



“You shall have the thought”: *habeas cogitationem* as a New Legal Remedy to Enforce Freedom of Thinking and Neurorights

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Abstract Despite its obvious advantages, the disruptive development of neurotechnology can pose risks to fundamental freedoms. In the context of such concerns, proposals have emerged in recent years either to design human rights de novo or to update the existing ones. These new rights in the age of neurotechnology are now widely referred to as “neurorights.” In parallel, there is a considerable amount of ongoing academic work related to updating the right to freedom of thought in order to include the protection of “freedom of thinking” (i.e., freedom of thought itself) and not only its social manifestations. Neurorights such as cognitive liberty, free will, mental freedom, and mental self-determination come into play here. Importantly, freedom of thought has often been considered a prerequisite for all the other fundamental freedoms and rights. In any case, just as other rights require additional legal instruments to guarantee their compliance, substantial neurorights will probably require specific complementary developments in procedural law. In relation to this, there is a long

tradition of *habeas corpus* as an emergency remedy to enforce the rights of a citizen against illegal or arbitrary detention. More recently, the *habeas data* writ has been proposed and admitted in certain countries to guarantee a person’s ownership of their personal data. In this article, we propose to expand this procedural apparatus by incorporating a third habeas, which we call *habeas cogitationem*: a writ aimed primarily at enforcing the right to freedom of thinking (and, subsidiarily, the rest of neuro-rights) against direct, harmful interferences in a person’s thought process by both public and private perpetrators.

Keywords *Habeas corpus* · *Habeas data* · Neurorights · Freedom of thought · Cognitive liberty · *Habeas cogitationem*

Para la libertad sangro, lucho, pervivo.

Para la libertad, mis ojos y mis manos,
como un árbol carnal, generoso y cautivo,
doy a los cirujanos.

[For freedom I bleed, I fight, I live on.
For freedom, my eyes and my hands,
like a carnal tree, generous and captive,
I give to the surgeons.]
Miguel Hernández¹

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¹ Miguel Hernández (born 1910) was a Spanish poet and playwright. In 1939, due to his political ideas, he was taken by the Francoist authorities to prison, where he died of tuberculosis in 1942. These lines were written in tribute to the combatants wounded during the Spanish civil war.

Introduction

The impressive progress of neurotechnology in recent decades, as well as the expectations of its progress in the coming years, cannot be ignored. These advances invite us to be moderately optimistic regarding the design of tools for the diagnosis, prevention, and treatment of neurological and psychiatric diseases. At the same time, they appeal to us to anticipate the potential risks to an individual's fundamental rights. In the context of such concerns, proposals have emerged in recent years either to design new ad hoc human rights or to update the existing ones. These rights are now widely referred to as "neurorights." There is still no consensus on the specific content of these rights, their mutual relations, and their mode of application, among other aspects. Nevertheless, it should be noted that there is a considerable amount of ongoing academic work related to updating the right to *freedom of thought* in order to include the protection of *thought itself*, and not only its social manifestations. Concepts such as cognitive liberty, free will, mental freedom, and mental self-determination come into play here. Importantly, freedom of thought has often been considered a prerequisite for all the other fundamental freedoms and rights.

Neurorights can serve both as an ethical guide in soft law—i.e., declarations—or as binding instruments in national laws—as it has recently happened in countries such as Chile and France. However, just as other rights require additional legal instruments to guarantee their compliance, neurorights—whether in the form of new rights or the updating of existing ones—will probably require specific complementary developments. In relation to this, there is a long tradition of *habeas corpus* as an emergency remedy to enforce the rights of a citizen against illegal or arbitrary detention. More recently, the *habeas data* writ has been proposed and admitted in certain countries to guarantee a person's ownership of their personal data. In this article, we propose to expand this procedural apparatus by incorporating a third habeas, which we call *habeas cogitationem*: a writ aimed primarily at enforcing freedom of thought itself and, subsidiarily, the rest of neurorights linked to this principle as well. This proposal responds to the call of international organizations, such as the Organization of American States, to develop mechanisms that guarantee "[a]ccess to effective protection and to

remedies associated with the development and use of neurotechnologies."²

In Section "[Enforcing Individual Rights: From *habeas corpus* to *habeas data*](#)", we briefly go through the history and *raison d'être* of *habeas corpus* and *habeas data*, as well as that of a procedural action called *recurso de amparo* in some countries. These remedies have played, for centuries, a critical role in protecting individual liberties not only against abuses primarily inflicted by the state but also by the private hands. In Section "[Neurorights and Freedom of Thinking](#)", we explain what neurorights are and what their objective is, to later focus on those that are specifically designed to protect the forum internum of our thinking. In agreement with other researchers, we propose that these neurorights be grouped into an umbrella right, preferably under freedom of thought due to its consolidated tradition. However, as it is conceived today, this right mainly contemplates the external manifestations of thought rather than thought itself. Therefore, it would probably need to be redesigned in order to include the internal manifestations of thought. In this sense, and to emphasize this internality, we propose to rename it "freedom of thinking." In Section "[Habeas cogitationem: A Procedural Remedy Proposal to Enforce Freedom of Thinking and Neurorights](#)", we present the theoretical foundations of the writ of *habeas cogitationem* as a remedy to protect freedom of thinking: meaning, typology, guarantee, and investigation mechanisms. We also present, in Section "[Hypothetical Scenarios for the Application of *habeas cogitationem*](#)", a list of hypothetical cases in which this writ could potentially be applied. We conclude with some final comments in Section "[Final Remarks](#)".

Enforcing Individual Rights: From *habeas corpus* to *habeas data*

The writ of *habeas corpus* is a legal procedure that has its roots in Antiquity and the Middle Ages. In Roman times, the interdict *homine libero exhibendo* obliged anyone who held a free person as a slave to bring them in the presence of justice. Later on, the

² Retrieved from https://www.oas.org/en/sla/iajc/docs/CJI-doc_673-22_rev1_ENG.pdf

Magna Carta Libertatum, given by King John of England (a.k.a. John Lackland) in 1215, ordered that “no official shall place a man on trial upon his own unsupported statement, without producing credible witnesses to the truth of it” (Article 38) and also that “[n]o free man shall be seized or imprisoned, or stripped of his rights or possessions, or outlawed or exiled, or deprived of his standing in any way, nor will we proceed with force against him, or send others to do so, except by the lawful judgment of his equals or by the law of the land” (Article 39).³ Similar remedies were included in the *Declaratio Privilegii Generalis* of the Kingdom of Aragon in 1325 and the New Charter of the Lordship of Biscay in 1526; these documents were called *foros* in these two territories of present-day Spain. The Habeas Corpus Act 1679 of the Parliament of England contributed decisively to finally consolidating this writ.⁴ Today, it represents one of the most important tools of procedural law and is applied in numerous countries, such as Australia, Canada, France, Germany, India, Italy, Malaysia, Pakistan, Portugal, Spain, and the United States, among others. For example, Article I, Sect. 9 of the U.S. Constitution states that “[t]he Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it.”⁵ Furthermore, *habeas corpus* is included in many international documents and treaties, such as the Universal Declaration of Human Rights (UDHR) (Articles 3 and 9) of 1948 [1], the American Declaration of the Rights and Duties of Man (Article XXV) of 1948,⁶ the Geneva Conventions of 1949,⁷ the European Convention on Human Rights (Article 5) of 1950,⁸ the International Covenant on Civil and Political Rights (Article 19.1)

of 1966,⁹ and the American Convention on Human Rights (Article 7) of 1969,¹⁰ among others.

According to the *Oxford English Dictionary*, the Latin *habeas corpus* means “thou (shalt) have the body” and it is described as “the prerogative writ *habeas corpus ad subjiciendum*, requiring the body of a person restrained of liberty to be brought before the judge or into court, that the lawfulness of the restraint may be investigated and determined” [2]. This writ is considered the most important instrument designed to *protect individual liberty* against arbitrary detention, illegal imprisonment, isolation, torture and mistreatment, state terrorism, and other similar types of abuse. It is, therefore, an essential means to apply the system of protection of human rights, and this is why it is often referred to as “The Great Writ.” Although in its traditional version, *habeas corpus* was intended for individual protection against actions of State power, its scope has also been extended to private abuse. As Martin, J.A., highlights in *R v. McAdam*, this “is a civil right, the assertion of which in all cases is by its own peculiar and summary procedure which does not vary in essentials whether the custody be under criminal process, or civil, or military, or naval, or *private*, or governmental executive Act” (italics ours).¹¹ In consequence, the *Oxford Dictionary of Law* [3] defines *habeas corpus* as “[a] prerogative writ used to challenge the validity of a person’s detention, either in official custody (e.g. when held pending deportation or extradition) or in private hands.”

