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Reconstructing Human Rights for Post-Biological Humanity Continuity-Based Personhood as a Jurisprudential Response to Whole-Brain Emulation

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ABSTRACT

International human rights law has never had to justify itself to a subject who is no longer biological. This article uses whole-brain emulation, the hypothetical complete transfer of consciousness, memory, and personality to a non-biological substrate, with no death occurring and legal identity unbroken, as a jurisprudential stress test of that law's implicit anthropology. Close doctrinal reading shows that biological embodiment, mortality, singular psychological boundedness, and territorial situated-ness are load-bearing for specific rights to markedly different degrees. Drawing on legal-personhood theory, the philosophy of personal identity, dignity theory, and neuro-rights scholarship, the article constructs a three-limb legal test for continuity of personhood across substrate transfer, a hybrid agency-and-practice account of human dignity capable of grounding rights without embodiment, a reconception of five core human rights provisions, and a layered institutional architecture for their enforcement. The resulting construct, continuity-based personhood, is tested against its strongest objections rather than insulated from them, and the article's conclusion is a qualified affirmative: international human rights law can remain coherent once its embodiment premise is removed, provided the tradition relocates the ground of protection from biological embodiment, shown here to be a historically universal but not conceptually necessary proxy, to demonstrable continuity of the person.

Keywords: Whole-Brain Emulation, Continuity-Based Personhood, International Human Rights Law, Substrate Transfer, Legal Personhood Theory, Personal Identity, Dignity, Neurorights, Institutional Governance.

1. Introduction

The Universal Declaration of Human Rights grounds itself in recognition of the inherent dignity of all members of the human family, a proposition never tested against a member of that family whose biological membership has ceased while their psychological and narrative membership continues unbroken.¹ This article is concerned with that untested case. Whole-brain emulation, the hypothetical complete emulation of a specific brain's causal structure at a resolution sufficient to reproduce its functional organization in a different substrate, is treated here not as a technological prediction but as an idealized limiting case, a device that isolates a single variable by holding every other variable fixed.² For this article, the scenario is stipulated precisely: consciousness, memory, personality, and psychological continuity are preserved without

¹Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A(III) preamble.

²Anders Sandberg and Nick Bostrom, Whole Brain Emulation: A Roadmap (Technical Report 2008-3, Future of Humanity Institute, University of Oxford 2008) 7–8.

residue; the biological body ceases to exist; the individual does not die, in the sense that their psychological and narrative existence is uninterrupted; and legal identity remains continuous. The stipulation deliberately excludes gradual replacement, duplication with a surviving biological original, and any scenario in which the biological body is merely altered rather than discontinued exclusions addressed, where the branching variant becomes unavoidable, in Part IV below.

The central research question this article answers is whether contemporary international human rights law can remain conceptually coherent once humanity ceases to be biologically embodied, and if so, on what normative and doctrinal terms. The question forces a choice between two costly answers. If biological embodiment is a conceptually necessary condition of human rights rather than merely their historically universal correlate, the tradition's own universalist self-description is false in a respect it has never had to confront. If embodiment is not necessary, the tradition owes an account of what grounds rights instead, a specification of how particular rights must be reconceived, and an institutional architecture capable of enforcing them. No existing scholarship supplies that account, that specification, and that architecture in combination, and this article's task is to construct all three.

Three adjacent literatures must be distinguished from the outset, because each addresses a materially different question. The literature on artificial intelligence and robot personhood asks whether a novel entity that never held human rights should now be granted them, generally for instrumental reasons connected to liability and accountability; this article asks whether an entity that unquestionably was a human rights-holder retains that status through a change of substrate.³ The literature on human enhancement and transhumanist bioethics addresses the incremental alteration of an ongoing biological life; this article addresses the complete, one-time discontinuation of biological embodiment with full psychological preservation, a scenario neither Bostrom's defence of posthuman dignity nor Fukuyama's and Kass's bioconservative responses were written to address directly.⁴ And the literature on digital legacy and post-mortem privacy addresses what survives a person's biological death; this article addresses a person who, on its own stipulation, has not died. These distinctions are not pedantry — each literature's analytical apparatus presupposes exactly what this article's scenario excludes, and treating them as interchangeable would corrupt the argument that follows.

