



Cognitive liberty. A first step towards a human neuro-rights declaration

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ABSTRACT: This paper discusses the emerging debate concerning the concept of Cognitive Liberty and its connection with human rights. Therefore, considering how recent developments of neurosciences are granting us an increasing ability to monitor and influence mental processes, this article aims to provide a clear definition of Cognitive Liberty understood as a necessary condition to all other freedoms that cannot be reduced to existing rights. In this regard, after presenting the most important positions on the issue, we introduce our point of view, according to which Cognitive Liberty allows us to lay the groundwork for building new neuro-related Human Rights.

KEYWORDS: Cognitive liberty; cognitive enhancement; neuroscience; neurolaw; human rights

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1. Introduction

In the novel “The Emerald city of Oz” L. Frank Baum imagines the existence of particular pills taken by professor Wogglebug’s students to acquire notions of Algebra, Geography and Latin, in order to avoid regular school attendance and allow them to have more free time for sports and recreational activities.¹

At the present time, this is no longer just a fantasy fiction. Neuroscientists, indeed, claim to take the place of the well-known fantasy character through the use of neuroscience and neuro-technologies. This is because, recent studies on the relations between the structure of the brain (and the nervous system) and human knowledge led to develop techniques for monitoring (and influencing) brain activity, allowing them to affect reasoning, to alter emotions or memory, and to enhance cognition. However, one should note that these techniques seem to have a sort of double face. On the one side, they increase the risk for the security and the privacy of what is in our brain; on the other side, they represent an amazing opportunity to augment our brain potential.

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¹ Cf. L. FRANK BAUM, *The Emerald City of Oz*, Chicago, 1910.

This is not an issue to be addressed in terms of “mind ownership”, since such terminology represents an incorrect use of a legal category. Rather, it seems to be necessary to analyse the concept of Cognitive Liberty (CL), as coined by American civil rights activists.

This is a concept that, according to Richard Boire and Wrye Sententia’s opinions, is something similar to a wall to protect the individual from the claims of any other person². Indeed, as they highlighted in many of their essays, Cognitive Liberty is the right to control one’s own mind: the basic brick of personal freedom. In the last decade, this concept became a slogan in support of various civil rights struggles: among the others, the claims against non-voluntary interference and forced psychiatry or for decriminalisation of psycho-active substances.

Nowadays, Cognitive Liberty is a complex and central concept in the relationship between neuro-technologies and the internal sphere of every person. The problem, however, is the lack of a theoretical framework of negative intervention in other minds and, at the same time, the lack of positive self-determined alterations on/to one’s own mind.

This is the reason why, after providing a general definition of Cognitive Liberty (as well as its positive and negative aspects) we will introduce the problem of the relationship between CL and Human rights: the former concept, in fact, has been considered since the beginning as a potential human right. Indeed, according to Boire, «As we frantically race into the third millennium, with microprocessors becoming faster, cheaper, and smaller, with surveillance cameras proliferating in public spaces, with the human genome program about to issue its first ‘working draft’ of the human DNA sequence, and with an out-of-control Frankensteinian machine named the War on Drugs, all awhirl in the ocean of modern day culture, it is imperative that we, as a society, expressly acknowledge the fundamental human right to cognitive liberty and immediately begin to define its contours»³.

Therefore, the aim of this paper is to analyse if CL may be considered as a new human right or as the preliminary condition to think about all human rights. Consequently, we will firstly review the main positions in the current debate about this issue and, then we will introduce our point of view, according to which CL plays a pivotal role allowing us to think about all new neuro-related human rights. Indeed, only thinking about the CL features we are able to build a serious framework of the other neuro-rights able to lead us to a new Declaration of Human Neuro-Rights with which, we hope, we can reach an agreement with every author involved in the study of Cognitive Liberty. In this paper we present some steps useful in building a sort of a stairway to reach a Declaration of Human Neuro-Rights.

2. The neuro-technologies

The advancement of neuro-technologies raises a number of philosophical, ethical and legal conundrums that are connected to issues such as personal identity, privacy, social justice and autonomy. In

² Cf. R. G. BOIRE, *Cognitive Liberty Part 1*, in *Journal of Cognitive Liberties*, 1/1, 2000, pp 7-13.; W. SENTENTIA, *Neuroethical Considerations: Cognitive Liberty and Converging Technologies for Improving Human Cognition*, in *Annals of the New York Academy of Sciences*, 1013/1, 2004, pp. 221-228.

³ R. G. BOIRE, *Cognitive Liberty Part 1*, cit., p. 7.

this section we provide a brief overview of existing neuro-technologies and of the kind of questions that their development and application pose.

a) Brain Imaging. The first set of neuro-technologies we consider are *brain imaging techniques*. The main techniques employed for the purpose of brain monitoring and imaging include electroencephalography (EEG) and functional magnetic resonance (fMRI). They provide structural and functional information about the brain and its neural activity, that is used for diagnostic and research purposes. Through fMRI, for example, neuroscientists are able to study the ways in which neurons fire up and thus to correlate brain activity with mental activity, localizing the areas of the brain that respond to certain stimuli, like pain or language recognition. This information provides a clearer understanding of the way in which the brain works and how it supports our thoughts. However, the correlation between psychological traits and their neural basis is still not perfectly understood, and fMRI can only provide indirect access to neural activity through the measurement of changing blood flow associated with it. The accuracy with which these are matched is, therefore, still considerably limited, and although further developments may pose severe challenges in the future that we ought to be ready to address, no considerable threat to privacy seems to be in place at the current state of the art⁴. At any rate, the impact of the social influence of neuroscientific information should not be underestimated. Excessive hype in the results of brain imaging techniques can thus lead to a blind trust in its predictive power. The appearance of objectivity and authority that brain images carry may lead people to misinterpret them as more predictive than they really are. The simple presence of neural information, real or fake, is enough to make a certain piece of information appear as more authoritative and credible⁵. For example, the widespread belief that a socially reprehensible trait, say paedophilia, is associated with a precise neural correlate, might lead to the stigmatization and discrimination against individuals that are discovered to possess such neural characteristics, even in the absence of associated psychological evidence. An area in which neuroscientific studies based on brain imaging are applied to address real world cases is, for example, neuro-marketing. Its goal is to collect neural information concerning decision-making processes by measuring the customers' response to an advertisement, in order to test its effectiveness. Neuro-marketing could thus lead to the infringement of the decisional autonomy of the individual, if it enabled companies to hijack customers' choices that bypass their level of awareness. With current technology and level of understanding, however, it is not possible to manipulate customers' behaviour in such a way that the target does not realize the attempt to nudge him or her⁶. Nonetheless, there might be more effective ways to alter customers' behaviour, as we will see shortly.