Habeas corpus is based on four essential principles, as described, for example, by the Spanish law [4]:

- (1) *Agility* for a fast process,
- (2) *Simplicity*, with no formalities,
- (3) *Generality*, which implies that no individual or authority is exempt from being investigated, and
- (4) *Universality*, so that it applies both to illegal detentions and to those that, despite being legal, are kept under illegal conditions.

³ Retrieved from <https://www.bl.uk/magna-carta/articles/magna-carta-english-translation>

⁴ This is not an exhaustive description of the evolution of *habeas corpus*. For the purpose of presenting this writ, we have focused on some of its most significant historical milestones.

⁵ Retrieved from https://www.archives.gov/founding-docs/constitution-transcript#toc-section-9_

⁶ See <https://www.oas.org/en/iachr/mandate/Basics/declaration.asp>

⁷ See <https://www.icrc.org/en/war-and-law/treaties-customary-law/geneva-conventions>

⁸ See <https://www.echr.coe.int/Pages/home.aspx?p=basictexts&c>

⁹ See <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights>

¹⁰ See <https://www.cidh.oas.org/basicos/english/basic3.american%20convention.htm>

¹¹ Quoted in *Ross v. Riverbend Institution*, 2008 SKCA 19. Retrieved from <https://app.vlex.com/#vid/679728717>

However, rapid procedural actions to enforce rights do not end with *habeas corpus*. Importantly, in Spanish-speaking countries there is the so-called *recurso de amparo*, which was applied with notable success, for example, in the imperial era in the Viceroyalty of New Spain. This writ is intended to report official or private acts that erode rights other than physical liberty—which is already protected by *habeas corpus*. It is, therefore, an additional and broad procedural guarantee in line with, for example, Article 8 of the UDHR [1], Article 2.3 of the International Covenant on Civil and Political Rights,¹² and Article XVIII of the American Declaration of the Rights and Duties of Man,¹³ among many others.

Finally, at the end of the twentieth century, the so-called *habeas data* (“you shall have the data”) appeared, which shares with *amparo* the protection of the right to privacy, although related to obtained and stored personal data, that is, those that refer to objective aspects of people. *Habeas data* allows them to initiate urgent legal action to access their personal information held by either *public or private entities*, as well as its modification or elimination. This writ has been implemented in two different ways. The first one is through data protection regulations that include procedural actions; the European Union General Data Protection Regulation (GDPR), through Chapter 8 being a clear example of this.¹⁴ The second one is through ad hoc laws or constitutional articles as is the case with many Portuguese- and Spanish-speaking countries in particular. For instance, Article 43 of the Argentine constitution—which also includes *habeas corpus* and *amparo*—establishes that “[a]ny person may file [an] action to become aware of the data referred to them and its purpose, which appear in records or public data banks, or the private ones intended to provide reports, and in case of falsehood or discrimination, to demand the deletion, rectification, confidentiality or updating of those. The secrecy of the sources of journalistic information may not be affected.”¹⁵ The practice of obtaining and storing

personal data, which is a product of the growing computerization of society, has generated new forms of control over persons. The emerging threats undoubtedly affect their privacy, which justifies the creation of the *habeas data* writ, where the concept of *informational self-determination* is an essential element. Regarding this, in the context of the 1983 Census Act in Germany, the Federal Constitutional Court of the country stated that “it is imperative that additional procedural safeguards be put in place in order to ensure respect for the right to informational self-determination in the implementation and organisation of the census data collection,” and also that “[l]imitations of this right [...] are only permissible if there is an overriding public interest.”¹⁶ Additionally, regarding the ruling of this case, Rodotà [5] stressed that “at the center of the constitutional system is the value of the dignity of the person, who must be able to act autonomously as a component of a free society.”

Nevertheless, as highlighted by many specialists, more novel risks associated with the misuse of technological innovations are arising, including the neurotechnological abuses on the person. These risks are related to another type of freedom: *the self-determination of our mental states and contents*, which as we will see, receives different names.

Neurorights and Freedom of Thinking

In parallel to its obvious advantages, the potential risks that the disruptive development of neurotechnology can pose to fundamental freedoms are progressively becoming more and more evident.¹⁷ That is why in recent years important voices have emerged proposing that these risks be minimized through regulations specifically designed to protect the self-determination of our mental states and contents. We are referring to the so-called *neurorights*, which involve “the ethical, legal, social, or natural principles of freedom or

¹² See <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights>

¹³ See again <https://www.oas.org/en/iachr/mandate/Basics/declaration.asp>

¹⁴ See <https://gdpr.eu/tag/chapter-8/>

¹⁵ Retrieved from <http://servicios.infoleg.gob.ar/infolegInternet/anexos/0-4999/804/norma.htm>

¹⁶ Retrieved from https://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/1983/12/rs19831215_1bvr020983en.html

¹⁷ It is not our goal here to describe the different types of neurotechnologies or how each of them can affect these freedoms. Instead, we will focus on the ethical-legal aspects of these technologies.

entitlement related to a person's cerebral and mental domain; that is, the fundamental normative rules for the protection and preservation of the human brain and mind" [6]. The list of proposed neurorights includes *cognitive liberty*, *mental privacy*, *mental integrity*, *psychological continuity*, *personal identity*, *free will*, *fair access to mental augmentation*, and *protection from algorithmic bias* [6–11]. As can be inferred from their names, in terms of their different objects of protection, these rights are intended to safeguard personal liberties such as autonomy, privacy, integrity, identity, equal opportunities, and nondiscrimination—as long as these liberties are threatened through the brain and mind. Some countries have already included neurorights in their regulatory frameworks in various ways: Chile carried out a constitutional reform,¹⁸ Argentina and Brazil are studying bills,^{19,20} Mexico and Spain included them in their digital rights charters,^{21,22} and France introduced an article on mental integrity (Article 19.I) in its new bioethics law.²³ At the international level, it is worth highlighting Resolution A/HRC/RES/51/3 of the United Nations Human Rights Council,²⁴ as well as declarations by the Inter-American Juridical Committee and the Latin American Parliament.^{25, 26}

In any case, enunciative proposals of a universal nature should be followed by the analysis of their semantic resistance in terms of etymological content and origin, the study of their scientific relevance, and the conscientious consideration of their anthropological-cultural representativeness of the different areas of the planet 15. In addition,

it is critical to determine whether the current legal provisions already contain some of the novel presuppositions concerning neurorights. Caution should be exercised so as not to generate a rights inflation [see 7] at the same time that the obvious needs for protection are covered. Moreover, the universalism of values is not incompatible with the multipolarity of those who aspire to find it. Caution and prudence should guide the analysis of neurorights, avoiding paving the way to hasty regulatory instances that are not sufficiently pondered. At this point, interdisciplinary collaboration is totally advisable and the leading participation of experts in legal sciences becomes essential.

Among all the objects of protection that come under neurorights, we will focus on the most relevant for our proposal: *personal autonomy*, i.e., “the capacity to decide for oneself and pursue a course of action in one's life” [12]. There are two of the aforementioned neurorights that seem clearly aimed at protecting personal autonomy via the self-determination of our mental states and contents: free will and cognitive liberty. The NeuroRights Foundation [11], the proponent of *free will*, defines this right as the “ultimate control [of individuals] over their own decision making, without unknown manipulation from external neurotechnologies.” Various works have highlighted difficulties related to its philosophical multidimensionality, the inclusion of ultimate control in its definition, and its complicated cultural and normative contextualization [13–16]. For these reasons, including as a right a concept as historically elusive as free will could be very controversial.

In contrast, the right to *cognitive liberty* has had an important trajectory and academic support for more than twenty years. After Boire's emphasis on “each individual's fundamental right to control his or her own consciousness” [17], Sententia [18] outlined the concept of cognitive liberty as

every person's fundamental right to think independently, to use the full spectrum of his or her mind, and to have autonomy over his or her own brain chemistry. Cognitive liberty concerns the ethics and legality of safeguarding one's own thought processes, and by necessity, one's electrochemical brain states. The individual, not cor-

¹⁸ See <https://www.diariooficial.interior.gob.cl/edicionelectronica/index.php?date=25-10-2021&edition=43086-B&v=2>

¹⁹ See <https://www.hcdn.gob.ar/proyectos/proyecto.jsp?exp=0339-D-2022>

²⁰ See <https://www.camara.leg.br/propostas-legislativas/2276604>

²¹ See https://www.infocdmx.org.mx/doctos/2022/Carta_DDigitales.pdf

²² See <https://www.lamoncloa.gob.es/presidente/actividades/Paginas/2021/140721-derechos-digitales.aspx>

²³ See https://www.legifrance.gouv.fr/jorf/article_jo/JORFA RTI000043884401

²⁴ See <https://undocs.org/A/HRC/RES/51/3>

²⁵ See https://www.oas.org/es/sla/cji/temario_actual_Desarrollo_estandares_internacionales_neuro_derechos.asp

²⁶ See <https://parlatino.org/comision-de-seguridad-ciudadana-combate-y-prevencion-al-narcotrafico-terrorismo-y-crimen-organizado/declaracion-neuroderechos/>

porate or government interests, should have sole jurisdiction over the control and/or modulation of his or her brain states and mental processes.

