

“The Neuroscience of Responsibility”—Workshop Report

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Abstract This is a report on the 3-day workshop “The Neuroscience of Responsibility” that was held in the Philosophy Department at Delft University of Technology in The Netherlands during February 11th–13th, 2010. The workshop had 25 participants from The Netherlands, Germany, Italy, UK, USA, Canada and Australia, with expertise in philosophy, neuroscience, psychology, psychiatry and law. Its aim was to identify current trends in neurolaw research related specifically to the topic of responsibility, and to foster international collaborative research on this topic. The workshop agenda was constructed by the participants at the start of each day by surveying the topics of greatest interest and relevance to participants. In what follows, we

summarize (1) the questions which participants identified as most important for future research in this field, (2) the most prominent themes that emerged from the discussions, and (3) the two main international collaborative research project plans that came out of this meeting.

Research Questions

Questions identified by participants as important for future research fell roughly into five groups (groups I, II and III were summarized as indicated, and some (indicated with *) fell into more than one category):

(I) CONCEPTUAL ISSUES REGARDING RESPONSIBILITY ASSESSMENT

- Will neuroscience lead us to alter the categories used to assess responsibility?
- To what extent does neuroscience put pressure on folk psychological categories in law?
- What is neuroscience able to reveal that might assist in defining and determining criminal responsibility?
- Can neuroscience provide models for a new conceptualization of criminal responsibility?
- What light is shed on the concept of the legal individual by neuroscience?
- How can neuroscience contribute to legal regulation of responsibility and decision making in terms of emotion, brain differences, dysfunctions and damage?

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- What novel challenges are posed by neuroscience, versus other sciences, in criminal responsibility assessments?
- Can neuroscience help us to identify control mechanisms in the brain?
- What does neuroscience tell us about the existence of responsibility?
- What are the findings and predictions of addiction neuroscience? ***

SUMMARY QUESTION: Will the findings of neuroscience lead us to alter the categories and methods used to assess responsibility?

(II) BRAIN INTERVENTIONS AND INTERFACING

- (How) can neuroscientific techniques help us to restore and/or enhance responsibility?
- Is it possible to enhance eye witness memory? *
- What are the implications of brain-computer interfaces for responsibility?
- What are the ethical and legal implications of brain-machine interfaces?
- What is the responsibility of the doctor and the treated person (before and after treatment)?
- Can neuromodulation be used to suppress the ability to deceive? **
- What are the findings and predictions of addiction neuroscience? ***

SUMMARY QUESTION: How do brain interventions affect people's responsibility?

(III) PREDICTION DANGEROUSNESS AND RISK ASSESSMENT

- What are the moral and legal implications of biomarker identification?
- How does the availability of predictive information influence the validity of predictions?
- What are the findings and predictions of addiction neuroscience? ***

SUMMARY QUESTION: What does neuroscience add to current methods of behavioural prediction and treatment, and what are the implications for privacy?

(IV) MEMORY

- What kinds of memories are relevant in the law, and how can neuroscience help us to identify them (their presence and quality)?
- Is it possible to enhance eye witness' memory? *
- Can neuromodulation be used to suppress the ability to deceive? **

(V) IMPACT OF NEUROSCIENCE IN DIFFERENT LEGAL JURISDICTIONS

- How has neuroscience affected various legal jurisdictions?

Prominent Themes

An especially-prominent role was played in the discussions by the concepts of *capacity*, *character* and *competence*, and participants also identified a useful list of *forensic applications* for neuroscience.

Capacity Much of the discussion, especially of topics (I) and (II), presupposed some version of the *capacitarian* position—i.e. that the degree of a person's responsibility for what they have done depends in part on that person's mental capacities. The capacities that were initially mentioned in discussion were the folk psychological *cognitive* and *volitional* capacities—i.e. “the ability to understand what conduct legal rules or morality require, to deliberate and reach decisions concerning those requirements, and to conform to decisions when made” ([1]:227). However, subsequent discussion also noted that an important role seems to be played by *affective* capacities and by people's *values*. The suggestion that affective capacities play an important role—i.e. that people's responsibility may also be undermined when they lack the capacity to have the right emotional responses to certain things—is familiar from the moral cognition literature (e.g. [2]). However, the suggestion that values also play a role here—i.e. that people's responsibility may also be undermined if they either harbour values which are generally considered deviant and problematic, or if they fail to value things that are commonly appreciated—is probably most closely related to something like the “sane deep self” view described by [3].

Character Discussion of topics (I), (II) and (III) also revealed the uneasy distinction between the notion of *capacity* (see above) and the notion of *character*—the chief question here being whether some capacity deficits (for instance, a lack of capacity to control one's anger) might be equally well re-described as character flaws, and if so then what effect this might have on responsibility assessments. The significance of this, as discussed recently by [4, 5] among others, is that while on the capacitarian stance capacity deficits are usually thought of as potentially legitimate grounds for (partial) excuse, character flaws do not normally excuse people. Hence, there is urgent need for research into whether there is a valid conceptual and/or empirical basis for retaining the notion of character.