Brain Stimulation. The next set of technologies comprises neuro-stimulation ones: they offer treatments based on electrical and magnetic stimulation of the brain through medical devices fixed on

⁴ Cf. M.J. FARAH et al., *Brain Imaging and Brain Privacy: A Realistic Concern?*, in *Journal of Cognitive Neuroscience*, 21/1, 2010, pp. 119-127.

⁵ Cf. D. S. WEISBERG et al., *The Seductive Allure of Neuroscience Explanations*, in *Journal of Cognitive Neuroscience*, 20/3, 2008, pp. 470-477.

⁶ Cf. C. E. FISHER, L. CHIN and R. KLITZMAN, *Defining Neuromarketing: Practices and Professional Challenges*, in *Harvard Review of Psychiatry*, 18/4, 2010, pp. 230-237.



the head or implanted into the brain. Transcranial Magnetic Stimulation (TMS) and Deep Brain Stimulation (DBS) currently have widespread applications for the mitigation of the symptoms of neurological and psychiatric disorders like Parkinson's disease, epilepsy and depression⁷. Among the various issues that these technologies raise, we are particularly interested in the ways brain stimulation alters the patient's personality and identity. Although evidence about the psychological effects of these kinds of treatments is conflicting, numerous studies report various degrees and types of alterations, depending on the mode, degree and area of stimulation⁸. Mood and personality changes due to DPS for example comprise states of excitement and euphoria, impulsivity and a tendency to obsessive disorders.⁹ These changes can be so radical as to pose a challenge to individuals to adapt themselves to a new concept of themselves. It is hard, however, to determine whether such changes are caused by the degree and area of stimulation, or by the attempt of psychological adaptation to a new health status. Additionally, given the numerous different accounts of personal identity that the literature offers, it is hard to tell *how much* an individual's personality changed, and thus, to give an indication of the degree of change of identity which the person underwent.

Brain Alterations. A third set of neuro-technologies comprises psychoactive drugs, which are known to cause changes of personality too. Psychopharmacological agents such as methylphenidate (Ritalin), modafinil (Provigil), donepezil (Aricept), fluoxetine (Prozac) and amphetamines (Adderall) are regularly employed to treat a wide array of conditions, like Attention Deficit Disorder (ADD), narcolepsy, Alzheimer's disease, dementia and depression. Anyway, as side effects they may also enhance mood, concentration, wakefulness, assertiveness and sociability¹⁰. Other substances have been shown to cause the temporary alterations of human psychological traits. Oxytocin, for example, is involved in a number of cases of pro social behaviour in mammals. The administration of oxytocin increases social trust and risk-taking¹¹, an aspect that may be used to treat patients that suffer from social phobia or autism¹², but might also be used to cheat or deceive somebody by decreasing their level of suspicion. Additionally, it may also increase aggression, since oxytocin is involved in the ag-

⁷ Cf. F. JOTTERAND and J. GIORDANO, *Transcranial magnetic stimulation, deep brain stimulation and personal identity: ethical questions, and neuroethical approaches for medical practice*, in *International Review of Psychiatry*, 23/5, 2008, pp. 476–485.

⁸ Cf. E. BELL ET AL., *A Review of Social and Relational Aspects of Deep Brain Stimulation in Parkinson's Disease Informed by Healthcare Provider Experiences*, in *Parkinson's Disease*, 2011, <http://dx.doi.org/10.4061/2011/871874> (last visited 12/09/2017).

⁹ Cf. F. JOTTERAND and J. GIORDANO, *Transcranial magnetic stimulation, deep brain stimulation and personal identity: ethical questions, and neuroethical approaches for medical practice*, cit.; E. BELL et al., *A Review of Social and Relational Aspects of Deep Brain Stimulation in Parkinson's Disease Informed by Healthcare Provider Experiences*, cit.

¹⁰ Cf. F. JOTTERAND and J. GIORDANO, *Transcranial magnetic stimulation, deep brain stimulation and personal identity: ethical questions, and neuroethical approaches for medical practice*, cit.

¹¹ Cf. M. KOSFELD et al., *Oxytocin increases trust in humans*, in *Nature*, 435/7042, 2005, pp. 673–676.

¹² Cf. T. BAUMGARTNER et al., *Oxytocin Shapes the Neural Circuitry of Trust and Trust Adaptation in Humans*, in *Neuron*, 58/4, 2008, pp. 639–650.

gressive behaviour that mammals display when a mother defends her litter from a threat.¹³ Yet other psychopharmacological drugs are studied for their potential to affect memory, which may offer treatments for people suffering from Mild Cognitive Impairment (MCI) and Post Traumatic Stress Disorder (PTSD). Both memory formation and consolidation, and the emotional strength of memories can be altered in order to enhance or inhibit memory recollection. MCI can cause memory deficits that could be remedied by strengthening the process of memory formation and consolidation.¹⁴ PTSD symptoms, on the other hand, can be alleviated by reducing the intensity of the emotions attached to traumatic memories. At the current state of the art, these techniques cannot be used to selectively modify people's memories¹⁵. In spite of this, future developments of memory modification technologies raise issues concerning the continuity of personal identity due to the alteration of memories that play a role in defining who we are. All these effects on one's personality, due to technological or pharmacological intervention in the brain, makes us question the authenticity of the resulting behaviour, which again connects to the issue of identity change, as well as to personal autonomy. How radical must a change be in order to count as a substantial alteration of personal identity, and how much of it is due to the intervention? How "free" are the decisions of the person after the treatment, and how does the self-perception of autonomy impact one's perception of self-worth? These questions will come back again in later parts.

Cognitive Enhancement. The last issue that will be taken in consideration here is the so called cognitive enhancement. Both neuro-stimulation technologies and psychoactive drugs, in fact, can be used to augment human cognitive capacities such as attention, focus and memory (but also mood, personality traits and behaviour)¹⁶. Although the majority of techniques and products are tested specifically for the treatment of specific disorders, nootropic drugs (also called smart drugs) in particular are regularly used off-label to obtain a boost during mental efforts, especially by students. Even though the degree of the possible enhancement is at the present time limited, the issues that this use of neuro-technologies raises are broad and challenging. Besides changes in personality and identity as outlined above, cognitive enhancement could impact self-esteem, since it puts into question the connection between our efforts and achievements¹⁷. Differences of accessibility due to, for example, prohibitive costs for the poorer parts of society, could cause the exacerbation of the gap

¹³ Cf. C. N. DEWALL, et al., *When the Love Hormone Leads to Violence: Oxytocin Increases Intimate Partner Violence Inclinations Among High Trait Aggressive People*, in *Social Psychological and Personality Science*, 5/6, 2014, pp. 691–697.

¹⁴ Cf. G. LYNCH, *Memory enhancement: the search for mechanism-based drugs*, in *Nature Neuroscience*, 5/11, 2002, pp. 1035–1038.

¹⁵ Cf. S. M. LIAO and A. SANDBERG, *The Normativity of Memory Modification*, in *Neuroethics*, 1/2, 2008, pp. 85–99.