Later on, Ienca and Andorno [7] suggested the incorporation of cognitive liberty as a neuroright and took Bublitz's definition of this liberty as "the right to alter one's mental states with the help of neurotools as well as to refuse to do so" [19], which has both a positive—i.e., the possibility of using neurotechnologies—and a negative sense, i.e., the protection against their coercive use [7, 19]. Nevertheless, there is a third neuroright whose content is very similar to that of cognitive liberty: *mental self-determination*. Bublitz and Merkel [20] are the proponents of this right:

We claim that a human right to mental self-determination does exist or is, as a tacit assumption, woven into the law's structure. The scope of the right is twofold: In its negative dimension, it protects freedom from severe interferences by the state and third parties, setting up a defensive wall against unwanted intrusions through both factual interventions and normative obligations (e.g. legal provisions regulating what is on or in one's mind). It also grants what one may call positive entitlements, freedom to self-determine one's inner realm, e.g. the content of one's thoughts, consciousness or any other mental phenomena. Therefore it affects e.g. current debates about neuroenhancements.

A fourth neuroright related to the protection of personal autonomy via the mind is the so-called *mental freedom*, which is the "conscious control over one's mind" [21]. Finally, a fifth possibility can be identified and consists of further developing a right with a long tradition and normative path: *freedom of thought*. For instance, this right runs abundantly through the UDHR [1], notably in Articles 18 (on freedom of thought, conscience, and belief), 19 (on freedom of opinion and expression), 20 (on freedom of assembly and association), 21.3 (on free voting), and 26.3 (on the parents' free choice of education for their children). However, it can be seen that these articles refer to the social or external manifestations that are the result of free thought and not to the internal process of thinking. As other authors have highlighted, the right to freedom of

thought should then be reinforced—and thus be turned into a neuroright—by including "not only [the] externalizations of thought but thought itself" [6], i.e. the "forum internum where conscientious beliefs and emotions are formed" [22]. Therefore, it is not only about protecting action, but also the cognitive and emotional processes that precede and trigger it.

Although the similarities, differences, and relations between these five neurorights—free will, cognitive liberty, mental self-determination, mental freedom, and freedom of thought itself—deserve a detailed study,²⁷ all of them share a dominant leitmotiv: the self-determination of mental states and contents and, therefore, the protection of personal autonomy in its internal aspects. Then, for the sake of simplicity and effectiveness, it seems reasonable to propose that an umbrella neuroright be chosen that encompasses all of these denominations. This is precisely the view of Ienca [6], who proposes to take freedom of thought as this umbrella denomination based on the Ockham's razor principle:

Since freedom of thought is already enshrined in international human rights law and widely discussed in legal philosophy, it would be *ceteris paribus* more parsimonious to adopt this normative terminology compared to multiplying the number of normative entities by introducing cognitive liberty, mental freedom and [...] free will.

Following this view, but with an emphasis on the aforementioned necessity of protecting the internal process of thinking (that includes cognition and emotion), henceforth we will use *freedom of thinking* as an all-encompassing term. Of course, we would not like to fall into self-contradiction by unnecessarily increasing the "menu" of neurorights aimed at protecting the forum internum; on the contrary, we would be very happy to take any consensus denomination agreed among researchers, be it any of those mentioned so far or any new one that may appear, as long as this denomination is aimed at protecting the self-determination of mental states and contents. Additionally, for the purpose of this article, we will treat any of the other denominations—freedom of thought, cognitive liberty, mental self-determination, mental freedom, free will—as synonymous with freedom of thinking.

²⁷ For a study of this kind, see [6].

From the first germ of international law thanks to the work of Francisco de Vitoria and the Salamanca School in the sixteenth century, through the Declaration of the Rights of Man and of the Citizen in the eighteenth century to the proclamation of the UDHR [1] in the twentieth century, human rights have represented a critical moral advance in the history of humanity. Their role as a guide for the law of all nations must be respected, maintained over time, and if found necessary, updated to meet the new challenges that human beings face, including neurotechnologies. As a brief suggestion in this regard, we believe that there could be room in Article 18 of the UDHR [1], which explicitly mentions freedom of thought, to add the protection of thought itself. In any case, it is important to highlight that the existence of human rights will be insufficient if it is not accompanied by additional protection instruments that serve to enforce them effectively. Given the rapid and diversified form of new effects on mental states and contents, the need arises to innovate within legal resources so that rapid protection can be guaranteed. We would achieve little if we only dedicated ourselves to designing rights without also providing them with remedies apt for the new times.

***Habeas cogitationem*: A Procedural Remedy Proposal to Enforce Freedom of Thinking and Neurorights**

As we have seen, the possible risks derived from neurotechnological misuses raise many discussions in terms of human rights, which implies a clear commitment to the *substantive law* related to neurotechnology. We are referring mainly to the contributions of Ienca and Andorno [6, 7], the Neurotechnology Ethics Taskforce (a.k.a. Morningside Group) [8, 9], and the NeuroRights Foundation [10, 11]. In our view, this innovative, seminal work should be complemented with the development of *procedural law* mechanisms that are appropriate to guarantee the effectiveness of substantive rights.²⁸ In the same way

²⁸ In our opinion, these new procedural rights must have a place both in national legal systems and at the international level. In the latter case, a special role should be given to regional human rights bodies—e.g., the Inter-American Court of Human Rights, the European Court of Human Rights, the African Court on Human and Peoples' Rights—in strategies to promote universal neurorights [44].

that rights' repairing modalities have been regulated with the formats of *habeas corpus*, *habeas data*, and *amparo*, remedies aimed at enforcing the rights related to the self-determination of our mental states and contents can be designed.²⁹ This is precisely what the Inter-American Juridical Committee of the Organization of American States has recently proposed. Principle No. 10 of its Inter-American Declaration of Principles Regarding Neuroscience, Neurotechnologies, and Human Rights stipulates the following:

Principle 10: Access to effective protection and access to remedies associated with the development and use of neurotechnologies. States shall promote and ensure mechanisms for the effective protection of the rights associated with the development and use of neurotechnologies. It is also necessary to guarantee access to judicial remedies and comprehensive reparation in the case of human rights violations, in order to promote effective protection of these guarantees in accordance with these Principles.
[...]

²⁹ This is precisely what Somaggio and collaborators have succinctly proposed in the concluding remarks of an article on cognitive liberty: "Cognitive Liberty will be the key concept for a new kind of 'habeas corpus': a recourse in law through which a person can report on unlawful intervention into her or his inner world. That is a new 'habeas mens' that would mean 'my mind is free'. Free from interventions of others, and free to change our mind as we choose" [23]. The Guarantor for the Protection of Personal Data in Italy, Pasquale Stanzone, has made a brief suggestion in the same vein: "If [...] *habeas corpus*, in protecting the right of the person to their corporeality against coercive acts, represented the foundation of the Rule of law and *habeas data*—as the right to informational self-determination—constituted the center of gravity of protection of the person in the information society, *habeas mentem* should then represent the fulcrum of real neurorights" [24]. Although these authors already raised the idea of creating a new habeas related to the protection of neurorights, their suggestions consist only of succinct statements about the convenience of this habeas. To date, no one had prepared a complete and detailed proposal about this third habeas, which is what we do in this article. Having said that, the origin of the term "habeas mentem" goes back to the 1950s, when it was defined as "the right of a man to his own mind" [25]. However, *habeas mentem* arised in those times as a deontological principle of psychologists based on not "imposing their own ideas and values on the not-so-expert" [25], that is, the patient. To avoid terminological confusion, we are proposing "habeas cogitationem" as a less ambiguous term; furthermore, it accurately reflects its objective of specifically protecting *thought* rather than the mind as a whole.

