hence, much is still open for interpretation – which might benefit from the philosophical discourse and conceptualisations of personal identity. While we should be careful of drawing general conclusions and overinterpreting the protective scope of the right to identity, we should remain open to the possibility that this right may protect persons against third party-induced disruptions of psychological continuity, including with the use of neurotechnologies. After all, human rights, the ECHR in particular, are to be considered a "living instrument", which should be interpreted in view of present-day conditions, including societal, bioethical and technological developments.[114] This "dynamic" or "evolutive" interpretation enables the rights and freedoms guaranteed within the ECHR to be applied to modern societies and to keep up with persisting progress in emerging technologies.[115]

2.3.2.2 The Right to Personal Integrity

The right to identity closely relates to the right to personal integrity. As Marshall observes, the interpretation of the human right to personal identity is intertwined

[114] Taylor 2020, p. 18; Gerards 2023, p. 106.
[115] Mowbray 2013, p. 17.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

with the right to personal integrity as recognised under Article 8 ECHR.[116] Regarding Article 17 ICCPR, Nowak/Schabas write that "some practices of forcibly changing the identity of a human being, such as mandatory treatment with psychoactive drugs, also serves to illustrate a second manifestation of individual existence that is covered by the right to privacy: the protection of personal integrity".[117] In the same vein, Tiedemann notes that some human rights protect physical and mental integrity, "whose severe violation leads to the loss of personal identity".[118]

The right to personal integrity receives full consideration in Chapter 3. For now, it suffices to highlight that the right is usually taken to cover the protection of *physical* and *psychological* integrity.[119] In general, the right to physical integrity covers a right against non-consensual interferences with one's body.[120] The contours of the right to psychological integrity are less clear.[121] Yet, we know that it at least covers the protection of mental health as a crucial part of private life.[122]

The rights to physical and psychological integrity plausibly cover the protection of a person's "psychological continuity". Whereas the rights to physical and psychological integrity protect against non-consensual interference with, broadly speaking, the body and mind, psychological continuity is concerned with a particular aspect of the body and the mind – that is, the brain and the continuity across specific psychological features such as memories, preferences and choices.[123] The latter seems part of the former.

Ienca and Andorno acknowledge that a right to psychological continuity would partly overlap with the right to mental integrity. But they argue for the need for a specific human right to psychological continuity because they claim that a right to psychological continuity can be threatened in cases where no infringement of the right to mental integrity takes place. In their view, infringing the latter right requires the infliction of physical or psychological *harm*, while the former does not: "the right to psychological continuity also applies to emerging scenarios that do not directly

[116] Marshall 2022, p. 13, also Marshall 2016, p. 41. Moreover, the Grand Chamber appears to consider the preservation of a person's physical and psychological integrity as a prerequisite for the protection of personal identity: "The concept of 'private life' is a broad term (. . .) It covers the physical and psychological integrity of a person, *and can therefore embrace* multiple aspects of the person's identity such as, for example, gender identification, sexual orientation, name and elements relating to a person's right to his or her image" ECtHR (GC) 29 March 2016, 56925/08 (*Bédat/Switzerland*), par. 72 (emphasis added). See also ECtHR (GC) 25 September 2018, 76639/11 (*Denisov* v. *Ukraine*) par. 95.

[117] Nowak/Schabas 2019, p. 468.

[118] Tiedemann 2015, p. 27.

[119] See, e.g., Nowak/Schabas 2019, pp. 467, 468. See also ECtHR (GC) 29 March 2016, 56925/08 (*Bédat/Switzerland*), par. 72; General Comment No. 35: Article 9 CCPR/C/GC/35, par. 3.

[120] ECtHR 22 July 2003, 24209/94 (*YF* v. *Turkey*), par. 33.

[121] Bublitz 2020a; Michalowski 2020.

[122] ECtHR 26 November 2009, 25282/06 (*Dolenec/Croatia*), par. 165; ECtHR, 6 February 2001, 44599/98 (*Bensaid/the United Kingdom*), par. 47.