¹⁶ Cf. F. JOTTERAND and J. GIORDANO, *Transcranial magnetic stimulation, deep brain stimulation and personal identity: ethical questions, and neuroethical approaches for medical practice*, cit.

¹⁷ Cf. P. BREY, *Human Enhancement and Personal Identity*, in J. K. B. O. FRIIS, E. SELINGER and S. RIIS (ed.), *New Waves in Philosophy of Technology*, Basingstoke, 2009, pp. 169–185.



between social classes¹⁸. The widespread use of cognitive enhancers might redefine what is considered “normal”, impacting personal and social identities on issues related to well-being and thus lead to an increased medicalisation of traits once considered normal¹⁹. It may also cause direct and indirect coercion and social pressure on people who refuse to use them and who might face marginalization and penalization in competitive settings or in the workplace²⁰. Lastly, their availability on the market might foster the commodification of certain psychological traits considered desirable, which would no longer be seen as a symbol of personal value but rather of status²¹.

Therefore, to sum up, the neuroscientific technologies promise to:

- a) Be able to “read” the mind of people simply through brain scans.
- b) Be able to change mood and personality
- c) Be able to induce aggression or other behaviour modification
- d) Be able to alter memory formation and consolidation
- e) Be able to augment cognitive ability (or capacity)

These are the reasons why the field of neuro-ethical needs is bringing about the necessity of an ever increasing consideration of social and ethical implications of neuro-technological discoveries²².

3. Cognitive Liberty: in search of a Definition

It is not simple to give a clear and exhaustive definition of Cognitive Liberty. Of course, it is a relatively new term, since it was only in 2000 that W. Sententia and R. G. Boire introduced the word and the concept of Cognitive Liberty in order to emphasise the role and resilience of individual thought in the free usage of technologies at our disposal.

This is a term designed, on the one hand, to expand the traditional notion of “liberty of thought” and, on the other hand, to push legal systems of democratic societies to integrate such a right into their constitutions²³.

In this context, it is important to highlight that the term ‘cognitive’ denotes the process an individual uses to organize the information he receives, since the mind collects and selects information according to perception, attention, comprehension and memory to guide the behaviour²⁴.

¹⁸ Cf. D. WOLFSLEHNER, *Ethical Assessment of Research and Innovation: A Comparative Analysis of Practices and Institutions in the EU and selected other countries*, in SARTORI project Annex 2.c.1, 2015, http://satoriproject.eu/media/2.c.1-Neurosciences_and_NT.pdf (last visited 12/09/2017).

¹⁹ Cf. P. BREY, *Human Enhancement and Personal Identity*, cit.

²⁰ Cf. D. WOLFSLEHNER, *Ethical Assessment of Research and Innovation: A Comparative Analysis of Practices and Institutions in the EU and selected other countries*, cit.

²¹ Cf. P. BREY, *Human Enhancement and Personal Identity*, cit.

²² Cf. W. SENTENTIA, *Neuroethical Considerations: Cognitive Liberty and Converging Technologies for Improving Human Cognition*, cit., p. 222.

²³ Cf. W. SENTENTIA, *Freedom by design: Transhumanist values and cognitive liberty*, in M. MORE and N. VITAMORE (ed.), *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology and Philosophy of the Human future*. Chichester, 2013, pp. 356-357.

²⁴ Cf. N. BOSTROM and R. ROACHE, *Smart Policy: Cognitive Enhancement in the Public Interest*, in *Contemporary Readings in Law and Social Justice*, 2/1, 2010, pp. 68-84.



Therefore, Cognitive Liberty is a very complex concept due to its multi-dimensional features.

Bublitz assumes that it may be considered as a principle that guarantees «the right to alter one's mental states with the help of neurotools as well as to refuse to do so»²⁵. Nevertheless, it is also defined as the right of each individual to think autonomously and independently, to use the complete set of their mental abilities and take part in several ways of thought. This latter definition, indeed, expresses three conceptual points of interest:

- *Privacy*. The content of our thoughts must remain private until one decides to share them. Therefore, according to Boire and Sententia, we can interpret the cognitive liberty with special focus on the protection of individual freedom and self-determination from the State and other subjects, but particularly from the State or commercial entities: a sort of protection from the coercive and non-consensual use of neuro- technologies.
- *Autonomy*. Every human being must be able to think independently and use the full spectrum of their mental faculties²⁶. In this regard, Cognitive Liberty is something like a freedom to control one's own consciousness and electrochemical thought processes this is because it is the necessary ontological substrate for just about every other freedom. Thus, now it is clear why Wrye Sententia presented cognitive liberty as a conceptual update of freedom of thought that takes «into account the power we now have, and increasingly will have to monitor and manipulate cognitive function»²⁷
- *Choice*. The capabilities of the human mind should not be limited. Until one person directly damages others, governments should not prohibit cognitive enhancement or the realization of any other mental state.

Therefore, since Cognitive Liberty ensures the possibility to control our own consciousness it should allow us to avoid an attack from an economic corporation or from a coercive political legislation, or even social orders to achieve a communal cognitive standard²⁸.

Moreover, following the thesis of Bublitz, we think CL is not just a political claim, but something more similar to a pre-condition of every legal concept related to a person, i.e. «the implicit assumption of any legal order based on individual self-determination and responsibility»²⁹. The importance of this concept may be unearthed from the consideration that it is integral to the foundation of every legal system. This is a crucial theme because self-determination regarding one's own cognition is essential for free will and for every kind of free action.

²⁵ J.C. BUBLITZ, *My Mind is Mine?! Cognitive Liberty as a Legal Concept*, in E. HILDT and A. FRANCKE (ed.), *Cognitive Enhancement*, New York, 2013, pp 233-264, p. 234.

²⁶ Cf. W. SENTENTIA, *Neuroethical Considerations: Cognitive Liberty and Converging Technologies for Improving Human Cognition*, cit., p. 223.

²⁷ W. SENTENTIA, *Cognitive Enhancement and Cognitive Liberty: comments to the president's council on bioethics*, in H. F. DIDSBURY (ed.), *21st Century Opportunities and Challenges: An Age of Destruction Or an Age of transformation*, Washington, 2003, pp 233-245, p. 234.

²⁸ Cf. J.C. BUBLITZ, *Cognitive Liberty or the International Human Right to Freedom of Thought*, in J. CLAUSEN and N. LEVY (ed.) *Springer Handbook of Neuroethics*, Dordrech, 2015, pp. 1309-1333, p. 1313; W. SENTENTIA, *Freedom by design: Transhumanist values and cognitive liberty*, cit., p. 358.

²⁹ J.C. BUBLITZ, *My Mind is Mine?! Cognitive Liberty as a Legal Concept*, cit., p. 243.



