Cross-sections

The Bruce Hall Academic Journal

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Felix qui potuit rerum cognoscere causas.

Happy is the person who knows the reasons for things.
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About the Front Cover

*Untitled* (2016), by Jarryn Smith

The cover represents the architectural language of Bruce Hall as it existed from 1961 until 2016. The architects of the original buildings, Bunning and Madden, were prominent and respected designers primarily in the mid-century modern style. The Australian National Library is another of their more notable commissions during the period.

The cover also features a representation of the sculptural work, *Untitled* (1967), by renowned Australian artist Herbert Flugelman; known affectionately to residents as the eggbeaters.
Foreword

Welcome to Volume XII of the Bruce Hall Academic Journal, *Cross-sections*, which is now in its eleventh year.

As Vice-Chancellor of The Australian National University (ANU), it gives me great pleasure to introduce this academic journal, which is written and produced by the students of Bruce Hall, home to an excellent community of Australia’s finest future scholars and leaders.

This journal exemplifies the spirit of the residential experience at ANU, and is a demonstration of the reason why I think it is so important to give students the opportunity live together on campus. It shows the benefits of bringing a community together from different fields of endeavour and providing them with the opportunity to expand their interests beyond their own boundaries. It represents the diversity of experiences, backgrounds and interests across our community, through a thriving culture of intellectual achievement. It also brings research-led education to life through the passion of the students who have written for it.

The range of works included in this edition represent the great disciplinary breadth and creative energy of ANU. Each of the authors and artists have produced highly interesting and creditable pieces of work, which I encourage you to explore.

The subjects in this journal range from birth control in Latin America, and judicial appointments in the US and Australia to human enhancement, and the writing of Ursula Le Guin.

I would like to congratulate the authors and editors of this outstanding publication and to invite all academics to enjoy reading these pages.

*Professor Brian P. Schmidt AC*
*Vice-Chancellor and President*
Introduction

Each year the Bruce Hall community and the wider university community are the beneficiaries of the accomplishments of the Cross-sections editorial team. Annually, the current editorial team produces a noted, scholarly journal of the works of their fellow Bruce Hall residents. Consistently, we marvel at the works produced; from cover design to the articles that challenge and enlighten us. Our Bruce Hall motto ‘Happy is the person able to discover the reason for things’ reflects the essence of the Cross-sections journal and the ethos of the Bruce Hall community. Upon reading, it will be clear to the reader that academic excellence is the norm at Bruce Hall.

May you discover the reason for things and be inspired by this collective work.

Dr Rochelle Wilkins Tate
Head of Bruce Hall, 2016
Authors

Tracy Beattie
Tracy is a second-year student and Bruce Hall resident enrolled in a Bachelor of International Security Studies / Bachelor of Laws (Honours). Having lived and travelled extensively throughout Asia, she aims to continue with a Masters of Diplomacy, explore new parts of the world while being a diplomat, and somehow manage to become conversational in ten different languages one day. When she’s not distracted by her studies, she enjoys looking after her cacti, going café-hopping, and Instagramming her daily life.

Julia Faragher
Julia Faragher is a second-year Bachelor of Arts / Bachelor of Laws (Honours) student majoring in English and currently living at Bruce Hall. She likes learning about how our world is constructed and hopes to complete an honours year in English. In her spare time, she enjoys creative writing, photography and wandering around art galleries.

Vanamali Hermans
Vanamali Hermans is a first-year Bachelor of Political Science / Bachelor of Arts student hailing from the far-north coast of NSW. Majoring in Gender, Sexuality and Cultural studies, Vanamali spends most of her time in top West reading about the intersections of gender, class and race, as well as the growing influence of neoliberalism on both the feminist and queer movements. In the future, she hopes to complete honours research into how working-class women use femininity as cultural capital.

Sarah Hodge
Sarah Hodge is a first-year Bachelor of Arts student and a current Bruce Hall resident. She is planning on majoring in History and Archaeology. Her favourite hobby is historical dance which she takes classes for at the ANU as well as making her own costumes. She has loved sixteenth-century European history since she was eight or nine and Beefeater at the Tower of London told her the story of Anne Boleyn.

Guy Leckenby
Guy Leckenby is in his third year at Bruce Hall and is studying a Bachelor of Philosophy (Science) (Honours) majoring in (or at least if he could major) Physics and minoring in Mathematics. He is using his smattering of semester-long research projects as an attempt to find out where he wants to go in the wide world of physics whilst, of course, exhibiting fundamental facts about the universe. Guy plans to continue with a PhD after graduating, assuming the next year of honours only builds a passion for curiosity.
James Edgar Lim Tien Yao
James Edgar Lim Tien Yao is a fourth-year philosophy student. Somehow finding his way into ANU through the ANU–NUS (National University of Singapore) Joint Degree Programme, he’s been a proud Brucie from 2015–2016. His areas of academic interest are in applied ethics, political philosophy and the grazing habits of llamas. Previous undergraduate research projects include a Kantian version of virtue ethics, the rights of artificial intelligence, and the ethics of biodiversity conservation. He’s also the occasional showman, with forays into improvisational comedy, stand-up philosophy (if you get the reference), film and theatre. As a self-described ‘global citizen’, he is deeply concerned about the influx of goats into mainstream society.

Anne Murray
Anne Murray is a third-year economics and environmental studies student, who has been a Bruce Hall resident since 2014. She has a keen interest in environmental sustainability issues and is active in the ANU and ACT Greens.

Mia Sandgren
Mia Sandgren is studying geography at the Fenner School of Environment and Society. As part of her Bachelor of Philosophy (Arts) she has conducted research in fields such as land management, mapping, Indigenous studies and human ecology. The piece included in this volume was written during her exchange studies at Lund University, Sweden, where she was able to integrate her interest in social justice into her environmental studies and add a global perspective to her understanding of human–environment relationships.

Tiffany Tang
Tiffany Tang is in her fourth year of a combined Bachelor of Laws (Hons) / Bachelor of Music degree, majoring in Performance. An accomplished pianist, she is highly passionate about international law with particular interests in Australia’s relations with Asia. With a love for travelling and learning new cultures, she hopes to pursue a career that will allow her to continue broadening her legal knowledge on a global scale.

Claire Wong
Claire Wong is in her final year of a Bachelor of Arts degree, double-majoring in Political Science and Philosophy, and minoring in Health, Medicine and the Body. Claire is looking forward to embarking on the next stage of adulthood with a graduate position with KPMG next year, but not before a proper three-month-long final hoorah, where she hopes to indulge her love of expensive cuisine, expensive crockery, and train travel.
Sally Wong
Sally Wong is a third-year law and science student, majoring in Biochemistry. Her dream is to be an international environmental lawyer and is passionate about using the law to achieve sustainability through promoting corporate environmental responsibility. She one day hopes to be able to combine her love of travel with work. Sally is a third-year Bruce Hall resident and Senior Resident of Mid-Extension, who thinks that her time at Bruce has been incredibly important to her development at university.
A Comparative Study of Judicial Appointments to the High Court of Australia and the United States’ Supreme Court

Tracy Beattie

Abstract

The capabilities of ultimate appellate courts in performing its constitutional functions, administering laws and protecting citizens’ rights are heavily influenced by how members of the judiciary are selected. This essay discusses the different procedures in which judges are currently appointed to the High Court of Australia and the Supreme Court of the United States. It then takes a comparative approach by examining the criticisms surrounding these judicial appointments, concluding that the Australian judicial appointment system better supports the principal public law values of judicial independence, the separation of powers and the rule of law.

I. Introduction

The High Court of Australia and the Supreme Court of the United States have important functions in regulating the federal distribution of powers and acting as ‘Constitutional guardians’.1 Both courts also exercise their powers as ultimate appellate courts to safeguard liberal rights and to protect their citizens from arbitrary governmental powers under the rule of law.2 The quality of these courts is underpinned by the ‘impartiality, integrity, and independence’ of the judges, which depends largely on the framework of judicial appointments.3

This paper argues that Australia should not adopt a similar mechanism to that used in the Supreme Court of the United States, where the Senate must confirm judicial appointments. In theory, the United States’ model is more transparent and upholds the doctrines of separation of powers by allowing the legislature to act as a check on the executive. However, Senate confirmations are problematic in practice due to their over-politicised nature, which impairs judicial independence and is likely to undermine public confidence in the legal system. Section one will examine the current appointment processes in Australia and the United

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States. Section two will take a comparative approach by evaluating the criticisms surrounding the role of the executive and the legislature in judicial appointments and their effects on the principles of Australian public law. This paper will then conclude by recommending viable alternatives to Australia’s current appointment process.

II. Current Appointment Processes in Australia and the United States

There are significant differences between judicial appointment processes in the United States and Australia, particularly with the involvement of the legislature and the executive. In Australia, the executive government makes judicial appointments. Before a High Court appointment, there is a statutory requirement for the federal Attorney-General to consult with his or her state counterparts in order to recommend suitable candidates to the executive government. The federal Attorney-General may also informally consult professional legal bodies, serving and former judges, politicians, and relevant community groups. Once the consultation process is completed, the selected candidates are then ‘appointed by the Governor-General in Council’ as required by section 72(i) of the Constitution. While the Constitution does not prescribe any requisite qualifications for appointment, section 6 of the High Court of Australia Act 1979 (Cth) requires that candidates must have served as a legal practitioner for at least five years. Former Attorney-General Philip Ruddock also stated that appointments are based on ‘merit’.

By contrast, the appointment of judges to the United States’ Supreme Court is more transparent and consultative, as it involves both the executive and the legislature. In Article II, section 2, clause 2 of the United States’ Constitution, the President appoints members of the judiciary ‘by and with the advice and consent of the Senate’. This means that once a President nominates a person, that person then participates in a confirmation hearing conducted by the Senate

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5 A-G (NSW) v Quin (1990) 170 CLR 1, 18 (Mason CJ).
6 High Court of Australia Act 1979 (Cth) § 6.
8 Australian Constitution s 72(i).
9 Above n 6, s 7.
12 United States Constitution art II, § 2, cl 2.
Judiciary Committee for further investigation and scrutiny. The full Senate then decides whether to confirm or reject the nomination. The criteria for accepting or rejecting presidential appointments are often based on professional qualifications, integrity, political and ideological considerations, and position on specific legal controversies.

III. Critiques of Senate Confirmations

Daryl Williams and many other legal scholars note that the current system of appointment in Australia ‘has served the nation well’ and its standards are as high as any other equivalent common law court. Nevertheless, the High Court’s appointment system has faced numerous reform proposals and scrutiny since the early 1990s. Arguably, if Australia adopts a similar mechanism to Senate confirmations, the public law principles of judicial independence and impartiality, the separation of powers and public confidence under the rule of law would be better served. However, the United States’ appointment system is problematic because the possibility of over-politicisation by the Senate means these values may not be adequately protected. Such views emphasise the inadequacy of Senate Confirmations and express the need for Australia to adopt other viable alternatives.

A. Judicial Independence and Impartiality

In Attorney-General for the Commonwealth v The Queen; Ex parte Boilermakers’ Society of Australia, the Privy Council held that the judiciary has a constitutional guarantee of their independence. All judicial selection systems involve political considerations to varying degrees, as they often depend on the other branches of government to appoint judges. Yet, it is crucial that judicial appointments are protected from governmental manipulation and bias as explained in Mistretta v United States:

14 Albert Melone, ‘The Senate’s confirmation role in Supreme Court nominations and the politics of ideology versus impartiality’ (1991) 75 Judicature 68–70.
15 Ibid.
16 Williams, above n 11, 146.
19 Williams, above n 11, 146.
20 1957 95 CLR 529–40.
The legitimacy of the Judicial Branch ultimately depends on its reputation for impartiality and nonpartisanship. That reputation may not be borrowed by the political Branches to cloak their work in the neutral colours of judicial action. footnote(1989) 488 US 361–407.

A significant issue with Senate confirmations is it may reduce the judiciary’s impartiality and independence through political bias towards the legislative. 22 While judges are required to be as objective as possible when applying the law, true judicial independence and impartiality depend on the composition of the bench as selected by the other government branches. 23 Some may argue that political appointments in Australia have been common even without involving the legislature, as seen by the appointment of several former politicians. However, the High Court has not had a politician-judge since 1975. 24 According to Lemieux and Stewart, around 88% of Supreme Court candidates were confirmed by Senates under the president’s party, while opposition Senates have only confirmed 59% of candidates. 25 Although this survey is outdated, these trends indicate that a potential exists for judges to be selected based on the government’s own interests such as ideological compatibility, party affiliation, and financial contributions. 26 These factors have little to do with professional ability or legal knowledge and they do not result in the appointments of the most qualified or meritorious candidates. 27

A diverse bench is also important in maintaining judicial impartiality as it ensures that legal decisions are not influenced by a particular legal, political, or ideological perspective. 28 The Attorney-General’s Department, for example, have included ‘fair reflection’ as a criteria for selecting judges to ensure that all parts of society are ‘not unfairly under-represented in the judiciary’. 29 However, political bias found in Senate confirmations may lead to a partial and homogenous bench if the Senate decides to alter the direction of the court to make particular decisions. 30 This may undermine the integrity of the court, especially when judicial decision-making

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24 Appleby, above n 24.
26 Bryan Williams, “Say ‘No’ to Senate Confirmation of Supreme Court of Canada Appointments’ (199250 Vancouver Bar Association 207.
27 Melone, above n 14, 70.
28 Williams, above n 11, 154.
29 Malleson and Russell, above n 17, 141.
30 Lemieux and Stewart, above n 26, 2.
can shape the outcome of constitutional issues and highly controversial cases.\textsuperscript{31} Australia should not adopt a similar mechanism to Senate confirmations because it is inadequate for ensuring judicial independence and impartiality.

B. The Separation of Powers

The United States’ Supreme Court and the High Court of Australia are part of the judiciary, which is one of three co-equal branches of government along with the legislature and the executive. This division is known as the separation of powers.\textsuperscript{32} Under this principle, the three government branches have defined powers and responsibilities to avoid any distortion of power and to provide checks and balances on each other.\textsuperscript{33}

Australia’s appointment system has generated great concern because it is now uncommon for the power of judicial appointments to be vested in the executive only.\textsuperscript{34} Several legal scholars have criticised this lack of parliamentary supervision, as it allows the executive to have unfettered discretion in the appointment of judges to Australia’s highest court.\textsuperscript{35} Without enough legal safeguards, the separation of powers may be breached if the executive misuses the power of appointment to intervene in the judicial branch.\textsuperscript{36} Bryan William asserts that this risk is unlikely to occur in the United States because there is a legislative control upon the executive through Senate confirmations.\textsuperscript{37} However, very few judges and politicians in Australia favour this approach due to the strong ‘ideological and partisan’ nature of the Senate.\textsuperscript{38} Former Chief Justice Anthony Mason expressed a strong opposition to Senate confirmations, stating that it serves ‘little or no purpose apart from occasionally providing a media spectacle and continuously politicising the appointment process’.\textsuperscript{39} Australia does not have a complete separation of powers like the United States because some of the roles of the government overlap.\textsuperscript{40} There is already a simultaneous check on executive power as the Attorney-General is considered a politician and the Governor-General, who

\begin{itemize}
\item \textsuperscript{31} Appleby, above n 24.
\item \textsuperscript{33} Wilson v Minister for Aboriginal and Torres Strait Islander Affairs (1996) 189 CLR 1, 10–11.
\item \textsuperscript{35} Williams, above n 11, 146.
\item \textsuperscript{36} British Institute of International and Comparative Law, above n 35, 24.
\item \textsuperscript{37} Williams, above n 27, 207.
\item \textsuperscript{39} Anthony Mason, ‘The Appointment and Removal of Judges’ in Cunningham H (ed), \textit{Fragile Bastion: Judicial Independence in the Nineties and Beyond} (Judicial Commission of New South Wales, 1997).
\item \textsuperscript{40} Parliamentary Education Office, above n 33.
\end{itemize}
ultimately appoints judges to the High Court, is part of the legislature and the executive.\textsuperscript{41}

\textbf{C. Rule of Law: Transparency and Public Confidence}

Judicial appointment methods can significantly affect public confidence in the judiciary, which is an essential factor in upholding the rule of law.\textsuperscript{42} Because legal decisions can have far-reaching consequences on people’s lives, judges are expected to be politically neutral. Thus, it is important that the judiciary is independent from the other political branches and that appointment mechanisms are transparent and open to public scrutiny.\textsuperscript{43} However, unlike many other common law countries, Australia’s High Court appointments are secretive. In 2012, the Attorney-General’s Department published a report explaining that many High Court candidates are from the serving judiciary and are already known to the government. Thus, there is no need to make the appointment criteria and the pool of candidates available to the public.\textsuperscript{44} This is a major limitation of the Australian system, as it is difficult for the public to be confident in a legal system where the appointment of judges is unknown and possible bias can be concealed.\textsuperscript{45}

Defenders of the United States’ system argue that Senate confirmations provide greater transparency because the selection criteria and confirmation hearings are open to the public.\textsuperscript{46} However, while there is merit in this argument, Sir Anthony states that confirmation hearings tell very little about the candidates and their judicial philosophy that were not previously known to the public.\textsuperscript{47} This is because senators tend to spend more time delivering speeches, rather than examining a candidate’s qualifications.\textsuperscript{48} Moreover, Supreme Court appointments are still largely based on political considerations and ideological leanings rather than qualifications, despite established selection criteria. This is because the criteria of a meritorious judge in the United States’ are broadly defined and can still be interpreted subjectively by the Senate.\textsuperscript{49}


\textsuperscript{42} British Institute of International and Comparative Law, above n 35, 20.

\textsuperscript{43} Akkas, above n 3, 203.

\textsuperscript{44} Federal Courts Branch, ‘Judicial Appointments’ (Attorney-General’s Department (Cth), September 2012) 3.


\textsuperscript{46} Williams, above n 27, 207.

\textsuperscript{47} Mason, above n 40.


\textsuperscript{49} Webster, above n 21, 13.
IV. A Viable Alternative

The appointment of federal judges should remain with the government to avoid constitutional amendments, which are difficult to pass, but also because the appointment of judges is an exercise of public power. Senate confirmations may allow appointments to be more transparent and publicly understood, as well as to regulate the executive. However, legal commentators suggest that Australia would benefit more by establishing an advisory panel or a judicial nomination committee with criteria and assessment processes that meet democratic standards. In 2008, McClelland suggested a new approach where the executive must comply with broader consultation, publish selection criteria for the public, advertise appointments, and create advisory panels to consider nominations. These procedures have been highly successful in other common law countries like Canada, New Zealand, and the United Kingdom. These processes are also more likely to improve the quality of the High Court bench by ensuring the selection of the most qualified candidates and removing perceptions of the judiciary as a political decision-maker.