[123] Ienca & Andorno 2017, p. 21.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

involve neural or mental harm".[124] Accordingly, Ienca and Andorno argue that the right can "be threatened not only by misused brain stimulation but also by less invasive, even unperceivable interventions. A good example is unconscious neural advertising via neuromarketing".[125]

Whether disruptions to psychological continuity will ever occur in scenarios that do not involve any neural or mental harm is, however, doubtful. This would at least depend on how one defines "psychological continuity". Recall that on the Parfitian understanding, psychological continuity means that a person has an overlapping chain of *strong* psychological connections to oneself across time, such that for an interference to disrupt psychological continuity, *more than half* the number of the person's psychological connections should be destroyed, compared to a normal, actual person. On this understanding, it seems implausible that psychological continuity will be disrupted by a mental interference without the occurrence of *any* neural or mental harm whatsoever.

Consider, for example, how the severing of a significant amount of one's psychological connections in terms of memories, intentions, beliefs and desires plausibly harms a person on a range of theories of well-being. At one level, the disruption of psychological continuity harms a person on each of mental state,[126] preferentist[127] and objective list accounts[128] of well-being,[129] insofar as the severing of intentions, beliefs, memories, desires et cetera either is experienced as distressing (mental state theories), prevents a person satisfying their desires (preferentist theories) or deprives a person of something objectively valuable such as knowledge (objective list theories). But most obviously, and insofar as significant disruption of psychological continuity implies a loss of numerical identity, the person whose psychological continuity is disrupted is harmed simply because they are made to no longer exist, and as such cannot have a level of well-being anymore.

If a neurointervention inflicts such acute and global mental deterioration – for instance, due to severe side effects or wrongful application – it may even amount to cruel, inhuman or degrading treatment, which is prohibited in absolute terms by Articles 7 ICCPR and 3 ECHR.[130] Tiedemann notes this in asserting that "[s]ome human rights protect physical and mental integrity whose severe violation leads to

[124] The distinction between harmful and harmless interferences with people's brains and mental faculties may be appealing in normative evaluations of emerging neurotechnology. However, whether it adds to a compelling argument to distinguish a right to psychological continuity from the right to psychological integrity can be challenged: Ligthart 2024. For example, it is doubtful whether infringing the right to psychological integrity indeed requires the infliction of physical and/or psychological harm (see Chapter 3, section 3.3.1).

[125] Ienca & Andorno 2017, p. 22.

[126] Crisp 2006.

[127] Heathwood 2016.

[128] Fletcher 2013.

[129] See Parfit 1984, appendix C for this tripartite classification of theories of well-being.

[130] Ligthart 2024.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

loss of personal identity. This is evidenced by the ban of torture and inhuman and degrading treatment and punishment".[131]

Illustrative in this regard is a recent statement of the UN Special Rapporteur on torture and other cruel, inhuman or degrading treatment or punishment. In their report on psychological torture and ill-treatment, the Rapporteur explicitly refers to the potential threats of neurotechnology in relation to profound disruptions of a person's "mental identity", "capacity" and "autonomy". Drawing attention to the rapid advances in medical, pharmaceutical and neurotechnological science, the Rapporteur highlights the difficulty of predicting to what extent future techniques of torture, as well as the enhancement of people's mental and emotional resilience, may allow the manipulation, circumvention or suppression of the subjective experiences of pain and suffering, while *still* attaining the dehumanising, debilitating and incapacitating effects of torture.[132] Against this background, the Rapporteur stresses that states must interpret and exercise the prohibition of torture in good faith and in light of the evolving values of democratic societies, emphasising that it would be

> irreconcilable with the object and purpose of the universal, absolute and non-derogable prohibition of torture, for example, to exclude from the definition of torture the profound disruption of a person's mental identity, capacity or autonomy only because the victim's subjective experience or recollection of "mental suffering" has been pharmaceutically, hypnotically or otherwise manipulated or suppressed.[133]

In the European context, too, it is not implausible that the ECtHR would qualify a non-consensual disruption of over half a person's psychological connections to oneself in the Parfitian sense through a neurointervention as "degrading", which the ECHR defines as a treatment that "humiliates or debases an individual, showing a lack of respect for, or diminishing, his or her human dignity, or when it arouses feelings of fear, anguish or inferiority capable of breaking an individual's moral and physical resistance".[134] We come back to this in Chapter 3.