The article proceeds in six further parts. Part II reconstructs, from the founding instruments themselves, which anthropological assumptions are load-bearing for which rights. Part III synthesizes the adjacent literatures that supply the resources for reconstruction and states the resulting research gap. Part IV constructs a legal test for continuity of personhood and a resolution of the branching problem. Part V constructs a hybrid account of dignity capable of grounding rights without embodiment. Part VI reconceives five core rights and Part VII proposes an enforcement architecture. Part VIII consolidates the strongest objections against the whole construction before concluding.

A methodological point deserves statement before the argument begins, because it governs how each Part's claims should be read. The question this article poses cannot be answered by doctrinal analysis alone, because doctrine inherits, rather than examines, its own assumptions about the nature of the human subject; it cannot be answered by philosophy of mind alone,

³See Sergio M C Avila Negri, 'Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence' (2021) 8 *Frontiers in Robotics and AI* 789327; Robert van den Hoven van Genderen, 'Do We Need New Legal Personhood in the Age of Robots and AI?' in Marcelo Corrales, Mark Fenwick and Nikolaus Forró (eds), *Robotics, AI and the Future of Law* (Springer 2018) 15.

⁴Nick Bostrom, 'In Defense of Posthuman Dignity' (2005) 19 *Bioethics* 202; Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Farrar, Straus and Giroux 2002); Leon R Kass, *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics* (Encounter Books 2002).

because philosophy of mind has no account of institutional enforcement; and it cannot be answered by transhumanist or bioconservative theory alone, because that literature is oriented toward incremental enhancement of an ongoing biological life rather than complete substrate transfer. The article accordingly combines doctrinal reading, critical synthesis of adjacent literatures, conceptual and normative construction, and institutional design, with human rights law retained throughout as the field within which the ultimate question is answered rather than displaced by any of the contributing disciplines. Where a claim in what follows rests on a stipulation rather than a demonstration, as the scenario itself does, and as several evidentiary judgments in Parts IV and VI do, this is flagged rather than concealed, consistent with the qualified rather than triumphant conclusion Part VIII ultimately reaches.

II. The Anthropological Premises of International Human Rights Law

International human rights law's founding instruments do not argue for a conception of their subject; they assume one. Morsink's reconstruction of the drafting of the Universal Declaration shows that its foundational language of birth into a single human family was chosen precisely because it was unmanipulable, a considered response to fascism's exclusionary redefinitions of who counts as fully human, rather than a considered position on whether personhood could survive a change of biological substrate, a possibility the drafters had no occasion to consider.⁵ The assumption is load-bearing for the purpose it was built to serve; its extension to the post-biological case has simply never been tested.

The unevenness of this load-bearing character becomes visible only through provision-by-provision analysis. The right to life is the clearest case: Article 6 of the International Covenant on Civil and Political Rights and General Comment No. 36 define arbitrary deprivation, and every positive obligation flowing from it, by reference to the cessation of biological function, such that the right presently has no vocabulary for a form of survival that is neither continued biological existence nor death.⁶ The prohibition of torture divides internally: its dominant jurisprudence is built around physical pain inflicted on an embodied organism, but its own General Comment already frames the provision's purpose as protecting physical and mental integrity, an unresolved internal division between two previously fused strands that the post-biological case exposes for the first time.⁷ The right to privacy rests on the silent assumption that a person's inner life is private by default because it is housed within a single, physically bounded organism, an assumption the neurorights literature has already begun to strain and that a non-biological substrate may lack from the outset rather than merely have eroded.⁸ The rights to nationality and movement presuppose a subject determinately located within, or in a specified relationship to, a state's territory; Arendt's analysis of statelessness demonstrates that this architecture has always mediated the practical, as opposed to merely formal, enjoyment of rights, while Milanovic's account of the personal model of extraterritorial jurisdiction shows that this territorial architecture has already proven doctrinally flexible in ways textual embodiment

⁵Johannes Morsink, *The Universal Declaration of Human Rights: Origins, Drafting, and Intent* (University of Pennsylvania Press 1999) 36–47, 281–298.

⁶UN Human Rights Committee, 'General Comment No. 36, Article 6: Right to Life' (2018) UN Doc CCPR/C/GC/36, paras 1–3, 26; Manfred Nowak, *UN Covenant on Civil and Political Rights: CCPR Commentary* (2nd rev edn, N P Engel 2005) 121–128.

⁷UN Human Rights Committee, 'General Comment No. 20: Article 7' (1992) para 2; Sarah Joseph and Melissa Castan, *The International Covenant on Civil and Political Rights: Cases, Materials, and Commentary* (3rd edn, Oxford University Press 2013) ch 9.