Table 1 Theoretical foundations of *habeas cogitationem*

Meaning	Etymology (Latin)	“You shall have the thought”
	Definition	A prerogative writ used to challenge the validity of a neurotechnological interference in a person’s thought process, either in official or private hands
Typology	Type of right	Procedural right (writ)
	Sense	Negative (compels to inaction towards a person)
	Jurisdiction	National/federal level (as it befits a constitutional writ)
	Essential principles	Agility (fast process), simplicity (no formalities), generality (no one is exempt from the investigation), universality (applicable both to illegal interferences and to the legal ones kept illegally)
Guarantee	Object of protection	Personal autonomy (through the self-determination of mental states and contents)
	Right enforced (primarily)	Freedom of thinking (or freedom of thought, cognitive liberty, mental self-determination, mental freedom, free will)
	Rights enforced (subsidiarily)	The rest of neurorights, except for fair access to mental augmentation
Investigation	Interferences to investigate	Direct, harmful interferences in a person’s thought process (i.e. those that directly affect the nervous system through neurotechnologies)
	Potential perpetrators	Both public (e.g., state, government, officials, police, army, judges) and private (esp. corporations and attorneys)

Article 25.1 of the American Convention on Human Rights establishes that all persons have the right to simple and prompt recourse to a competent court or tribunal for protection against acts that violate their fundamental rights as recognized by the constitution or laws of the state concerned or by the Convention.

In this sense, the principle recommends that States establish mechanisms for the effective protection of the rights associated with the development and use of neurotechnologies. This means providing effective judicial protection against the violation of such rights. This principle also calls on States to establish legal procedures for accessing remedies and obtaining comprehensive redress for human rights violations associated with the development and use of neurotechnologies.³⁰

In the same vein, Articles 9 and 10 of the Model Law on Neurorights for Latin America and the Caribbean, recently prepared by the Latin American Parliament (*Parlatino*), provide for expedited protection, guarantee, and reparation actions related to the misuse of neurotechnologies.³¹

At this point, our proposal arises to develop a third habeas as a new writ aimed at enforcing our freedom

of thinking. We refer to this new legal tool as *habeas cogitationem*. Our proposal relates to the outstanding advances in neurotechnologies and their ability to disruptively interfere in the brain and mental processes. All of this implies incipient risks for the integrity and freedom of our cognition, memories, beliefs, emotions, and ultimately, that of our mind and self. In what follows, we will explain the theoretical foundations of *habeas cogitationem* according to its meaning, typology, guarantee, and investigation mechanisms (see also Table 1).

Meaning and Typology

For the *nomen iuris*, we take the Latin *cōgītātīō, ~ōnis*. According to the *Oxford Latin Dictionary*, the primary meaning for this term is “[t]he act or process of thinking, reflection, thought.” Other relevant meanings to what we intend to denote include “thought directed towards some future action, deliberation,” “[o]ne’s thinking faculty, mind, thoughts,” “[t]he outcome of thinking, an idea, thought,” “a thought occupying or occurring to the mind, reflection,” “[a] thought with ref. to its subject, preoccupation, consideration,” “[w]hat one thinks (on any subject), opinion, view,” “[i]ntention, purpose, design,” and “[t]hought as to the future, expectation, anticipation” [26]. Thus, *habeas cogitationem* is to be translated as “you shall have the thought.” Additionally, by rewording the *Oxford Dictionary of Law* denotation for *habeas*

³⁰ Retrieved from https://www.oas.org/en/sla/iajc/docs/CJ-RES_281_CII-O-23_corr1_ENG.pdf

³¹ See <https://parlatino.org/wp-content/uploads/2017/09/leym-neuroderechos-7-3-2023.pdf>

corpus ([3]; see also Section “[Enforcing Individual Rights: From *habeas corpus* to *habeas data*”](#)), we define *habeas cogitationem* as

a prerogative writ used to challenge the validity of a neurotechnological interference in a person’s thought process, either in official or private hands.

In essence, *habeas cogitationem*’s typology is identical to that of the two preceding *habeas*. First, it is a procedural-type of right (i.e., a writ), aimed at the enforcement of substantive rights, in this case, that of neurorights. Second, contrary to the rights that force some kind of action towards a person (i.e. positive rights), this is a negative right, which implies that it compels to inaction when it comes to certain neurotechnological interferences towards a person—just as *habeas corpus* obliges to inaction regarding detention and *habeas data* does the same with the collection and storage of personal information. Third, following the tradition of the other *habeas*, *habeas cogitationem* deserves a national/federal status regarding its jurisdictional range as it befits a constitutional writ. Fourth, it is based on the same four essential principles that we described above (see Sect. “[Enforcing Individual Rights: From *habeas corpus* to *habeas data*”](#)) while explicating on *habeas corpus*, namely: (1) agility—fast process, (2) simplicity—no formalities, (3) generality—no individual or authority is exempt from being investigated, and (4) universality—applicable both to illegal neurotechnological interferences and to those that, despite being legal, are kept under illegal conditions. It should be noted that illegal neurotechnological interferences would include not only those that may be blatantly prohibited by law, but also those that are performed without providing sufficient relevant information about their motives or procedures to either an individual or their attorneys.

Guarantee

Habeas cogitationem’s guarantee consists in safeguarding the self-determination of mental states and contents and, in doing so, protecting the personal autonomy. This legal object is guaranteed primarily via enforcing the right to freedom of thinking—or freedom of thought, cognitive liberty, mental self-determination, mental freedom, free will. Moreover,

this writ could also enforce the rest of the neurorights in a subsidiary way. This is due to the role that has usually been assigned to freedom of thinking as a prerequisite for the rest of rights and liberties. Sentientia, for example, claims that “the right and freedom to control one’s own consciousness and electrochemical thought processes [i.e. cognitive liberty] is the necessary substrate for just about every other freedom” [18]. Similarly, the US Supreme Court, in the well-known case *Palko v. Connecticut*, stated the following:

Of that freedom [of thought and speech] one may say that it is the matrix, the indispensable condition, of nearly every other form of freedom. With rare aberrations, a pervasive recognition of that truth can be traced in our history, political and legal. So it has come about that the domain of liberty, withdrawn by the Fourteenth Amendment from encroachment by the states, has been enlarged by latter-day judgments to include liberty of the mind as well as liberty of action. The extension became, indeed, a logical imperative when once it was recognized, as long ago it was, that liberty is something more than exemption from physical restraint.³²

According to Ienca and Andorno [7], this fundamental status has some limitations—in the case of the negative sense of cognitive liberty:

Being the substrate of all other freedoms, cognitive liberty in its positive sense is a prerequisite of all other neuro-focused rights. As such, it is to mental privacy, mental integrity and psychological continuity in a very similar relation as freedom of thought is to privacy, integrity and identity rights. However, in its negative sense of protection from *coercive use* [italics ours], cognitive liberty can only partly account for unintended uses of emerging neurotechnology. In fact, illicit intrusions into a person’s mental privacy may not necessarily involve coercion, as they could be performed under the threshold of a persons’ conscious experience. The same goes for actions involving harm to a person’s mental life or unauthorized modifications of a person’s

³² Retrieved from <https://supreme.justia.com/cases/federal/us/302/319/>

psychological continuity, which are also facilitated by the ability of emerging neurotechnologies to intervene into a person's neural processing in absence of the person's awareness.³³

As aforementioned, *habeas cogitationem* is a negative right—as it should be according to the *raison d'être* of any *habeas*. Nevertheless, as opposed to Ienca and Andorno, we suggest including in this negative sense not only the coercive uses of neurotechnology towards a person but also the non-coercive ones—as long as they are unauthorized or undesired. In other words, *habeas cogitationem* would enforce freedom of thinking against *any form of unwanted neurotechnological interference* affecting the self-determination of mental states and contents.

The way in which freedom of thinking generates subsidiarity relations with the rest of neurorights is a topic that deserves in-depth consideration and probably specific papers. In fact, there is already some recent work on the taxonomy of neurorights [6]. However, we will sketch how the essential bases of such relations can be understood for the case of *habeas cogitationem*. Let us recall the list of the main neurorights proposed to date—except for cognitive liberty and free will, which fall under the umbrella of freedom of thinking—accompanied by their brief definitions:

- *Mental privacy*: “Any NeuroData obtained from measuring neural activity should be kept private. If stored, there should be a right to have it deleted at the subject's request. The sale, commercial transfer, and use of neural data should be strictly regulated” ([11]; see also [7]).
- *Mental integrity*: Protection against “malicious brain-hacking,” which are “neurocriminal activities that influence directly neural computation in the users of neurodevices in a manner that resembles how computers are hacked in computer crime” [7].
- *Psychological continuity*: “[T]he crucial requirement of personal identity consisting in experiencing oneself as persisting through time as the same person” [7].

³³ Ienca and Andorno also believe that “[b]eing the neurocognitive substrate of all other liberties, cognitive liberty cannot be reduced to existing rights, hence is immune to the risk of rights inflation” [7].

- *Personal identity*: “Boundaries must be developed to prohibit technology from disrupting the sense of self. When neurotechnology connects individuals with digital networks, it could blur the line between a person's consciousness and external technological inputs” [11].
- *Fair access to mental augmentation*: “There should be established guidelines at both international and national levels regulating the use of mental enhancement neurotechnologies. These guidelines should be based on the principle of justice and guarantee equality of access” [11].
- *Protection from algorithmic bias*: “Countermeasures to combat bias should be the norm for algorithms in neurotechnology. Algorithm design should include input from user groups to foundationally address bias” [11].