4. Cognitive Liberty: negative formulation

Conducts which aim to provoke damage (intense suffering or physical disabilities) and mental manipulations (behavioural alterations or subliminal conditioning of choices and preferences) are often not sufficiently prosecuted by national and international authorities. Thus, it is necessary to find a conceptual framework that brings together all these conducts, in order to provide a stronger protection from them. We think this concept may be the “negative” formulation of Cognitive Liberty: a defensive concept against “mental” abuses from third parties like police, medical agencies, commercial entities, or, indeed anyone, but the owner’s mind.

Boire’s paper *Neurocops: The Politics of Prohibition and the Future of Enforcing Social Policy from Inside the Body* highlights the forced use of drugs and psychiatric treatment on prisoners without a conscious and informed consent³⁰.

On a regulatory level, in addition to physical integrity CL is also taken in consideration, even though such an issue is only marginally considered in psychopharmacological treatments and in modern neurosciences. As a matter of fact, there are no debates revolving around the correlation between individual thought and cerebral neurochemistry. To avoid the erosion of liberty from the inside it is necessary to acknowledge the integrity of the neurochemical processes submitted to the personality of an individual. The essential features to make these interventions may require the fulfilment of two requirements:

- 1) that a member of the healthcare staff trained in such subject must fully inform the individual about treatment alternatives, about risks and benefits deriving from this therapy or about the possibility of abstention from the cure;
- 2) the individual must also be able to decide freely and voluntarily if he intends to undergo the treatment.

As a premise of this decision, the subject must have the power of free choice from undue incentives or any other situation regarding deception, enforceability or constriction, fraud or any other form of coercion or humiliation. This coercion, even if used to compassionate ends, like the imposition of care, is still considered coercion. The only exception to the requirement of informed consent, besides the emergence of possible harm to himself or others, is a statement of mental infirmity, even though a clear definition of this condition on a medical or legal level has yet to be developed.

In the case *Sell vs United States*, other limits to the use of neuro-techniques are fixed.

These limits can be articulated in four points: 1) there must be a state public interest (such as, in the present case, to subject a potentially hazardous subject to judgment); 2) medicines administered must at the same time bring the subject to his senses and not cause unwanted effects; 3) the accused may not be subjected to alternative healthcare that may yield the same results; 4) the drug should be administered in the best medical interests based on the subject's health condition³¹.

³⁰ Cf. R. G. BOIRE, *Neurocops: The Politics of Prohibition and the Future of Enforcing Social Policy from Inside the Body*, in *Journal of Law and Health*, 19/2, 2004, pp. 234-258.

³¹ Cf. A. U. ETHERIDGE and J. R. CHAMBERLAIN, *Application of Sell vs United States*, in *Journal of the American Academy of Psychiatry and the Law*, 34/2, 2006, pp. 248-250.



As a matter of fact, we believe that the danger of a forced, or of a too aggressive use of neuro-technologies, can result not only in a new conception of punishment, but might have consequences in those clefs of the legal orders where will is an element of secondary importance.

In many social orders, as is well known, public authorities can put forward medical interventions completely regardless of the acceptance of those who undergo them; for example, involuntary healthcare treatments. We believe that, over the next few years, this blind spot could represent a picklock to test new forms of “normalisation” using neuro-techniques³².

In 2012, Hank Greely tried to open the debate on the use of involuntary treatments precisely for the modification/elimination of antisocial behaviour, as well as for the treatment of diseases and of psychic distress³³. This scholar is one of those who consider it an immediate necessity to develop the basis of a direct intervention in the neuro-deviant brain, be it in criminals or simply people in psychic distress.

He asserts the daring thesis that neurosciences will provide the ability to modify undesired behaviour, by changing the neurological basis of agent individuals. This reasoning is very simple: if we agree that we are willing to intervene directly on the brain of a subject in case of severe disease or disablement, there is no reason to disagree on the treatment of the causes, also 'related to the brain', of socially undesired behaviour.

Greely proposes *safety* and *effectiveness* as standards to evaluate this kind of treatment. He asserts that the traditional forms of direct brain intervention (ad example lobotomy) are unduly simplistic solutions for a very complex problem, since they are neither safe nor effective³⁴.

Therefore, it is necessary to test new forms of intervention, safe and effective, in order to eradicate socially unaccepted behaviour through behaviour control, provided that the interventions are safe, effective and not improper³⁵.

For the purpose of suggesting an experimentation in this direction, Greely examines three types of situations: the fully-voluntary possibility; the semi-voluntary choice between direct intervention and an unappealing alternative (e.g. jail); and a third completely forced option.

Sure, at least in the first two cases the problem of the true character of a voluntary act could emerge since the decision could come from the individual's family or environment. However, Greely's reply consists of introducing an «extensive process to ensure that the offender had thought long and hard about it, was competent, and was not acting in hope of early release»³⁶.

Secondly, according to Greely, it is necessary to consider the nature of the behaviour that one seeks to modify. Let us think about a change of one's shyness or aggressiveness or of one's religiousness, or to those who, for various reasons, want to become “someone else”.

³² Cf. G. MEYNEN, *A neurolaw perspective on psychiatric assessments of criminal responsibility: Decision-making, mental disorder, and the brain*, in *International Journal of Law and Psychiatry*, 36/2, 2013, pp. 93-99.

³³ Cf. H. T. GREELY, *Direct Brain Interventions to “Treat” Disfavored Human Behaviors: Ethical and Social Issues*, in *Clinical Pharmacology & Therapeutics*, 91/2, 2012, pp. 163-165.

³⁴ Cf. H. T. GREELY, *Neuroscience and criminal justice: not responsibility but treatment*, in *University of Kansas Law Review*, 56/5, 2008, pp. 1103-1138.

³⁵ Cf. H. T. GREELY, *Direct Brain Interventions to “Treat” Disfavored Human Behaviors: Ethical and Social Issues*, cit., p. 163.

³⁶ Ivi., p. 164.

As for the possible objection on the harm to human dignity caused by these interventions, Greely replies: «but does a social consensus that a treatment offends human dignity justify forbidding competent adults from doing what they want to themselves, even if such a consensus could reliably be found?»³⁷.

In respect to the semi-voluntary choice, according to Greely it is necessary to consider the types of alternatives proposed to the deviant individual. A court cannot offer the alternative between going to jail or voting for a certain party, and neither between jail and torture. Therefore, it is necessary to evaluate the appropriateness of the intervention, that is its character of interest in regard to the individual's behaviour. Obviously, the alternative between jail and a safe and effective direct intervention is certainly tempting and, from the author's point of view, represents an appropriate proposal.

As to completely involuntary direct treatments, Greely wonders for which reason they should not be proposed without alternatives (that is, imposed), if they comply with the safe-effective-not improper requirements.