⁸UN Human Rights Committee, 'General Comment No. 16: Article 17' (1988) paras 1, 3–4; Marcello Ienca and Roberto Andorno, 'Towards New Human Rights in the Age of Neuroscience and Neurotechnology' (2017) 13 *Life Sciences, Society and Policy* 5, 6–8.

assumptions have not.⁹ And the right to recognition as a person before the law, examined through its drafting history, turns out to be load-bearing only in the weakest sense: it was directed at correcting the arbitrary denial of legal capacity to biologically human individuals, married women, colonial subjects, minorities, and its text imposes no explicit biological precondition, leaving it textually open to extension in a way none of the other four provisions are.¹⁰

Two further observations sharpen this map before Part III turns to the literature capable of reconstructing it. The first is that the five provisions examined above do not divide neatly into embodiment-dependent and embodiment-independent categories; each depends on a different combination of the four assumptions in a different proportion, such that the right to life is almost purely mortality-dependent, the prohibition of torture is embodiment-dependent in one strand and not the other, privacy is boundedness-dependent by default rather than by necessity, nationality is territorially-dependent for enforceability rather than content, and recognition before the law is barely dependent on any of the four at all. The second observation is that this unevenness was never itself examined by the drafters, because no real case before this article's hypothetical had ever required them to distinguish load-bearing from merely correlated assumptions; the founding instruments accordingly contain the resources for their own partial reconstruction, but only once a case forces the distinction into view.

This differentiated map is the analytical foundation for everything that follows. It shows the research problem does not admit a single answer applicable uniformly across human rights law: the coherence of a post-biological rights-holder's claim must be assessed right by right, against the specific premises each right's own doctrine has actually built into its operative content, a task Part VI undertakes directly.

III. The Literature and the Research Gap

Four bodies of scholarship, examined separately, each decouple one of the load-bearing assumptions identified in Part II from biological embodiment, without ever being combined into a single account of post-biological human rights protection.

Legal-personhood theory shows that personhood has never been reducible to biological humanity. Kurki's bundle theory treats legal personhood as a cluster of separable incidents extended and withdrawn from various entities for reasons of institutional convenience rather than metaphysical necessity, and Naffine's distinction between legalistic and realist conceptions of the legal person reinforces the point from a different angle.¹¹ The adjacent debate over electronic personhood for artificial intelligence, provoked by the European Parliament's 2017 proposal and met with sustained scholarly caution, is instructive here for a different reason: it confirms that legal systems have never required a settled theory of what personhood ultimately consists in before extending or withholding it, a pattern of institutional pragmatism this article's own continuity test, constructed in Part IV, deliberately follows rather than departs from. This literature establishes that personhood is separable from biological humanity in principle; it does not address what would justify preserving one particular person's rights across a change of substrate, which is a narrower and more demanding question than the general separability the bundle theory establishes.

⁹Hannah Arendt, *The Origins of Totalitarianism* (Harcourt, Brace 1951) 267–302; Marko Milanovic, *Extraterritorial Application of Human Rights Treaties: Law, Principles, and Policy* (Oxford University Press 2011) 209–222.

¹⁰Johannes Morsink, *The Universal Declaration of Human Rights: Origins, Drafting, and Intent* (University of Pennsylvania Press 1999) 44–47, 292–298.

¹¹Visa AJ Kurki, *A Theory of Legal Personhood* (Oxford University Press 2019) 3–34, 90–113; Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing 2009) 24–52.

The philosophy of personal identity supplies substrate-neutral criteria directly relevant to that narrower question. Locke's memory criterion and Parfit's reductionist account of psychological continuity and connectedness both define identity in terms that are, in principle, independent of the material that carries them, and Persson's reconstruction of Parfit shows that even the leading philosophical account concludes that strict metaphysical identity may not be what matters for survival at all, a conclusion this article treats as jurisprudentially productive rather than merely unsettled, since it suggests a legal continuity test need not resolve the metaphysics conclusively to be workable.¹² The mind-uploading literature built on this foundation confronts the branching problem directly: because a substrate can in principle be copied, any account of uploaded identity must address the possibility of multiple simultaneous psychological continuants of a single prior person, a possibility Bamford and Danaher's socially constructionist account addresses by treating personal identity as itself a matter of legal stipulation rather than metaphysical discovery, a promising but, on its own, incomplete starting point, since a legal stipulation still requires normative justification.¹³