V. Conclusion

While the overall strength and quality of the judiciary have been widely recognised in Australia, the current system for selecting High Court judges is facing numerous reform proposals and public scrutiny. This is because judicial appointments are vested exclusively in the executive without any checks provided by the legislature. However, this paper demonstrates that a similar mechanism to Senate confirmations in the current American system should not be adopted in Australia. The judiciary in the United States’ is more prone to political influence by the legislature. It appears that the system’s disadvantages far outweigh any potential advantages. This is because an appointment system that politicises the judicial bench is inconsistent with the separation of powers and does not reflect the legal interests of the Australian community. A viable alternative is that the power of appointing Justices of the High Court remains with the executive, with the establishment of an independent advisory body to advise the executive by applying known criteria. This will safeguard the independence and impartiality of the High Court, allowing it to adequately perform its constitutional functions and to safeguard individuals from arbitrary powers of government.

50 Barker, above n 18, 14.
52 Appleby, above n 24.
53 Williams, above n 46.
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*Wilson v Minister for Aboriginal and Torres Strait Islander Affairs* (1996) 189 CLR 1
Rethinking Utopia

Julia Faragher

Abstract

In her short story ‘The Ones Who Walked Away From Omelas’, Ursula Le Guin manipulates her use of language to reveal the necessary horrors that lie beneath a utopia. She initially invites you into a beautiful festival exploding with colour and life, but soon exposes the child locked in the basement whose suffering is required for the city to function. She poses the ultimate question: if your society was built on the absolute misery of someone else, would you walk away from it? Or would you simply continue to live and ignore it?

In ‘The Ones Who Walked Away from Omelas’ (‘Omelas’), Ursula Le Guin manipulates language and structure to present what initially appears to be a brilliant utopia only to reveal its hidden horrors. She begins by describing a blissful and heavenly city, but a speculative narrative voice then discloses what is lying behind the utopian front of Omelas. Le Guin is in fact drawing upon many established philosophical wonderings to encourage readers to rethink the way they might be living.

The story opens with a vivid and illustrative picture of a celebratory parade in a seaside city, which firmly sets the idea of a utopia in the mind of the reader. It is written almost like a poem with its highly descriptive quality and use of traditional literary devices such as alliteration, as seen in ‘set the swallows soaring’ and ‘past great parks and public buildings, processions moved’. As Sarah Wyman writes, ‘The breathless, long lines of the first paragraph mimic the festival parade the words describe’. Le Guin aims to leave the reader feeling ‘joyous’, as the narrator later refers to it, and perhaps overly so, as it later allows her to undermine this happiness. Since she uses such shining language in her opening, such as ‘sparkled’, ‘shimmering’ and ‘sweetness’, this increases the effect of the harsher, colder language she chooses when referring to the child just by contrast. Like Lee Khanna writes, ‘Omelas’ is built on binary oppositions. Utopian citizens parade, in unity and joy, into their beautiful city; dissenting citizens walk alone and sorrowfully away from it. By beginning with such a lengthy description


of an idyllic setting, Le Guin sets up the utopia of which she later exposes the flaws.

The narrator then emerges, revealing a very speculative voice that encourages the reader to add their thoughts to the city’s construction so that they feel part of it. The use of such a unique form of narration seems unusual and perhaps jarring at first, but it eventually becomes clear that there are two advantages to Le Guin’s choice. Firstly, the narrator asks for the reader’s thoughts about the city and how it might run, as demonstrated in phrases such as, ‘I fear that Omelas strikes some of you as goody-goody. Smiles, bells, parades, horses, bleh. If so, please add an orgy. If an orgy would help, don’t hesitate’. By involving the reader in such construction, the narrator is encouraging them to become a part of Omelas, a citizen of this utopia. Secondly, the hypothetical nature of the narrator’s description allows almost anyone to relate to this city and impose their own way of life onto it. Nothing is concrete, and the story is littered with phrases such as, ‘I do not know’, ‘I suspect’ and ‘I think’, allowing the reader to be guided by the narrator’s suggestions but ultimately shape the city into the form with which they are most familiar. As Linda Simon writes, ‘The physical attributes of the community are, in any case, not significant. The point of invention is to assure readers that they would find happiness as citizens of Omelas’. It also allows Le Guin’s commentary and eventual message to reach as many people as possible. This story is not aimed at a specific audience; she intends for it to resonate with the majority of her readers.

In fact, ‘Omelas’ deals with some very hard-hitting concepts for such a short story, which might be because Le Guin is expanding upon established ideas and theories. The story is often published with the subtitle ‘Variations on a theme by William James’, which is Le Guin’s acknowledgement of what sparked the inspiration for ‘Omelas’ in the first place. In his essay, James writes of ‘millions kept permanently happy on the one simple condition that a certain lost soul on the far-off edge of things should lead a life of lonely torment’. Le Guin’s interpretation of this ‘lost soul’ comes to life as the child in the basement, and as Bruce E. Brandt’s writes, it ‘is more movingly portrayed as a child, [and] the reader is asked to ponder at some length the things that might be part of a utopian life’. Additionally, the child is tied to the idea of a scapegoat, which has its origins in the Bible. As Paula Simons writes, ‘In Biblical times, the scapegoat was a real goat, an animal sacrifice meant to carry away the sins of the people’. As Le Guin alludes to this idea by limiting

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4 Le Guin, above n 1, 903.
6 William James, ‘The Moral Philosopher and the Moral Life’ (1891) The Will to Believe and other Essays in Popular Philosophy 188.
the suffering to one child, she is able to encourage the idea of the scapegoat in her readers’ minds and capitalise on the rich history surrounding it. By implying these ideas in her story, Le Guin tackles complicated concepts that already exist and positions her readers to think about them in a new, potentially more convincing way.

One of the big questions that come out of ‘Omelas’ is whether all stories need to have a message or moral. After all, Le Guin has constructed the story so as to entice her readers with the idea of utopia, therefore maximising the impact of the reveal that the city is built upon this one child’s suffering. Kenneth Roemer writes that ‘as the narrator leaves the descriptive mode and moves to commentary, we discover that the questions are not rhetorical. They pose real ethical, linguistic, and perceptual problems involved in describing and conceptualizing utopia during the last 20th century’. Le Guin has taken her talent as a creative writer and discovered how to use it to advance a more political and ethical message that might initially seem out of place in a fictional universe. This issue is something that I always think about whenever I sit down to write a story, as I have noticed that my writing is much more focused and clearer when I have a specific message or goal in mind. Does the writer have an obligation to make their story worth reading in this way? Arguably, it makes Le Guin’s story more ‘literary’ and less ‘popular’ in terms of fiction, as it has philosophical value and not just entertainment value. Personally, I have never tackled something as big as Le Guin achieves here, and it is definitely enlightening to see how she has manipulated normal literary conventions to best shape her message. Fictional writing does not always have to be a pursuit of character exploration or a simple three-arc plot — Le Guin demonstrates that it is also possible to pursue a narrative with an agenda.

The question remains of whether the reader would walk away from Omelas or not, but perhaps Le Guin did not intend for there to be a straightforward, morally-sound answer. As Roemer writes, ‘Each reader will walk away from “Omelas” with different interpretations of the final phase, the child, and the glorious procession’. One common interpretation views this story as ‘an allegory of Western hegemony’, arguing that its ideas reflect how much of the success and wealth of more affluent, capitalist nations relies on the existence of poorer, third-world countries. As David Brooks writes, ‘many of us live in societies whose prosperity depends on some faraway child in the basement’. He continues to describe the ‘inner numbing’ that this story creates in its readers — as they notice the similarities between Omelas and their own city, they realise that they have

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10 Ibid 12.
already faced this decision and not walked away. However, walking away is not necessarily the ‘correct’ response to this story. Wyman writes, ‘To withdraw, then, from this fellowship would be comparable to betraying the social contract and abdicating responsibility for the child’s lot’. It seems as though the reader has found themselves caught in a catch-22 — if they feel they would remain, they are condoning the child’s suffering, but if they leave, they have simply removed themselves from the situation and have actually not done anything to help the city’s social problems. Barbara Bennett suggests that it is actually possible to ‘walk away figuratively, rather than literally’. Writing from an ecofeminist perspective, she lists ways that readers can achieve this by helping reshape their society rather than just abandoning it, such as ‘recycling, carpooling [and] reducing the amount of goods they buy’. It is likely Le Guin is aware that there may not be an answer as to whether we are supposed to walk away from Omelas — but it is important to think about how we might change our behaviour or mindset all the same.

Ultimately, “Omelas” encourages its readers to face the harsh reality lying behind the idea of a utopia through an initial lull into believing the beautiful picture but an eventual challenge as to how they might behave in such a society. Le Guin achieves this through descriptive, poetic language shifting into a more hypothetical, speculative form of narration. Essentially, we begin reading a beautiful story but leave rethinking exactly how our world is run.

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13 Wyman, above n 2, 228.
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From Mardis Gras to Marriage Equality: Resisting Assimilation and Embracing Transgression

Vanamali Hermans

Abstract

As public opinion around sexuality continues to evolve, social movements face the challenge of adopting those strategies most effective in dismantling heteronormativity. It is within this struggle that two dominant branches of politics arise; assimilationist politics, seeking integration within existing cultural norms, and transgressive politics, advocating a more radical platform of difference. Through an examination of foreign and domestic marriage equality campaigns, as well as the rising prominence of the Sydney Mardi Gras, this paper will show that while assimilation may be successful in gaining minority rights, only transgressive sexual politics can help achieve queer liberation.

I. Introduction

Within the Lesbian Gay Bisexual Transgender Intersex Queer/Questioning (‘LGBTIQ’) community, political strategies around the issue of sexuality are frequently contested. On the one hand, assimilationist strategies rely on tactics of inclusiveness to secure minority rights and advance LGBTIQ struggles. Marriage equality campaigns are emblematic of this political approach. In contrast to assimilationist politics, transgressive political approaches adopt a more radical platform, advocating difference rather than sameness. These politics altogether reject heteronormative institutions, which promote heterosexuality as the culturally normal and idealised form of sexuality and that have traditionally promoted oppression of LGBTIQ identity. This essay explores both the history and effectiveness of assimilationist and transgressive politics and assesses how each have manifested in contemporary queer movements; ‘queer’ in this case being a relatively new, umbrella term reclaimed by those who do not fit heteronormative cultural norms surrounding sexuality. It considers events like the Sydney Mardi

Gras, as well as struggles such as the campaign for marriage equality, analysing the strategies that have been used in each. Whilst this essay argues that within heteronormative institutions assimilation is more effective in gaining rights, it ultimately concludes that a politics of difference and transgression is more successful in achieving queer liberation because of its ability to embrace, rather than eliminate, difference.

II. The Politics of Sexuality: Assimilation vs Transgression

Since the state’s involvement from the 19th century onwards in regulating ideas about sexuality, LGBTIQ political movements and activists have responded, advocating for both social reform and liberation. Focused on opening heteronormative institutions via reinterpreting them with a critical focus on diverse genders and sexualities, assimilationist politics, such as equal love campaigns, seek integration within existing cultural norms, rather than outright rejection of them. This integration relies on abandoning deviance and instead normalising or purifying queer identity so that it is ‘homonormative’; in other words, depoliticised, demobilised and anchored in domesticity and consumption. With a hierarchy of normative sexuality operating in society, dictating heterosexuality as ‘good’ and homosexuality as ‘bad’, assimilationist approaches ultimately shift the parameters of the hierarchy so that both heterosexuality and homosexuality can be considered acceptable. In other words, assimilationist strategies do not challenge the fundamental arrangement of what is considered normative, but rather expand that arrangement.

In contrast, instead of advocating for the normalisation of queer identities, strategies that adopt a politics of transgression focus on freeing all sexualities from regulation. This strategy fights against merely acquiring minority civil rights within heteronormative society, instead focusing on the deconstruction, decentring and revision of the state’s rule over sexuality. Examples of transgressive politics include the rejection of marriage on the basis of state regulation, and advocating for the embrace of polyamorous relationships. Unlike assimilationist strategies, these approaches do not require any process of integration, but rather embrace different identities as they stand.

Historically, queer liberation movements — after the 1969 Stonewall riots in which gay activists fought back against police raids of homosexual bars and throughout
the 1970s and 1980s — adopted a politics of difference and transgression.\(^9\) Instead of trying to alter or integrate into the institutions that were subordinating queers, activists protested against sexual regulation and instead for sexual freedom; a popular message of the time being ‘innovate, don’t assimilate’ as according to activist Peter Tatchell.\(^{10}\) As queer politics progressed into the 1990s, the growing power of neoliberalism and conservative discourse resulted in many activists abandoning these radical politics, leaving social movements such as the queer movement weakened.\(^{11}\) With the rapidly expanding commercialisation of LGBTIQ communities, queer culture started appearing in mainstream society, leading to an increased desire for integration.\(^{12}\) With this commercialisation acting in conjunction with the rise of conservative politics during the Reagan and Thatcher eras, and many activists desire to remain ‘apolitical’, assimilationist politics emerged.\(^{13}\) Leaving confrontational direct action such as the initial Sydney Mardi Gras protest march behind, these politics favoured the legalisation of marriage equality, inclusion in the military and other civil rights within the status quo.\(^{14}\)

### III. Mardis Gras: From Protest to Corporate Integration

The Sydney Mardi Gras has become a pivotal aspect of queer culture from which we can examine the politics of sexuality. Now a symbol and celebration of the queer community, Mardi Gras’ development has continued to elevate the status of diverse sexualities within the public eye and political landscape. Originating from a gay solidarity protest march in 1978, the first Mardi Gras saw revolutionaries from groups such as the Communist Party, Socialist Party and the International Socialists come together on the streets of Kings Cross, risking both job loss and public humiliation.\(^{15}\) Fifty-three activists were violently assaulted and arrested in what ultimately became a demonstration of police brutality and gay resistance.\(^{16}\) However, as human rights advocate Sienna Merope has pointed out, this history of radical and transgressive politics has been exchanged for assimilationist politics of

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\(^{10}\) Peter Tatchell, ‘Our Lost Gay Radicalism’, The Guardian (26 June 2009).


\(^{12}\) Diane Richardson, Rethinking Sexuality (SAGE, 2000) 42.

\(^{13}\) Nelsen and Castronovo, above n 5, 177.


\(^{16}\) Ibid 31.
inclusiveness, involving corporate sponsorship and a position on Sydney’s tourism calendar.17

The move away from the celebration’s transgressive roots has taken many forms, including its increased focus on marriage equality. Most notably, Mardi Gras’ adoption of assimilationist politics has come in the form of the celebration’s 2012 rebranding. In an attempt to include and appeal to those who may not identify as specifically homosexual, Mardi Gras dropped the ‘gay and lesbian’ prefix, changing the event’s title from ‘Sydney Gay and Lesbian Mardi Gras’ to simply ‘Sydney Mardi Gras’ as detailed by columnist Kelsey Munro.18 Through this name change, Mardi Gras has moved towards assimilating with the wider heterosexual community, opening up the event to corporate sponsors such as ANZ, Facebook, Google and Qantas.

These businesses, all prominent within mainstream society, have lent their support to queer campaigns such as marriage equality through different promotions; one example being ANZ’s bedazzled ‘GAYTMs’ celebrating diversity, inclusion and respect as reported by journalist Scott Parker.19 Similarly, organisations such as the NSW Police Force, Australian Defence Force and political parties such as the Liberal Party of Australia, Australian Labor Party and Australian Greens have all joined the event – as academic and activist Dennis Altman has said, ‘that police, military and mainstream politicians march alongside Dykes on Bikes and drag queens is a sign of the victories, not the failures, of the gay movement’.20 Through the attendance of these organisations, the queer community has seen increased discourse around homophobia and transphobia, as well as around public policy surrounding the regulation of sexuality. For example, in 2015, discussion of discrimination was opened up and a joint agreement to eliminate homophobia was signed as a float showcasing organisations such as the National Rugby League and Australia Football League led the parade. In this sense, assimilationist politics have proven effective in promoting inclusion of diverse sexualities within branches of the community such as Australian sport.

One must consider, however, whether the elevation of queer issues within mainstream society through businesses and organisations equates to any tangible improvements in queer life. For example, despite forces such as the police now being invited to march beside queer activists at events like Mardi Gras, members of the queer community are still subject to police brutality. As journalist Alison

18 Kelsey Munro, ‘Mardi Gras Festival Goes Straight and Loses the Alphabet Soup’, The Sydney Morning Herald (Sydney, 18 November 2011).
Rourke reported in 2013, members of the NSW Police Force were found guilty of brutally assaulting a young man at Mardi Gras, despite the force’s commitment to the event’s celebration of diversity.\textsuperscript{21} Likewise, corporate sponsors of Mardi Gras such as Facebook and ANZ have been accused by journalists such as Jill Stark of exploiting the event for marketing; co-opting the rainbow flag despite holding any real commitment to the advancement of queer issues.\textsuperscript{22} Ultimately, when it comes to resisting sexual regulation, dismantling heteronormative institutions and advancing queer liberation, the transgressive politics of the original 1978 Mardi Gras prove far more effective than the Mardi Gras we see today. These transgressive politics of difference, which include critiquing police brutality and the commercialisation of queer culture, have the capacity to fight conservative ideas of sexuality with which assimilationist politics cannot grapple.

IV. Marriage Equality: Assimilating into the Moral Family Discourse

One can further examine the way in which assimilationist strategies have dominated contemporary queer politics through analysing global campaigns for marriage equality. The struggle to open up the heteronormative institution of marriage to diverse genders and sexualities has, for the greater part of the past two decades, dominated the politics of sexuality. Seen as the defining issue for queer communities since the mid-1990s, the battle for marriage equality, fought on assimilationist lines, has been effective in delivering more formal minority rights and privileges.\textsuperscript{23} In adopting a ‘family values discourse’ and attempting to assimilate into the nuclear family model (that is, a couple with children as the fundamental economic unit),\textsuperscript{24} academic Luke Gahan argues the campaign for marriage equality has had major successes in delivering queer people legal fairness under the state.\textsuperscript{25}

For example, in the lead up to the 2015 Irish Constitutional Referendum on Same-Sex Marriage, assimilationist based ‘yes’ campaigns adopted a platform based around the importance of marriage, as well as the importance of the nuclear family. Rather than resisting any attempt to measure queer life by these intertwined heteronormative institutions, many queer activists embraced this strategy. The Yes Equality campaign produced posters and materials reading ‘Vote Yes because marriage matters’, whilst the campaign’s website had a section devoted to why ‘Marriage and families matter’. Similarly, the Irish Green Party

\textsuperscript{22} Jill Stark, ‘Pinkwashing: Marketing Stunt or Corporate Revolution?’, \textit{The Sydney Morning Herald} (Sydney, 7 June 2015).
\textsuperscript{23} Warner, above n 1, 122.
\textsuperscript{24} Gill Jagger and Caroline Wright, \textit{Changing Families Values} (Routledge, 1999:10.
adopted this messaging, with its promotional material in favour of marriage equality urging people to ‘Vote yes for families’. These campaigns promised queer integration and were successful in securing a 62.1% majority in favour of marriage equality, ultimately illustrating the effectiveness of non-threatening and inclusive assimilationist politics.