2.3.3 *Narrative Identity*

Let us now turn to the protection of narrative identity. To what extent is the way people *experience* themselves and *process* those experiences into a coherent, autobiographical story, protected by human rights law? And what might such legal protections imply for the neurorehabilitation of convicted persons?

[131] Tiedemann 2015, p. 27.
[132] UN Special Rapporteur on Torture and other cruel, inhuman or degrading treatment or punishment, 20 March 2020, A/HRC/43/49, par. 32.
[133] UN Special Rapporteur on Torture and other cruel, inhuman or degrading treatment or punishment, 20 March 2020, A/HRC/43/49, par. 32.
[134] ECtHR (GC)17 July 2014, 32541/08 and 43441/08 (*Svinarenko and Slyadnev* v. *Russia*) par. 115.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

Protecting and ensuring certain enabling preconditions for the construction of one's own narrative identity appears to be subject to human rights law, in particular to the right to respect for private life – though the term "narrative identity" is not mentioned in the relevant case law and scholarly literature.[135] Marshall highlights that human rights can be vital "in allowing identity *formation*, through creating the social conditions to enable an individual to develop their personality and identity as they wish".[136] The idea of identity formation also has affinities with the idea of narrative construction, giving the "authoring" suggested by both. Marshall stresses that freedom as self-direction and self-development is not something individuals sustain and develop on their own in isolation from the outside world. Rather, the development and preservation of identity partly takes place in relation and conversation with others, within the social environments we find ourselves in.[137] Think of how the right to freely develop, change and adhere to a certain religion or belief, and to manifest one's religious identity – for example, through dress or going to church – is protected by the right to freedom of religion and belief.[138] Consider, too, how access to information about one's origins[139] and the preservation of objects of ancestral significance[140] have each been considered to potentially be significant for identity formation and self-development and hence subject to human rights protection[141] – and also how these factors seem to pertain to narrative identity specifically.

With respect to access to information about one's origins, the Glover Report on Reproductive Technologies for the European Commission noted that "our sense of who we are is bound up with the *story* we tell about ourselves. A life where the biological parents are unknown is like a novel with the first chapter missing".[142] Such a missing chapter may frustrate the person's ability to answer the characterisation question central to narrative identity: "Who am I really?" The importance of having access to information about one's origins for identity formation is acknowledged by the ECtHR. In cases on paternity dispute, for example, the Court observed that people "have a vital interest, protected by the Convention, in receiving the information necessary to uncover the truth about an important aspect of their personal identity".[143] It further observed that respect for private life in the meaning of Article 8 ECHR "requires that everyone should be able to establish details of their identity as individual human beings", with the individual's entitlement to such information

[135] Cf. Marshall 2016, p. 26.
[136] Marshall 2016, p. 241 (emphasis added).
[137] Cf. Marshall 2016, p. 19.
[138] Cf. Nowak/Schabas 2019, p. 467; Marshall 2009, pp. 139–161, 2016, p. 21.
[139] ECtHR 7 February 2002, 53176/99 (*Mikulić/Croatia*), par. 64.
[140] *Hopu and Tepoaitu Bessert* v. *France*, CCPR/C/60/D/549/1993/Rev.1., 29 December 1997.
[141] Marshall 2009, p. 123.
[142] Glover et al. 1989, p. 37 (emphasis added).
[143] ECtHR 7 February 2002, 53176/99 (*Mikulić/Croatia*), par. 64.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

being "of importance because of its *formative implications* for his or her personality".[144]

With respect to the preservation of objects of ancestral significance, the Human Rights Committee in the case of *Hopu and Bessert* v. *France* interpreted the protection of identity under Article 17 ICCPR as sometimes covering the protection of objects that people see as connecting them with their ancestors. In this case, the applicants, both ethnic Polynesians, complained that the construction of a luxury hotel on the site of their ancestral burial grounds would arbitrarily interfere with their privacy in violation of Article 17 ICCPR, because these burial grounds have an important place in their history, culture and life. The Human Rights Committee noted that it "transpires from the authors' claims that they consider the relationship to their ancestors to be an essential element of their identity". The majority agreed and concluded that there had been an arbitrary interference with Article 17 ICCPR.[145] Because the applicants in this case *perceived* the relationship to their ancestors as significant to, or even constitutive of, their identity, human rights protection of identity applied.