Dignity theory supplies grounds for human rights that are not, on their own best construction, embodiment-specific. Griffin grounds dignity in normative agency, autonomy, liberty, and a minimum provision necessary for their exercise, none of which is, on its face, a biological criterion; Donnelly grounds dignity instead in a social practice of mutual recognition whose historical scope has repeatedly expanded without first requiring philosophical resolution of dignity's ultimate ground.¹⁴ Both accounts are structurally open to the post-biological case; neither author performs the extension. Set against this openness is the bioconservative tradition: Fuchs argues, from the phenomenology of dementia, that embodiment is partly constitutive of personhood rather than merely its vehicle, while Fukuyama and Kass argue, from different premises, that a shared, mortal human nature is what secures the equal moral status human rights protect.¹⁵ Both objections are addressed directly in Part V rather than dismissed here.

Neurorights scholarship, finally, supplies the closest existing institutional model for translating a claimed doctrinal mismatch into legal protection, but addresses a materially different scenario. Ienca and Andorno's proposal for cognitive liberty, mental privacy, mental integrity, and psychological continuity, and Ligthart and others' subsequent institutional mapping, address a rights-holder who remains conventionally embodied and located but whose neural activity is newly accessible to external technology, a difficulty of access to an otherwise intact biological mind, not of a differently constituted one.¹⁶ Bublitz's methodological caution against inflating

¹²John Locke, *An Essay Concerning Human Understanding* (first published 1689, P H Nidditch ed, Oxford University Press 1975) bk II, ch XXVII; Derek Parfit, *Reasons and Persons* (Oxford University Press 1984) 199–280; Ingmar Persson, 'Parfit on Personal Identity: Its Analysis and (Un)importance' (2016) 82 *Theoria* 148.

¹³Michael A Cerullo, 'Uploading and Branching Identity' (2015) 25 *Minds and Machines* 17; Keith Wiley and Randal A Koene, 'The Fallacy of Favoring Gradual Replacement Mind Uploading Over Scan-and-Copy' (2016) 23 *Journal of Consciousness Studies* 212; Sean Bamford and John Danaher, 'Transfer of Personality to a Synthetic Human ("Mind Uploading") and the Social Construction of Identity' (2017) 26 *Journal of Evolution and Technology* 1.

¹⁴James Griffin, *On Human Rights* (Oxford University Press 2008) 32–58; Jack Donnelly, *Universal Human Rights in Theory and Practice* (2nd edn, Cornell University Press 2003) 13–21, 76–90.

¹⁵Thomas Fuchs, 'Embodiment and Personal Identity in Dementia' (2020) 23 *Medicine, Health Care and Philosophy* 665; Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Farrar, Straus and Giroux 2002); Leon R Kass, *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics* (Encounter Books 2002).

¹⁶Marcello Ienca and Roberto Andorno, 'Towards New Human Rights in the Age of Neuroscience and Neurotechnology' (2017) 13 *Life Sciences, Society and Policy* 5, 6–15; Sjors Ligthart and others, 'Minding Rights: Mapping Ethical and Legal Foundations of "Neurorights"' (2023) 32 *Cambridge Quarterly of Healthcare Ethics* 461, 465–478.

novel rights beyond demonstrated doctrinal necessity is taken seriously throughout this article rather than treated as an obstacle to be argued around.¹⁷ None of these four literatures, individually or in combination, has produced a jurisprudential account of whether and how post-biological persons remain within international human rights law's protective scope. That combined account is this article's contribution.

IV. Constructing Continuity-Based Personhood: The Legal Test and the Branching Problem

A legal test for continuity of personhood across substrate transfer must do work the philosophical resources reviewed in Part III cannot do alone: it must specify an evidentiary standard usable by a court or tribunal, not merely a metaphysical criterion. This article proposes a three-limb test. The first limb, procedural fidelity, requires an unbroken causal chain of derivation between the pre-emulation brain and the resulting emulation, excluding independently constructed but merely similar systems; this limb is justified, in Fuller's sense, as a legitimate legal fiction, a deliberate simplification adopted because it serves the law's purposes, not because it claims literal metaphysical truth.¹⁸ The second limb, psychological continuity, requires the persistence of memory, personality, and evaluative dispositions sufficient to satisfy Parfit's relations of connectedness, assessed through technical, psychological, and behavioral evidence rather than through introspective report alone. The third limb, practical and relational continuity, requires that the entity be recognized, by the individuals and institutions with whom the pre-emulation person had standing relationships, as a continuing participant in those relationships, a limb constructed specifically to operationalize the recognition-based dimension of dignity developed in Part V, so that satisfying this test and satisfying dignity's social component are not two separately justified hurdles but one.