Likewise, in the Australian campaign for marriage equality which has not yet been achieved, groups like Australian Marriage Equality (AME) have suggested that the campaign must welcome a shift towards moral family values in order to survive. The former director of the AME, Rodney Croome, has advocated for assimilation into the nuclear family model, calling for the Australian movement to shift away from ‘inequities’ and rather towards ‘commitment, family and abiding love’. The AME’s website has defended this assimilationist stance, rejecting the abolition of marriage and instead defending it as an important institution. This discourse in favour of marriage demonstrates the way in which assimilation has favoured state reform over radical resistance. Although laws have not yet been changed, arguments of inclusiveness have appealed to both progressive and conservative sides of society, with members of the Australian Labor Party and the Liberal Party of Australia supporting reform on these grounds.

It is through examining both the Irish and Australian campaigns for marriage equality that the effectiveness of assimilationist politics in gaining formal, legal rights can be seen. Despite the success of these strategies in opening up the institution of marriage, however, we must question whether civil rights are worth the integration required to secure them. Assimilation requires LGBTIQ communities to abandon diverse forms of identities and relationships, and instead conform to heteronormative cultural expectations, such as raising children. For many within the queer community, this is neither worthwhile nor effective in combating systematic oppression. Likewise, the assimilationist politics of the marriage equality campaign do very little to respect differences in sexuality. Regardless of Ireland gaining equal marriage rights through assimilationist politics, the 2016 LGBT Ireland Report still shows moderate rates of self-harm and suicide among queer teenagers. Although little time has passed, no consequential shift in these rates has appeared. Ultimately, like the Sydney Mardi Gras, only transgressive politics that reject historically oppressive institutions like marriage can be effective in achieving queer liberation. Assimilationist strategies of integration only further solidify sexual normativity, failing to promote or embrace those identities that cannot easily amalgamate into cultural norms or binaries. In contrast, transgressive politics deconstruct this normativity, liberating members of the queer community from such constriction.

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26 ‘Ireland Says Yes to Same-Sex Marriage’, RTÉ (Ireland, 24 May 2015).
27 Warner, above n 1, 122.
V. Towards Queer Liberation: Transgression over Assimilation

Through examining both the changing role of Mardi Gras and the marriage equality campaign within the politics of sexuality, one can observe the way in which assimilationist and inclusive strategies can have positive effects. In regards to gaining minority rights and regulation under the state, as well as elevating queer issues into the public eye, politics that support integration into heteronormative institutions and norms are non-threatening and offer favourable outcomes. Assimilation, however, fails to challenge the status quo. Through its resistance to systematic oppression and embrace of difference, only transgressive tactics can be said to help achieve queer liberation and prove more effective in the politics of sexuality.

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Europe’s Escape from the Biological Old Regime

Sarah Hodge

Abstract

What makes the present day so different to the past? The world we now live in is one that has escaped from what Robert Marks called the ‘biological old regime’. The essay looks at three key case studies: expansion within the biological old regime, the escape from the biological old regime and the aftermath of the escape. Examining the ways in which the empires of Europe were increasingly forced to battle against this natural order to continue to expand in power, wealth and population and their eventual forced escape from it can reveal a lot about both the world of the past and the world we live in today.

I. Introduction

According to American ‘world historian’ Robert Marks, the biological old regime reigned supreme over humankind for millennia. It was a natural order, which placed limitations on human societies and constantly challenged the strength of empires. Around 1500, things began to change as European empires were pushed by their natural limitations towards ‘escape’ from that regime. Imperial expansion both within the regime and after the ‘escape’ was geographical, economic and technological in nature. Examination of the aftermath of the ‘escape’, and of the ‘escape’ itself, can throw new light on the nature of European imperial expansions. The biological old regime constrained the potential of empire through its environmental limitations. It was the ambitions of empires to continue to expand, both fiscally and geographically, that defined the nature of the clashes which dominated the last centuries of the biological old regime and pushed humans into a new world.

Marks’ concept is an interpretation of French Annales historian Ferdinand Braudel’s theory of the biological ancien régime. Braudel used the association of the French ancien régime, which the French people escaped as a result of the French Revolution, to define the limitations which nature placed on humans prior to the Industrial Revolution. In Marks’ concept, the biological old regime ‘depended on the annual

2 Ibid 58.
3 Ibid 59.
flows of solar energy to supply the four necessities of life: food, fuel, clothing, and housing." It limited what humans were able to accomplish and the kinds of lives they were able to lead as ‘virtually all human activity drew upon renewable sources of energy supplied to varying degrees throughout the year by the sun.’ Population was limited by the amount of food that could be produced from the available land and the presence of disease. Braudel believed that there was ‘a constant tendency towards an equilibrium between the patterns of birth and deaths ... what life added, death took away’. The same factors that limited population also limited economic expansion. The societies of the biological old regime were agrarian, thus land and its availability dictated everything. Empire was the most sophisticated form of government under the biological old regime. Once empire had reached the limits of what it could achieve under the regime, there were only two options: continue to push the limits and decline or be forced to ‘escape’.

II. Expansion Within the Terms of the Biological Old Regime

The ship changed everything for the empires of Europe. Columbus had not set out to discover a new world but rather to aid the ambitions of the Spanish Empire. On his way to finding a new passage to Asia he unwittingly discovered something which would prove much more precious: The Americas. This new continent provided the Imperial powers of Europe with new lands and new possibilities for expansion. The ability to conquer not only the land but also the waves could have a great influence on Imperial power. The threat that a navy could pose and the wealth that overseas colonies could bring were among some of the factors that made the conquest of the seas both a maker and breaker of empires.

The problem the empires were met with when it came to expanding into the new world was that it was not ‘new’. The vast lands were already home to a significant number of people, each with their own customs, societies, beliefs and leadership systems. It was through a biological exchange, whereby the people of the new world were exposed to and contracted old world diseases and vice versa, that the Europeans were able to successfully cultivate vast amounts of the land and populate the continent with their own people. Diseases new to the native people

5 Marks, above n 1, 58.
6 Ibid 59.
7 Ibid 58–9.
8 Braudel, above n 4, 71.
9 Marks, above n 1, 58.
10 Ibid 61.
of the Americas were carried with the Europeans aboard their ships, clothing and breaths and proved catastrophically deadly. The human populations like the environments had been isolated from one another for so long that the people of the new world had no immunity to the diseases and their bodies struggled to fight the ‘invisible killer’. Native populations were decimated, leaving the continent wide-open for opportunistic European empires to take for their own uses. This was the first stage of expansion within the terms of the biological old regime.

As empires expanded economically, they were also required to reform politically. During the period from 1500 to 1800, economic thinking became vastly more sophisticated both through global expansion and through new ideas. The thinking, which had dominated the minds of leaders and subjects under the biological old regime, was that to become more wealthy, empires needed to take wealth from other empires by force. These tactics can be observed in the conquest of the new world and in the constant fighting between the European powers. During the final centuries of the biological old regime, empires expanded their power within Europe through warfare and this ultimately shaped the European state system. The resulting developments of these constant conflicts included: ‘the system of taxation and state bureaucracies to collect it, representative assemblies of various kinds demanded by the taxed subjects so they would influence the level of taxation, public indebtedness, and the initiation of national debt.’ Capitalism was driving progress and the focus of European empires shifted heavily towards their increasing global trading networks. This provided the economic wealth, which helped to facilitate the technological advances that brought selected empires out from the domination of the biological old regime.

New ways of considering wealth and doing business allowed empires to expand both geographical and economical. The Dutch East India Company and the British East India Company were the products of this new thinking. Through successful global trade, they were able to establish themselves like independent states with their own rules and eventually, in the case of the British East India Company, ‘transformed itself into a colonial power’. The rise and power of these companies

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14 Ibid.
16 Thornton, above n 12, xv.
18 Marks, above n 1, 63.
19 Ibid.
demonstrates the speed at which the world was able to adjust the way they thought and the way in which they viewed the world around them in order to take advantage of the economic opportunities that surrounded them. Through the two East India Companies, Europe was able to not only continue their global expansion successfully into Asia, but also achieve a significant shift in the scale and objectives of its expansion. Geographical and economic expansion worked together to allow the companies to flourish for centuries. It was this expansion — and particular the wealth and trade which came with it — that provided Britain with the means to industrialise and launch itself into an entirely new world.

Increased food production allowed empires to support larger populations; the price of this increase was slavery. The availability of land in the New World for cultivation by the Imperial powers of Europe allowed their populations to grown. The biological old regime ensured that population was kept at a relatively constant level with fluctuations in both directions caused only by environmental conditions or the presence of disease. The larger amounts of food grown in the new world and brought to Europe cheated the natural order. The population expansion provided Europe with the manpower necessary for their next stage in the process of overcoming the biological old regime: the Industrial Revolution. However, land cultivation in the New World required manpower too and there were few reliable alternatives locally available. To combat this compliant worker shortage millions of Africans were transported from their home continent to the New World to form part of the slave trade. Slaves drove Imperial expansion through the service they provided. In removing them from the African continent, the empires of Europe were connecting another continent and race into their ever growing and increasingly global network of trade.

III. The Point of ‘Escape’

Population pressure forced empires to begin to challenge the restrictions of the biological old regime. Between 1500 and 1750 Europe’s population rose from 80 million to 140 million. More people meant that more land was required for human use and land, unlike wealth, was finite in Europe. In Britain further deforestation for energy sources was unsustainable. Coal began to be used

23 Marks, above n 1, 66, 71.
24 Braudel, above n 4, 71.
25 Johnson DH Hughes, What is Environmental History (Polity Press, 2006) 78.
26 Marks, above n 1, 63.
29 Marks, above n 1, 65–6.
as a substitute for firewood. From here, the coal mining industry grew and transformed into deeper mining. The problem of extreme damp and water filling mineshafts prompted the development of technology to address such flooding, which in itself could draw on the resource of coal. The turn to steam power would go on to be the final pushing factor in empire’s ‘escape’ from the biological old regime. Steam power was revolutionary. Though it was inefficient at first, gradual improvements made it a technology that could be used in other situations to industrialise many areas of production. Around 1800, the Industrial Revolution pushed selected nations in Western Europe past the limits of the biological old regime.

Some historians would argue that success in the Industrial Revolution was also a question of belief. The Protestant British were able to embrace the technological advances brought by the science of the enlightenment when Catholic empires were not. This comes down to the differences in the values and beliefs of Catholics and Protestants. Protestantism arose in Europe in the 16th century through the desire to reform the Catholic Church. The individualism, which this new church has been credited with fostering in its followers, is what separated Catholic and Protestant empires when it came to the technological advances of the period of the Industrial Revolution. Thus, the empires that could best accept and strive for change were pushed with increasing speed towards limits imposed by the biological old regime.

To Marks, the switch from renewable sources of energy to fossil fuels was the key to the beginning of the Industrial Revolution. Other historians, however, have played down its significance. It was not the act of changing from the renewable to the non-renewable alone which helped to push empires past the limitations of the biological old regime. Contrary to the opinions of Marks and Braudel, it is contended that it was not until after the ‘escape’ occurred that coal and steam power was widely adopted. The most widely used energy source for the majority of the Industrial Revolution was water power. Yet, had it not been for the discovery of coal and the possession of colonies, Marks argues that Britain would have followed the same fate as China in the nineteenth century.

31 Marks, above n 1, 65.
32 Braudel, above n 4, 91.
36 Ibid 139.
37 Marks, above n 1, 65–6.
39 Ibid.
where the limits on economic production and land shortage snuffed out hope of industrial revolution.\(^{40}\) It seems that there was more at play in Britain and other Western empires dodging of economic and imperial decline. The possession of coal alone would have been no great help had they not possessed the correct social environment to accept and embrace technological expansion and the economic environment to finance it.

**IV. Afterwards**

Advances in technology irrevocably changed empires. In escaping the biological old regime, empires gained ‘labour-saving devices’ and ‘land-saving mechanisms’.\(^{41}\) The Industrialisation of the 19th century ‘lifted material constraints on food production’, causing a population explosion.\(^{42}\) Between 1750 and 1850, the European population increased from 140 million to 266 million.\(^{43}\) Britain experienced the most rapid population growth of the European empires rising from 9.25 million in 1750 to 28 million in 1850.\(^{44}\) The benefits of the ‘escape’ allowed Britain to rise to become ‘the world’s most powerful nation’.\(^{45}\) Even their warfare went beyond the limits of the biological regime, signalling the beginning of a different kind of warfare, one of industrial technology and constantly improving weaponry.\(^{46}\) Technology brought all that an empire could wish for; however, in the two centuries since the biological old regime was ‘shattered’ the environment and society has changed dramatically and gained enough distance to view the event with perspective.\(^{47}\)

The biological old regime had not only placed limits on the population, but it had also limited the productivity of the economy.\(^{48}\) Free of these limits the economy was able to flourish to new heights; but did it go too far? Industrialisation has contributed to the now very real threat of global warming. To remedy it the lives of the people of the 21st century would be drastically affected. The technology of warfare led Europe to two catastrophic world wars, and continues to destroy lives in conflicts around the world. Technology to solve problems made new ones.\(^{49}\) The population continues to grow with the unrelenting rapidity with which it began to take off at the point of ‘escape’. Perhaps the biggest question

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\(^{40}\) Marks, above n 1, 66.

\(^{41}\) Ibid.


\(^{43}\) McEvedy et al, above n 28, 19–119.

\(^{44}\) Ibid.

\(^{45}\) Marks, above n 1, 66.

\(^{46}\) Hughes, above n 25, 6.

\(^{47}\) Braudel, above n 4, 70.

\(^{48}\) Marks, above n 1, 65.

of the aftermath is what happened to the empires? The political system of empire was the most sophisticated form to exist in the environment of the biological old regime. Empire was forced all the way to its own extinction. Now empire has been ‘escaped’ just as the biological old regime was. There are new political systems have evolved within the new world which the legacy of industrialisation created.

Empires expanded out of necessity. While there may at times have been other elements at play, it was the need to maintain their old home states, in the wake of population increase and economic ambitions, which forced the constant geographical and economic expansions of empires. It was like a wheel. Population pressures started it turning and once it had begun there was no stopping it. Each individual factor was caused by another until slowly a select few empires broke free of the limitations of the biological old regime. The rise of economic wealth and power along with the development of technology could be considered chiefly among these factors. The question must, however, be posed as to whether this ‘escape’ was positive? The biological regime protected human society from becoming too large and allowed empires to rule over the people. The escape from the biological regime represents a dramatic change of roles and responsibilities. Where once humans and empires were at the mercy of the environment, after the ‘escape’ environment was at the mercy of humans and empires. The ‘escape’ allowed empires to expand sufficiently for their successful survival, but not indefinitely. The cycle cannot continue; it must stop at some time. Empires have now fallen as well as the biological old regime. Human society is no longer capable of existing within natural environmental limitations in its current form. Braudel raised the question of whether those empires truly ‘escaped’ from the biological old regime. He points out that the biological regime has the ‘capacity for short-term revival’. This is a great reminder that while humans may rule the environment for now, the future of the human relationship with the environment is not certain. It would not take much for the entire world be pushed back within the limitations of the biological old regime — as some nations and people are, even today.

50 Marks, above n 1, 61.
53 Braudel, above n 4, 92.
V. Conclusion

Throughout the last centuries of the biological old regime, successful empires were in a state of economic, technological and geographical expansion. The limits set by the biological old regime were being gradually pushed right until the final ‘escape’.\(^{54}\) It was this pushing of the limitations which caused the clashes which have come to define the western early modern period. War was a means of taking wealth from others, which evolved to become a means of gaining assets and defending economic advantages. Warfare pushed the systems of government to become increasingly sophisticated in order to finance and undertake them.\(^{55}\) The lack of space pushed the search for alternative energy sources, which in turn produced steam power and the dawn of the industrial age.\(^{56}\) Only the strongest empires survived the battle with the limitations on population and only Britain came to rise to full power and prominence.\(^{57}\) The most pronounced clash of the final period of the biological old regime was that of man and the environment. Increasingly empires encouraged subjects to go against nature, slowly producing the split of man and natural systems, which concluded in the ‘escape’ of 1800. Thus, the overwhelming imperial expansion and clash of the period after 1500 is that of man’s unnatural expansion into the environment which he once worked in partnership with.\(^{58}\) To overcome the limitations of the biological old regime man and empire were pushed to expand into a world beyond that of the natural, one that still exists today.

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Solving the Twin’s Paradox with Special Relativity

Guy Leckenby

Abstract

In this paper, we examine one of the most well known of special relativity’s apparent paradoxes: the twin’s paradox. It is regularly claimed that because this paradox contains accelerating frames that it does not belong in the domain of special relativity but must be solved via general relativity. We will demonstrate that this is not the case by considering solutions to the paradox which only involve flat Minkowski spacetime. The first is the Doppler shift analysis which considers what each observer actually sees according to the relativistic Doppler equation which finds that both observers agree the travelling twin is younger. Then we solve it analytically by considering Rindler coordinates which quantify accelerating frames in special relativity. This will give us a numeric result which shows that the Earthbound twin ages the required amount during the turnaround according to the accelerated frame. Thus, by considering the appropriate framework, we demonstrate there is no paradox involved at all.

I. Introduction

The twin’s paradox is probably the most well known of special relativity’s ‘paradoxes’ and has continued to confuse fledgeling physicists since it was first conceived by Einstein, despite the fact it was solved almost as soon as it was constructed. The large majority of analyses, however, simply point out the most obvious logical flaw and move on without taking any time to examine the subtleties of the problem. In fact, the twin’s paradox demonstrates many of the strange properties that come with a relativistic outlook. In this paper, we will examine the problem and solve it in several different ways. In doing so, I hope that the reader will be able to see how the varied pieces of special relativity come together cohesively to explain the observed phenomena.

II. The Twin’s Paradox

Here’s the problem. Consider two twins, Adelle and Chris. Adelle is adventurous and decides to jump on board the interstellar spaceship *HMS Joe is Great* where she will fly to a new colony around Tau Ceti, a star that is 12 light years away. The journey will be made at 60% of the speed of light which corresponds to a gamma factor of $\gamma(0.6c) = 1.25$. Adelle waves goodbye, jets off to Tau Ceti, turns around and comes home at the same speed reuniting with her brother on Earth. On her return, there’s considerable confusion however. Chris has seen Adelle travel at 0.6c
relative to Earth the entire time and thus undergoing time dilation by the gamma factor of 1.25; he thinks the 40-year journey has taken her 32 years. But because velocity is relative, Adelle has seen Chris moving at 0.6c so during her 32-year journey (length contraction has made the trip shorter for her, she sees his clock moving at 80% the rate of hers so Chris must be the younger one by 6.4 years! Now both twins think the other is younger — is this a paradox?