Although there may be no direct link between these cases and narrative identity, the examples illustrate that for the human rights protection of people's identity, personal narratives matter at least sometimes. They indicate that at least some aspects of a person's narrative, and some enabling preconditions for answering the characterisation question, receive protection by the human right to personal identity as part of the rights to privacy and private life. As pointed out earlier, according to Schechtman, the most familiar examples of the characterisation question are "questions of which characteristics are *truly* those of some person (as opposed, say, to those which are his as a result of hypnosis, brainwashing, or some other form of coercion)".[146] Altering personal characteristics and behavioural traits through neurotechnology has the potential to impact on how persons experience themselves – especially when this takes places without valid – free and informed – consent (section 2.2.2). It appears safe to say that even more than receiving information about one's origins or the intactness of historic sites and cultural heritage, a person's unmanipulated brain and mental states – memories, in particular, as the psychological "equivalent" of ancient sites – are important, enabling preconditions for narrative identity formation. If the former are protected through the right to identity, then there is reason to think that the latter should be too.

Furthermore, the self-constitution and formation of personal identity may also be covered by the more general protection of *self-determination*,[147] also enshrined in Articles 8 ECHR and Article 17 ICCPR. For example, regarding Article 17 ICCPR, Nowak/Schabas note that "privacy covers the area of individual autonomy in which

[144] ECtHR 7 February 2002, 53176/99 (*Mikulić/Croatia*), par. 54 (emphasis added).
[145] *Hopu and Tepoaitu Bessert* v. *France*, CCPR/C/60/D/549/1993/Rev.1., 29 December 1997.
[146] Schechtman 1996, p. 73.
[147] Marshall 2016, p. 241.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

human beings strive to achieve self-realization", which "liberty of action" is "inherent in private self-determination".[148] Taylor speaks in this context of human rights that protect the individual's "identity and self-autonomy", including in the dimensions of gender, sexuality and religion.[149] In the jurisprudence of the ECtHR, self-determination is closely linked to the notion of personal autonomy,[150] the latter being an important principle underlying the interpretation of Article 8 ECHR.[151] According to the Grand Chamber of the ECtHR, "a right to self-determination" can be derived from the umbrella right to respect for private life pursuant to Article 8 ECHR.[152] Among other things, it embraces a right to "informational self-determination" and a right to "sexual self-determination".[153] Although the ECtHR has not yet clearly articulated the meaning and scope of the right to self-determination, the right protects at least some aspects of a person's identity.[154]

This follows most evidently from the case law on sexual orientation and gender identity. According to the ECtHR, gender identity and sexual orientation are one of the most intimate aspects of private life,[155] qualifying the latter as "an essentially private manifestation of human personality".[156] The right to self-determination not only protects from interference with private sexual *behaviour* but also guarantees a freedom to self-create, reshape and develop different aspects of the person's (sexual) *identity*, for instance, by *defining* oneself as either a male or female. As the Court puts it:

> The Court further reiterates that the notion of personal autonomy is an important principle underlying the interpretation of the guarantees of Article 8 of the Convention. This has led it to recognise, in the context of the application of that provision to transgender persons, that it includes a right to self-determination, of which the *freedom to define* one's sexual identity is one of the most basic essentials.[157]

The Human Rights Committee has approached the freedom to define one's own sexual identity as part of the protection of a person's identity and gender identity under Article 17 ICCPR. For example, the complaint in *G. v. Australia* concerned an Australian law that did not allow a transgender person to change the reference to