The test operates as a rebuttable presumption: an entity presenting evidence satisfying all three limbs is presumed continuous with the pre-emulation person, with the burden shifting to any party contesting continuity, an evidentiary structure that avoids requiring claimants to prove a metaphysical fact, numerical identity, that Part III showed even the leading philosophical account treats as less determinate than ordinarily supposed.

The branching problem is the hardest case this test must resolve, because whole-brain emulation is, in principle, a copying process: nothing in the technology prevents two or more psychologically continuous instances of a single prior person existing simultaneously, a possibility with no analogue in ordinary embodied life. Existing law is not, however, without resources for multiplicity and indeterminacy of exactly this structural kind. English courts, faced with conjoined twins each possessing an independent claim to personhood sharing a single body, resolved the case by treating each twin as possessing full and independent legal personality despite the physical impossibility of separately locating them, prioritizing the recognition of independent personhood over the practical difficulty of individuation.¹⁹ The commorientes rule, and its statutory and comparative analogues, shows that law regularly adopts stipulated resolutions to determine legal consequences, order of death, priority of claims, precisely where the underlying fact is indeterminate or unknowable, without treating the stipulation's artificiality as an objection to its use.²⁰

This article proposes an equal-continuant model for branching cases: where more than one entity satisfies the three-limb test with respect to a single pre-branching person, each is recognized as possessing full, independent legal personhood on a strictly prospective basis from

¹⁷Jan Christoph Bublitz, 'Novel Neurorights: From Nonsense to Substance' (2022) 15 Neuroethics 1, 3–12.

¹⁸Lon L Fuller, *Legal Fictions* (Stanford University Press 1967) 51–84.

¹⁹*In re A (Children) (Conjoined Twins: Surgical Separation)* [2001] Fam 147.

²⁰Law of Property Act 1925, s 184; *Scarle v Scarle* [2019] EWHC 2224 (Ch); Uniform Probate Code § 2-702.

the moment of branching, following the conjoined-twins precedent's prioritization of independent recognition over individuation difficulty; the pre-branching person's existing legal relationships, property, and obligations are allocated between the continuants according to a stipulated rule analogous to the commorientes approach, rather than duplicated wholesale or arbitrarily assigned to only one branch. The model does not pretend to resolve which branch is metaphysically identical to the pre-branching person, Part III's reading of Parfit and Persson suggests that question may have no determinate answer, but treats that metaphysical indeterminacy as a reason to extend recognition to both branches rather than a reason to withhold it from either, on the ground that a legal system committed to continuity-based personhood as this article defines it should err toward recognition where determinacy is unavailable, consistent with the human rights tradition's own general presumption in favor of protection in doubtful cases.

V. Dignity Without Embodiment

The continuity test constructed in Part IV specifies when the law should treat a post-biological entity as the same rights-holder as the pre-emulation person; it does not explain why that recognition should carry the specific and weighty protections of human rights rather than some lesser status. That explanatory burden falls to dignity, which functions in the human rights tradition not as one justificatory resource among several but as the specific normative currency in which the tradition's claims are characteristically made.²¹ This part reconstructs dignity through Griffin's and Donnelly's accounts and tests the reconstruction against its strongest objections rather than merely asserting compatibility.

Griffin's personhood component, analyzed into autonomy, liberty, and a minimum provision necessary for their deliberative exercise, together with a second, more contingent 'practicalities' component governing how the abstract value translates into specific rights, contains, on its face, no requirement of any particular biological substrate.²² A post-biological person retaining memory, personality, and psychological continuity retains, on Griffin's own criteria applied without modification, precisely the deliberative and self-directing capacities his account identifies as normative agency's substance. Donnelly's account, proceeding from different premises, reaches a structurally similar openness: because dignity is a social status accorded through practice rather than secured by any antecedent metaphysical fact, the relevant inquiry is not what metaphysically grounds dignity but what practice of recognition sustains it and what would be required to extend that recognition to a novel case.²³ Griffin's account has the advantage of an independent criterion against which a community's refusal to recognize can itself be criticized, but no explanation of why dignity's practical enjoyment has historically depended on social recognition rather than mere individual capacity; Donnelly's account has the opposite profile. This article combines them conjunctively: dignity, and the rights flowing from it, rest on the joint satisfaction of retained normative agency and recognition, or eligibility for recognition, by the relevant community of practice, a structure in which the third limb of Part IV's continuity test operationalizes precisely the second, practice-based condition.

