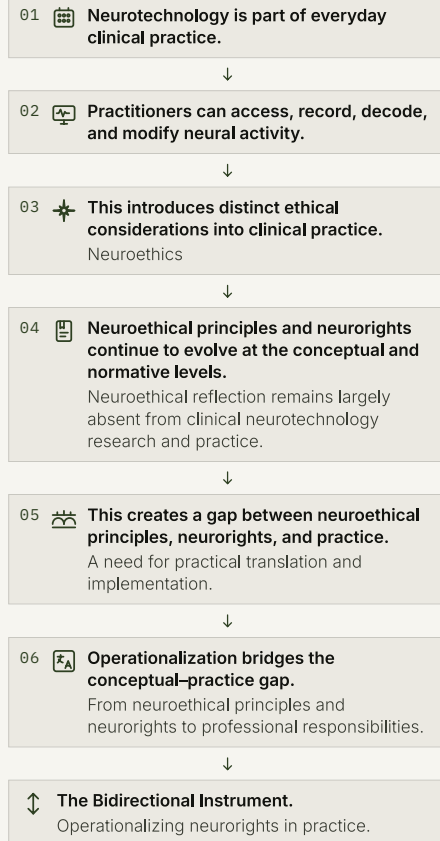


The Bidirectional Instrument and the Neurorights Clinical Card

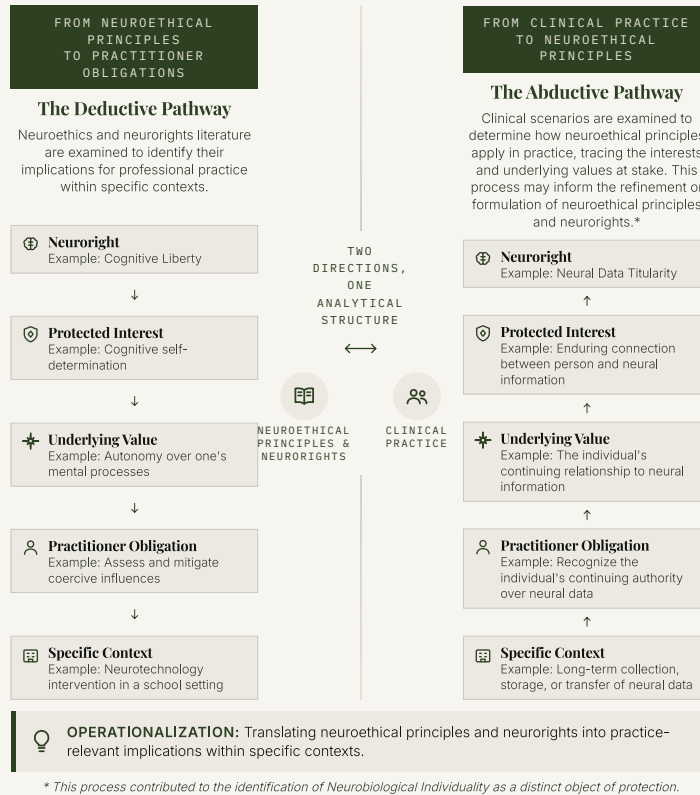
Gallardo, H. · Namihira, D. · Morosoli, T.

1 Why does this matter?



2 The Bidirectional Instrument¹

A bidirectional approach to operationalizing neurorights.



¹ Gallardo, H., Namihira, D., & Morosoli, T. (2026). *Neurorights from Theory to Practice: A Bidirectional Instrument and Neurobiological Individuality*. Manuscript submitted for publication.

3 The Neurorights Clinical Card (NCC)

From operationalization to implementation.

The NCC is a practical tool designed to support the application of neurorights through structured ethical reflection in neurotechnology practice.

Operationalization translates neuroethical principles and neurorights into practitioner-relevant implications within specific contexts; *implementation* integrates these implications into routine professional practice.

Using the Bidirectional Instrument, this process resulted in ten neurorights, each expressed as an **Ethical Reflection Question**.

NAMED RIGHT	ETHICAL REFLECTION QUESTION
1 Cognitive Liberty	Has the individual made an informed, voluntary, and autonomous choice about whether and how this intervention may affect their mental processes?
2 Mental Privacy	Does this intervention access, infer, or reveal private mental information beyond what is necessary, and are appropriate safeguards in place against unauthorized access or disclosure?
3 Mental Integrity	Could this intervention manipulate, interfere with, or disrupt the individual's mental functioning in ways that are unintended, unauthorized, or disproportionate to its intended purpose?
4 Psychological Continuity	Could this intervention meaningfully affect the individual's sense of self or continuity over time, and has that possibility been openly discussed with the individual?
5 Neural Data Consent	Has the individual provided informed, specific, and revocable consent for each intended use of their neural data, including secondary or future uses?
6 Neural Data Titularity	Does the handling of this individual's neural data continue to recognize their ongoing authority and interests throughout its lifecycle, including storage, processing, sharing, transfer, and future use?
7 Technological Transparency	Has the individual received sufficiently clear and meaningful information to understand the purpose, capabilities, limitations, uncertainties, and potential influence of this neurotechnology?
8 Mental Equity	Could non-clinical factors unjustifiably influence this individual's access to, recommendation for, or potential benefit from this neurotechnology?
9 Non-Discrimination	Could this intervention, its interpretation, or the decisions derived from it result in unjustified differential treatment based on neural characteristics, neurotechnology findings, or algorithmic inferences?
10 Neurobiological Individuality	For this specific person, is there a clear, individual reason to change their brain function — rather than to meet a general expectation of what's "normal"?

Each question attempts to direct attention to neuroethical considerations associated with each neuroright.

4 Clinical example — Z-score neurofeedback

THE DECISION

Software allows reinforcement whenever a **percentage of parameters** (power, coherence, phase) across all sites fall **within normal limits** relative to the reference database.

THE ETHICAL REFLECTION

3 **Mental Integrity**

Is normalizing this parameter proportionate — and linked to symptoms?

7 **Technological Transparency**

Are the limits of the normative database understood?

10 **Neurobiological Individuality**

Is there an individual reason to change this, or only "normality"?

💡 A value outside normal limits is a *description*, not necessarily a dysfunction. The card does not prohibit the protocol — it makes the **individual justification explicit**.

5 From Principles to Routine Practice

Designed as a cognitive aid, the NCC makes key ethical considerations easier to recall and apply at the point of care, supporting consistency without replacing professional judgment.

THE NCC IS DESIGNED TO SUPPORT:

- ✓ **Integration**
Brings neurorights into routine professional practice.
- ✓ **Structured reflection**
Turns practitioner obligations into focused ethical questions.
- ✓ **Consistency**
Provides a common structure for considering neurorights across interventions and contexts.
- ✓ **Workflow integration**
Introduces ethical reflection without replacing professional judgment or disrupting routine practice.

⌚ WHEN TO USE IT

The NCC may be used at any point during an intervention, particularly before initiation, when making significant modifications, or when relevant clinical or ethical circumstances change.

6

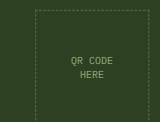
The NCC translates neurorights into structured *ethical reflection* within routine neurotechnology practice.



Conceptual prototype presented for discussion and refinement.



Empirical evaluation with neurotechnology practitioners.



📄 Download the NCC

✨ Join the conversation