[148] Nowak/Schabas 2019, p. 472.
[149] Taylor 2020, p. 4.
[150] ECtHR 29 April 2002, 2346/02 (*Pretty/the United Kingdom*), par. 61.
[151] ECtHR (GC) 11 July 2002, 28957/95 (*Christine Goodwin/UK*), par. 90.
[152] ECtHR (GC) 27 August 2015, 46470/11 (*Parrillo/Italy*), par. 153.
[153] ECtHR (GC) 27 June 2017, 931/13 (*Satakunnan Markkinapörssi Oy and Satamedia Oy/Finland*), par. 137; ECtHR 12 June 2003, 35968/97 (*Van Kück/Germany*), par. 78.
[154] Marshall 2009, pp. 121–122.
[155] ECtHR 12 June 2003, 35968/97 (*Van Kück/Germany*), par. 56; ECtHR 2 March 2010, 13102/02 (*Kozak/Poland*), par. 83.
[156] ECtHR 27 September 1999, 33985/96 and 33986/96 (*Smith and Grady/UK*), par. 127.
[157] ECtHR 11 October 2018, 55216/08 (*S.V./Italy*), par. 55 (emphasis added); ECtHR 10 March 2015, 14793/08 (*Y.Y./Turkey*), par. 102; ECtHR 12 June 2003, 35968/97 (*Van Kück/Germany*), par. 73 and 78.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

her sex on the birth certificate unless she divorced from her spouse (with whom she had a happy relationship). The Human Rights Committee stressed that the right to privacy of Article 17 ICCPR includes the protection of the person's identity and gender identity and found the Australian law to constitute an arbitrary interference with the person's privacy and family life.[158] Nowak/Schabas note that identity often manifests itself in official documents, such as birth certificates.[159] Such pieces of information and official reference can play an important role in the development of people's narratives and, therefore, in the self-constitution of their identity.

Considering the case law on gender identity and sexual orientation, Marshall observes that the Court's conception of "freedom" under Article 8 ECHR could be interpreted as "self-creation or self-determination", protecting the freedom to be and become the person one chooses, "in keeping with their own sense of their identity in a self-determining sense".[160] The right to personal identity in this context allows individuals to freely change, develop and create their identities, "rather than bringing to realisation some essence within".[161] As such, personal identity as protected under Article 8 ECHR is flexible and dynamic, rather than fixed and static. As Judge Martens phrased it in a dissenting opinion dating back to 1990, "[h]uman dignity and human freedom imply that a man should be free to shape himself and his fate in the way that he deems best fits his personality".[162]

This shaping of the self can take different forms, one of them being the processing of our personal experiences into a coherent, autobiographical story of our lives. Such a self-determining interpretation of human freedom in relation to personal identity fits well within the general view that the right to respect for private life "secures to the individual a sphere within which he can freely pursue the development and fulfilment of his personality".[163] If this self-creating and self-determining freedom is interfered with by brain stimulation that disrupts a person's self-narrative, for example, in the context of neurorehabilitation, the right to self-determination, including the freedom to define one's own identity, will likely be infringed.

2.3.4 *Implications for Neurorehabilitation*

Human rights protect personal identity. Meanwhile, many of the concepts referred to in this context, such as identity, personality and mental stability, are still ill-defined in the law.[164] In addition, the theoretical underpinnings of the human rights

[158] G. v. *Australia*, CCPR/C/119/D/2172/2012, 28 June 2017. See also Report of the UN Special Rapporteur on the right to privacy, 16 October 2019, A/HRC/40/63.
[159] Nowak/Schabas 2019, p. 468.
[160] Marshall 2009, pp. 104, 122.
[161] Marshall 2009, pp. 104, 122.
[162] Dissenting opinion Judge Martens, 27 September 1990, 10843/84 (*Cossey/UK*), par. 2.7.
[163] ECtHR 28 October 2014, 49327/11 (*Gough/UK*), par. 182; ECtHR 23 March 2017, 53251/13 (*A.-M.V./Finland*), par. 76.
[164] Cf. Bou-Sfia 2024, p. 5.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

protection of identity are, by and large, undefined and, thus, unclear. Contrary to philosophy, in human rights law, personal identity lacks clear conceptual consideration. The protection of identity appears to develop ad hoc, through individual cases and complaints and is, therefore, fragmented and specified to the facts of those cases. At best, scholars can interpret individual cases and decisions and relate them to specific theoretical accounts of identity, or defend a specific account they think is most appropriate to substantiate a human right to identity.[165]

We showed that under the ICCPR and ECHR, there is no explicit recognition of either Parfit's psychological continuity or Schechtman's narrative identity account. However, as argued in the previous section, there are reasons to assume that, implicitly, these types of identity receive protection from human rights. Interference with both narrative identity and psychological continuity may sometimes infringe the rights to identity and self-determination, which are inherent in the right to privacy. Disrupting a person's psychological continuity may furthermore infringe the right to personal integrity.