Given these definitions, it can be reasonably held that the rights to mental privacy, mental integrity, psychological continuity, and personal identity are subsidiary to freedom of thinking in its negative sense since the protection given by any of them necessarily requires the protection of our internal thought processes against unwanted interferences. However, it seems advisable to make more specific comments about the other two neurorights.

To the extent that an algorithmic bias negatively influences, via neurotechnological intervention, certain people more than others, the precondition of freedom of thinking is not respected here. Think, for example, about the algorithmic racial biases that have recently been shown to negatively affect the way in which health problems were treated in black patients in the US [27]. The consequences of this in neurotechnological terms can be described as follows: a black patient may receive worse neurological or psychiatric diagnostic and treatment than a white patient with the same disorder, which would increase the risk that the black patient is likely to see their cognitive and emotional resources diminished compared to the white patient. This person cannot be considered to think freely as long as they could have had a better medical and biological bases required for the process of thinking. In this sense, we argue that the right to protection from algorithmic bias probably needs to be considered subsidiary to freedom of thinking and, therefore, is subject to *habeas cogitationem*'s coverage. Nevertheless, we recognize that this is a

controversial point and some critics might consider it a case of conceptual stretching. For this reason, we are aware that more reflection is needed to further clarify the relations between both neurorights.

In contrast, whether the right to fair access to mental augmentation comes under *habeas cogitationem*'s coverage is very unclear. On the one hand, the content of the formal definition of this right seems to stress non-discrimination in citizens' access to neuroenhancements. In this first sense, it seems to be close to the principle of non-discrimination in a similar way to the right to protection against bias, so it could be somewhat considered a negative right—the only one among all the neurorights—in the same way accesses to healthcare and internet access are. Since *habeas cogitationem* is a negative writ, access to enhancements cannot be subsidiary to freedom of thinking in this context. Claiming an *habeas cogitationem* procedure owing to not receiving neuroenhancements would be as inadmissible as, for example, invoking an *habeas data* owing to not having been granted internet access. Given these circumstances, our recommendation at this point is to leave out access to mental augmentation from *habeas cogitationem*'s coverage.

An additional comment that is significant must be made regarding mental privacy. Although, as we said, this right seems clearly subsidiary to freedom of thinking, and as such could be enforced through *habeas cogitationem*, there is a risk of it overlapping with *habeas data*. Until now, *habeas data* has been a very useful tool for informational self-determination related to personal data that are external manifestations of mental contents insofar as they are data extracted after a person has acted to produce them—for example, by introducing them into a form. However, a feasible and *prima facie* reasonable possibility is to integrate neurodata with personal data in a unified framework within international data protection regulations and *habeas data*. Under this first possibility, the neuroright to mental privacy should be left out of the protection of *habeas cogitationem* in order to avoid redundancies and procedural inefficiency. A second possibility, though, is to give neurodata a specific treatment outside the aforementioned regulations and *habeas data*, in which case there would be room to enforce mental privacy through *habeas*

cogitationem. While we recognize that opting for one or the other possibility is a potentially open debate that could result from our proposal and also that the solutions adopted could vary depending on certain nations or regions as well as the different legal contexts,^{34, 35} here we adopt the latter.

The unclear relation between neural data and personal data, and its impact on how to properly regulate their protection (including legal remedy instruments), is very well reflected in a recent study by Ienca and Malgieri. In this work, they coin the term “mental data,” which are “not only data directly derived from brain observation, but any data inferred directly or indirectly about mental states of a person, including their cognitive, affective, and conative states” [30]. These authors consider the GDPR—whose Chapter 8, as we mentioned in Sect. “Enforcing Individual Rights: From *habeas corpus* to *habeas data*”, includes the notion of *habeas data*³⁶—to be “an adequate tool to mitigate risks related to mental data processing” [30]. Nevertheless, they also argue that, even though “mental data in some situations are not included in the category of ‘sensitive’ data under the GDPR, many characteristics of mental data processing (the profiling or scoring of individuals, the systematic monitoring of individuals, the use of innovative technologies, the presence of vulnerable individuals, etc.) might qualify as high-risk indicators and imply limitations and *by-design safeguards* [italics ours] to that data processing” [30]. A by-design approach would probably be justified if we allude to the “inception problem,” in the words of Ienca and Andorno [7], who argue that

³⁴ We must add that, according to the definition of mental integrity proposed by Lavazza, “Mental Integrity is the individual’s mastery of his mental states and his brain data so that, without his consent, no one can read, spread, or alter such states and data in order to condition the individual in any way” (italics ours) [28]. Thus, mental privacy would be a constituent part of mental integrity. Adopting this definition would imply that our comment would also apply to mental integrity. However, the definition of mental integrity that we adopt in this article (a few paragraphs above) is the one offered by Ienca and Andorno [7], which does not include mental privacy.

³⁵ Recent publications on possible governance frameworks for neurodata have marked an interesting starting signal to advance discussions related to mental privacy [29].

³⁶ See again <https://gdpr.eu/tag/chapter-8/>

the special nature of brain data, which relate very directly to one's inner life and personhood, and the distinct way in which such data are obtained, suggest that specific safeguards will be probably needed in this domain. It should be noted that traditional privacy rules seek to safeguard 'external' information about people.

The particularity of brain data is that the *information* to be protected is not easily distinguishable from the *source* itself that produced the data: the individual's neural processing. This is what we can call the "inception problem", which complicates the analysis of the issues at stake when traditional approaches to privacy are used. In other terms, the neurotechnological future we are approaching will require us to guarantee protection not only to the information we record and share, but also to the *source* of that information since they may be inseparable. In order to implement this we would need wider privacy and data protection rights that can be also applied at a higher and chronologically antecedent level: *our neural activity*.

In our opinion, this inseparability between neuro-data (information) and neural activity (its source) is sufficiently relevant to justify *habeas cogitationem* being used as an appropriate by-design action to protect the privacy of brain data.

Investigation

The last theoretical foundation of *habeas cogitationem* consists in its investigation mechanisms. Two important questions arise here and the first is about the types of interferences that should be investigated. Thought processes can be externally manipulated in very diverse contexts. As Bublitz and Merkel put it in their seminal paper *Crimes Against Minds* [20]:

[Think] about interventions into other minds, i.e. stimuli sent from one person with mental effects in another, to which the addressee has not given consent. If, just hypothetically, one were to ban any and all such interventions, we would have to stop talking to each other and prevent any emanation of stimuli from our sphere of responsibility. Such a stimuli-free world is anything but desirable, probably not even conceivable. Obviously, the default position can-

not be designated by a complete prohibition of changing others' minds. On the contrary, deprivation of external stimuli may even lead to dramatic negative psychological consequences [...]. On the other hand, the given situation of, by and large, unrestricted stimuli allows for too many unwanted intrusions into others' mental spheres. Hence, lines must be drawn to separate *permissible* from *impermissible interventions* [italics ours]. For this, we hold "mental self-determination" to be the most promising notion. In its light, the aim is not an environment free of external stimuli, but free from stimuli that have deleterious effects on other persons' mental integrity. The principal premise is that no one has a right (a legally enforceable claim) over another's state of mind. Moreover, it imposes obligations on everyone, first and foremost, to refrain from interventions severely interfering with another's mental integrity by undermining mental control or exploiting pre-existing mental weaknesses.

