**Institution: The University of Edinburgh**

**Unit of Assessment: 32 Philosophy**

**Title of case study: 'Neuroscience, Free Will, Moral Responsibility, and the Church of Scotland'**

## 1. Summary of the impact

Vierkant has produced a distinctive body of work that explores the implications of **contemporary neuroscience** for the notions of **free will and moral responsibility**. As a result of this research, he was invited by the Church of Scotland to participate in their Society, Religion and Technology working group, which had, as part of its remit, the role of producing the Church's official position on these issues. Vierkant played a key role in formulating the group's recommendations in this regard, which in 2012 were put before the General Assembly of the Church of Scotland. These recommendations were approved and have now become part of the 'Blue Book' that contains the official laws and policies of the Church of Scotland. In particular, the Church changed its official stance on the implications of contemporary neuroscience with regard to free will and moral responsibility as a direct result of Vierkant's research-led recommendations in the working group report. Vierkant's research has thus led to a demonstrable and significant impact on the **policy making** of an important non-academic public body.

## 2. Underpinning research

Over the last decade, Vierkant (appointed 2005, Senior Lecturer since 2013; philosophy of mind and cognitive science research cluster) has published extensively on the implications of contemporary neuroscience and social psychology for the notions of free will and moral responsibility.

Recent advances in neurosciences and social psychology have called into question the very idea that people can possess free will. To take two prominent examples, the work of the neurophysiologist Benjamin Libet and the social psychologist Daniel Wegner has been interpreted as showing that the conscious self is nothing but an illusion and that our actions are really fully controlled by 'zombie' (i.e. unconscious) mechanisms. If it is true that free will is an illusion, then this has profound philosophical implications. For example, standard conceptions of moral responsibility presuppose that moral agents are free, so if free will is an illusion then so too, potentially, is the very idea that a subject can be held morally responsible for her actions.

In a key thread of his research conducted over the last decade, Vierkant (2005; 2007; 2008; 2011; 2012; 2013) has clarified the kinds of threats posed to our conception of ourselves as free (and thus morally responsible) agents by this scientific work. In particular, he argues that while there is indeed a *prima facie* challenge in play here, the real threat posed by this work is often misunderstood. For example, it is often argued that these experiments show that we cannot be free, because they demonstrate that our brains determine what we do. Vierkant (2007; 2008; 2013) claims that this line of argument is a red herring, because it ignores the possibility—widely defended within philosophy—that determinism and free will are compatible. Vierkant (2013) further argues, however, that there is a perfectly rational explanation for why the science is perceived as threatening the possibility of free will. This is because it is often portrayed as generating predictions of behaviour that always come out true, independent of the choices of the subject. Portrayed in this way, these scientific predictions appear to render the choices of the conscious subject powerless. If these portrayals were accurate, then it would indeed be rational to be fatalistic, in that free will would be an illusion. By looking more closely at the experiments, Vierkant shows that these portrayals are false. Indeed, conceptual analysis reveals that this kind of prediction might even be metaphysically implausible.

More positively, Vierkant's (2005; 2007; 2008; 2011; 2012; 2013) research also involves showing that while the challenges for free will routinely portrayed from these scientific results is illusory,

there is an underlying challenge that is entirely genuine. This consists in the fact that our picture of the autonomous, rational agent that underpins the ordinary notion of free will and agential responsibility is demonstrated by these results to be problematic, and is thus in need of substantial amendment. It follows that contemporary neuroscience and social psychology do have important implications for free will and thus moral responsibility, albeit not quite the implications that are often reported.

Vierkant's research on these topics was also important to his role in two large collaborative research grant projects with which he was involved between 2006 and 2010, both of which have been judged to have been successfully completed by the funding bodies concerned (see 'grants' below).