If we can serenely send someone to jail, unsuccessfully attempting to modify their behaviour, there is no reason to fear the scandal caused by a certainly more effective modification concerning the brain. The problem, we think, involves individual freedom, that is, the “resistibility” of traditional means that leave residual autonomy to the subject. That is, that autonomy which the new means of direct intervention would not leave.

In this regard, Greely also asserts the need to identify a space of unattainable “cognitive liberty”; a sort of privacy level beyond which one should not go³⁸. But, even given this sort of unattainability, it is difficult to assert that direct brain intervention could not become a commonly used practice to modify behaviour that is socially unfavourable or not accepted by the community, or vice versa to ease accepted behaviour.

With regard to this issue, Martha Farah believes that possible interventions on central nervous system, such as subcutaneous stimulators or neurosurgical operations, should not be used in any circumstances to subjugate the interests of an individual to the interests of society, because they commit a clear violation of the right to human dignity. To each convict must be granted the right to keep his thought and his personality away from any kind of intervention aimed at damaging individual liberty. The possible submission to permanent interventions as an alternative to imprisonment, integrates in any case an implicit coercion to the individual will³⁹.

Such instances of protection also emerge in the debate about the negative contribution given by neuroscientific innovations to the privilege of non-self-incrimination during an investigation or dispute. This privilege protects the defendant from being forced to sue by affirming facts from which his responsibility may arise (in the United States this possibility is governed by the V Amendments to the

³⁷ Ibid.

³⁸ In this sense, he wrote: «A “resistible” treatment, such as a prison rehabilitation effort, still seems to leave some freedom for choice; the more effective (and irresistible) the treatment, the greater the invasion of liberty. I feel that there should be some protected space of cognitive liberty, but, given that all interventions affect the brain, it is hard to see why mandatory brain interventions should be impermissible only if they are direct». Ibid

³⁹ Cf. M. J. FARAH, *Emerging ethical issues in neuroscience*, in *Nature Neuroscience*, 5/11, 2002, pp. 1123-1129, p. 1126.

Constitution). However, it does not yet offer protection from possible coercive analysis of its mental processes. The problem presents itself mainly when data obtained from brain scans, such as fMRIs, are not only treated as information on the individual, but as true testimonies for non-intervention of the right to self-incrimination⁴⁰.

As a result, Nita Farahany proposed the idea of the possible creation by the US Congress of a law on the Non-Discrimination of Genetic Information to protect individual Cognitive Liberty, interpreted as the right to privacy against mental processing⁴¹. We think this is a good way to go ahead in the defence of personal neuro-sphere: using the analogy with the international declarations that protect the Human Genome.

5. Cognitive Liberty: positive formulation Cognitive Liberty and Human Rights

As we have seen, «Negative rights are those rights that impose obligations on governments and others citizens to refrain from interfering with the rights bearer»⁴². By contrast, the positive formulation of Cognitive Liberty argues that the existing neuro-technologies should be widely available to anyone who wants them.

The main cases on this theme concern the free personal use of psychoactive substances and cognitive devices (such as Transcranial Direct Current Stimulator or Neuro Feedback Equipment⁴³) which may lead to a cognitive enhancement, even if the concept of enhancement may be related both to a hypothetical individual level (such as, for instance, the increase of one's own memory) and to a hypothetical general level (such as, for instance, the drug treatment in academic exams)⁴⁴. However, if, on the one hand, the use of such "treatments" may be considered ethically permissible by society, on the other hand, the limited evidence regarding their efficacy and the potential safety problems in the long term might suggest being careful with their use. This dichotomy is also the basic foundations on which the transhumanist and bio-conservative debate is built. In fact, while the aim of the formers is to «create the opportunity to live much longer and healthier lives, to enhance our memory and other intellectual faculties, to refine our emotional experiences and increase our subjective sense of well-being, and generally to achieve a greater degree of control over our own lives»⁴⁵, the others argued that the «use of CE could have profound and unpredictable consequences for society because it

⁴⁰ Cf. M. IENCA and R. ANDORNO, *Towards new human rights in the age of neuroscience and neurotechnology in Life Sciences, Society and Policy*, 13/5, 2017, <https://doi.org/10.1186/s40504-017-0050-1> (last visited 12/09/2017). (last visited 12/09/2017), p. 16.

⁴¹ Cf. N. A. FARAHANY, *Incriminating Thoughts*, in *Stanford Law Review*, 64/2, 2012, pp. 351-408, p. 406.

⁴² R. H. BLANK, *Cognitive Enhancement: Social and Public Policy Issues*, London, 2016, p. 52.

⁴³ Cf. H. MASLEN et al., *The regulation of cognitive enhancement devices: extending the medical model*, in *Journal of Law and the Biosciences*, 1/1, 2014, pp. 68-93, p.72.

⁴⁴ Cf. N. BOSTROM and A. SANDBERG, *Cognitive Enhancement: Methods, Ethics, Regulatory Challenges*, in *Science and engineering ethics*, 15/3, 2009, pp. 311–341, p. 311.

⁴⁵ N. BOSTROM, *Human Genetic Enhancements: A Transhumanist Perspective* in *Journal of Value Inquiry*, 37/4, 2003, pp. 493-506, p. 493.

could allow people to create cognitive structures of a type that do not occur within the range of normal human experience»⁴⁶.

And this is precisely the point: today a shared concept of “normality” has still not been elaborated. Indeed, according to Sommaggio «In the neuro-scientific context, there are at least two formulae referring to normality: the statistical model, based on the observation of uniformity of behaviour, and the socio-biological, or evolutionary, model»⁴⁷. Nevertheless, both conceptions may be questioned. The first one by the fact that empirical observation suffers from the statistical syndrome: the bell-curve, namely a standardised data distribution, such as that where for each genius there can be an idiot, with the resulting defeat of any normality definition. The second one may be criticized by the fact that it leads to a blind alley: we are unable to identify the reasons why certain behaviour may have consisted of a “bad” or “good” adaptation to social-environment.

Furthermore, even if we assume a libertarian point of view, nonetheless a criticism of cognitive enhancement can be put forward. Indeed, the wealthy will have access to CE while the poor will not, thus resulting in wider disparities in society, since it represents a potentially huge market, not only for drug companies but also for physicians who might enter the potentially lucrative market, especially of cosmetic neurology⁴⁸.

Moreover, some scholars wondered whether the availability of enhancers might not create professional duties for individuals in high-risk professions, such as surgeons or pilots, to utilize them (even though, at present, since there is a reasonable doubt about their efficacy and their possible negative effects, it is possible to conclude that such a legal duty cannot be imposed)⁴⁹. This is because some safe and effective medications for therapeutic uses can be extremely dangerous outside the prescription. In this regard, specific studies are required to assess risks and benefits of cognitive enhancement. At least a guideline on their use should be traced taking into account the possible long-term repercussions of the side effects of these technologies. This is the reason why some researchers, in an article published in *Nature*, proposed the creation of a Committee of doctors, educators and lawyers to collaborate in the development of policies aimed at defining the criteria for the use of cognitive enhancers in healthy subjects⁵⁰. In this sense, we may wonder if State legislatures should or should not intervene to prevent the actions of those who want to use such enhancers.