Thus, social interactions form an important part of the interferences in the thinking of others. Some of these interferences may cause negative consequences to the mind, and according to these authors, they may be direct or indirect:

Direct interventions are those working directly on the brain (e.g. DBS, psychoactive substances) whereas indirect interventions are somehow more remote—mediated, as it were, by internal processes on the part of the addressee. Tentatively, indirect (or external) interventions are those stimuli which are perceived sensually (i.e. heard, seen, smelled, felt, even if not apprehended or reflected upon consciously) and pass through the mind of the person, being processed by a host of psychological mechanisms. Thus, conscious communication in all its forms is an indirect intervention. By contrast, direct (or internal) interventions are stimuli reaching the brain by other routes than sensual perception. The main difference is that direct interventions can be primarily understood as electro-chemical or physical reactions following the laws of nature whereas indirect interventions involve psychological laws (or dynamics) and relate to *what* is being perceived, e.g.

the semantic content of messages or images, and engage with the psychological structure of the perceiver. [20]

Should both direct and indirect interventions be penalized? This is a critical question, full of nuances and blurred lines. According to Bublitz and Merkel, only the most deleterious interferences should be subject to criminal scrutiny. These include “mental injuries, lowering of mental capacities and changes of preferences” [20]. For the case of direct interventions (i.e., on the brain and nervous system), their view is that these should be prosecuted as long as they fall into this category of extremely harmful interferences in the mind. In the case of indirect stimuli, these are also prosecutable if they (again) cause great mental damage,

unless such stimuli are exercises of permissible conduct such as free speech in respect of the other person’s mental self-determination. [...] This covers perceptible (though not necessarily consciously perceived) interventions such as subliminal stimuli. Insofar as constitutions grant such stimuli full free-speech protection, it needs to be balanced against mental self-determination. Also, negative consequences need to be severe and—on the subjective (*mens rea*) side—the offence should require a qualified state, purpose or, perhaps, knowledge. Otherwise, far too many commonplace social interactions would fall under the prohibitions. Attempts should be punishable in both clauses as oftentimes only the attempt, but not the effects will be provable. [20]

We fully agree with this approach of investigating the most important mental damages caused by both direct and indirect stimuli. However, for the sake of prudence we prefer to include in our *habeas cogitationem* proposal only direct interferences into the brain and the nervous system. It is not only that indirect interferences are *prima facie* more difficult to trace and prove, but most of all that direct interferences seem more compatible with the *raison d’être* of all *habeas*, which is *urgent* remedy. An unwanted direct intervention could irreversibly damage the very biological base of thought internalizations, which may not be sufficient but is essential for these internalizations to take place in a healthy and functional way—just as foundations do not constitute an entire building

but their destruction causes collapse. In contrast, a victim of indirect (i.e., psychological) interventions may enjoy in principle—although, admittedly, in ideal situations—some tools to deal with them effectively in the medium or long term (e.g., based on culture and education, freedom of information, family support). This makes these interferences potentially reversible and, in this sense, not urgent enough to merit a procedure such as *habeas cogitationem*. Instead, we suggest that they should be investigated through more routine criminal law procedures. In any case, we think it is important to leave the door open for subsequent research and scientific evidence that may give rise to the inclusion of indirect interferences in the investigation mechanisms of *habeas cogitationem*.

The second important question to these mechanisms is as to who is subject to investigation, i.e., who are the potential perpetrators. Historically, *habeas* were born to protect citizens from abuses by the state and public bodies regarding their *bodily* freedom/self-determination, through *habeas corpus*. However, in recent times it has become clear that *informational* self-determination can be easily threatened by individuals and corporations, which has led to the explicit inclusion of the private sector in the writ to *habeas data*.³⁷ This writ is a very important legal precedent to consider third parties and private entities as defendants. The power for the use of large amounts of data by entities of the so-called infosphere (see, for example, [31]), which cross national borders with great ease, is difficult to ignore. Now, in the age of neurotechnological advances, there is no reason to think that this international trend can be easily stopped or even diminished. The private sector is becoming increasingly interested in a very valuable commercial material: brain data as well as the mental states and contents with which they are correlated. In relation to this, the Inter-American Juridical Committee of the Organization of American States—through its Declaration on Neuroscience, Neurotechnologies, and Human Rights³⁸—has emphasized the need to protect brain data and mental privacy against both public and private perpetrators:

³⁷ As an example, Article 33 of the Argentine *habeas data* law (No. 25326) includes the right to access, modify, and delete data contained in private files. See <https://www.argentina.gob.ar/normativa/nacional/ley-25326-64790>

³⁸ See again https://www.oas.org/en/sla/iajcc/current_agenda_Development_of_international_standards_on_neurorights.asp

The inter-American legal framework recognizes the right to privacy and to be free from arbitrary interference therewith. The protection of privacy is characterized by the fact that individuals are exempt and immune from abuse and arbitrary or abusive intrusion or attack *by third parties or the State*. The inter-American human rights system has recognized that this right implies protection against interference in the most intimate sphere of individuals and encompasses a series of factors related to the dignity of the individual. Furthermore, it has been pointed out that certain advances or the development of particular technological tools may endanger the right to privacy.³⁹ (Italics ours)

Furthermore, there are not only possibilities of appropriation of brain data, but also of manipulation of individuals and societies. As Zuboff [32] alerts:

[T]he competitive dynamics of these new markets drive surveillance capitalists to acquire ever-more-predictive sources of behavioral surplus: our voices, personalities, and emotions. Eventually, surveillance capitalists discovered that the most-predictive behavioral data come from intervening in the state of play in order to nudge, coax, tune, and herd behavior toward profitable outcomes. Competitive pressures produced this shift, in which automated machine processes not only *know* our behavior but also *shape* our behavior at scale. With this reorientation from knowledge to power, it is no longer enough to automate information flows *about us*; the goal now is to *automate us*. In this phase of surveillance capitalism's evolution, the means of production are subordinated to an increasingly complex and comprehensive "means of behavioral modification." In this way, surveillance capitalism births a new species of power that I call *instrumentarianism*. Instrumentarian power knows and shapes human behavior toward others' ends. Instead of armaments and armies, it works its will through the automated medium of an increasingly ubiquitous computational architecture of "smart" networked devices, things, and spaces.

These risks that Zuboff talks about are only going to be increased with the integration of *neural information* along with behavioral information. In this new form of market, the possibility of exercising absolute control by the owners of large corporations is favored to the detriment of the position of users, who see their possibilities of contracting under parity conditions limited. Moreover, transnationality is an essential component of this control, so it must be taken into account when legislating. Since the (neuro)technological market is subject to the rules of globalization, the infosphere does not set its limits following a territorial logic. The first ruling against a consumer neurotechnology company worldwide (*Girardi v. Emotiv*), involving a Chilean litigant against a US defendant,⁴⁰ is a good example of this transnational dimension. For all these reasons, in accordance with the institutional duty to provide legal protection for the weakest, we believe that *habeas cogitationem* should be accompanied by political decisions that clearly establish jurisdiction in the user's place of domicile. As eloquently argued by Alegre [33]:

State signatories to international human rights conventions are bound to respect the right [to freedom of thought], but also to protect all those in their jurisdiction from interference with the right. This means that governments need to refrain from using techniques that interfere with our freedom of thought, but they also need to take concrete steps to protect us from interference from the private sector where much of the technology is being developed and used. While detailed domestic and regional laws and regulations have developed over the past two decades around privacy and data protection in both the public and private sectors in response to the exponential changes brought in by the internet and other technology, freedom of thought has remained a blind spot in the legal framework around digital developments. [I] argue that new legal and policy responses are required as a matter of urgency to regulate and limit business practices or state interventions that risk interference with freedom of thought.

³⁹ Retrieved from https://www.oas.org/en/sla/iajc/docs/CJI-DEC_01_XCIX-O-21_ENG.pdf

⁴⁰ See [45], <https://defensaneuroderechos.org/>, and <https://www.reuters.com/article/tech-privacy-brainwaves-idUSL8N3AH6D6/>

The Hobbesian Leviathan is no longer the State only; novel forms of neurotechnological interference in people's *mental* lives—unimaginable in John Lackland's times—could be developed and applied by new, private leviathans with power comparable (arguably even higher) to that of many states. That is why our proposal aims to include both public and private entities among the potential perpetrators of attacks against freedom of thinking. In Sententia's words [18]: "The individual, not corporate or government interests, should have sole jurisdiction over the control and/or modulation of his or her brain states and mental processes".⁴¹ Among potential perpetrators pertaining to the public realm, we can include states, governments, officials, police, army, judges, etc. Private potential perpetrators could especially be corporations and attorneys. The common requirement to know if any of these agents can be subject to investigation was previously mentioned by Bublitz and Merkel: "[O]n the subjective (mens rea) side[,] the offence should require a qualified state, purpose or, perhaps, knowledge" [20].

Hypothetical Scenarios for the Application of *habeas cogitationem*

So far, we have exposed the theoretical foundations of *habeas cogitationem*. From a normative point of view, we think that this writ could effectively complement the other *habeas* existing to date and thus be able to protect all personal liberties through urgent procedural remedies:

- Physical freedom: via *habeas corpus*,
- Mental freedom: via *habeas cogitationem*,
- Behavioral/social freedom: via *habeas data* (protecting personal information that people have ever made available) and *habeas cogitationem* (protecting the thought process that precedes and triggers action).

⁴¹ As Bublitz and Merkel [20] also point out, "[t]he challenge for the law is to render the scope of mental self-determination more concretely. As a human right, it pertains to the vertical relation between state and citizen. However, the protection of the mind also has to apply in the horizontal relation between citizens, to be achieved, inter alia, by introducing a novel criminal offence penalizing interventions into other minds, demarcating the limits of permissible conduct with regard to other persons' minds."