Let us for now assume that, to some extent, both psychological continuity and narrative identity receive protection within the established framework of human rights, in particular through the right to identity inherent in the right to privacy/private life.[166] Let us also assume that in some cases the use of brain stimulation for the rehabilitation of convicted persons can infringe the right to identity. Then, the next question is whether and under what conditions such an infringement could be justified, or whether certain neurotechnological interferences with the identity of convicted persons will be prohibited across the board.

As the protection of identity is part of the *qualified* right to privacy, it is subject to limitations. Both under Article 17 ICCPR and 8 ECHR, infringements of the right to privacy can be justified when having a (non-arbitrary) legal basis and being proportionate to a legitimate aim, such as the prevention of crime and the protection of the rights and freedoms of others.[167] For example, some types of non-consensual medical interventions, such as taking blood for DNA analysis, infringe the right to private life under Article 8 ECHR, but can still be justified for obtaining evidence of the person's involvement in the commission of a criminal offence.[168] Furthermore, non-consensual medical treatment, which would normally infringe the right to respect for private life, could be justified in case of "medical necessity".[169] Whether and when interference with a convicted person's identity through a neurointervention could be justified is hard to predict. This will depend on a range of factors that vary across individual cases, such as the induced neural, psychological and behavioural

[165] See, e.g., Marshall 2009, 2016, 2022; Mater & Murray 2025.
[166] The right to personal integrity will be further elaborated upon in Chapter 3.
[167] Lavrysen 2018; Nowak/Schabas 2019, pp. 463–446.
[168] ECtHR 15 May 2018, 41079/16 (*Caruana/Malta*), par. 31; ECtHR (GC) 11 July 2006, 54810/00 (*Jalloh/Germany*), par. 70.
[169] Buelens, Herijgers & Illegems 2016; Harris et al. 2023, p. 528.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

changes, and the purpose of the intervention, for example, whether it is employed for medical reasons or to prevent severe or less severe crimes.

Here, we will not estimate which types of identity change caused by neurointerventions may or may not be permissible under different conditions. Rather, we wish to highlight a more general feature of identity interference that emerges, specifically, from the ECtHR case law – which may inform our thinking about the (im)permissibility of identity-affecting neurointerventions in criminal justice more broadly. This particularity relates to the margin of appreciation doctrine developed in the jurisprudence of the ECtHR.

In determining whether an infringement of the right to respect for private life is proportionate to the legitimate aim it pursues, the national authorities enjoy a *margin of appreciation*, which can either be "wide", "certain" or "narrow".[170] The narrower this margin, the stricter the ECtHR's review of the proportionality of a rights infringement.[171] The broader this margin, the more discretion states enjoy in striking a "fair balance" between the competing personal and public interests at stake.[172] The breadth of this margin of appreciation varies across individual cases and depends on a number of relevant factors,[173] such as the context of the interference and the level of consensus among the member states of the Council of Europe, either as to the relative importance of the interest at issue or as to the best way of protecting it.[174]

Another relevant factor concerns the *importance* of the right at stake. In principle, the margin of appreciation will be narrow when the "essence" or "core" of a convention right is affected. Gerards explains this approach from the perspective of effective protection of the ECHR in relation to the principle of subsidiarity: the more important a right, the more reason for supervision on how that right is guaranteed on the national level.[175] The ECtHR has identified four central values underlying the ECHR: democracy and the rule of law, pluralism, human dignity, and personal autonomy. According to Gerards,

> core rights reasoning generally implies that the closer a certain aspect of a right is related to these central values, the more important it can be considered to be. By contrast, the more a certain aspect is in the periphery of the right, the less weighty it is. It is precisely because restrictions of core rights might endanger the achievement of the Convention's central objectives that the Court finds it justified to apply strict scrutiny.[176]

[170] Lavrysen 2018, p. 328.