This is what happened, for instance, with regard to the doctor-child-parent relationship. Indeed, due to the vulnerability of children to various forms of coercion, the *ANN Committee Ethics, Law, and Humanities Committee Position Paper* concluded that prescribing stimulants for enhancement with-

⁴⁶ G. LYNCH, L.C. PALMER and C. M. GALL, *The likelihood of cognitive enhancement*, in *Pharmacology, Biochemistry and Behavior*, 99/2, 2011, pp 116-129, p. 126.

⁴⁷ P. SOMMAGGIO, *Neuro-civilization: A New Form of Social Enhancement*, in *Athens: ATINER'S Conference Paper Series No: SOS2016*, 2016, pp. 3-18, p. 9.

⁴⁸ Cf. J. GIORDANO, *Neuroethical issues in neurogenetic and neuro-transplantation technology: The need for pragmatism and preparedness in practice and policy*, in *Studies in Ethics, Law, and Technology*, 4/3, 2010, <https://doi.org/10.2202/1941-6008.1152> (last visited 13/09/2017); D. LARRIVIERE and M. A. WILLIAMS, *Neuroenhancement: Wisdom of the Masses or “False Phronesis”?*, in *Clinical Pharmacology & Therapeutics*, 88/4, 2010, pp. 459-461.

⁴⁹ Cf. H. MASLEN et al., *The regulation of cognitive enhancement devices: extending the medical model*, cit.

⁵⁰ Cf. H. T. GREELY et al., *Towards responsible use of cognitive-enhancing drugs by the healthy*, in *Nature*, 456/7233, 2008, pp.702-705.

out diagnosis of a neurologic disorder is unjustified in legally and developmentally non-autonomous children and inadvisable for near-autonomous adolescents⁵¹.

Obviously, there are many arguments in favour of the use of cognitive potentials legitimated by the right to autonomously determine our own identity and conscience. The aforementioned model could then lead to a recognition of the possibility to modify the cognitive sphere with enhancing tools, up to the consideration of the free management of our mind as a fundamental human right⁵².

6. Cognitive Liberty and Human Rights

As we saw, neuro-technology has the potential to impact and redefine legal systems even though, up to now, international human rights law does not make any reference to neuroscience. From a broader point of view, we can say that neuro-technologies have the potential to redefine the very conception of our global society. Indeed, they can influence everyone since they are able to modify the cognitive inner structure of every human being, thus raising issues related to human rights.

We do not want to start a debate about the foundation of human rights since, in this paper, we prefer to use the conception of human rights defined by Beitz⁵³. He considers human rights as «requirements whose object is to protect urgent individual interests against predictable dangerous ('standard treats') to which they are vulnerable under typical circumstance of life in a modern world order composed of states»⁵⁴. We think cognitive liberty has all the features required by Beitz. In our opinion, CL can be conceived as a requirement to protect the mind's self-determination against the intervention of other subjects (or the State) and this element is a common core of the whole world.

The same consideration may be used to circumvent the so-called "rights inflation" that is the traditional objection against the recognition or the creation of new human rights. We could use a justificatory test for these new kinds of rights to test if they are proper human rights. We think that no one could deny that CL does not only deal with a very important asset but also responds to a common and serious threat to that asset. On the other hand, no one is able to impose burdens on its practice or to deny its feasibility in most of Countries. This may be considered as the Nickel test⁵⁵.

7. The debate: the conception of Blutz

It is not easy to describe the debate that Cognitive Liberty has brought into the human rights perspective. This is because, given the particular complexity of the definition of CL, it is difficult for

⁵¹ Cf. D. LARRIVIERE et al., *Responding to requests from adult patients for neuroenhancements*, *Guidance of the Ethics, Law and Humanities Committee*, in *Neurology*, 73/17, 2009, pp. 1406-1412; W. D. GRAF et al., *Pediatric neuroenhancement: ethical, legal, social, and neurodevelopmental implications*, in *Neurology*, 80/13, 2013, pp. 1251-1260.

⁵² Cf. M. J. BLITZ, *A Constitutional Right to Use Thought-Enhancing Technology: Cognitive Enhancement: Ethical and Policy Implications in International Perspectives*, in F. JOTTERAND and V. DUBLEVIC (ed.), *Cognitive Enhancement*, Oxford University Press, New York, 2016, pp. 302-306.

⁵³ Cf. C. R. BEITZ, *The idea of human rights*, Oxford university press, New York, 2009.

⁵⁴ Ivi., p. 109.

⁵⁵ Cf. J. NICKEL, *Human Rights*, in *Stanford Encyclopedia of Philosophy*, 2014, <https://plato.stanford.edu/entries/rights-human/> (last visited 22/06/2017).



scholars to associate that definition with one or more human rights. In this sense, some of the most valuable attempts were made by Jan Christoph Bublitz.

The reconstruction of this German author's thought is not easy, given the continuous progress of his point of view. However, it seems that something in his conception of cognitive liberty has never changed (lasted unchanged): mind-body differentiation. Indeed, throughout his works, it is possible to see how often the author focuses on how, «while legal systems have developed detailed rules of permissible behaviour with bodies, [...] legal doctrines over conduct with another's mind are hard to find and strikingly underdeveloped»⁵⁶.

It is, indeed, a distinction that leads other authors to address not only the question of the relationship between body and mind, but especially that of the relationship between mind and brain. This is because, despite the «current trend in psychiatry to relabel all mental disorders as brain disorder»⁵⁷, this does not mean that properties of one automatically become properties of the other and, at least for normative purposes which, involving concepts such as “harm” or “dysfunction”, both mental and the physical (brain) level merit attention on their own⁵⁸.

This is the reason why they «claim that a human right to mental self-determination does exist or is, as a tacit assumption, woven into the law's structure»⁵⁹.

The purpose of this right would be twofold: on the one hand, in «its negative dimension, it protects the freedom from severe interference by the state and third parties»⁶⁰. On the other hand, in its positive dimension, it grants the freedom to self-determine one's inner sphere.

Unfortunately, as many authors pointed out, the «problem is that such a right is unfortunately neither expressly acknowledged by Constitutions or Human Rights Treaties nor given much attention by legal scholars»⁶¹. Nevertheless, since the «legal subject is the aggregate of its mental faculties, behavioural dispositions, emotional propensities and so on»⁶², it is possible to consider Cognitive Liberty not just as a right granted (or denied) by legal orders but as the basic assumptions on which liberal legal orders are built.