Well fortunately enough, no. This analysis has assumed symmetry in the problem when there is clear asymmetry. To return to Earth, Adelle has to undergo considerable acceleration in the Tau Ceti system which means she no longer occupies an inertial frame of reference. Chris felt no such acceleration. Therein lies the asymmetry that nullifies the paradox because time dilation is applied incorrectly to a non-inertial reference frame.

Many explanations of the paradox will simply stop here and say something along the lines of ‘special relativity can only handle inertial reference frames. General relativity is required to deal with this accelerating frame, so we won’t even bother’. This is not true however — special relativity can deal with accelerating frames. The difference is that general relativity treats all frames on equal footing whilst special relativity treats inertial and non-inertial frames differently. The only sense that special relativity is an approximation is that the generation of gravitational waves from an accelerating body are ignored.\(^\text{1}\) However, in these problems, there are many more significant effects of acceleration that are considered negligible so this isn’t really a problem.

The correct answer to the original question of who is younger is that Adelle is younger by the associated gamma factor. We will consider two solutions to the problem to explain this ageing difference, each coming from a different perspective. In the Doppler effect analysis, we will consider exactly what each observer sees and show how the relativistic Doppler effect accounts for the asymmetry and correctly predicts both ages when Adelle returns to Earth. Secondly, we will consider the hyperbolic motion of a uniformly accelerated frame and show that this predicts that Chris actually ages by the required factor during the acceleration of Adelle’s turnaround.

III. The Doppler Effect Analysis

In this analysis, we will consider exactly what each observer sees throughout the journey. Suppose we equip both Adelle and Chris with very powerful telescopes and flashing clocks such that in each clock’s proper time, it emits a flash of light each second. The relativistic Doppler effect discussed by Rindler\(^\text{2}\)


claims that

\[
\frac{\nu_0}{\nu_s} = \sqrt{\frac{1 - \beta}{1 + \beta}} \tag{1}
\]

where \(\nu_0\) is the frequency observed, \(\nu_s\) is the frequency of the source and \(\beta = v/c\) is the velocity as a fraction of the speed of light assuming recession is positive. In the case we are considering, we’ve set \(\nu_s = 1\) Hz in our flashing clocks. For this analysis, we’ll consider the case in which the acceleration is instantaneous and/or negligible. Although this is unrealistic, it is a limiting case of the theory and hence should produce correct predictions.\(^3\)

So let’s consider what Chris observes. As Adelle travels away from him, the frequency of her flashing clock on the outbound leg, as given by the relativistic Doppler equation, is \(\nu_O = 0.5\) Hz. He knows the outbound journey takes 16 years of Adelle’s time at the speed she is going, but because of the information rate, Chris won’t see Adelle reach Tau Ceti until his clock reads \(\tau_O = 32\) years. However, on the return journey when Adelle’s velocity is reversed, Chris will observe her flashing clock with a frequency of \(\nu_I = 2\). The time he experiences until Adelle returns is then \(\tau_I = 8\) years. Hence when Adelle returns to Earth in 32 years, Chris will have aged 40 years predicting that she aged exactly 80% the time he has.

Now let’s consider what Adelle observes. Chris travels away from her so again, the frequency observed is \(\nu_O = 0.5\) Hz. The moment of turnaround for Adelle is 16 years into her 32-year journey. Hence she will also observe Chris to have aged \(\tau_O = 8\) years at the time of turnaround. However, after the turnaround she observes a frequency of \(\nu_I = 2\) for 16 years, so the time that elapses for Chris on her return journey is \(\tau_I = 32\) years. Thus Adelle correctly observes that Chris has aged 40 years whilst she has only aged 32.

So by considering exactly what each observer sees via the relativistic Doppler effect, the paradox has evaporated and both observers agree that Adelle is younger.\(^4\) Furthermore, we have achieved this without ever considering acceleration. There is symmetry on both the outbound and inbound journeys; both twins observe the same red- and blue-shift factors. The fundamental asymmetry that allowed the correct conclusion is that the transition from red- to blue-shift occurred at Adelle’s turnaround. She shares equal observing time for both the red- and blue-shifts. However, Chris doesn’t see Adelle turn around until she’s almost home and thus the increased frequency from the blue-shift can’t catch up, giving the desired result.\(^5\) This result is particularly well demonstrated by Figure 1 where the signal that Adelle observes is seen in Figure 1a whilst the signal Chris receives is seen in Figure 1b.

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\(^5\) Weiss, above n 3.
(a) Adelle receives the signal from Chris' flashing clock.  
(b) Chris receives the signal from Adelle's flashing clock.

Figure 1: With Adelle travelling at 0.6c, the spacetime diagram shows the flashes of light received by both Adelle and Chris throughout the journey. As evident, Adelle sees Chris age 40 years whilst Chris sees Adelle age 32 years.  

The sceptic will say at this point ‘well hang on, regardless of what they observe, couldn’t the twins deduce that the other’s clock is running slower than theirs? How can you have a difference in what they theoretically deduce and what they actually observe?’ This is the Time Gap Objection and it says that if Adelle calculates rather than observes, she will deduce that Chris magically ages 6 years during the instantaneous turnaround.

This isn’t really a problem because that deduction is a result of her changing inertial reference frames. The inbound reference frame says the turnaround happens at \( t = 12.8 \) years for Chris whilst the outbound reference frame says the turnaround happens at \( t = 27.2 \) years. The apparent time gap of 14.4 years is simply an accounting error induced by changing inertial reference frames. We will show

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7 Davies, above n 4.
8 Weiss, above n 3.
in the final section of the paper that this accounting error is predicted exactly by the acceleration Adelle undergoes.

Now at this point, you might be thinking ‘I like how the twins’ observations match up and that the deductions about the time dilation fit together coherently, but it still seems like some magic happens during the acceleration.’ Let us deal with that acceleration head on.

### IV. Hyperbolic Motion

Special relativity can deal with any problem occurring in flat Minkowski spacetime. In this section we will consider uniform acceleration as it is mathematically much simpler. However, any type of acceleration can be dealt with by the same framework.

Given a position 4-vector \( \mathbf{r} \), we define the 4-velocity to be \( \mathbf{u} = \frac{d\mathbf{r}}{d\tau} \) and correspondingly the 4-acceleration to be \( \mathbf{a} = \frac{d\mathbf{u}}{d\tau} \) where \( \tau \) is the proper time. Consider two results which we have proved in Assignment 8; \( \mathbf{u}^2 = c^2 \) and \( \mathbf{a} \cdot \mathbf{u} = 0 \).

Now consider some observer who initially begins in an inertial frame and then feels a constant acceleration \( g \) in the \( x_1 \) direction and for the remaining spacelike components, assume \( x_2 = x_3 = 0 \). Then the equations of motion for the observer naturally are

\[
\begin{align*}
\frac{dt}{d\tau} &= u_0, & \frac{dx_1}{d\tau} &= u_1; \\
\frac{du_0}{d\tau} &= a_0, & \frac{du_1}{d\tau} &= a_1.
\end{align*}
\]

Furthermore from the results of Assignment 8, we have

\[
\begin{align*}
\mathbf{u}_\mu \mathbf{u}^\mu &= c^2 \\
\mathbf{u}_\mu \mathbf{a}^\mu &= u_0 a_0 - u_1 a_1 = 0 \\
a_\mu \mathbf{a}^\mu &= g^2.
\end{align*}
\]

Solving these algebraic equations for the acceleration, we produce two linear differential equations

\[
\begin{align*}
a_0 &= \frac{du_0}{d\tau} = \frac{gu_1}{c}, & a_1 &= \frac{du_1}{d\tau} = \frac{gu_0}{c}
\end{align*}
\]

which can be solved immediately\(^9\). Choosing an appropriate origin, the solutions are

\[
\begin{align*}
ct &= \frac{c^2}{g} \sinh \left( \frac{g\tau}{c} \right), & x_1 &= \frac{c^2}{g} \cosh \left( \frac{g\tau}{c} \right).
\end{align*}
\]

These equations of motion are termed **hyperbolic motion** because the resulting worldline is the hyperbola \( x_1^2 - (ct)^2 = (c^2/g)^2 \) in a spacetime diagram,\(^10\) as


\(^10\) Ibid.
demonstrated in Figure 2. Note that only the positive half of the parabola is shown because that is what the parametric plot considers. If the integration constants and origin had been chosen otherwise, the negative half could have been the one selected. Thus we have the position 4-vector of a uniformly accelerating observer in terms of their initial rest frame.

Despite the fact that this derivation was very simple, it demonstrates all of the crucial principles to explaining why the acceleration causes Chris to age. Consider two timelike events A and B which occur at times $t_A$ and $t_B$ in the inertial reference such that $t_B - t_A = \Delta t$. Then the path between the two events undergoing a uniform acceleration $g$ occupies a hyperbolic path and the proper time for that observer is given by $\Delta \tau = c/g \sinh^{-1}(g\Delta t/c)$ from Equation (5). Producing a plot of the proper time as a function of $g$ yields Figure 3. As is clearly evident, any acceleration will cause a decrease in the proper time that gets larger with increasing acceleration. That is, of all the timelike paths between events A and B, the one with the longest lapse in proper time is the unaccelerated one.\textsuperscript{11}

This demonstrates that if an observer undergoes acceleration, their proper time will be smaller than when compared to the stationary observer. Chris feels no acceleration so he can correctly deduce Adelle’s age on her return just from time dilation. However, Adelle underwent acceleration during her turnaround, so she has to account for the fact that Chris’s clock will run faster than hers during the acceleration. Let’s quantitatively prove this.

V. Rindler Coordinates

Whilst hyperbolic motion neatly solved the conceptual elements of the twin’s paradox by showing us that the unaccelerated frame always has the longest proper time lapse between two events, it does not calculate a numerical solution to the originally posed problem. The parametrisations given in Equation (5) have assumed convenient choices of origin and initial conditions to yield the simple result. This will not work for our case because Adelle undergoes her acceleration far away from the origin at very specific initial conditions. Hence we have to generalise our concept of hyperbolic motion with Rindler coordinates.\textsuperscript{12}

Consider a reference frame with coordinates $(t, x)$ undergoing uniform acceleration and an associated inertial frame with coordinates $(T, X)$ (note that $(t, x)$ is simply shorthand for the full 4-vector $(t, x, y, z)$ because $y = Y$ and $z = Z$ so are not of interest). Rindler coordinates are the coordinates $(x, t)$ and are interesting because they are associated with the accelerating frame; for more on Rindler coordinates, refer to Appendix A. The transformations between these two coordinate systems

\textsuperscript{11} Ibid.

Figure 2: The worldline of a uniformly accelerating observer given by $x_1^2 - (ct)^2 = (c^2/g)^2$. The steepness of the curve depends on the value of acceleration $g$. Smaller accelerations are to the right.
Figure 3: The proper time $\Delta \tau$ of a uniformly accelerated observer as a function of acceleration $g$ assuming $\Delta t = c = 1$.

are

$$X = \left( x + \frac{c^2}{g} \right) \sinh \left( \frac{g(t - t_0)}{c} \right) + X_0 - \frac{c^2}{g}$$

$$cT = \left( x + \frac{c^2}{g} \right) \cosh \left( \frac{g(t - t_0)}{c} \right) + cT_0$$

(6)

and the associated inverse transformations are

$$x = \sqrt{\left( X - X_0 + \frac{c^2}{g} \right)^2 - \frac{c^2}{a} \left( T - T_0 \right)^2 - \frac{c^2}{a}}$$

$$ct = \frac{c^2}{g} \tanh^{-1} \left( \frac{c(T - T_0)}{X - X_0 + \frac{c^2}{g}} \right) + ct_0$$

(7)

where $x$ is the spatial offset of the origin of the accelerated frame with respect to the inertial frame, $t_0$ is the time offset, and $X_0$ is the spatial offset of the moving particle.\(^{13}\) Equation (6) is a generalisation of Equation (5) and accounts for not only spatial separations but also temporal separations of the accelerated frames.

\(^{13}\) Ibid.
According to Grøn,\textsuperscript{14} Iorio\textsuperscript{15} and Knorr,\textsuperscript{16} Equation (7) gives rise to a line element of
\[
ds^2 = \left(1 + \frac{gX}{c^2}\right)^2 c^2 dt^2 - dx^2 - dy^2 - dz^2.\tag{8}
\]
The general physical interpretation of a line element in a timelike interval is that it is the proper time of an observer following the worldline of two nearby events separated by \((dt, dx, dy, dz)\).\textsuperscript{17} That is \(ds^2 = c^2 d\tau^2\). Thus we conclude that for an inertial observer sitting at a distance \(X = h\) from the accelerating observer, the observed proper time of the observer is
\[
\Delta \tau = \left(1 + \frac{gh}{c^2}\right) \Delta t.\tag{9}
\]

VI. Solving the Paradox

Thus we have all the tools required to analytically solve the twin’s paradox with special relativistic acceleration. We have analysed hyperbolic motion to show that acceleration causes a decrease in the proper time of the accelerated observer and invoked Rindler coordinates to fully quantify that for an observer of the accelerated motion.

Now let’s consider the original problem. To simplify the analysis, we will assume that \(g \to \infty\) and because this is a limiting case, the analysis should still hold up.\textsuperscript{18} Let’s consider what Chris deduces. He sees Adelle travel at 0.6\(c\) to Tau Ceti 12 light years away, instantaneously turns around and comes back. The journey takes 40 years of his time, but due to time dilation, Adelle only ages 32 years.

Now let’s consider what Adelle sees. During the 9.6 ly flight which takes her 16 years, she sees Chris age only 12.8 years due to time dilation (similarly on the return journey). Her turnaround, in terms of the inertial frame, will take her \(\Delta t = 2v/g\). Because she views herself at rest, she sees Chris as the one accelerating and predicts he will age by
\[
\Delta \tau = \left(1 + \frac{gh}{c^2}\right) \frac{2v}{g} = \frac{2v}{g} + \frac{2hv}{c^2}.\tag{10}
\]
In the limit that \(g \to \infty\), this simplifies to \(\Delta \tau = 2hv/c^2\). Since we have \(h = 12\) ly and \(v = 0.6c\), we find that Chris ages \(\Delta \tau = 14.4\) years during the turnaround. Combining this with the 25.6 time dilated years she sees during the journey, she

\textsuperscript{16} Knorr, above n 12.
\textsuperscript{17} Grøn, above n 14.
\textsuperscript{18} Weiss, above n 3.
predicts Chris will be 40 years old on this return, precisely consistent with what he experiences.

Thus we have quantitatively solved the paradox! For small acceleration windows such that we can assume $h$ to be constant, the proper time experienced by the inertial observer can be calculated from the accelerated frame. This was only possible because of the line element deduced from the Rindler coordinates which in turn were deduced from the hyperbolic motion.

VII. Conclusion

In this paper, we have analysed the twin’s paradox from several angles. In most physical cases, we considered the limiting case of infinite acceleration and instantaneous turnaround to simplify the arithmetic. First, we considered the Doppler shift analysis which showed that if we consider exactly what each observer sees, then there is no paradox at all and both observers agree that Adelle is younger by the appropriate time dilated factor, 8 years in our example. This is reassuring because the observers cannot see an instantaneous turnaround so if they did not agree, the following physical arguments would not work.

Adelle and Chris are smart physicists, however, and we showed that as they are aware of the Doppler shift, they can calculate around it and still deduce that there should be a paradox. That’s when we appealed to uniform acceleration to deal with the asymmetry in the problem. We found that an accelerated observer will always experience less proper time than an inertial observer and hence as Adelle undergoes the acceleration of the turnaround, she will see Chris age faster than her. However, because the analysis was simple, we couldn’t quantify this ageing.

Hence we referred to Rindler coordinates and the associated line element. Whilst a direct proof is beyond the scope of this paper, they allowed us to deduce the proper time experienced by the inertial observer whilst the accelerated observer undergoes the acceleration. This allowed us to show that if Adelle appropriately accounts for her acceleration, she will see Chris age exactly the required amount to deduce that he will be 8 years older on her return.

Thus we have numerically solved the twin’s paradox and shown it is no paradox at all. Furthermore, we have achieved this without the need to refer to general relativity and demonstrated that because this is a Minkowski spacetime problem, special relativity can handle it.

A. Appendix: Rindler coordinates

Rindler coordinates arise as one possible set of coordinates to describe an accelerating frame of reference in Special Relativity. The transformations from an inertial reference frame described by $(T, X, Y, Z)$ to a uniformly accelerating frame described by $(t, x, y, z)$ are given by Equations (6) and (7). The Minkowski line element is given by Equation (8).
This transformation is only valid inside the Rindler wedge which is the space given by $0 < X < \infty$, $-X < T < X$. The reason for this is because a Rindler observer experiences an event horizon along the worldline $T = \pm X$, any point outside of this quadrant is inaccessible to the accelerating and hence they cannot see past it. The Rindler wedge for $g = 1$ is seen in Figure 4.

Figure 4 shows hyperbolic lines passing through different $x$ values. For observers on these lines to maintain equal distance between themselves and others on the line, they must experience uniform acceleration of varying magnitudes. That is for an observer who is spatially ahead of the observer who occupies $x = 1$, to maintain equal distance in Rindler coordinates he must experience a lesser acceleration. Similarly, those who are spatially behind must have greater acceleration; the observer occupying $x = 0$ has $g = \infty$. Any observer could define the Rindler coordinate as within the coordinate system, all possible acceleration values occupy a worldline. By convention, $g = 1$ is chosen for simplicity.

Rindler coordinates are difficult in several regimes. Firstly they give rise to different physical observations, in particular the Unruh effect which claims that the accelerated observer will view radiation emanating from the Rindler horizon in a similar manner to Hawking radiation. Furthermore, Rindler observers have no shared concept of simultaneity, something that is expected of an inertial coordinate system. This is a result of the fact that the laws of physics are different in an accelerated frame in Special Relativity which makes them very troublesome to deal with.

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22 Wikipedia, above n 19.
23 Toth, above n 20.
24 Gleeson, above n 22.
Figure 4: The Rindler coordinate chart otherwise known as the Rindler wedge. It demonstrates lines of simultaneity in Rindler coordinates.\textsuperscript{25}
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The Habits of Highly Successful Cyborgs: Artificial Enhancement and Equality

James Edgar Lim Tjen Yao

Abstract

Artificial human enhancement, which may involve both genetic modification and cyborg-like enhancements to our physical capabilities, has become a distinct possibility. In addition to the great improvements enhancement might bring to our wellbeing, it can also exacerbate serious social problems, such as economic and political inequality. In this paper, I explore some of these problems. In addition, by building on theories of social justice by established philosophers such as John Rawls, Elizabeth Anderson and Debra Satz, I propose a list of principles which can regulate the inequality caused by artificial enhancement in a society of free and equal citizens.