## 3. References to the research

PUBLICATIONS

Vierkant, T. (2005). 'Owning Intentions and Moral Responsibility', *Ethical Theory and Moral Practice* 8: 507-34. [DOI: 10.1007/s10677-005-5990-5]

Vierkant, T. (2007). 'Worin besteht die Herausforderung der Kognitionswissenschaft an die Willenfreiheit Wirklich?' ['What is the Real Challenge of Cognitive Science to Free Will?']. In T. Buchheim et al (ed.), 69-87, *Freiheit auf Basis von Natur?* ['Free Will Based in Nature'], Munster: Mentis. [Chapter available from HEI]

Vierkant, T. (2008). 'Wille und Selbst' ['The Will and the Self']. In T. Vierkant (ed.), *Willenshandlungen* ['Voluntary Actions'], 88-107, Berlin: Suhrkamp. [Chapter available from HEI]

Vierkant, T. (2011). 'Responsibility and the Automaticity Threat', *SCRIPTed: A Journal of Law, Technology and Society* 8 (2): 184-91. [Available from HEI]

Vierkant, T. (2012). 'Self Knowledge and Knowing Other Minds: The Implicit/Explicit Distinction as a Tool in Understanding Theory of Mind.' *British Journal of Developmental Psychology* 30 (1): 141-55. [DOI: 10.1111/j2044-835X.2011.02068x]

Vierkant, T. (with J. Kiverstein & A. Clark) (2013). 'Decomposing the Will: Meeting the Zombie Challenge.' In A. Clark *et al* (eds.), *Decomposing the Will*, 1-29, Oxford: Oxford University Press. [Chapter available from HEI]

GRANTS

2006-09: Co-Investigator, VW Stiftung Project, 'Kontrolle Und Verantwortung' ['Control and Responsibility'], €770k [I/82 894].

2006-10: Co-Investigator in the UK element of the pan-European 'Consciousness in Interaction: The Role of the Natural and Social Environment in Shaping Consciousness' ('CONTACT') Project, European Science Foundation/AHRC: Eurocores, €1.9m (UK component £886k) [AH/E511139/1].

## 4. Details of the impact

Vierkant has a long-standing track-record of internationally regarded research on the philosophical implications of recent advances in neuroscience, particularly with regard to the topics of free will and moral responsibility (Vierkant 2005; 2007; 2008; 2011; 2012; 2013). For many years now Vierkant has been involved in using this research to tackle misperceptions of the neurosciences in the public sphere, such as they arise in the media or with regard to public policy and the law.

Since 2007 Vierkant has been extensively involved with the Scottish Imaging Network ('SINAPSE') project on 'Brain Imaging and Society'. This project is concerned with the implications that brain imaging has for society, where this covers such issues as the relationship between contemporary neuroscience and free will. In 2010 he was a speaker and commentator at a major international conference that was hosted as part of this project—entitled 'Brain Imaging and Society:

Law'—which looked at the legal implications, such as in terms of the scope of an agent's moral responsibility for her actions, of recent developments in contemporary neuroscience. This event was attended by a wide cross-section of interested parties, including judges, NHS medical directors, and representatives of the Scottish Parliament's Scottish Future's Forum (an organisation created by the Scottish Parliament to interface with policy makers, business, and academia, with a view to formulating long-term Scottish Government policy). While Vierkant's research has informed his contribution to this project, he has also published research that has directly arisen out of his engagement with the project, such as Vierkant (2011). (See corroboration [1 a, b & c]).

In contributing to the SINAPSE project Vierkant came into contact with the policy officer of the Church of Scotland. On the basis of Vierkant's research expertise, he was invited by the policy officer to join their Society, Religion and Technology working group. In particular, he was commissioned by the Church of Scotland to advise them on issues surrounding the importance of neuroscience for free will and moral responsibility. (See corroboration [2], [8]).

Vierkant became a key member of this working group, and also participated in related activities. For example, he participated in the organisation of a Church of Scotland conference on the topic of neuroscience and ethics, entitled, 'It Wasn't Me, It Was My Neurons', which took place in 2011. Vierkant was asked to write roughly half of the group's report, 'Neurobiology, Free Will and Moral Responsibility'. Vierkant also helped formulate the report's recommendations to the Church of Scotland. In particular, he played an important role in formulating two specific recommendations. First, that the Church of Scotland should recognise that the implications of contemporary neuroscience for free will and moral responsibility are more complex than sometimes supposed (in the sense that contemporary neuroscience on the one hand does not pose any direct challenge to free will and moral responsibility, but on the other hand does call for a re-evaluation of traditional philosophical concepts like autonomy). Second, that the Church of Scotland should accordingly play an active and on-going role in exploring these implications. Vierkant's contribution to this report drew heavily on his research in this area, particularly Vierkant (2005; 2007, 2008), but also Vierkant (2011, 2012, 2013). (See corroboration [3], [4], [8]).