However, it is clear that any interference subject to *habeas cogitationem*, if ever taken, will be based on specific cases. For this reason, we offer below a list of hypothetical scenarios of supposed application (see also Table 2). The list is not exhaustive and numerous additional situations could easily come to mind. Moreover, we do not claim that these situations will necessarily occur in the future or that they are easily achievable today. The list is for illustrative purposes, so we include some of the interferences that, in our opinion, may potentially be more susceptible to invoking *habeas cogitationem* in the future. In all cases, let us remember, the neuroright to be primarily enforced is freedom of thinking. The neurorights to be enforced in a subsidiary way are indicated for each case.

- a. A consumer uses a DTC (direct to consumer) neurotechnological device consisting of a headband of electrodes that collect their brain activity while they enjoy digital platform content through their smartphone. When contracting the service, the platform informed the user that their data were going to be collected exclusively for elaborating their digital phenotype (see, for example, [34]) aimed at offering personalized content.⁴² One day, the user is watching a movie and, during a rape scene, feels arousal. Their excitation is inferred from their brain activity collected through the DTC device. The platform submits to the authorities a digital phenotyping report that assigns this user a profile of a potential rapist, so the authorities decide to police the user's daily activities. Neuroright to be enforced here is *mental privacy*.
- b. A person is suspected of a crime and is called in for an interrogation. Without being informed that they could refuse, paralyzing substances are coercively administered to them and brain fingerprinting is then performed to detect possible evoked potentials (i.e., P300-MERMER) related to the crime scene (see, for example, [35]). As a result

⁴² Digital phenotyping can be defined as "the *moment-by-moment quantification of the individual-level human phenotype*, in situ, using data from personal digital devices, in particular smartphones. [This] includes but is not limited to behavioral patterns, sleep, social interactions, physical mobility, gross motor activity, cognitive functioning, and speech and language production." (Retrieved from <https://www.hsph.harvard.edu/onnella-lab/research/>).

Table 2 Hypothetical scenarios of *habeas cogitationem*

<i>Scenario's synopsis (see main text for more details)</i>	<i>Neurorights to be enforced (besides freedom of thinking)</i>
<i>a.</i> A consumer's digital phenotype is elaborated by a digital platform and is submitted to the authorities who police their daily activities as they have been profiled as a potential rapist	Mental privacy
<i>b.</i> A suspect for a crime is forced to self-incrimination via brain fingerprinting and is then arrested and brought to trial	Mental privacy
<i>c.</i> A patient's DBS device is "brainjacked," thus causing tissue damage and deterioration of brain function	Mental integrity
<i>d.</i> An appositor to the government is tortured via energy pulses, thus causing them the Havana syndrome	Mental integrity
<i>e.</i> A journalist with sensitive information about corruption in the government suffers amnesia problems related to their recent past due to intentionally induced HIFU waves	Mental integrity Psychological continuity Personal identity
<i>f.</i> An inmate is denied parole and coercively summoned to undergo a DBS surgery "to correct their aggressive behavior" due to a biased recidivism risk assessment	Mental integrity Protection from algorithmic bias
<i>g.</i> A woman from a racial minority who suffers from Parkinson's disease is allocated less financing for the medication and a later surgery date than other patients with identical health necessities due to a biased algorithm of the public health system	Protection from algorithmic bias

of brain fingerprinting, this person is arrested and brought to trial. Neuroright to be enforced here is *mental privacy*.⁴³

- c.* A patient has had a therapeutic DBS (deep brain stimulation) device implanted. This person realizes that the device has been remotely "brainjacked" (see [36]), i.e., maliciously manipulated. This brainjacking has consisted of interrupting stimulation due to the depletion of the implant's batteries, causing tissue damage and deterioration of brain function. Neuroright to be enforced here is *mental integrity*.
- d.* A highly influential citizen known for organizing protests against the government policies suffers from brain injuries accompanied by severe auditive problems, headaches, and trouble sleeping, among other symptoms. This person obtains indications of being tortured with energy pulses that have caused them the so-called Havana syndrome, causing them serious physical and mental discomfort (see [37–40]). These pulses are being specifically directed against them by a state

agency in reprisal for their opposition to the government. Neuroright to be enforced here is *mental integrity*.⁴⁴

- e.* A journalist is collecting sensitive information that would show the existence of an extensive network of corruption in the party that holds the government of their country. The journalist foresees that after achieving to collect enough information, they will be able to make it public within a few months. This person suffers from essential tremors and their doctors have advised them to treat themselves with HIFU (high-intensity focused ultrasound) waves. At the behest of the government, the country's secret service infiltrates a specialist in this technique to be the one who treats the patient. During the sessions, the specialist does not treat the appropriate brain areas (e.g., cerebellum, thalamus), but intentionally stimulates the patient's hippocampus and amygdala, causing burns that damage healthy brain tissues in the areas involved with memory.

⁴³ Here, the attack on privacy is accompanied by other abuses—forced self-incrimination and detention under unlawful conditions. In order to avoid normative redundancies, the circumstances of the case and the specific legal ecosystem of the country should be addressed in detail to elucidate which would be the best urgent remedy: *habeas cogitationem* or *habeas corpus*.

⁴⁴ The Havana syndrome remains under great controversy today. With this case, we do not intend to position ourselves in one way or another in terms of its scientific legitimacy. Instead, what we intend is to illustrate hypothetical situations of torture that could cause serious damage to mental integrity, whether they are cases of Havana syndrome—if proven in the future—or others.

As a result of several successive sessions with HIFU, the journalist develops amnesia problems related to their recent past, including the corruption case and also important events in their recent life. Neurorights to be enforced here are *mental integrity*, *psychological continuity*, and *personal identity*.

- f. An inmate is serving a prison sentence for a violent crime committed when they were 16 years old. This inmate is in a position to eventually obtain parole if the criminal recidivism risk assessment so advise. These studies, which they know and authorize, include neuroimaging. Once all the information is collected, the risk assessment algorithm uses the inmate's criminal record during age minority to attribute them to a higher risk of recidivism compared to other people with the same criminal record in adulthood and the same results in neuroimaging. For this reason, the person is denied parole and is also coercively summoned to undergo a DBS surgery on the hypothalamus "to correct their aggressive behavior" (see, for example, [41]). Neurorights to be enforced here are *mental integrity* and *protection from algorithmic bias*.
- g. A woman belonging to a racial minority goes to a public hospital within the mental health program of her government. Before being examined by the doctors, the patient fills out a health form that includes a declaration of her gender and ethnicity. To check this statement, an IA facial recognition of the woman is carried out thanks to hidden cameras located in the hospital waiting room. The doctors rule that the woman suffers from Parkinson's disease and decide to assign her a levodopa treatment followed by an urgent deep brain surgery. After doctors enter the data into the software of the public health system, its algorithm uses the patient's belonging to a minority to assign her less financing for the medication and a later surgery date than other people with the same advanced state of the disease who were diagnosed on the same day. Neuroright to be enforced here is *protection from algorithmic bias*.

An essential aspect of the application of *habeas cogitationem* is the need to develop effective mechanisms to provide *assistance to victims*. Some essential guidelines in this sense are the following:

- Forensic bodies are the ones who must rule on the harmful aspect of neurotechnological interferences.
- Judges will have to provide access to victims service units in accordance with the legislation of each country. From this follows the need for training of judges, as stipulated, for example, by Numeral 112 of the Convention on the Rights of the Child's General Comment No. 24:

It is essential for the quality of the administration of child justice that all the professionals involved receive appropriate multidisciplinary training on the content and meaning of the Convention. The training should be systematic and continuous and should not be limited to information on the relevant national and international legal provisions. It should include established and emerging information from a variety of fields on, inter alia, the social and other causes of crime, the social and psychological development of children, *including current neuroscience findings* [italics ours], disparities that may amount to discrimination against certain marginalized groups such as children belonging to minorities or indigenous peoples, the culture and the trends in the world of young people, the dynamics of group activities and the available diversion measures and non-custodial sentences, in particular measures that avoid resorting to judicial proceedings. Consideration should also be given to the possible use of new technologies such as video "court appearances", while noting the risks of others, such as DNA profiling. There should be a constant reappraisal of what works.⁴⁵

- Determining the degree of harm directly affects the subsequent quantifications of reparation that may be necessary, as well as the punitive modalities and criminal consequences that may be designed within the framework of criminal regulations.

⁴⁵ See <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=6QkG1d%2FPPPRiCAqhKb7yhsqlkirKQZLK2M58RF%2F5F0vEnG3QGKUxFivhToQfjGxYjV05tUAIgpOwH QJsfPdJXCiixFSrDRwow8HeKLLh8cgOw1SN6vJ%2Bf0RPR9UMtGkA4>

- Special consideration must be given to the victims that belong to especially vulnerable groups, such as minors, people with disabilities, the elderly, and sexually diverse people, among others.