I. Introduction

Walk into any library or bookstore and you will probably find a section on self-improvement. Rows of books on improving your memory, intelligence, social skills, motivation, physical wellbeing, romantic capabilities and other assorted desirables. The methods subscribed are just as abundant as the goods they claim to supply: list-making, meditation, cognitive puzzles, and many more. But imagine if you picked up a book that told you to simply visit your nearest ‘enhancement kiosk’ and order a neural interface device to improve your intelligence. This scenario, while futureuristic, is not implausible. Some have estimated that ‘By the end of this century, and quite possibly much sooner, every input device that has ever been sold will be obsolete’. Brain implants have the potential to transmit information directly to our minds, increasing our cognitive capacities, while other technologies, such as artificial organs, promise to extend our lives far past their natural expiry dates. In addition, genetic enhancement could improve all aspects of human nature, from physical capabilities to one’s moral aptitudes, such as the ability to express sympathy. The near future comes with wild possibilities for improving the human condition.

But human enhancement technologies (HETs are also morally controversial. Many recoil at the notion of modifying ourselves in such ‘unnatural’ ways. Some accuse

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scientists and engineers of ‘playing God’. Others object to it on the grounds that it changes human nature. Many of these are interesting and challenging issues in moral philosophy. Particularly concerning are the possible social costs related to HETs, in particular, the problem of social inequality that these technologies may exacerbate. I believe that while there is nothing intrinsic about HETs that makes social inequality unavoidable, the sheer scale and potential of them to modify human abilities create a correspondingly large potential for inequality and other socially undesirable consequences. I like to think that we can overcome these challenges, and in this essay we will look at some ways in which we can and should constrain artificial human enhancement.

In the second part of this essay following this introduction, we look at some objections against transhumanism grounded in the social consequences of HETs. The argument from positional goods implies that if everyone pursues certain kinds of enhancements, the benefits that we get from enhancing will cancel each other out, and only the rich, who can afford to be enhanced to a greater degree, will benefit from them. Another argument claims that the democratic ideal of equality is grounded in certain similarities, and human enhancement will remove these similarities. Further arguments suggest that human enhancement will erode our feelings of solidarity for one another, reducing what we are willing to do for the least fortunate in society. By considering these concerns in detail, we will not only be able to assess how sound they are, but whether they can be addressed without shutting down the possibility of any kind of human enhancement.

The third part of this paper seeks to address the concerns of social inequality. Assuming that at least some forms of HETs do threaten equality, what kind of institutions and arrangements should we implement to regulate them? In a Rawlsian spirit, we aim to develop some principles that could guide the basic institutions, such as the law, in implementing a fair approach to using HETs in society. Of particular concern is the enhancement of cognitive skills, such as memory and intelligence, because they play a large role in determining our opportunities in modern society. Based on existing theories about relational egalitarianism by Elizabeth Anderson and theories on education by Debra Satz, I propose a set of principles that limit the unequal use of enhancement so that the least enhanced members of society will enjoy a decent life as citizens. These principles prescribe a minimum standard of enhancement that society must guarantee for all individuals, which depends on how enhanced the most enhanced individuals are. This is called a relational adequacy approach to fair enhancement.

The fourth and final part addresses the implications of my theory so far on paternalism and enhancing children. Does a minimum level of enhancement mean that paternalistic laws are required to ensure that everyone meets the standard? Should the enhancement of children be compulsory? Drawing on my analysis in the previous parts, I conclude that while enhancement need not be mandatory
for adults, we might have to make some enhancements compulsory for children, depending on the degree to which other members of society enhance themselves. I also consider the alternate possibility of levelling down, where we prevent people from enhancing too much, rather than make some enhancements compulsory. The choice between these two alternatives, I think, is something that may have to be settled in the future, depending on the benefits that HETs actually confer.

II. The Case against Enhancement

The first argument we address is the argument from positional goods, which attacks the enhancement of attributes like height, intellect and athletic ability – ‘goods that confer an advantage only if others have less of them’. Height, for example, is a paradigm of a positional good because a tall person is considered tall only because everyone else is relatively short. They can see over the heads of their peers, and are considered attractive, but if everyone invested the same amount of resources into becoming taller, nobody would benefit from their investment, as originally tall people are still tall, and originally short people are still short. Resources would be wasted, and the whole endeavour is self-defeating. But it is hard, without coercive measures, to prevent people from seeking enhancements, because each agent is stuck in a collective action problem. While it would make most sense for nobody to pursue positional goods, every individual stands to gain from doing so. If I increase my height and everyone does not, I am taller than everyone else. If I do not, and everyone else does, I will be left behind. HETs could trap us in a ‘socially harmful arms race’ that the rich are likely to win, as they can simply outspend the rest of society to attain that desired edge. It is better that we ban enhancements, saving ourselves the trouble before it happens, so the argument goes.

However, it is not clear that this argument is a decisive blow to transhumanism because many enhancements provide goods that are not only positional. Health and longevity clearly fall into this category. Intelligence too, does not only help us compete against others, but also helps us solve problems in daily life with greater ease. So some enhancements provide absolute goods that are useful regardless of whether others have them. Bognar is dismissive of this, claiming that ‘[it] must be shown that its benefits must outweigh its harms’. But I think that certain enhancements to cognitive and physical capabilities do have quite clear absolute benefits. Memory and intelligence are candidates of this. There are other examples. Imagine a society where the rich need on average 4 hours of sleep, while the poor need 6 (of course people would be able to sleep for 10 hours if they chose to). The rich would be able to get more work done in a day, providing them access to higher paying jobs. But at the same time, everyone else has more hours in the day which they can use to work, socialise and relax. So I think there are at least some reasons

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3 Ibid 21.
to think that people in this society are better off than the one we live in today, where everyone needs about 8 hours of sleep.

Enhancement may also benefit society through positive external effects. For instance, a large number of intelligent people in society may benefit all people in society through scientific progress, better policy making, and a well-informed electorate. Even if those who enhance do not do so with the intention of improving society, everybody benefits through what is called external effects or network effects. Bognar is again sceptical, writing that ‘it is also possible that the positional aspect of a good “crowds out” its network effects, so that pursuing it remains collectively self-defeating’. In other words, the resources that we collectively waste on enhancing positional goods may simply exceed what we gain through external effects. He thinks that the net benefit or harm HETs have is an empirical question which cannot be settled in advance. Contrary to him, I think that there is already some evidence in support of enhancing at least our cognitive and social skills in education. Like the enhancement of intelligence, education aims to improve our cognitive skills, knowledge, and knowledge acquisition. The schooling system also improves our social skills by forcing children from different backgrounds to interact with one another in a common space. It has both positional and non-positional benefits. An individual benefits from being more educated than her peers, but society benefits from an educated population. Modern society has come to a consensus that the benefits of education vastly outweigh the problems posed by its positional aspects, to the extent that most countries subsidise it in some way or another. There are of course limits to the social usefulness of education. Some societies, particularly in East Asia, pour vast amounts of resources into education, where children are forced to spend many hours a day studying. The marginal benefits, at such a level, may not justify the resources spent. Bognar may therefore be right that at some point, the resources that we spend in attaining positional goods outweigh their benefits. Nevertheless, it is not obvious that all artificial enhancements cross this threshold of social usefulness. Goods such as beauty and height may have benefits disproportionately small to the costs described by the positional goods argument, but the same cannot be immediately said of health and brainpower.

A second argument, articulated by Francis Fukuyama, is the powerful notion that ‘we need to be the same in some one critical aspect in order to have equal [sic] rights’. Indeed, equality seems to imply similarity in one morally relevant way or another, and enhancement, taken to extremes, could remove such similarity. But this similarity could be treated as a broad, threshold value rather than sameness in the strictest sense. For example, we could say that all creatures with rational autonomy and a certain level of awareness are entitled to equal rights. Unless we

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4 Ibid 22.
modified human beings to be less aware and autonomous than they already are, all humans, enhanced or not, would not lose their rights. I think that this comes closer to our intuitive understanding of some of these properties. We often speak of autonomy as a binary value. A creature is either autonomous or not, and not even the most intelligent human is more autonomous than the dimmest one. There could, however, be an upper limit of some property that exists in addition to the lower one. Extremely enhanced beings might not need the rights we enjoy, either because they are powerful enough to guarantee it themselves, or because they are not interested in liberty and subsistence, or any of the other things we cherish. In such a scenario, the similarity underlying equality may be treated as a range property, in which all beings that fall within the upper and lower thresholds have equal rights. Rawls, in *A Theory of Justice*, describes equality as a function of both threshold and range properties. He writes that ‘the capacity for moral personality is a sufficient condition for being entitled to equal justice’ and that ‘Nothing beyond the essential minimum is required’.\(^6\) He also claims that we can derive equality from natural capabilities by selecting ‘a range property ... and to give equal justice to those meeting its conditions’.\(^7\) If everybody, as Rawls thinks, meets the basic minimum of having a sense of the good and a sense of justice, they fall into the right range and are therefore entitled to equal concern. So I do not think that modifying our characteristics, within certain limits, poses any necessary threat to equality.

A final argument, by Michael Sandel, asserts that enhancement will cause us to view and treat each other differently. He argues that HETs pose a threat to equality because we will tend to take responsibility for what we have. The more we enhance ourselves, the more we are likely to think that our position in society is something we earn, rather than something that we chance upon. According to Sandel, social solidarity requires understanding the giftedness of our lives – ‘a consciousness that none of us is wholly responsible for his or her success’ which ‘saves a meritocratic society from sliding into the smug assumption that the rich are rich because they are more deserving than the poor’.\(^8\) We may speculate that the pervasion of this ‘smug assumption’ will result in a loss of liberal values. No longer will we think that all humans are equally deserving of concern. Welfare systems and charities will lose their support and the poor will live much harder lives than they do today. This does not come close to the slaughter and subjugation that Annas warns us against, but because of its conservative predictions, it is more realistic. Dov Fox notes that, in some empirical studies on medical disabilities, people’s sympathy and/or indifference to a person’s condition depended on whether ‘the condition is

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\(^7\) Ibid 508.

perceived to be caused by factors that are under her control’. 9 For example, women who declined offers for prenatal testing of Down’s syndrome were blamed if they gave birth to a child with the disease. 10

But while there are many ways in which the ability to control our circumstances and the corresponding notions of moral desert do explain some of the ways in which we view each other, it does not explain all our institutions and intuitions. Most of us recognise, at some level, that many rich people do not deserve their riches, but rather inherit them from their parents. However, a sizeable portion of people do not think this fact reduces their entitlement to them. We also readily reward people who benefit from their natural talents. The naturally-talented pianist gets just as much applause as the person who put in 10,000 hours of hard practice. It seems that while we are a lot less sympathetic to those who are responsible for putting themselves in bad situations, we do not think of people any less for achievements they make from the natural lottery. Sandel’s argument does give us some reason to be concerned about enhancement, but there is far more at play in the way we treat each other than our perceptions of how much people deserve what they have. That said, I think that Sandel’s concern with enhancement is not anything specific to it, but the scale at which it can modify our ability to control our circumstances. Education, for instance, gives parents some control over their child’s abilities, just not as much as HETs. The sheer power of technology is both terrifying and intoxicating. For example, some have predicted that with the aid of nanobots, ‘human brains will be able to connect to the cloud’ as soon as the 2030s. This will give us the ability to multiply our intelligence and processing power ‘just like I can multiply intelligence with my smartphone thousands fold today’. 11 Human enhancement is like sending our children to special classes, if those classes gave us comic-book superhero abilities. If such classes existed, Sandel would oppose them too. As he writes ‘Bioengineering gives us reason to question the low-tech, high pressure child-rearing practices we commonly accept... [which] represents an anxious excess of mastery and domination that misses the sense of life as a gift’. 12 Parenting today, if taken to extremes, is almost as bad as enhancement. It is only because enhancement gives us the capability to control our natural capabilities to a far greater extent, thereby giving us almost complete control over our fates, that Sandel opposes it more vehemently than extreme parenting, which offers only limited control. So underlying Sandel’s concerns with HETs is simply the

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10 Ibid 607.
12 Sandel, above n 8, 82.
knowledge that they bring about far more power to change the way we are. This power is not different in kind from the power that education and child-rearing afford us, but different in degree. Just as there are many people who are concerned about inequality in parenting and education, which has the power to greatly affect our prospects in life, it would be wise for a social theory on human enhancement to take Sandel’s argument into account. In response to all these worries we have looked at, the answer to some might be that human enhancement ought to be banned. But I think that it is worth considering how we might control inequalities in a way that addresses these concerns.

III. Human Enhancement and Equality

Assuming that human enhancement does become a part of society, what would a just society with enhancement look like? As shown in previous sections, there are numerous concerns with the use of HETs, from the creation of ‘arms races’ of positional goods, to the idea that the rich will treat the poor badly due to a sense of entitlement and lack of sympathy. In this section, we will explore some principles on enhancement based on existing works in social theory. We start with works that describe minimal conditions for society to function as a setting in which people cooperate and obey laws, and move on to theories that argue for a basic set of goods or capabilities that a person should be able to enjoy. By analysing these theories and their underlying concerns, we may derive a list of conditions to place on a society that wishes to embrace human enhancement. I propose the following:

The least advantaged members of society should have means to enhancements (both cognitive and physical) that will guarantee:

(a) the ability to seek protection against harm and coercion from others, particularly the most enhanced individuals, either through their own strengths, cooperating with others, or appealing to institutional arrangements with power over the most enhanced

(b) that they have some skill to contribute to society, thus allowing them to cooperate with even the most enhanced members of society

(c) the cognitive skills required to prevent manipulation or deception by the most enhanced members of society

(d) the self-confidence required to make autonomous decisions

(e) access to a decent variety of occupations

(f) respect from all other members of society, even the most enhanced

(g) the ability to participate on equal footing in public decision-making with others, such as jury duty and voting

(h) that no entrenched social classes will arise, with mixing of the most enhanced and least enhanced in social settings, and with demonstrable social mobility.
This list may not be comprehensive, and at certain points vague. But with some elaboration, I hope to sketch out a non-trivial set of moral rules that could guide future societies.

I would like to note that the conditions adopt a relational adequacy approach to addressing the inevitable inequality in human enhancement. It sets a minimum threshold describing what every person in a society is entitled to. This threshold depends largely on what others, particularly the most fortunate, have. If the least well-off in society are in a position in which they have relatively adequate access to goods and opportunities, we may assume that every other person is as well. This is why we are concerned with what the least well-off have in relation to what the best-off have.

While the principles directly address what the least well-off are entitled to, they also contain implications for social institutions and attitudes. For example, suppose that 100 years in the future, 10% of humans are smart enough to manipulate and deceive the bottom 10% quite easily. One solution involves bringing the bottom 10% up to a level where this deception is hard. Another involves bringing the top 10% down. But yet another might be to impose strict penalties on deception, with competent legal authorities to detect criminals and enforce the law. Or we could do a bit of all three. So the conditions I have proposed do not simply mean that we should talk only about what the least well-off have, but that we should talk about the way the whole society is structured, and the way this structure affects the least well-off.

My proposal here is owed largely to Debra Satz, who applies a similar approach to education. She argues convincingly that because educational adequacy has to be understood in reference to citizenship, ‘we will endorse only conceptions that contain comparative and relational elements’.  


This is because the ability of a person to function as a citizen largely depends on one’s access to economic and social goods relative to others. As Satz writes, ‘large inequalities regarding who has a real opportunity for important goods above citizenship’s threshold relegate some members of society to second-class citizenship, where they are denied effective access to positions of power and privilege in the society’.  

\[\text{Ibid 637.}\]
cyborgism the most, from enhancing so much that it causes the unenhanced to fall below the standard of relational adequacy. We shall consider that alternative (of levelling down) in section 4. Another reason to prefer a relative adequacy approach is because a person’s capabilities, competencies and wellbeing depend partly on social arrangements. As Daniel Wikler points out, things like the height of stairs and the size of grocery store bags depend on our height and strength. As the majority of humans increase their faculties, we might expect that these social arrangements will change. This has implications on those who are left behind. This is why many of the conditions I propose have relational aspects to them.

Now for the justification of the above conditions. Condition (a) comes from Hobbes’ theory of political philosophy. Hobbesian contractualism is premised on the notion that all humans are roughly equal in physical and mental capabilities. He notes that even ‘the weakest man is strong enough to kill the strongest, either by a secret plot or by an alliance with others who are in the same danger that he is in’. To Hobbes, this fact is a necessary condition for the formation of a society. It is only because nobody can guarantee their own security, that people form a society which regulates the use of violence and coercion. They sign a hypothetical ‘social contract’, which promises their safety in exchange for cooperation and obedience. No man is an island, but only because no man can afford to be. Violating (a) will undermine the very bedrock of Hobbesian society. While most of us today do not believe that Hobbes’ account of human nature was complete, this condition is important because we want not only to be safe, but to be free from possible oppression. Imagine a world with a class of invulnerable beings. They cannot be coerced, and may therefore not be subject to rule of law, while they could impose their will on the rest of society. Even if they happened to be benevolent, we would still be threatened by their lack of accountability. Now, condition (a) would be redundant if we were all enhanced enough to guarantee our own safety and independence, but I think that it will be a long time before we get to that point, and we need to figure out how to handle the inequality that we see in the meantime.

Condition (b) is derived from Rawls. Rawls begins his seminal book, *A Theory of Justice*, by describing society as a ‘cooperative venture for mutual advantage’. He writes that in society, ‘There is an identity of interests since social cooperation makes possible a better life for all than any would have if each were to live solely by his own efforts’. I think this line captures the important point that in a functional society, people are generally incentivised to treat others as equals. Because even the richest and smartest usually have something to gain from the least fortunate, they

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17 Ibid, above n 6, 4.
18 Ibid.
have reasons to cooperate. In the future, if there are people so enhanced that they stand to gain nothing from cooperating with the unenhanced, they might simply choose not to do so. We would see a rise in an entirely separate class of persons, where the upper class need not share its wealth, knowledge and resources with the lower ones. Moreover, the lower class might still be dependent on the upper class, leading to an asymmetry in power relations. In short, a failure to abide by condition (b) is a recipe for oppression and exploitation of the unenhanced. We have already seen some extreme asymmetry in history. The feudal system, for example, provided landowners and lords few incentives to treat peasants well. While the nobility benefitted from the labour of serfs, each individual serf was dispensable. A small number of extremely intelligent and rich persons might create a new kind of feudalism. So condition (b) is one that we should take care to heed.

The two conditions we have just discussed tell us the least we must do in order to guarantee a minimally cooperative society. Even though the most enhanced individuals might cooperate with the least advantaged in ways we might recognise, vast inequality is not ruled out by these principles. We want substantive principles that describe a democratic society which protects all people from exploitation and guarantees a decent standard of living. This is where egalitarianism, the basis for conditions (c) to (f), comes in.