This change in perspective is not without normative consequences. In fact, «while some interests are protected by some strong rights, others may not enjoy any legal protection at all»⁶³, even if, as mentioned, some of these interests are the basis on which many of the rights are based.

In this sense, the case of Cognitive Liberty is emblematic. In fact, even if «Cognitive Liberty or a right to mental self determination guarantees individual sovereignty over their mind [...], such a right is

⁵⁶ J.C. BUBLITZ and R. MERKEL, *Crimes Against Minds: On Mental Manipulations, Harms and a Human Right to Mental Self-Determination*, in *Criminal Law and Philosophy*, 8/1, 2014, pp. 51–77, p 52.

⁵⁷ *Ivi.*, p 56.

⁵⁸ Therefore, in this regard, «Speaking of depression, for instance, is speaking about specific mental symptoms. Whether a person suffers from depression solely depends on her exhibiting these symptoms. Even if we knew (what we currently don't) that every instance of depression strongly correlates with chemical “imbalances” in neurotransmitter levels (say Serotonin) » *Ivi.*, p. 57.

⁵⁹ *Ivi.*, p. 60.

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² *Ivi.*, p. 62.

⁶³ J.C. BUBLITZ, *My Mind is Mine?! Cognitive Liberty as a Legal Concept*, cit., p. 237.



not enshrined in constitutions, human-rights treaties or legal textbooks»⁶⁴. Sure, many Western democracies protect mental injuries as body injuries. However, «legal protection of the mind cannot be identical to the protection of the body, but requires distinct and yet-to-be worked-out criteria»⁶⁵. Of course, even now, according to Bublitz, it is possible to observe the presence of some rights such as:

- the freedom of thought
- the right to a free development of personality
- the rights of Privacy
- the right to mental Integrity

which are in the proximity of Cognitive Liberty, understood as the rights to mental self-determination.

Nevertheless, it is the same author who, by analysing the different dimensions of this conception of CL, specifies how this can be understood as:

- liberty to change one's mind
- protection against intervention into other mind to preserve mental integrity
- an obligation for states to promote the cognitive liberty

Anyway, we would like to emphasise how, in a subsequent work, the perspective of the German scholar changes and moves from a concept of Cognitive Liberty understood as mind self-determination (strongly connected to the concept of mind integrity) to a concept of CL understood as Freedom of Thought.

The change of perspective seems to be related to the «advent of tools that confer more powers over our own and other's mental»⁶⁶. So that, «the question is no longer, whether it is possible to change thoughts, but rather, who should be allowed to do so»⁶⁷.

To identify Cognitive Liberty with freedom of thought allows the author to no longer claim the existence of a human right to mental self-determination, but simply insert new meanings into an existing human right. But this new point of view forces the author to admit the practical irrelevance of this right.

Indeed, despite, «at least in theory, a strong human right protects persons against unwanted interventions into their minds [...] Freedom of thought has failed to stand the test of practical applicability»⁶⁸. Even in this case, however, it should be noted how this notion of Cognitive Liberty seems to be a prerequisite of Legal systems rather than a right protected by them.

This might be the reason why, recently, starting from considerations regarding moral bio-enhancement (MBE), i.e. interventions «focussed on improving the moral aspects of the psychological *conditio humana* through bio-technological means such as pharmaceuticals or electrostimulation

⁶⁴ *Ivi*, p. 242.

⁶⁵ *Ibid*.

⁶⁶ J.C. BUBLITZ, *Cognitive Liberty or the International Human Right to Freedom of Thought*, cit., p. 1312

⁶⁷ *Ibid*.

⁶⁸ *Ivi*, p. 1318



of the brain»⁶⁹, Bublitz describes the following three different types of freedom which could be endangered by this type of intervention.

1. *Freedom to Fall*. On a first reading, it refers to the freedom to act in a morally incorrect way. However, no idea of freedom permits persons to fall — and fail — in, for instance, a criminal act, because everyone is obliged to refrain from committing those acts. Therefore, as written by DeGrazia «the elimination of freedom [to fall] with respect to rape and child molestation is no great loss»⁷⁰.
2. *Freedom of Will*. This is an important freedom since «MBE may not only curb the freedom of action — after all, enhanced persons can act as they please — but rather the freedom to choose which actions to pursue»⁷¹.
3. *Freedom of Mind*. The notion of this freedom «has not received much scholarly attention, although it should be accorded a central role in ethical assessments of mind-interventions»⁷². At first approximation, it has at least two important aspects:
 1. «First, freedom of mind relates to the degree of independence from internal impediments and to the strength of one's mental capacities, from attention and memory to various types of thinking or subduing impulses. In other words, one aspect of mental freedom is conscious control over one's mind»⁷³.
 2. A «second, and this time a negative sense of mental freedom: to remain untouched from interventions tampering with consciously uncontrollable mental elements — we can call this the protection of peace of mind»⁷⁴.

Therefore, «although the notions mental freedom, conscious control and mental integrity may need further explication, it is hardly disputable that MBE often interferes with aspects that they describe»⁷⁵.

In this respect, one should note that it is possible to change another's opinions even with a mere speech. For this reason, interfering with opinions cannot be intrinsically unlawful. Even if it is necessary to specify that «direct and indirect interventions differ significantly in terms of respect of the affected person. Indirect interventions engage with the other's first-person perspective, with her views, desires and personality, whereas direct interventions bypass her conscious and unconscious control capacities»⁷⁶. Therefore, at least with regard of Freedom of Mind (in positive and negative terms) Bublitz claims a normative intervention.

It is not easy, thus, to follow the path traced by the German scholar. Indeed, given the concrete possibility of altering the mind of others, he tries to find regulatory references that will achieve all the goals promised by new technologies. To do this he explored many possibilities; from the recognition

⁶⁹ J.C. BUBLITZ, *Moral Enhancement and Mental Freedom*, in *Journal of Applied Philosophy*, 33/1, 2016, pp. 88-106, p. 88.

⁷⁰ D. DEGRAZIA, *Moral enhancement, freedom, and what we (should) value in moral behavior*, in *Journal of Medical Ethics*, 40/6, 2014, pp. 361-368, p. 367.

⁷¹ J.C. BUBLITZ, *Moral Enhancement and Mental Freedom*, cit., p. 93.

⁷² *Ivi*, p. 94.

⁷³ *Ivi*, p. 95.

⁷⁴ *Ivi*, p. 97.

⁷⁵ *Ivi*, p. 98.

⁷⁶ *Ivi*, p. 99.

of a right to mind self-determination (strongly connected to the concept of mind integrity), to a kind of extensive interpretation of the right to freedom of thought, up to the explicit request for the recognition of all profiles linked to Freedom of Mind.

Nevertheless, even though he truly explores the problems related to Cognitive Liberty, in our opinion the suggested solution proposed by Publitz seems unfit to solve all of the problems we try to investigate in this paper. In our opinion, the best solution is not a modification, or an extension of existing rights, but rather a completely new perspective on Neuro-Rights architecture.