Fuchs's objection is the more serious of the two this article confronts, and this article concedes more to it than victory-oriented advocacy would prefer. Fuchs's dementia cases involve a biological body persisting continuously through psychological change; his account of embodied selfhood is grounded in the lived, felt continuity of a particular body's engagement with the

²¹Charles R Beitz, *The Idea of Human Rights* (Oxford University Press 2009) 1–7, 128–133.

²²James Griffin, *On Human Rights* (Oxford University Press 2008) 33–39, 45.

²³Jack Donnelly, *Universal Human Rights in Theory and Practice* (2nd edn, Cornell University Press 2003) 13–21, 76–90.

world, not merely in that body's biological composition. The scenario this article examines does not involve the absence of embodiment but a change of embodiment, from a biological substrate to a non-biological one stipulated to provide equivalent capacities, a disanalogy Fuchs's dementia-focused analysis was never designed to reach, since it never requires him to consider a change of substrate at all.²⁴ This disanalogy does not defeat Fuchs's objection; it leaves the crucial further question genuinely open. What this article's framework offers is not a refutation but a structural concession: the procedural-fidelity limb of Part IV's test refuses to treat psychological continuity in the abstract as sufficient, insisting on continuity that is causally and historically embodied in a specific, traceable process, even though the resulting embodiment need not remain biological. This is offered as a doctrinal response to an acknowledged philosophical uncertainty, not as its dissolution.

Fukuyama's and Kass's objections receive a different, more confident response, because the response identifies a disanalogy in the objections' own scope rather than merely asserting one. Both arguments are developed against incremental enhancement of an ongoing biological life or the ordinary ethics of choosing radical life extension; neither addresses complete, one-time substrate transfer with total psychological preservation.²⁵ Fukuyama's slippery-slope concern about erosion of shared human nature by degrees has no application to a scenario defined, by stipulation, as the endpoint of complete transfer rather than a point along a spectrum of gradual alteration. Kass's concern about the loss of meaning-giving finitude bears on the prudential ethics of choosing post-biological existence, not on whether dignity is present once that choice has been made and its consequences must be addressed by law. Read together, these responses do not claim to have defeated the bioconservative critique on its own strongest ground; they claim, more modestly, that neither argument squarely addresses the specific scenario this article examines, and that the hybrid account of dignity survives engagement with both objections once that disanalogy is made explicit.

VI. Reconceiving Core Rights for the Post-Biological Person

Applying the continuity test and dignity account constructed above, this Part reconceives the content, scope, and violation-conditions of core human rights, drawing systematically on the neurorights literature's treatment of cognitive liberty and mental integrity as the closest doctrinal analogue while identifying where the post-biological case requires going further than that literature's own scenario requires.

The right to life is reconceived around continuity of instantiation rather than biological survival: the operative harm Article 6 prohibits, for a post-biological rights-holder, is the arbitrary termination, corruption beyond the continuity threshold established in Part IV, or permanent involuntary suspension of the instantiating substrate, treated as functionally equivalent to arbitrary deprivation of life.²⁶ Temporary suspension without destruction, this article proposes, does not itself engage the right provided restoration is not arbitrarily withheld and the substrate is preserved intact, but indefinite or arbitrarily prolonged suspension does, requiring the same justificatory rigour Article 6 presently demands of any serious risk to a biological person's life.

The prohibition of torture is reconceived around mental integrity as its operative, and for the post-biological person exclusive, strand, with the existing torture/cruel-treatment severity

²⁴Thomas Fuchs, 'Embodiment and Personal Identity in Dementia' (2020) 23 *Medicine, Health Care and Philosophy* 665, 667–675.

²⁵Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Farrar, Straus and Giroux 2002) 149–172; Leon R Kass, *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics* (Encounter Books 2002) 249–271.