This report was widely disseminated, including being made freely available on the Church of Scotland's website and informing a widely available Church of Scotland leaflet on Neurobiology. It was also submitted to the Church of Scotland's General Assembly in 2012 where it was discussed and, crucially, all of its recommendations approved. For each report from a working group there is a series of resolutions (known as 'deliverances') for commissioners at the General Assembly to accept, reject, add to or amend. During the General Assembly, council and committee conveners present reports from the working groups to commissioners for debate. Decisions agreed become 'law' which means that they determine how the Church of Scotland operates. It is precisely in this sense that the recommendations set out in the Society, Religion and Technology working group's report, substantially authored by Vierkant (both as a whole, and as regards its recommendations), have now become part of the Church of Scotland's official policy. In particular, these recommendations have been integrated into the Church of Scotland's 2012 'Blue Book', which contains the laws and policies of the Church. (See corroboration [5], [6], [7], [8]).

It was the quality of Vierkant's research, and his willingness to engage with relevant non-academic partners, which led to this work being deemed relevant to the Church of Scotland's Society, Religion and Technology working group. Vierkant's research then informed a significant part of the report produced by this working group for the Church of Scotland's General Assembly. Finally, by approving the recommendations made in this report, and incorporating these recommendations into the laws and policies of the Church, Vierkant's research has had an impact on the laws and policies of a large socially important non-academic body.

**5. Sources to corroborate the impact**

CITED LINKS (tinyurl links to archived web content hosted by HEI)

[1a] [www.sinapse.ac.uk/ (or http://tinyurl.com/psjhnrt): webpage for SINAPSE: The Scottish

Imaging Network, which Vierkant worked with].

[1b] [www.sinapse.ac.uk/brain-imaging-debate/brain-imaging-and-society-part-two (or http://tinyurl.com/qj9r3lv): SINAPSE webpage for the 'Brain Imaging and Society: Law' conference which confirms Vierkant's participation].

[1c] [http://scotlandfutureforum.org/ (or http://tinyurl.com/qc9ypr4): webpage for Scotland's Future's Forum, a body created by the Scottish Parliament and which participated in the SINAPSE 'Brain Imaging and Society: Law' conference which Vierkant presented his research at].

[2] [www.srtp.org.uk/ (or http://tinyurl.com/qc9ypr4): webpage for the Church of Scotland's Society, Religion and Technology project, which Vierkant was an active member of].

[3] [www.srtp.org.uk/srtp/view_article/srt_neuroethics_working_group (or http://tinyurl.com/o7o6v93): webpage for the 'It Wasn't Me, It Was My Neurons' conference which Vierkant organised as part of his role in the Church of Scotland's Society, Religion and Technology project].

[4] [www.churchofscotland.org.uk/__data/assets/pdf_file/0004/9589/Neuroethics_2012.pdf (or http://tinyurl.com/q8hyt7g): the Church of Scotland's Society, Religion and Technology working group report (entitled 'Neurobiology, Free Will and Moral Responsibility'), co-authored by Vierkant].

[5] [www.churchofscotland.org.uk/__data/assets/pdf_file/0006/9726/Neurobiolgy_leaflet.pdf (or http://tinyurl.com/ncofcwz): Church of Scotland public leaflet on neurobiology which substantially draws on the Church of Scotland's Society, Religion and Technology working group report which Vierkant co-authored].

[6] [www.churchofscotland.org.uk/about_us/general_assembly (or http://tinyurl.com/osfbto5): information about how the Church of Scotland's General Assembly operates].

[7] [www.churchofscotland.org.uk/__data/assets/pdf_file/0007/9673/General_Assembly_2012_-_Blue_Book.pdf (or http://tinyurl.com/oruwuur): the Church of Scotland's 2012 'Blue Book' which contains the laws and policies of the Church, and which incorporates recommendations based on Vierkant's research].

CITED CONTACT

[8] The Policy Officer for the Church of Scotland: can confirm Vierkant's work for the Church of Scotland's Society, Religion and Technology project, as described in this impact case study.