8. The debate: the conception of Ienca and Andorno

Similarly, in the examination led by Ienca and Andorno, the focus is the refusal of the coercive use of neuro-technologies and the development of the legal category of Cognitive Liberty, which must be supported by the reconceptualization of existing human rights or the introduction of new human rights:

- the right to cognitive liberty;
- the right to mental privacy;
- the right to mental integrity;
- the right to psychological continuity.

These authors argued that: «For the purposes of our analysis, in this article we will focus exclusively on the negative formulation of the right to cognitive liberty, namely as the right to refuse coercive uses of neuro-technology. In addition, while we welcome the introduction of the right to cognitive liberty, we argue that this notion is not alone sufficient to cover the entire spectrum of ethical and legal implications associated with neuro-technology. Rather, the establishment of cognitive liberty as a human right should be coordinated with a simultaneous reconceptualization of existing rights or even the creation of other new neuro-specific rights. This is the right to mental privacy, the right to mental integrity and the right to psychological continuity»⁷⁷.

In consideration of the first point, the question is whether actual standards of privacy protection include the information incorporated or generated by our mind⁷⁸.

The authors suggest the extension of the category with the formal recognition of the right to mental privacy, which is intended to protect any information, conscious or unconscious, deriving from the brain (and also to protect the brain structures that give rise to these data) and which can be illegally recorded by a dedicated neural instrumentation and indiscriminately shared in the digital ether. Another problem is that related to attacks on the brain by criminal groups. They can directly manipulate

⁷⁷ M. IENCA and R. ANDORNO, *Towards new human rights in the age of neuroscience and neurotechnology*, cit., p. 11.

⁷⁸ In this regard, a possible protection is provided by the *European Convention on Human Rights* in Article 8, which recognizes the right to respect family life, domicile and correspondence. Indeed, as set out in its second paragraph «There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others».



mental capabilities, and the resulting mental integrity, through the use of neurological devices, the same way computer *hackers* do.

As everyone knows, physical and psychological integrity is currently safeguarded by Article 3 of the *European Charter of Human Rights* which emphasises the right in medicine and biology⁷⁹. Mental integrity should both ensure that patients with mental health issues can easily access psychiatric treatments and supports, and protect the mental dimension from possible harm by others. This reconsideration of mental integrity should lead to specific regulatory protection from possible neurochemical interventions designed to irreversibly modify individual personality with direct cognitive impairment.

The right to psychological continuity would be a specification of neural nature regarding the right to personal identity developed by the European Court of Human Rights on the basis of Article 8 of the European Convention on Human Rights and recognized by the Universal Declaration of Human Rights. Here, the right to personal fulfilment and the full development of personality is explained in Art. 22 and 29. In any case the utmost attention and public debates are imperative before authorising intentional intrusions into the personal sphere⁸⁰.

Finally, Ienca & Andorno argue that: «All these proposed neuro-focused rights are mutually linked and stand in an intimate family relationship. 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 relationship as freedom of thought is to privacy, integrity and identity rights. However, in its negative sense of protection from coercive use, cognitive liberty can only partly account for the 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 person's conscious experience. The same goes for actions involving harm to a person's mental life or unauthorized modifications of a person's psychological continuity, which are also facilitated by the ability of emerging neuro-technologies to intervene into a person's neural processing in absence of the person's awareness»⁸¹.

Therefore, in the opinion of Ienca and Andorno, Cognitive Liberty is a prerequisite of all the rights focused on neuro aspects. We think that in order to take further their perspective the better approach is to leave the idea to the introduction of a new neuro-oriented right into the current declarations of Human Rights in order to focus on a totally new Declaration of Human Neuro-rights.

9. Conclusions

In conclusion, we think we have shown the pivotal role that CL plays in the new neuro-oriented society. In doing this, we have presented some steps useful to build a sort of a metaphorical stairway.

⁷⁹ However, it is necessary to recognize that the rights of the Charter apply only to the institutions, agencies and bodies of the Union respecting the principle of subsidiarity as well as to Member States in the implementation of Union law, as stated in art. 51.

⁸⁰ Cf. M. IENCA and R. ANDORNO, *Towards new human rights in the age of neuroscience and neurotechnology*, cit., pp. 11-24.

⁸¹ *Ivi*, p. 24.



As a first step we described importance and features of the concept of Cognitive Liberty understood as a necessary condition to all other liberties, since it is their neuro-cognitive substrate.

As a second step, we reported how other proponents of Cognitive Liberty, suggest considering it as a fundamental human right as well as a central legal principle guiding the regulation of neuro-technologies. In this regard, one should remember, as Bublitz argued, how «hard it is to conceive of any conception of a legal subject in which the mind and mental capacities (e.g. acting from reasons, deliberation) are not among its necessary constitutive conditions»⁸².

Subsequently, as a third step, we argued how Cognitive Liberty has all the features needed to make it a key concept from which new human rights can emerge. This is because, it cannot just be reduced to existing rights. But, it may be considered as a basis of all liberties, both internal and external. Indeed, since Cognitive Life, in its various forms and degrees, is inherent to all human beings, so cognitive liberty is consistent with a definition of human rights as inalienable rights «to which a person is inherently entitled simply because she or he is a human being»⁸³, regardless of their nation, location, language, religion, ethnic origin or any other status.

As a fourth step we saw how the integration of Cognitive Liberty into the human rights framework would enable the protection of constitutive features of human beings that are not being entirely protected by existing rights.

As a fifth step, we have shown how this conception of CL could be understood both as a new human right and as a necessary condition to build a set of new Neuro-Rights. In fact, in the same way as what happened with the notion of Human Genome, we claim a Universal Declaration on Neuro-Rights. This is because, the adaptive ability that human rights law has already shown may be a useful tool in responding to the challenges posed by neurosciences. The path is already mapped out and it is like a stairway.

Therefore, contrary to what is written by Bublitz and Andorno-Ienca, we think that it is not only preferable and fair, but it would also be easier solve the problems related the concept of Cognitive Liberty through a new Declaration of Human Neuro-Rights; as the path that has already be traced with regard to the Human Genome.

In this paper, we intended to consider these steps as parts of a metaphorical stairway to national and international protection of the inner sphere of every human being. In this sense, 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. To sum up, we ask for the go-ahead of the legal recognition of the neuro-cognitive issues in a defensive and proactive sense. We do not mind what form these neuro-rights will take. We are interesting in unearthing this problem and in putting Cognitive Liberty at the centre of this conceptual turning point of our future international society.

⁸² J.C. BUBLITZ, *My Mind is Mine?! Cognitive Liberty as a Legal Concept*, cit., p. 242.

⁸³ M. SEPULVEDA, et al., *Human Rights Reference Handbook*, Ciudad Colon, 2004, p. 3.