[171] For example, adopting a strict review could imply that the ECtHR requires an infringement not simply to pursue a "legitimate aim" but is grounded in "compelling" or "very weighty" reasons.

[172] Gerards 2023, Ch. 8.

[173] Gerards 2023, p. 255.

[174] ECtHR (GC) 24 January 2017, 25358/12 (*Paradiso and Campanelli/Italy*), par. 182; ECtHR 13 February 2020, 45245/15 (*Gaughran/UK*), par. 77 and 84.

[175] Gerards 2023, p. 272.

[176] Gerards 2023, pp. 272–273.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

Under Article 8 ECHR, the ECtHR has repeatedly stated that when "a particularly important facet of an *individual's existence* or *identity* is at stake, the margin allowed to the State will be restricted".[177] For example, in a case on the legal recognition of a parent-child relationship after surrogacy, the ECtHR held that "regard should also be had to the fact that an essential aspect of the identity of individuals is at stake where the legal parent-child relationship is concerned. The margin of appreciation afforded to the respondent State in the present case therefore needs to be reduced".[178] In another case, the ECtHR explained that the "extent of the State's margin of appreciation depends not only on the right or rights concerned but also, as regards each right, on the very nature of the interest concerned. The Court considers that the right to an identity (. . .) is an integral part of the notion of private life. In such cases, particularly rigorous scrutiny is called for when weighing up the competing interests".[179]

In the same vein, when the non-consensual stimulation of a convicted person's brain changes personal characteristics that are to be considered an essential aspect of the person's identity – which we conceive as plausible in at least some cases (section 2.2) – the margin of appreciation will most likely be narrow too. In those cases, the national authorities have less discretion in balancing the convicted person's private interests against the public interest of crime prevention (e.g., by lowering recidivism risks). Consequently, the ECtHR could then apply a strict test of necessity and proportionality, critically assessing the availability of less intrusive means, and may require additional procedural safeguards in domestic law to guarantee careful and individualised decision-making and access to judicial remedies.[180]

2.4 CONCLUDING REMARKS

The use of neurointerventions for the rehabilitation of convicted persons raises concerns in view of their identity. In general, non-invasive brain stimulation for neurorehabilitation is unlikely to induce such radical psychological change so as to disrupt the person's psychological continuity and destroy their numerical identity. However, depending on their precise application and on the broader self-narrative of the convicted person involved, brain stimulation may interfere with narrative identity. A clear conceptual foundation of personal identity is lacking in human rights law. Yet, to some extent, human rights appear to protect, implicitly, (certain enabling preconditions of) narrative identity, in particular through the right to identity that is inherent in the right to privacy (Article 17 ICCPR) and, in Europe, the right to respect for private life (Article 8 ECHR). We have argued that,

[177] ECtHR (GC) 10 April 2007, 6339/05 (*Evans/UK*), par. 77 (emphasis added); ECtHR (GC) 4 December 2007, appl.no. 44362/04 (*Dickson/UK*), par. 78. See also Bou-Sfia 2024, pp. 27–29.
[178] ECtHR 26 June 2014, 65192/11 (*Mennesson/France*), par. 80.
[179] ECtHR 13 July 2006, 58757/00 (*Jäggi/Switzerland*), par. 37.
[180] Gerards 2023, pp. 248–249; Bou-Sfia 2024, p. 29.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002

in general, non-consensual neurointerventions that disrupt a person's identity-constituting narrative by inducing significant behavioural change can infringe these rights. Given the qualified nature of these rights, infringements may sometimes be justified, for instance to prevent severe crime. However, from the European perspective, we showed that the protection of people's identity appears to circle around the essence of Article 8 ECHR. This provides a strong reason to assume that, when a person's identity is interfered with, the margin of appreciation of states will be narrow, and that, therefore, the discretion of states to employ identity-affecting neurointerventions in criminal justice will be limited.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 19 Nov 2026 at 19:29:22, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009486309.002