Final Remarks

The proposal that we have presented in this article is not a closed proposal at all. Not only is any suggestion and criticism in this regard very welcome, as it should be in any healthy academic debate, but there are also several *open questions* that are intimately related to *habeas cogitationem* and can influence the way in which it is conceived. Some of these questions, which we have already mentioned throughout the text are:

- What are the equivalences, differences, and relations between the neurorights related to the self-determination of our mental states and contents that have been grouped under the umbrella term of “freedom of thinking”?
- How is freedom of thinking taxonomically related to the rest of the neurorights?
- Can and should *habeas cogitationem* act as an urgent remedy against intrusions into mental privacy specifically related to brain data—as we have defended in this paper—or would it be better to resort to *habeas data*?
- What should be the criteria to identify the most harmful interferences in our freedom of thinking that would be subject to *habeas cogitationem*?
- Are there, or may there be in the near future, sufficient elements of judgment to assess the inclusion of the most deleterious indirect interferences—i.e., psychological and social interferences—that make it appropriate to invoke *habeas cogitationem*?

A critical aspect in the current state of the neurorights debate is whether rights *de novo* should be created in the face of malicious and disruptive uses of neurotechnology or whether the current rights framework can address such uses with *due reforms*. Although we lean more towards the second option (i.e., reconceptualization) [44], we will not give arguments for it here. To the extent that *habeas cogitationem* is a procedural and not a substantive right, it can

be applied to enforce neurorights no matter how the debate ends in this sense. Therefore, we do not intend to contribute to an unnecessary inflation of substantial rights; on the contrary, *habeas cogitationem* is a remedy conceived to enforce substantial rights in the most serious, urgent, and potentially harmful situations for people.

In this regard, it could be argued that generic legal tools such as *amparo* could fulfill this function. In fact, a protection remedy very similar to *amparo* has been recently employed in the *Girardi v. Emotiv* ruling, ruled by the Supreme Court of Chile. This ruling is the first in history to determine that a company’s use of a user’s brain data violated their constitutional right to privacy.⁴⁶ However, the use of a generic protection mechanism may not be sufficiently effective as cases of harmful/abusive neurotechnological interference become increasingly frequent. We think that the specificity, prospects for future progress, and potential seriousness of the malicious uses of neurotechnology justify the possibility of developing an appropriate writ to deal with them. *Habeas cogitationem* has a specific nature aimed at the protection of rights that, in terms of its scope of protection, were not conceivable to be threatened when *habeas corpus*, *habeas data*, and *amparo* were created. Just as *habeas data* was established to protect the objective data of the person, it does not seem unreasonable to us that a specific *habeas* needs to be considered to protect something as important as *human thought*, which is at the base of nothing less than our personal and social life. For this reason, many countries—including Chile—may introduce *habeas cogitationem* into their domestic law as a more specific and appropriate protection formula than *amparo*, and thereby cover the wide range of possible harmful neurotechnological interferences. For instance, Article 43 of the Argentine constitution—which includes *habeas corpus*, *habeas data*, and *amparo*—is very clear in this regard:

Any person may file an expeditious, rapid action of *amparo*, provided that there is *no other more suitable judicial means* [italics ours], against any act or omission of public authorities or individuals, which currently or imminently injures,

⁴⁶ See again [45], <https://defensaneuroderechos.org/>, and <https://www.reuters.com/article/tech-privacy-brainwaves-idUSL8N3AH6D6/>

restricts, alters or threatens, with evident arbitrariness or illegality, rights and guarantees recognized by this Constitution, a treaty, or a law. In the case, the judge may declare the unconstitutionality of the rule on which the harmful act or omission is based.⁴⁷

Thus, the areas of protection that do not fall under *amparo* will be covered by *habeas corpus* (for bodily self-determination), *habeas data* (for informational self-determination), and *habeas cogitationem* (for the self-determination of mental states and contents). Ultimately, specificity is inherent to a more suitable protection.

Another critical aspect of our proposal is its possible *practical application*. We think that the list of hypothetical cases of application that we offered in Section “[Hypothetical Scenarios for the Application of *habeas cogitationem*](#)” clearly reflects that it is necessary to have specialized knowledge in neurotechnology to be in a position to: (1) assess the relevance of a petition for *habeas cogitationem*, and (2) carry out investigation related to the interferences and its perpetrators. It is at this point that the need for the figure of “neurojurists” becomes evident.⁴⁸ Their functions would be to put doctrines into action, make legal texts compatible, reconceptualize (see [44]), and seek semantic and philosophical coherence. In this way, they would pave the way for providing parliaments with effective laws—which includes the use of parsimony criteria and avoiding legislative inflation. In short, neurojurists would do interdisciplinary integration work between science, technology, and law. Those called to exercise the task of neurojurist would be, first of all, parliamentarians. They would give a formal structure to *habeas cogitationem* (and to neurorights), for which they should be provided with the advice of academics and interdisciplinary researchers. Secondly, with those legal instruments in force, it would be the judges who would carry out the important task of *ius dicere*, i.e. administration of justice.

Neurojurists would play a conjunctural role justified by the need to converge neurotechnological

advances and the needs for new regulatory solutions. After their work is finished, continuous training of judges and other members of the justice system would be critical for these solutions to be administered effectively.⁴⁹ This training would allow them to decide, for instance, on the *conditio sine qua non* principle. This principle is essential in criminal and procedural law and is based on determining whether there has been a causal relation between an action and a subsequent event—in this case, whether a neurotechnological interference has been *a condition without which* there would have been *no* damage to the self-determination of mental states and contents.

Besides, the possible fitting of *habeas cogitationem* in national legal systems—as well as that of the neurorights—should pass the filter of a rigorous and conscientious *legal dogmatics* (see [44]). This should be achieved without undermining something equally important: that different countries agree on regional cooperation guidelines and conventions since the new neurotechnological challenges show forms of transnational effects—think, for example, of the undesirable possibility that a “neurohacker” acts remotely from a country lacking neurorights regulation on a passive subject who lives in another country that does have such a regulation. This transnational aspect also has to do with possible forms of collective manipulation in the field of neurotechnology, which we already suffer from in the field of data and will possibly require regulatory actions specifically aimed at combating them. Interestingly, the European Union GDPR allows for the possibility of beginning class actions, as in the case of Article 82 (“Right to compensation

⁴⁷ See again <http://servicios.infoleg.gob.ar/infolegInternet/anexos/0-4999/804/norma.htm>

⁴⁸ Please note that, in 1991, Taylor and collaborators introduced a similar concept: “neurolawyers” [42].

⁴⁹ As highlighted by García-López [43], universities would be essential in this regard. It is also worth mentioning that, through its Declaration on Neuroscience, Neurotechnologies, and Human Rights, the Inter-American Juridical Committee of the Organization of American States has urged academia to “[i]ncorporate teaching and research activities that allow an adequate understanding of the impacts of neurotechnologies, as well as their scientific, ethical, and social scope” (retrieved from https://www.oas.org/en/sla/iajc/docs/CJI-DEC_01_XCIX-O-21_ENG.pdf). In the same vein, General Comment No. 24 of the United Nations Committee on the Rights of the Child recommends “that all the professionals involved receive appropriate multidisciplinary training on the content and meaning of the Convention. The training should be systematic and continuous and should not be limited to information on the relevant national and international legal provisions. It should include established and emerging information from a variety of fields

and liability”),⁵⁰ so there is an important legal precedent in which a regulation that includes legal remedy instruments (Chapter 8 of the GDPR)⁵¹ also contemplates class actions.

Finally, we cannot stress enough that *a proposal* has been tabled here. If it is never advisable to pontificate, it is even less so when it comes to something as serious and valuable as human rights. In any case, we hope to be able to contribute towards exploring new avenues of remedy that can serve to broaden the framework of guarantees for citizens against abuses to their liberties. Because *freedom*, after all, is worth all the “bleeding, fighting, and living on.”

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Declarations

Ethics Approval This article does not contain any studies with human or animal subjects performed by either of the authors.

Competing Interests The authors have no relevant financial or non-financial interests to disclose.

Footnote 49 (Continued)

on, inter alia, the social and other causes of crime, the social and psychological development of children, including current neuroscience findings” (retrieved from <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G19/275/57/PDF/G1927557.pdf?OpenElement>). Finally, in some countries, relevant training programs already exist. In Argentina, for example, a Diploma on Neurorights was launched in 2022 aimed at operators of the judicial system in the Salta Province (see <https://www.escuelampsalta.gob.ar/2022/07/diplomatura-en-neuroderechos/>).

⁵⁰ See <https://gdpr.eu/article-82-data-subjects-right-to-compensation-and-liability/>

⁵¹ See <https://gdpr.eu/tag/chapter-8/>

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