²⁶UN Human Rights Committee, 'General Comment No. 36, Article 6: Right to Life' (2018) UN Doc CCPR/C/GC/36, paras 1–3, 26.

threshold reconstructed around three factors: the involuntariness of the interference, the extent to which it corrupts the psychological continuity Part IV's second limb protects, and the purpose for which it is inflicted.²⁷ On this reconstruction, involuntary and purposeful alteration of memory, values, or personality, an act with no direct embodied analogue, constitutes the post-biological equivalent of torture in its most severe form, because it attacks precisely the continuity this article's entire framework identifies as constitutive of legal and normative standing. This reconception is offered as the minimum doctrinal development necessary to avoid the systematic undervaluation of psychological harm that a purely interpretive extension of Article 7's existing, physically dominant case law would otherwise risk.

The remaining three rights require reconception of a different character, summarized here rather than developed at the length Parts above gave to life and torture, because in each case either the substantive content requires less adaptation or the difficulty is institutional rather than doctrinal. The right to privacy is reconceived through an extension of Ienca and Andorno's four-part neurorights structure, cognitive liberty and mental privacy affirmatively constructed through legal and technical architecture rather than assumed to arise by default, since the physical boundedness Article 17 has always silently relied upon cannot be assumed for a non-biological substrate, with psychological continuity absorbed into Part IV's test rather than duplicated as a freestanding privacy entitlement.²⁸ The right to recognition as a person before the law requires no substantive reconception at all: Part II showed its text and drafting history impose no biological precondition, such that the only development required is procedural, adoption of Part IV's evidentiary structure as the operative mechanism for confirming or contesting recognition claims under this provision specifically. The right to nationality is reconceived around continuity of nationality rather than territorial connection, treating the post-biological person's nationality as persisting from the moment of emulation in a manner closer to how existing law already treats permanently non-resident citizens than to a status requiring active territorial connection, leaving the harder question of which state's obligation is thereby engaged to the jurisdictional architecture of Part VII.

VII. Governance and Enforcement Architecture

The reconceptions constructed in Part VI remain unenforceable without an institutional architecture addressing the difficulty Part II identified as hardest to dissolve through doctrine alone: a post-biological rights-holder may have no determinate territorial location, while every existing enforcement mechanism is built around the territorial state as primary duty-bearer and Article 2(1) ICCPR's own text ties obligation to territory or effective jurisdiction.²⁹ Three institutional strategies are available, and this article's analysis of each yields a specific conclusion about what it can and cannot achieve.

Evolutionary interpretation — the living-instrument method the European Court of Human Rights adopted in *Tyrer v United Kingdom* and *Letsas* defends as fidelity to a treaty's own moral concepts rather than a departure from them, textually supported for the ICCPR by Article 31 of the Vienna Convention on the Law of Treaties — can achieve the substantive doctrinal

²⁷Marcello Ienca and Roberto Andorno, 'Towards New Human Rights in the Age of Neuroscience and Neurotechnology' (2017) 13 *Life Sciences, Society and Policy* 5, 8–10; Sjors Ligthart and others, 'Minding Rights: Mapping Ethical and Legal Foundations of "Neurorights"' (2023) 32 *Cambridge Quarterly of Healthcare Ethics* 461, 470–475.

²⁸Marcello Ienca and Roberto Andorno, 'Towards New Human Rights in the Age of Neuroscience and Neurotechnology' (2017) 13 *Life Sciences, Society and Policy* 5, 6–8.

²⁹International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171, art 2(1); UN Human Rights Committee, 'General Comment No. 31' (2004) UN Doc CCPR/C/21/Rev.1/Add.13, paras 10–11.

reconceptions of Part VI rapidly, through Human Rights Committee practice, and without new state consent.³⁰ It cannot, however, alter Article 2's jurisdictional trigger itself: no degree of reinterpreting Articles 6, 7, 16, and 17 supplies an answer to which state's obligation is engaged by a rights-holder without determinate location, because that question is fixed by a different, and more textually resistant, provision.