There are many forms of egalitarianism, but I draw on what is called relational egalitarianism, as described by Elizabeth Anderson. According to her, egalitarianism has two goals. Firstly, to ‘abolish oppression – that is, forms of social relationship by which people dominate, exploit, marginalize, demean, and inflict violence upon others’.19 Secondly, to establish a ‘social order in which people stand in relations of equality’ where ‘one is entitled to participate [in discussion] ... that no one need bow and scrape before others or represent themselves as inferior to others as a condition of having their claim heard’.20 I use this description of egalitarianism not only because I think it is a good way to think about equality, but because it addresses many of the concerns voiced by opponents of transhumanism. Relational equality can tell us when the rich have taken the pursuit of positional goods too far, alienating their less advantaged competitors. We may also address some of Sandel’s concerns, as a relational egalitarian society is not necessarily a meritocratic one. We are not concerned with whether a person is responsible for their fates, or what they deserve, but what a person is capable of doing in relation to others and whether they attain respect from their peers.

What, in concrete terms, does Anderson’s version of egalitarian mean for human enhancement? Anderson herself provides a detailed account of what it takes to be function as a human being, a ‘participant in a system of cooperative production’,

20 Ibid.
and as a ‘citizen of a democratic state’. I will highlight some of these, which include ‘the self-confidence to think and judge for oneself’, ‘access to means of production’, ‘access to the education needed to develop one’s talents’, ‘freedom of occupational choice’, ‘the right to receive fair value for one’s labour’, ‘the social conditions of being accepted by others’, ‘and not being ascribed outcast status’. HETs, I think, have the potential to deprive the least fortunate of all of these. If one is far less intelligent or physically capable than her peers, she may lose the self-confidence to think for herself. She may have a very limited choice of jobs, greatly restricting her access to means of production and freedom of occupational choice. She may be easily deceived by her super-intelligent but amoral employers, resulting in unfair value for her labour. Her lack of enhancement may result in her having an outcast status and a lack of acceptance from others. A good set of egalitarian principles, if followed, should prevent all of these from occurring, or at least restrict them to levels of inequality seen in advanced democratic societies today.

It is directly from Anderson’s account that we derive conditions (c) to (f). Condition (c) states that even the least enhanced should have the cognitive skills to protect themselves from overt manipulation and deception. This prevents exploitation and ensures that people get fair value for their labour. Condition (d) guarantees some self-confidence and self-worth, which are important aspects of one’s ability to make decisions for oneself, and therefore one’s ability to function as an autonomous agent. I do not expect that there will be universal agreement on what a person needs to have self-confidence, or that there is a necessary link between intelligence or capability and self-confidence. Sometimes the most intelligent people have less confidence than the least intelligent (as is the case in many high schools). But it has been shown, for instance, that disabled women do report statistically significant lower levels of self-esteem and confidence than their abled counterparts. If most people in society are enhanced, ‘natural’ humans might see themselves as intellectually and physically handicapped. While this perception alone might be enough to hurt one’s self-confidence, the unenhanced might also not be able to enjoy the same activities, go to the same classes, and lack the opportunities as their peers. I think it highly likely that a person in this situation will see themselves as unable to contribute and participate actively in their communities.

Condition (e) simply guarantees some freedom in occupational choice, which gives the disadvantaged the ‘wriggle room’ not to accept unfair working conditions, as well as preserve some sense of autonomy. Condition (f) merely restates Anderson’s emphasis on being accepted by others and not being ascribed outcast status, which

21 Ibid 317.
22 Ibid 318.
is instrumentally important as most people do value others’ opinions of them and base their assessments of their own worth on those opinions. People should not be discriminated against because they are perceived as primitive, mentally incapable of living in a society, or simply because they look different. Institutions and societal attitudes that prize people with certain enhancements over ‘natural’ human beings for morally arbitrary reasons make demeaning statements about those without the enhancements. An example of this might be a job that only hires people with enhanced IQ, even when unenhanced people are perfectly capable of carrying out the job.

An interesting implication of (f) is that highly visible enhancements, such as modifications to one’s skin colour, height, or physical compositions, must be regulated. As the way we look often affects our perceived value and social status, care must be taken to ensure that visible enhancements do not become the basis for social stratification and prejudice. A good analogy to this is fashion, if for instance the rich wore nothing but tailor-made suits, and the poor could only afford sweatpants and polo shirts. Such a scenario would presumably affect the ability of an individual to be accepted by others and her self-worth. In addition, the popularity of certain enhancements might be demeaning to people who possess certain natural characteristics. For example, if parents could change the skin colour of their children to whatever they desired, certain skin tones, such as a tanned, bronze colour, may become more popular. This could affect the self-esteem of those who do not have such skin tones. So condition (f) means that highly visible indicators of one’s ability to enhance must be limited.

Conditions (g) and (h) are drawn from Satz’s work. Public decision-making (condition g) is an essential aspect of citizenship in a democracy, and traces its roots to the right to group self-determination. If an individual is so disadvantaged compared to their enhanced peers that they can no longer be taken seriously in the public space, they are effectively disenfranchised and are deprived of the right to self-determination. Condition (h) ensures that social settings contain people from diverse backgrounds, facilitating the development of understanding and tolerance. Some skills, such a mutual understanding and tolerance can only come about ‘through the presence of diverse individuals’. An education that allows people from disadvantaged backgrounds to learn in the same environment as the advantaged benefits everyone. In a similar way, society has much to lose if the most enhanced do not interact constantly with the least enhanced. It will lose opportunities for individuals to cultivate mutual understanding, and it will see the development of different social classes who inhabit different spaces, take up different jobs, have different social circles and enjoy different recreational activities. Such a society is reminiscent of the feudalism of old, with an entrenched nobility and peasantry. In addition, the existence of diversity and some social mobility protects the Rawlsian emphasis on ‘the social bases of self-respect’, which I believe

24 Satz, above n 13, 637.
include the possibility of improving one’s wellbeing, expectations, or general position in life.

Admittedly, many of these conditions depend heavily on subjective, qualitative evaluation. How intelligent must someone be to be confident in her decision-making skills? How enhanced would a person have to be to be accepted by others? Unfortunately, we cannot even begin to answer this question, because we have only a vague idea of what enhancements will look like. Nevertheless, they are far from trivial. The conditions for self-confidence and social mobility in particular may be quite restrictive. Even in the world today we see societies in which the poor, women and minorities do not have access to adequate education or certain opportunities. Despite the many benefits that HETs may bring, they threaten to exacerbate these inequalities. The conditions I have proposed, if followed, may limit these inequalities to acceptable levels.

IV. Enhancement, Paternalism and Levelling Down

Does a minimum threshold imply that all citizens should be forced to undergo enhancement? I am inclined to think that people do have the right to act in ways which others consider irrational, and deprive themselves of what we consider basic rights. As Anderson puts it, democratic equality tells the person who refuses to purchase health insurance, ‘You have a moral worth that no one can disregard. We recognize this worth in your inalienable right to our aid in an emergency. You are free to refuse this aid once we offer it’.\textsuperscript{25} We can believe that every person is entitled to healthcare, without mandating it. Just because a society adopts universal healthcare, does not mean that every person with cancer is obliged to seek treatment. In a similar way, people do have the right to refuse enhancements. What matters is that society makes it available. This is perfectly compatible with our earlier analysis. Take for example a group of luddites who live in their own communities, occasionally venturing out into the cities to trade and stare at fancy cars. As long as they are not oppressed or exploited, they do not fail our test of relational equality because they chose not to engage society like the rest of us. A person’s self-worth is often linked to their ability to choose for themselves, even if those choices result in their being less capable than their peers. But paternalism downplays a person’s ability to decide for oneself, substituting it for the will of society. It is therefore an insult to a person’s self-worth if we force them to enhance in the name of preserving it. Nevertheless, society should be ready to offer its constituents enhancements that allow them to transition into ‘mainstream’ society if they chose to. The right to self-determination means that the best way to treat a person as an equal is by allowing her to make her own choices.

A difficulty with this response is that the right to self-determination, which we grant to adults, depends on the capacity for rational thought. The average adult

\textsuperscript{25} Anderson, above n 19, 330.
is more or less capable of making rational decisions for him or herself. We can interpret and predict the consequences of our actions, accept the risks and implications of them, and act accordingly. This is why we give adults the legal rights to take personal risks, but not to children or mentally ill, who may lack the capacity for rational decision-making. But to the extremely enhanced person, a ‘natural’ human might seem like a child. As Wikler puts it, ‘Before the age of cognitive enhancement, we “normals” are used to thinking that we generally do fairly well for ourselves ... But perhaps this sense of confidence is wishful thinking’. In other words, we could be wrong in assuming that we fall above the threshold of rational thought which entitles us to self-determination. The enhanced superhumans of the future may say to us ‘you are no more intelligent than our children, and make similarly foolish decisions. You are therefore under our care and must do what we tell you to, for your own good’. But I think that these superhumans would be wrong because most of us value autonomous decision-making for itself. As Mill famously put it, ‘a man’s mode of laying out his own existence is best not because it is the best in itself, but because it is his own mode’. Even when we make bad decisions, we value the fact that they were made according to our own free will. In order to prevent enhancement from undermining autonomy, we might legislate that an adult of a slightly-below-average IQ (e.g. 70) is the threshold over which we must respect the autonomy of the individual. Above this level, a person is capable of making some decent decisions, and more importantly, values their own decisions. This comes across as rather arbitrary, but rationality is a difficult concept, and such simplification allows us to unequivocally protect the autonomy of as many people as we can.

Do parents have the right to refuse enhancements on behalf of their children? Children, unlike adults, are not considered fully formed moral agents. We usually allow parents to make decisions for them. But parents sometimes make decisions for their children which greatly hurt their opportunities in life. So if some enhancements were necessary to guarantee the capabilities discussed in section 3, should those enhancements be made compulsory for children? To a certain extent, our answer to this depends on the kind of enhancement in question. With some enhancements, a parents’ decision will not have a permanent effect on their children and will therefore be easier to resolve. A futuristic eye implant that allows someone to read messages and take pictures, for example, may be installed as an adult without any lasting implications. A parents’ decision is reversible and a child can easily choose to adopt the implant when they grow up. But the same cannot be said of other enhancements. Genetic enhancements can only be made before a child is born and are therefore non-reversible. Another example of a non-reversible decision is that of cochlear implants, which are most successful in aiding hearing impaired people when installed at a young age. If a parent chooses not to enhance...

26 Wikler, above n 15, 348.
their child in non-reversible ways, the child might be unfairly disadvantaged, and fall below the minimum threshold for the rest of their life.

I think that just as compulsory schooling is an accepted part of life in most liberal democracies, including the US, the UK and Australia, compulsory enhancement could be implemented. While discretion, in many cases, is given to parents on the kind of education their child receives (e.g. home-schooling, religious schools, etc.), there is recognition that all children should receive a certain level of literacy, regardless of their parents’ wishes. In part, this is because failing to provide a child education deprives them of certain important opportunities as an adult. We mandate a minimum level of education that makes it possible for the child to function as a citizen in the future, and pursue further studies if they choose to. Similarly, I think that if society advances to the point where being unenhanced results in one falling below the minimum threshold discussed in Section 3, genetic enhancements to that minimum threshold should be made mandatory for children. This conclusion may strike some as unintuitive, and there will no doubt be much social resistance should this scenario ever come about. But I am not recommending compulsory enhancement. My argument here is that if we think that compulsory schooling is necessary to ensure that all citizens have certain important skills, and if society ever reaches the stage where certain enhancements become important for similar reasons, then compulsory enhancement should be implemented.

Instead of forcing parents to enhance their children to a level of relational adequacy, why not prevent people from enhancing to the level that the unenhanced person meets that level? In other words, equality could be fixed not only by forcing everyone to level up, but by levelling everyone down. This is a plausible alternative solution, but before we endorse it, we must consider the potential benefits to society we lose by making such laws. While equality is certainly very important to many of us, the possibility of ending various kinds of human suffering and solving a number of problems is also extremely enticing. We are left with the empirical question of how much HETs can help individuals and humanity, and the question of whether it outweighs the freedom of parents to choose for their children. Once again, we may compare enhancement to education. One solution to inequality in enhancement is preventing the education of people over a certain grade. But we choose instead to make it mandatory because we recognise the great benefits an education population can bestow on society. Although we cannot know for certain, this may be the case with enhancement. Because I am cautiously optimistic about how technology can improve the lives of people, I am inclined to think that society should be at least open to humans enhancing themselves significantly, together with all the implications we have discussed.

V. Conclusion

Why not forget about it all? Having seen all the difficulties and grave threats to equality and freedom HETs bring, this may be the response of many anti-
transhumanists. Indeed, if there are no solutions to the many problems I have raised over the course of this essay, I am inclined to agree. But banning completely the use of HETs ignores the many things humanity might gain from them. With increases in intelligence, we might find new solutions to problems that cause suffering such as climate change and poverty, while physical modifications could free us from disease and hunger. These benefits might well make the risks of enhancement worth taking. Besides, there exists the practical difficulty of preventing all members of humanity from pursuing enhancement. In order for enhancement to pose no threat to equality, it must be banned in all nations, not just a few. Because this is a tall order, I suspect that some people in some states will be able to enhance, leaving us with a small but substantial class of post-humans. In such an event, we had best know how to deal with them. With the principles I have described in this essay, we might have an idea of how to handle such situations.

Humans are an ingenuous species, and we have found ways to fix or mitigate a variety of social, environmental and physical ills that we face. With each leap in technology comes new problems, new questions, and waves of doubt. Socrates himself is said to have criticised the written word for its inability to convey beauty and knowledge. Technology sometimes causes suffering, as society adjusts to meet those demands. But looking back, most of us think that we are better off today because of our many inventions and innovations than we were 500 years ago. It is of course a leap to say that technology in the next 500 years will continue benefitting us, rather than take us off a cliff of our own hubris. But history provides us with reasons to be optimistic.

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Reducing Palm Oil Usage

Anne Murray

Abstract

‘Reducing Palm Oil Usage’ discusses a sustainability challenge I undertook in 2015: to reduce my consumption of palm oil. This challenge proved surprisingly difficult. The report begins with a summary of the serious environmental and social problems caused by palm oil production. It then details my experiences during the challenge, including a frank discussion of the problems I faced in changing my behaviour, and the difficulties I experienced in trying to influence others to do the same. The report uses system analysis to understand the production and consumption of palm oil as an unsustainable system. The final section outlines the general barriers to individual behavioural change, and possible ways to overcome these obstacles.

I. The task

Palm oil is grown in sensitive tropical rainforest areas and its production is associated with a number of sustainability issues. Palm oil is an ingredient found in many manufactured goods, that most people use every day.¹ For a two-week sustainability challenge I attempted to eliminate my consumption of palm oil.

II. Introduction

Palm oil is a critical sustainability issue because of the methods of its production and its extensive use. The report begins with an overview of the profound problems caused by the production of palm oil. This section establishes the rationale for my sustainability challenge. The second section is a summary of my experiences during the challenge, including the difficulties I faced in changing my behaviour and in attempting to influence others to do the same. The third part of the report portrays the production and consumption of palm oil as a system that needs to be shifted from an unsustainable to a sustainable path. The final section of the report analyses the barriers to individual behavioural change, and potential methods to reduce these barriers.

III. Why is palm oil a sustainability issue?

The production of palm oil has significant negative flow on effects. These include loss of rainforest, human rights abuse and large carbon dioxide emissions. The issues created by palm oil production are shown in Figure 1.

Palm oil production is a significant contributor to the serious problem of deforestation of rainforest.² Palm oil is the most extensively used vegetable oil in the world and many manufactured goods, such as processed food and toiletries, contain palm oil. The World Wildlife Fund (WWF) found that one half of all packaged items in a typical supermarket contain palm oil. Worryingly, the consumption of palm oil is increasing. World population growth and higher demand for manufactured goods from developing nations mean that by 2020 palm oil use is expected to double.³

Palm oil is predominantly grown in tropical areas. Unfortunately, these are also the areas of the highest biodiversity in the world.⁴ Indonesia grows the majority (52%) of the world's palm oil.⁵ Malaysia contributes a further 33%, with the

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³ World Wildlife Fund, above n 1.
remaining 15% grown across 25 different countries. Indonesia, despite its small land size, contains between 10 and 20% of all terrestrial flora and fauna species. Deforestation of rainforests threatens many of these species, including orang-utans, tigers, elephants and rhinoceroses (United Nations Environment Program 2011). The orang-utan is termed an ‘umbrella’ species because any efforts which protect the orang-utan will also help other flora and fauna species.

Palm oil production not only threatens native rainforest flora and fauna species, it also causes serious sustainability issues for groups living in and around Indonesian and Malaysian rainforests. Land rights violations are rife, and it is common for land to be illegally taken from native owners for palm oil production. The consequences of takeovers are severe and include killing and maiming of locals, the destruction of housing and land, and the torture of activists. According to World Vision, palm oil production is linked to forced labour of illegal immigrants, particularly children.

Palm oil is a major contributor to global warming and pollution. Callery reports that: ‘Deforestation is the second largest manmade source of atmospheric carbon dioxide, after fossil fuel burning’. The deforestation of rainforest has a two-fold consequence. Firstly, the deforestation itself emits CO2 through the burning of trees. Rainforests are also large carbon sinks and when these are destroyed, not only is all of the carbon released, but the carbon sink no longer exists. The pollution created by burning also significantly reduces air quality in Indonesia and Malaysia.

Palm oil production is an example of an industrialised system, within societies that have themselves moved from agrarian to industrialised. Technological developments have allowed greater exploitation of the land, where once subsistence farming was the most damaging human activity. Technology is a double-edged sword: improvements to technology enable “industrial-scale” agriculture, while poor technology means that collateral damage to other forests is more likely.

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6 Wakker, above n 4.
8 Wakker, above n 4.
### IV. Analysis of the sustainability challenge

**Individual Challenge**

The transition away from products containing palm oil was challenging. I began the process by trying to establish which of the products I use contain palm oil. However, it is very hard to determine those products which definitely, or are likely to, contain palm oil. There are no firm labelling laws about palm oil in Australia. To further confuse matters, there are many different names for derivatives of palm oil. Some of these are listed in Table 1.

The difficulty faced by the lack of clear labelling is compounded by a general lack of palm oil-free goods, as well as the cost of these alternatives. These problems were solved to a limited extent by purchasing guides. Several activist websites, including ‘Deforestation Education’, ‘Borneo Orangutan Survival’ and ‘Palm Oil Action Australia’ provide long lists of products containing palm oil. However, these lists are not always accurate and are not sufficiently comprehensive.

An example of my consumption of palm oil on a typical day before the challenge is shown in Table 2, and it is evident from this list that I used palm oil extensively in my everyday life. I faced some high start-up costs for the challenge; for example, I could only find one brand of dishwashing liquid that did not contain palm oil, and it was much more expensive than my usual brand.