Competence At various junctures participants also noted the similarities and differences between the above-mentioned legal notion of *capacity*, and the notion of *competence* which is usually more readily associated with discussions in the medical context. For instance, many of the cognitive capacities that are required for full legal responsibility also seem to be required by patients in medical contexts; however, an important difference is that the threshold for having sufficient capacity in the legal context is higher than the threshold in the medical context. It was suggested that this is probably due to the fact that in the medical context competence is required for the patient to make *self*-regarding decisions (e.g. about treatment, or end-of-life decisions), whereas in the legal context an assessment that a defendant has sufficient capacity will have ramifications for *other*-regarding decisions (e.g. the state may then put the defendant on trial or punish them).

Forensic applications for neuroscience The participants also identified several specific uses for neurotechnology in the legal context: capacity assessments, general competence assessments and assessments specifically targeted at decision in the end-of-life context, pain assessment, bias assessment, risk assessment, propensity assessment, deception detection, memory enhancement and treatments for various mental capacity impairments.

Discussion

The above set of research questions is quite varied, and the prominent themes are rather inclusive. But, upon reflection, it seems that in order to investigate how research in cognitive neuroscience will affect human self-understanding (conceptual issues) and human practice (risk assessment and impact on legal jurisdiction), two general topics stand out as urgent. First of all, what are the *current* possibilities for neuroscience to influence the restoration and enhancement of responsibility? It is not uncommon that analyses of conceptual implications of cognitive neuroscience expand into discussions of far away future, if not futuristic possibilities, or even pure thought experimentation. Thus, it is helpful to focus on those neuroscientific techniques which are already in use. For this reason, an

analysis of the impact of psychopharmaceuticals on our understanding of what is meant by capacity, character and competence seems like a good starting point.

Secondly, what *is* the current practice in legal contexts? How is neuroscientific evidence actually used in practice within courtrooms and in legislation? Also, neuroscientific information could play different roles at different stages of the criminal process. For instance, to what extent is e.g. brain fingerprinting used in relation to questions concerning evidence (was the suspect at the scene of the crime)? What role does neuroscience play in establishing *mens rea*? This question raises large philosophical issues about freedom and efficacy of conscious will. More specific questions can be raised in cases of behavior that is significantly influenced by neuropharmaceuticals or neurotechnologies (e.g. brain-computer interfaces, deep brain stimulation, etc). Finally, to what extent does neuroscience currently influence estimates of accountability and actual sentencing decisions?

International Collaboration

Two international projects have been initiated in recognition of the above two topics' importance:

(A) NEUROSCIENCE IN EUROPEAN CASE-LAW AND JUDICIAL PRACTICE. MAPPING THE FIELD.

- Although there is some indication in the current literature of the kind and degree of impact of neuroscience on North American case law and legislation in criminal, civil and medical contexts (e.g. [6]), surprisingly little is known about the impact of neuroscience on judicial practice beyond North America.
- Such information is needed to make legislative reform recommendations, to keep track of novel uses for neuroscience in legal contexts, and to shed light on the conceptual questions raised at points (I) and (II) above.
- Hurdles that make it especially hard to assess the impact of neuroscience on European law include: (1) language barriers, (2) doctrinal differences between jurisdictions, and (3) lack of international collaboration.
- Over the next few months, several workshop participants will collaborate on putting together a research funding proposal that will be submitted to the European Science Foundation in October 2010.
- The proposed research will focus on surveying the actual and current use of neuroscientific, behavioral genetic and neurogenetic techniques before the European Courts and in investigative activities; creating an appropriate case law retrieval and storage system; and training judges in the field of neuroscience and the law. Interested parties from beyond Europe are also welcome to join this international project.

• Prior to submission, the research funding proposal will be discussed at a mini-conference in Pavia-Milano.

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(B) PSYCHOPHARMACEUTICAL AND OTHER METHODS FOR REDUCING, RESTORING AND ENHANCING RESPONSIBILITY.

- Drug users' autonomy, and thus their responsibility, is sometimes thought to be *reduced* because of the coercive effects of addiction.
- But drugs can also be used to *positively influence* our cognitive functioning. For instance, alcohol can help to overcome shyness; and antipsychotic medication can help to restore people's capacity to stand trial.
- More recently, some have suggested that if responsibility covaries with mental capacity, then maybe drugs that improve cognition might also enhance responsibility.
- The broad aim of this project is to explore the conceptual and empirical foundations of claims about how drugs (and perhaps other neurotechnological interventions) can reduce, restore and enhance responsibility in relation to character, capacity or competence (see above).
- Expressions of interest are sought from researchers who are conducting or planning empirical studies on the effects of psychopharmaceuticals and other neurotechnologies on responsibility-related mental functions.
- The aim is to set up an international research group to conduct collaborative research and to hold conferences and workshops on this topic.
- Funding will eventually be sought to support networking activities as part of this international research.

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Interested parties who were not present at the workshop, but who would like to get involved in these projects should contact the indicated people, or for other information please contact the workshop organizer Dr Nicole Vincent.

The workshop was funded by the 3TU Centre for Ethics and Technology, it was organized by Dr Nicole Vincent from the Philosophy Department at Delft University of Technology, and further details (e.g. a list of participants) can be obtained from the event web page: <http://neuroethics.eventbrite.com/>

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