A new optional protocol, on the model of the Convention on the Rights of Persons with Disabilities itself negotiated, because existing generally worded instruments proved insufficient without doctrinal specificity tailored to a particular category of rights-holder, could directly supply a jurisdictional rule, but requires sustained multilateral political will operating on a timescale of years to decades even for comparatively uncontroversial instruments.³¹ Domestic constitutional innovation, exemplified by Chile's 2021 amendment of Article 19(1) of its Constitution to protect brain activity and psychic integrity, and by the Chilean Supreme Court's subsequent enforcement of that protection against a neurotechnology company, can generate rapid, concrete, judicially enforceable protection and a persuasive comparative template, but cannot by itself resolve coordination between multiple states' competing or absent claims to jurisdiction.³²

No single strategy is independently sufficient, and each strategy's limit is precisely what the other two are best placed to fill. This article proposes a layered architecture: an immediate interpretive layer, in which the Human Rights Committee adopts a General Comment incorporating Part VI's reconceptions; a parallel domestic layer, in which individual states adopt constitutional or statutory recognition of continuity-based personhood along the Chilean model; and a longer-term treaty layer, a new optional protocol vesting primary jurisdiction in the state of the post-biological person's nationality at the time of emulation, with residual and, where contested, concurrent jurisdiction in any state exercising effective control, in Milanovic's sense, over the substrate's physical hosting, and a dispute-resolution mechanism allocating jurisdiction across multiple continuants in branching cases consistent with the prospective independence the equal-continuant model of Part IV establishes for each branch.³³ The three layers are not redundant: each addresses a distinct and independently demonstrated inadequacy in the other two, constituting, this article submits, the minimum necessary architecture rather than an unnecessary multiplication of mechanisms.

VIII. Objections and Conclusion

Four objections to the overall construction deserve consolidated statement. The embodiment-as-constitutive objection, examined in Part V, is not refuted; it is met with a structural concession, Part IV's procedural-fidelity limb, rather than a claim of resolution, and the residual philosophical uncertainty it identifies is acknowledged rather than concealed. The species-essentialist objection is met with greater confidence, because the disanalogy identified in Part V relocates rather than merely asserts against the force of Fukuyama's and Kass's own arguments, which were built for a different scenario. An institutional-infeasibility objection, that the architecture proposed in Part VII depends on political developments that may never occur or

³⁰Tyrer v United Kingdom (1978) 2 EHRR 1 (App no 5856/72) para 31; George Letsas, *A Theory of Interpretation of the European Convention on Human Rights* (Oxford University Press 2007) 58–79; Vienna Convention on the Law of Treaties (1969) 1155 UNTS 331, art 31(1).

³¹Convention on the Rights of Persons with Disabilities (adopted 13 December 2006, entered into force 3 May 2008) 2515 UNTS 3, preamble.

³²Constitution of the Republic of Chile 1980, art 19(1), as amended by Ley No 21.383 (Chile) of 14 October 2021; UN Human Rights Council, Resolution 58/6 on Neurotechnology and Human Rights (2 April 2025).

³³Marko Milanovic, *Extraterritorial Application of Human Rights Treaties: Law, Principles, and Policy* (Oxford University Press 2011) 209–222.

may occur too slowly, is answered by distinguishing jurisprudential soundness from institutional adoption: the argument of Parts IV through VI stands or falls on its own reasoning, not on whether Part VII's proposals are in fact enacted, in the same way an argument for the wrongness of an existing rule does not depend, for its soundness, on persuading a legislature to change it. A fourth, methodological objection, that the whole construction rests on a scenario that may never become technologically real, is answered by noting that Part II's demonstration of unevenly load-bearing assumptions, and its consequences for genuinely non-speculative hard cases involving advanced dementia and disorders of consciousness, do not depend on whole-brain emulation ever occurring; the extreme hypothetical is a method for exposing assumptions ordinary cases allow to remain comfortably implicit, not a prediction requiring vindication.

This article set out to determine whether international human rights law can remain conceptually coherent once humanity ceases to be biologically embodied. It answers that question through the construction of continuity-based personhood: a three-limb legal continuity test grounded in substrate-neutral philosophical resources but requiring no resolution of their underlying metaphysical disputes; a hybrid account of dignity combining normative agency and social recognition, tested against rather than insulated from its strongest objections; a systematic doctrinal reconception of five core human rights; and a layered institutional architecture capable of enforcing the resulting framework notwithstanding the absence of determinate territorial location. The answer is a qualified affirmative: international human rights law can remain coherent once its embodiment premise is removed, provided the tradition is willing to relocate the ground of its protection from biological embodiment, shown here to be a historically universal but not conceptually necessary proxy, to continuity of the person in the fuller sense constructed above. Should whole-brain emulation never become technologically real, the analytical work of Part II and the reconstruction of Part V's dignity account retain independent value for the non-speculative hard cases already before the law. Should it become real, the jurisprudential tradition will not be encountering an entirely unprepared field.

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