An unexpected benefit of the challenge was that it forced me to eat healthily. The food products that contain palm oil are all processed. Eliminating palm oil inevitably meant eliminating all unhealthy snacks from my diet, and cooking all of my food from basic ingredients. I was unable to eat out at all during the challenge, because I could not determine what oils were being used. During the challenge I realised that the dietary changes required to eliminate palm oil consumption would

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**Table 1: A sample of the alternative names for palm oil and palm oil derivatives. There are many more.**

<table>
<thead>
<tr>
<th>Vegetable oil</th>
<th>Stearate</th>
<th>Sodium Laureth Sulfate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable fat</td>
<td>Stearic Acid</td>
<td>Sodium Lauryl Sulfate</td>
</tr>
<tr>
<td>Palm Kernel</td>
<td>Octyl Palmitate</td>
<td>Sodium Kernelate</td>
</tr>
<tr>
<td>Palm Kernel Oil</td>
<td>Palmityol Alcohol</td>
<td>Sodium Palm Kernelate</td>
</tr>
<tr>
<td>Palm Fruit Oil</td>
<td>Palmitic Acid</td>
<td>Sodium Lauryl Lactylate</td>
</tr>
<tr>
<td>Palmitate</td>
<td>Palm Stearine</td>
<td>Hyrated Palm Glycerides</td>
</tr>
<tr>
<td>Palmitate</td>
<td>Palmitoyl Oxostearamide</td>
<td>Etyl Palmitate</td>
</tr>
<tr>
<td>Palmloein</td>
<td>Palmitoyl Tetrapeptide-3</td>
<td>Cetearyl isononanoate</td>
</tr>
<tr>
<td>Glyceryl</td>
<td>Elaeis Guineensis</td>
<td></td>
</tr>
</tbody>
</table>

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Table 2: A description of the day before the sustainability challenge begun. Many of the products I used contained palm oil.

be a barrier for many people. Therefore it is important that palm oil is eliminated from the food products in which it is currently used.

Overall I succeeded in the challenge. However, I acknowledged that it would be hard to sustain a completely palm oil free life for an extended period, particularly because the use of palm oil is so commonplace in the cosmetics and pharmaceuticals industries.

Influencing Others

Part of the challenge was to influence others into adopting the challenge. Rooney contends that social norms and peer pressure are the most effective way of making people change their behaviour.\(^{14}\) To influence others, I engaged friends in informal conversations about palm oil in order to exert peer pressure. The friends I attempted to influence (nine in total) were all university students, studying science or law.

Overall, my attempt at changing my friends’ behaviour was unsuccessful. On reflection, it is difficult to influence people when peer pressure is from a single individual, not a group. Further, while many expressed great concern about the impacts of palm oil production, this did not readily translate into behavioural change. This was due to a myriad of factors, in particular practical barriers, a feeling of ‘hopelessness’, and even cynicism. The practical barriers most mentioned by my peers were a lack of clear packaging, and the expense of buying palm oil free products, which was particularly resented if they already owned the equivalent palm oil containing products. A lack of knowledge hindered change, along the lines of ‘even if I put in an effort to stop using palm oil, I would probably

Figure 2: The economic system of palm oil. The driving factor for palm oil production is corporations’ profit, with little attention given to social or environmental factors. This results in the sustainability issues discussed in Section III.

use it anyway without knowing’. This feeling of hopelessness was a dominant emotion. Many people argued further that there was ‘no point’ in changing their behaviour, because it would have no influence whatsoever on the overall production of palm oil. I even detected some cynicism ‘Yet another global problem I have to solve’. I now question whether it is fair to place the burden on consumers, when the issues from palm oil stem from its production. It seemed to me that there is a strong and urgent case for government intervention.

Overall, the barriers people could see to changing their behaviour meant there was little chance they would even try. I did not manage to influence anyone in a significant way.

V. Palm Oil Consumption and Production System

If we are to influence consumption patterns, it is vital to understand the system in which individuals’ choices are made. The current system of palm oil production is economically focused, as shown in Figure 2. Palm oil is extremely inexpensive to produce, and yields high returns for producers. Budidarsono et al found palm oil profitability in Indonesia was as much as $22,000 (USD) per hectare per year.\footnote{Suseno Budidarsono, Arif Rahmanulloh and Muhammad Sofiyuddin, ‘The economics of oil palm in Indonesia’ (25 October 2012, World Agroforestry Centre) <http://blog.worldagroforestry.org/index.php/2012/10/25/the-economics-of-oil-palm-in-indonesia/>} They also found global demand for palm oil was growing, particularly due to increased biofuel usage.
Palm oil consumption is driven by demand, a key variable in Figure 2. Indeed, my sustainability challenge framed the problem around consumption, and consumer choice. The reinforcing feedback loop between the consumption and production of palm oil is shown in Figure 3.

The case study of the Huai River shows that a sustainable system comes about when the economy, society and the environment are balanced. The environment depends on a healthy economy and society, and vice versa. An example of a sustainable system is shown in Figure 4.

The challenge that is evident when examining the differences between Figure 2 and Figure 4 is the transition from an economically focused system to one motivated by the sustainability of the rainforest. The views expressed by my peers present an argument for changing the nature of the system through government policy that targets production, not consumption. However, the focus of this report is on changing human behaviour and reducing consumption, while acknowledging the interplay between production and consumption. Clayton argues that because humans have a ‘causal influence’ on the environment, a focus on human behaviour must be taken to solve environmental issues.

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VI. Human behaviour and transformative change

Consumers face a number of barriers to behavioural change. Awareness of the problems of palm oil production is a crucial first step in changing behaviour. However, while awareness is a necessary condition, it is not sufficient to change consumer behaviour. Psychosocial barriers including feelings of hopelessness, and practical barriers, such as lack of clear labelling and cost, prevent behavioural change. Thus, government policy and collective action are essential to shift consumer behaviour.

The seriousness of the sustainability issue of palm oil is deepened by a lack of awareness in general society. This lack of awareness is predominantly created because environmental problems are hard to observe. In the case of palm oil, the problems are of a long-term nature and consumption is remote from production. Awareness is a crucial factor for influencing individual’s behaviour. It is needed because before someone can care about an issue, they have to know the issue exists. Caring is a precursor to behavioural change. This simple relationship is shown in Figure 5.

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However, as the sustainability challenge revealed, the relationship between awareness and behaviour is more complex than just described. Pearson et al’s studies show that the path from awareness to behavioural change is strewn with practical obstacles. The factors listed in these studies are the same as the factors I encountered when talking to individuals: a lack of knowledge, time and money. The nonexistence of clear labelling made palm-oil free shopping too time intensive. It was more convenient on many levels to buy products that did contain palm oil. Despite this, 18% of individuals in the first study and 39% of participants in the second study changed their behaviour after becoming aware of the issues surrounding palm oil production.

Clayton et al also contend that a focus on awareness is too crude, and that a more nuanced study of societal values, denial reactions, the costs of changing an individual’s behaviour and the normalising effect of many people undertaking in ‘negative behaviour’, is needed to fully understand the motivations behind consumer behaviour. Shove argues that the ‘social construction of routinized needs and wants’ is an important factor to consider when analysing consumer choices and how they impact on sustainability.

Braithwaite reasons that collective hope is needed for individuals to change their behaviour. If there is no collective hope, individuals feel hopeless, and become disengaged from an environmental cause. This was evident in my attempts to persuade people to stop consuming palm oil. Alone, people felt they could make no change whatsoever. However, if a large group of people boycotted palm oil, the measurable and visible change would be far greater, and individuals would change their behaviour in the long term.

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21 Ibid.
22 Pearson, Dorrian and Litchfield, above n 7; Pearson, Lowry, Dorrian and Litchfield, above n 20.
23 Clayton et al, above n 10, 17.
25 Braithwaite, above n 18.
Rooney portrays collective hope in a slightly different way. She argues that peer pressure, or people being influenced by authoritative figures in their lives, is more effective than trying to persuade individuals of the environmentally beneficial nature of their actions. However, she points out that the changes that they are urged to make are not ‘always comfortable or easy’.

There is thus strong evidence for both practical and psychosocial barriers to behavioural change, and for the need to move beyond consumer awareness as a solution. Collective action and government policy intervention are possible methods to aid a shift in consumer behaviour. Figure 6 depicts a system which illuminates the role that other measures, such as government intervention and collective action could play in affecting consumer behavioural change.

Westley discusses the use of ‘top down management’ to influence environmental outcomes. Top down management is the manipulation of positive and negative sanctions to shape the context in which innovation occurs. Government mandating of product labelling is an example of top down management which could have immediate beneficial effects. A study by Melbourne Zoo found 90% of visitors to the zoo supported clear labelling of palm oil on products. If companies are required to label palm oil clearly, there could be negative repercussions on the demand for their product. Furthermore, products without palm oil would have a market advantage. Thus, clear labelling could encourage companies to use alternative oils in production. This innovation would be ‘disruptive’: changing

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26 Rooney, above n 14.
28 Pearson, Dorrian and Litchfield, above n 7.
the nature of the system from being unsustainable to sustainable. Clear labelling is unlikely to occur without government intervention.

Government policy can also encourage individual behaviour change by shifting the norms around consumption. For example, a study analysing the policy effect on smoking norms by Brown found that government anti-smoking policy ‘denormalises’ smoking. This finding can be expanded to suggest that government policy widely affects the social context in which consumer choices are made, as shown earlier in Figure 4.

VII. Conclusion

I successfully completed the two-week challenge. However, I was unsuccessful in influencing others. My own efforts would be difficult to maintain in the long term, mainly due to practical issues, such as the deficiency in labelling.

Palm oil production is a serious sustainability issue. It is a major contributor to deforestation and global warming, and has driven endangered species to the edge of extinction. It also has extreme social consequences. These issues all stem from the production of palm oil, but targeting consumer demand is one way of discouraging production. There are significant barriers to behavioural change, including feelings of hopelessness, lack of awareness, and more practical considerations such as lack of labelling and the cost of alternatives. The findings in the literature align with my own experience and my unsuccessful efforts to sway others. Collective action and government policy are both methods that could have a positive influence on behavioural change. This report has argued that once collective action is achieved, feelings of hopelessness are reduced and individuals are more likely to remain politically engaged with an issue. The solution to the problem of palm oil production ultimately relies on the removal of barriers to change so that a systemic shift in the economy, society and environment can occur.

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How does the Corporatisation of Agriculture Contribute to Global Environmental Injustices?

Mia Sandgren

Abstract

This article argues that the corporatisation of agriculture creates and reinforces environmental injustices at a global scale. A review of peer-reviewed literature reveals that global agricultural businesses do not promote food security or benefits for the poor and expose the world’s poorest farmers to disproportionate risks. This situation is not just from a Rawlsian perspective. Injustices arise from the capitalist pursuit of profit, power imbalances and the separation of production and consumption in a globalised world. Popular suggestions for alleviating the injustices discussed in this paper do not address these underlying causes of injustice. A more just food system may require fundamental and profound changes to how we produce and value food.

I. Introduction

The sustainability and adequacy of food production and distribution depends on maintaining the integrity of a complex social-ecological system that supports life on Earth. Global agribusinesses are key actors in the global food system. These businesses claim to interact with other actors and the environment in such a way that promotes food security. However, in this essay I will counter these claims, arguing that global agribusinesses create and reinforce global environmental injustices through their business models and actions.

Firstly, a Rawlsian conception of justice and the nature of global agribusinesses will be introduced. Then, I will explain how corporatised agriculture hinders food security and propagates injustice. Corporatised agriculture does not allow just access to food, seeds or land and exposes poor people to disproportionate risks. I propose that these injustices are a product of power imbalances, the capitalist pursuit of accumulation and the globalised form of today’s food system. Based on this argument and, primarily, peer-reviewed academic literature, alterations and alternatives to the current food systems model will be suggested.
II. Theoretical Considerations

Much of the discourse about global hunger is framed in terms of ensuring that the world’s poor and hungry are able to access food.\textsuperscript{1} Actions to reduce hunger will be those that benefit those who have the least access to food. However, global food security is more commonly considered an issue of equality and achieving a minimum level of wellbeing.\textsuperscript{2} Everyone, including future generations, deserves access to adequate food.

These discourses are in line with the basic thrust of two parts of a Rawlsian notion of justice. According to Rawls, actions are just when they firstly maximise benefits for those who have the least and secondly ensure the protection of certain basic rights.\textsuperscript{3} This is an appropriate conception of justice for considering food systems because there is an upper limit on the quantity and quality of food required to live well. It is not necessary to improve access to food for those who are adequately nourished to the same extent that it is necessary to improve access to food for those who are starving. This essay will discuss whether globally corporatised agriculture satisfies a right to food and benefits those who have the least.

Framing this question as one of global environmental justice thus places the focus on farmers and the poor in developing nations. This essay will also consider the intergenerational aspect of justice. The sustainability of the food system is important because our current actions influence the capacity of future generations to meet their needs for food. While corporatised agriculture also raises opportunities and concerns for present-day farmers and consumers in developed countries,\textsuperscript{4} these are less relevant to my Rawls-derived global justice perspective.

III. The Nature of Global Agribusiness

Currently, global food systems are permeated by and dependent on global agribusinesses, such as Monsanto, DuPont, Dow, Bayer, Syngenta and BASF.\textsuperscript{5} These corporations provide and control seeds, chemical fertilisers and biocides

\begin{enumerate}
\item Derek Bell, ‘Environmental justice and Rawls’ difference principle’ (2004) 26 Environmental Ethics 296.
\item Gonzalez, above n 2, 603; Silvia Ribeiro and Hope Shand, ‘Seeding New Technologies to Fuel Old Injustices’ (2008) 51 Development 496.
\end{enumerate}
that are the product of their research and development. The production of genetically modified organisms (GMOs) designed to withstand biocides and producing biocides themselves are examples of technological advancements pursued by agricultural corporations. The patenting of seeds and the push to expand the production of biofuels are examples of market strategies pursued by agribusinesses.6

By patenting products and directing research towards products that will be marketable to wealthy, large-scale farmers in developed countries, these corporations make substantial profits.7 It is widely acknowledged that profit is the primary goal of global agricultural corporations.8 These businesses operate in a global food system where food is traded globally and considered a commodity rather than a right.9

Yet, global agribusinesses portray themselves as alleviating global hunger and food insecurity. They argue that by developing agricultural inputs and seeds that increase agricultural yield they are helping to feed the planet’s growing population.10 This reflects an ecological modernisation paradigm that suggests that technology and markets will provide the solution to the world’s social and environmental challenges.11 The pursuit of both profit-maximisation and hunger-minimisation through ecological modernisation has profound implications for global environmental justice, as I will show below.

III. Global Agribusiness and Increased Agricultural Production — Is This Global Justice?

Global agribusinesses and their supporters argue that industrialised, genetically modified (GM), large-scale and high-input agricultural systems are part of the solution to the challenges of global hunger and food security. The commonly cited benefits of this type of agriculture are listed in Table 1. In a comprehensive and

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6 Ibid 501; Scanlan, above n 1, 368.
8 Gonzalez, above n 2, 603; Keith Bustos, ‘Sowing the seeds of reason in the field of the terminator debate’ (2008) 77 Journal of Business Ethics 67; Ribeiro and Shand, above n 5, 498; Bennett et al, above n 7, 267; Scanlan, above n 1, 360, 365; Simon C Estock, ‘Bull and barbarity, feeding the world’ (2015) 12 Cultural-International Journal of Philosophy of Culture and Axiology 224.
9 Scanlan, above n 1, 375.
10 Ibid.
11 Ibid 365.
<table>
<thead>
<tr>
<th>Scale</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental benefits</td>
<td>Reduced application of chemicals on crops that have been GM to withstand pests and herbicides</td>
</tr>
<tr>
<td></td>
<td>Soil conservation as a result of reduced tillage</td>
</tr>
<tr>
<td></td>
<td>Reduced carbon emissions as a result of fewer chemical applications, less tillage and avoiding land-use conversion from forest to agriculture</td>
</tr>
<tr>
<td></td>
<td>Possibility to re-introduce GM versions of crop species that were discontinued because of their unsuitability</td>
</tr>
<tr>
<td>Social and economic benefits</td>
<td>Increased yield</td>
</tr>
<tr>
<td></td>
<td>Increases in income with decreases in required labour for farmers using GM seeds</td>
</tr>
<tr>
<td></td>
<td>Increases in aggregate welfare where adoption rate of GM farming is high</td>
</tr>
</tbody>
</table>

Table 1: The benefits of adopting the practices and products produced by global agribusinesses.\(^\text{13}\)

balanced literature review, Bennett et al\(^\text{12}\) found strong scientific evidence that the adoption and farming of GMOs produces benefits.

Industrialised agriculture is purported to produce more agricultural output and thereby enhance food security. Indeed, the Green Revolution introduced high-yielding varieties of crops such as rice, wheat and maize and farming methods that are important to developing nations’ food security.\(^\text{14}\) However, today’s agricultural corporations tend to focus on innovations that are profitable.\(^\text{15}\) High yielding varieties are not the focus and stress-tolerant varieties that might help the poor are only emerging.\(^\text{16}\) Consequently, the GM seeds marketed by global agribusinesses do not always produce increased yields.\(^\text{17}\) If yields are increased,

\(^\text{12}\) Bennett et al, above n 7.
\(^\text{13}\) Ibid.
\(^\text{15}\) Kalam, above n 7, 543; Wolfenbarger et al, above n 7, 154; Gonzalez, above n 2, 603; Bennett et al, above n 7, 267.
\(^\text{16}\) Bennett et al, above n 7, 267.
\(^\text{17}\) Kristin Shrader-Frechette, ‘Property rights and genetic engineering: developing nations at risk’ (2005) 11 Science and Engineering Ethics 137; Ribeiro and Shand, above n 5, 498; Bennett et al, above n 7, 257.
the benefits are not captured by those who have the least and do not necessarily satisfy other criteria for justice.

There are three types of justice: distributive, procedural and recognition.\textsuperscript{18} The first type of justice refers to how the positive and negative outcomes of decisions are shared.\textsuperscript{19}

For increased agricultural yield to be considered just according to the Rawlsian perspective used in this essay, the benefit of yield increases would need to benefit those who have the least, such as small-holder and subsistence farmers in developing countries.\textsuperscript{20} Some research shows that the benefits of GMOs have been shared equally between small-scale and large-scale farms, between developing and developed nations.\textsuperscript{21} However, other research has found that developed countries’ farmers, consumers and companies have captured most of the benefits from adopting agricultural technologies associated with global agribusinesses.\textsuperscript{22} Furthermore, the increased production resulting from industrialising agriculture is rarely used to feed the poor. Rather, the production is used to feed livestock, generate biofuels, produce cash-crops for developed nations or wasted.\textsuperscript{23} Market dynamics, consumer preferences and trade regulations also mean that any high yields from GM crops from small farms in developing countries are unlikely to be marketable on high-return markets.\textsuperscript{24} Therefore, the benefits of high-yield agriculture are unlikely to be justly distributed.

The second type of justice is procedural justice. This is achieved when decision making is participatory, unbiased and based on adequate information.\textsuperscript{25} In the case of corporatised agriculture, aggressive marketing\textsuperscript{26} or intimidation\textsuperscript{27} by global agribusinesses mean that procedural justice is often not upheld. Those who are supposed to benefit from increased agricultural yield are rarely consulted about how they would like their food security addressed.\textsuperscript{28} Decisions have been

\begin{itemize}
  \item Catherine Gross, \textit{Fairness and Justice in Environmental Decision Making}, (Routledge, 2014) 37–8.
  \item Bennett et al, above n 7, 258, 261.
  \item Gonzalez, above n 2, 597, 604, 606, 610; Ribeiro and Shand, above n 5, 496; Bennett et al, above n 7, 261.
  \item Ribeiro and Shand, above n 5; Scanlan, above n 1, 358.
  \item Gross, above n 18, 37.
  \item Bustos, above n 8, 66.
  \item Scanlan, above n 1, 371.
\end{itemize}
made based on purely scientific and marketability grounds\textsuperscript{29} by corporations, governments and global economic institutions removed from the everyday realities of food production and the consequences of their decisions. This does not represent procedural justice.

The third type of justice is recognition justice. Recognition justice involves ensuring that relevant cultures and values are recognised and included in decision making.\textsuperscript{30} Komparic\textsuperscript{31} convincingly argues that Western moral philosophy has taken an exceedingly central role in the GMO debate to the seclusion of locally specific moral systems. In addition, corporatised agriculture advances a single notion of development. This notion, based in advancing ecological modernisation and free markets, fails to acknowledge different local types of knowledge, forms of food production, values, ethics and norms.\textsuperscript{32} Thus, many refer to corporatised agriculture as a new type of colonialism or imperialism.\textsuperscript{33}

Therefore, even when corporatised agriculture produces benefits, they are neither justly distributed to, negotiated with nor inclusive of those who have the least. More agricultural production does not necessarily result in affordable, accessible and culturally appropriate food for the world’s poor.\textsuperscript{34} By assuming that more food is more valuable, like more money, the socio-cultural values of food and participation are overlooked, creating injustices. The next section turns to the risks and ill-distributed access to resources associated with corporatised agriculture and conceptualises these as global environmental injustices.

IV. Global Agribusiness and the Creation of Global Environmental Injustices

Unjust exposure to risks and ill-distributed access to environmental resources are two key categories of global environmental injustices.\textsuperscript{35} The literature pertaining to global agribusinesses speculates that global agribusinesses create both these types of injustice.

Corporatised agriculture results in exposure to risk over several spatial scales. While risks are difficult to quantify and specify, some well-evidenced, oft-cited examples of key risks are listed in Table 2. Although Bennett et al\textsuperscript{36} argues that criticisms of GMOs are in some cases unfounded and based on poor evidence,
there are many published criticisms of corporatised agricultural models that either produce or draw on strong empirical evidence.

The presence of a risk does not necessarily imply an injustice. Injustice arises when certain groups face a disproportionate risk compared with other groups. In the case of corporatised agriculture, the risks are disproportionately borne by the poor, farmers and future generations. Shiva has repeatedly drawn attention to the social and environmental consequences of corporatised agriculture on the poor in India. Ribeiro and Shand cite the example of Argentina between 1998 and 2002. While the area of GM soybeans tripled, a quarter of farmers were forced out of business, traditional food supplies were undermined and malnutrition as well as rural poverty increased. Thus, the risks of industrialised agriculture threaten poor people’s access to food. As this is a fundamental right necessary for survival, corporatised agricultural models expose poor people to a disproportionately severe risk. Gonzalez also argues that small farmers and developing countries are more affected by environmental risks and the risk of genetic pollution. Furthermore, the consequences of climate change, which are exacerbated by a dependence on industrialised agriculture, are disproportionately borne by poor people in developing nations. Meanwhile, consumers and companies in developed nations benefit from others’ exposure to risk. Thus, because corporatised agriculture places the burden of risk on those who generally have very little, corporatised agriculture is unjust at a global scale.

The corporatisation of agriculture also results in and exacerbates the inaccessibility of key environmental resources required to farm successfully. Firstly, global agribusinesses promote agriculture that relies on improved seeds. Due to the profit-driven nature of global agribusinesses, these inputs are patented and generally unaffordable to small-scale farmers who lack capital. While some authors assume that seeds should be able to be patented, argues that if the commonly accepted version of Locke’s property law was used, seeds should not be allowed to be patented because the seeds do not wholly constitute the result of someone’s labour. Thus, global agribusinesses unjustly control resources that ought to be available to those who have the least.

37 Hazell, above n 14; Shrader-Frechette, above n 17; Gonzalez, above n 2; Ribeiro and Shand, above n 5; Bennett et al, above n 7; Scanlan, above n 1; Estok, above n 27.
38 Mohai, Pellow and Roberts, above n 35; Martin, above n 19.
40 Ribeiro and Shand, above n 5, 498.
41 Gonzalez, above n 2, 610.
42 Ibid 611.
44 Scanlan, above n 1, 371; Gonzalez, above n 2, 642.
45 Bustos, above n 8.
46 Shrader-Frechette, above n 17.
PersonalandFarm Exposure to chemicals (herbicides and pesticides marketed and sold by global agribusinesses) and the resulting long-term health impacts

Contamination of non-GM crops with GMOs and the liability to aggressively-pursued, expensive prosecution should this be discovered

Resistant weeds, pests and gene spreading

Community and Region Loss of knowledge and practice of traditional farming practices

Monotonisation of diets and malnutrition

Decline in soil health, crop quality and water purity

Heightened vulnerability to unexpected or extreme environmental or economic conditions

Economies of scale, unemployment, indebtedness and loss of land causing the widening of social inequalities

Intergenerational and Global Reduced biodiversity, compromised soil health and undermined capacity of the biosphere to support life

Reduced resilience of the global food, economic and environmental systems to shocks

Increased use of fossil-fuel derived or dependent inputs, leading to climate change and associated risks

<table>
<thead>
<tr>
<th>Scale</th>
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<tr>
<td>Personal and Farm</td>
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<td>Reduced resilience of the global food, economic and environmental systems to shocks</td>
</tr>
<tr>
<td></td>
<td>Increased use of fossil-fuel derived or dependent inputs, leading to climate change and associated risks</td>
</tr>
</tbody>
</table>

Table 2: Risks associated with adopting agricultural practices and products produced by global agribusinesses.37
Corporatised agriculture also has consequences for the accessibility of land. Proponents of land sparing argue that intensive farming preserves natural land cover and biodiversity for future generations while producing more food\textsuperscript{47} and is, by extension, just. These arguments, somewhat suspiciously, play into the hands of and mirror the claims made by global agribusinesses. However, the large-scale, intensive farms often dispossess small-scale farmers of the land that supported their livelihoods,\textsuperscript{48} exacerbating hunger and poverty.\textsuperscript{49} In addition, increased profit from agricultural intensification has, in some cases, resulted in the expansion of agricultural land to the detriment of natural areas,\textsuperscript{50} depriving future generations of those environments and the services they support. When global agribusinesses and the agricultural models they support make it difficult for poor farmers to access seeds and land that support their livelihoods, existing inequalities are exacerbated in the name of profit.\textsuperscript{51} Again we see non-monetary value of goods and environmental services being undermined by the commodification of food.

As a whole, the actions of global agribusinesses can be conceived as slow violence as conceptualised by Nixon.\textsuperscript{52} That is, agribusinesses’ actions slowly deplete the resources that people need to survive: their cultural connection to the land, the health of their environment and the health of themselves. In a highly emotive essay Estok\textsuperscript{53} recognises the violence of corporatised agriculture by likening the patenting and commodification of seeds to ‘bombs or weapons’\textsuperscript{54} and ‘genocide’.\textsuperscript{55} Recognising the violence in this situation illustrates just how severe the injustices discussed are and their true impacts on marginalised people all over the world.

V. Why do Global Agribusinesses Promote Injustices?

This essay has established that corporatised agriculture does not promote justice through increasing agricultural yields and promotes injustice through unjust exposure to risk and restricting access to environmental resources. The roots of these injustices are hard to pinpoint because they are embedded in a complex global system. The following section will propose that the globalised food

\textsuperscript{47} Ben Phalan et al, ‘Minimising the harm to biodiversity of producing more food globally’ (2011) 36 Food Policy S62–71.
\textsuperscript{48} Scanlan, above n 1, 373; Gonzalez, above n 2, 606.
\textsuperscript{49} Ribeiro and Shand, above n 5, 496.
\textsuperscript{50} Teja Tscharntke et al, ‘Global food security, biodiversity conservation and the future of agricultural production’ (2012) 151 Biological Conservation 56.
\textsuperscript{51} Scanlan, above n 1, 373.
\textsuperscript{53} Estok, above n 27.
\textsuperscript{54} Ibid 224.
\textsuperscript{55} Ibid 230.
system, couched in capitalism and a grand power imbalance, creates these injustices.

Injustices stem from imbalances of power. The corporatisation of agriculture concentrates power in a small number of global agribusinesses. This concentration of power allows agribusinesses to dictate a development and policy agenda without consulting those who have very little. With this power, agricultural corporations can pursue profit unfettered by regulations or the requirement to be socially, environmentally or morally sound.

The pursuit of profit is in line with the capitalist system that underpins the global food system. Capitalism is inherently unjust and exploitative and global agribusinesses are repeatedly found to be putting profit before people and planet.

Bunker theorises that transportation infrastructure and logic powers the exploitative accumulation of capital. This argument is highly relevant to the global food system. The global transport system allows the production of food to take place far away from food consumption. Concurrently, it is profitable, and therefore in the interests of global agribusinesses, to concentrate production in certain areas and to try to overcome geographic and temporal constraints on production by using technology. This is an extension of Malm’s argument that the concentration of production in space and time is driven by the desire for and necessity of capital accumulation. The concentration of production far away from consumption has important implications for the perpetration of injustices.

When consumer demand is met by production far from where consumption occurs, it is difficult for society to recognise the impacts of their consumption. Nixon argues that because slow violence is geographically and temporally distributed, it becomes harder for the global citizenry to publicise and respond to the perpetration of injustices. Furthermore, Scanlan argues corporations use ‘grainwashing’ to portray ecologically harmful behaviour as ecological stewardship in their advertising, allowing them to continue to perpetrate violence without a backlash from society substantial enough to undermine profits. As such, injustices become a

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56 Ribeiro and Shand, above n 5, 496; Scanlan, above n 1, 357; Shrader-Frechette, above n 17, 137.
57 Ribeiro and Shand, above n 5, 498; Komparic, above n 20, 610.
58 Scanlan, above n 1, 365.
61 Nixon, above n 52.
62 Scanlan, above n 1.
product of what Hornborg terms a ‘decontextualising’ model. Decontextualised food production means that connections between production and consumption are broken to the extent that resource flows become destructive. Based on historical patterns and geographical necessities, these resource flows have tended to be destructive to developing countries, their people and their environments while those in more developed countries reap the benefits of the destruction. Therefore, the injustices of globally corporatised agriculture can be understood as the product of the pursuit of profit, the concentration of power and separation of production and consumption, facilitated by transport and the scale of the global food system.

VI. Alternative Approaches to Global Food Systems

What are the alternatives for continuing agricultural production and advancing food security in a way that more appropriately benefits the poor and does not reinforce inequalities? Three key themes emerge from the literature.

Firstly, as hunger is caused by poverty and the ill-distribution of an already adequate supply of food, trade regulations and domestic production incentives need to be adjusted to support the poor. Arrangements should be developed and changed in line with the geographic, social and cultural context of particular places and based on consultation with communities.

Secondly, because injustices arise from power imbalances and the distancing of food production from consumption, changes to the structure of the food system should support small-scale and local farming. Giving farmers and local communities more power over their own production, land and resources is the basic tenant of the global push for food sovereignty.

Thirdly, a more ecologically-sensitive approach to farming is required. Ecologically friendly, diverse, locally-based, culturally-appropriate farming is not mutually exclusive from technologically-enabled and research-driven farming. The goal of such reformed farming would be adequate production for, by and near those who need it, rather than merely increased production. As such, lower-intensity farming will produce benefits for those who have the least without necessarily

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64 Hornborg, above n 62; Bunker, above n 58.
65 Scanlan, above n 1, 358; Estok, above n 27, 225; for a detailed explanation of possible regulatory reforms, see Gonzalez, above n 2.
66 Komparic, above n 20, 612.
67 Hornborg, above n 62, 185; Shiva, above n 39.
68 Ribeiro and Shand, above n 5, 501.
69 Shiva, above n 39; Gonzalez, above n 2, 595; Tscharntke, above n 50; Bennett et al above n 7.
70 Bennett et al, above n 7, 271.
causing the footprint of agriculture to expand or undermining the complex social-ecological system which the sustained integrity of our food system depends upon. This approach would begin to acknowledge and protect the values of food and resources that are poorly translated into monetary values.

However, none of these commonly suggested directions directly and fully address the key problem identified in this essay, that food and seeds are currently treated as commodities used for the accumulation of capital. This shows how embedded this way of thinking is. I suggest that reforms that decouple food and profit, reframing food as a right and responsibility and require consumers to play a greater role in the food system may be required to truly address the injustices caused by the corporatisation of agriculture. The numerous practical and ethical implications of such a suggestion ought to be explored through future research.

VII. Conclusion

This essay has outlined the global environmental justice consequences of a food system controlled largely by global agribusinesses whose primary goal is capital accumulation. It has been argued that global agribusinesses do not promote justice in line with a Rawlsian conception of justice. Corporatised agriculture does not protect a basic right to food, imposes disproportionate risks on poor people in developing nations and unjustly restricts access to land and seeds. I have used existing theories to argue that corporatised agriculture creates injustices because it propagates power imbalances, obscures the connection between consumption from production and is geared towards capital accumulation. In the future, food systems should focus on improving hungry peoples’ access to the already sufficient global food supplies and taking a more local, small-scale and ecologically sensitive approach to farming. However, given the inherent problems of capitalism, it remains to be seen whether a truly just food system is possible without decoupling food from profit and fully acknowledging the non-monetary values of food.

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Legal Realities of Virtual Property

Tiffany Tang

Abstract
With increasing technological advancements and the soaring popularity of online gaming, the concept of ‘virtual property’ is becoming an ever-present issue. However, despite the growing overlap of virtual worlds and real life, ‘virtual property’ is yet to be legally recognised as property under Australian common law. Considered with the complex issue of enforceability at the forefront, this paper acknowledges that it is inevitably necessary to develop a legal conception and framework for ‘virtual property’. This is particularly so, given the growing real world expectations and status accorded to such property by society, which may lead to potentially severe real-life ramifications.

I. Introduction
With technological advancements and the soaring popularity of online gaming, the concept of ‘virtual property’ is becoming an ever-present issue. However, despite the growing overlap of virtual worlds and real life, virtual property is yet to be legally recognised as property under Australian common law. This raises the question: should virtual property be considered property? In considering this issue, this essay will focus on the policy issue of enforceability.

Section one will state the parameters of virtual property adopted and whether virtual property so defined falls within the Australian common law conception of property. Section two will consider the enforceability issue which arguably supports the notion not to invest property rights in virtual property due to the intricate complexity involved. Ultimately, this essay acknowledges that eventually some legal rights will need to be attached to virtual property out of necessity.

II. Section One
Definitions
For current purposes, ‘virtual property’ will be limited to the in-game virtual assets one acquires in virtual worlds such as Legend of Mir.1 The methods of acquiring

these virtual assets include in-game trading, prizes on completion of tasks and even real-life purchases.

Property is a ‘description of a legal relationship [between people] with a thing’. In Australia, property is hence commonly conceived as a ‘bundle of rights’ which consists of three primary factors: the right to use and enjoy, the right to exclude others from use and enjoyment, and the right to alienate. Furthermore, intangibility does not prevent a thing from being considered as property.

Does ‘virtual property’ fit under the ‘bundle of rights’ conception?

This essay acknowledges that virtual worlds are products of gaming developers and hence ultimately subject to the conduct rules and regulations imposed by them. This overriding power and control may arguably diminish or place conditions on any rights a player may have in relation to virtual property. However, due to virtual property only being present within virtual environments, a player’s relations with this bundle of rights will be considered in the limited context of virtual worlds despite the other real-life factors.

Right to use and enjoy

Generally, within virtual worlds, subject to certain rules, players arguably have the right to use and enjoy the virtual assets they accrue as they please. For instance, virtual money acquired from the completion of tasks can be used by the player to purchase in-game items if they wish.

Right to exclude

Considered within the context of the virtual world, players who possess a particular item arguably have the right to exclude others from using and enjoying that same object. In virtual worlds, such as The Legend of Mir, players can exclude others from possessing and using the particular weaponry that they have acquired from gaining experience within the game.

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3 Ibid.
6 Sheldon, above n 5, 764.
Right to alienate

Subject to certain conditions on the transfer of virtual goods placed by gaming developers, virtual property is arguably alienable. Generally, virtual assets may be given, sold or purchased within virtual environments between players using virtual currency.\(^9\) It is worth noting that this transferability of virtual goods has transcended virtual worlds and entered the real-life trading market.\(^10\) Virtual property can now be purchased and sold using real money, and such transactions are even facilitated through third party sites.\(^11\) While it may be argued that certain types of alienation are limited or even banned, these limitations do not necessarily mean that this property right is forfeited.\(^12\)

Conclusion

Considered in this highly limited sense, virtual property may constitute property. However, due to the breadth and vagueness of virtual property, it is difficult to reach a definite conclusion. Furthermore, due to virtual property being confined within virtual environments, which in turn are ultimately controlled by gaming developers, the existence of any player’s rights may be weakened. Nevertheless, it is worth noting that courts have recognised that although not all these rights may exist, that does not necessarily mean that no property exists.\(^13\)

III. Section Two

In considering whether or not virtual property should constitute as property, one significant policy concern that must be addressed is the issue of enforceability. Assuming virtual property is legally recognised as property, there hence arises the necessity for an appropriate legal structure to ensure such a recognition is enforced and protected. However, difficulties stemming from two basic issues arise.

Firstly, the vagueness and possibly unlimited breadth of virtual property makes it inherently difficult to clearly define its limits.\(^14\) For instance, the capability for intricate customisations of different games results in unique rules being applicable to individual virtual worlds.\(^15\) This vast diversity consequently causes problems when developing appropriate laws to consistently regulate virtual property. An

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\(^9\) Steinberg, above n 5, 382.
\(^10\) Allen Chein, ‘Note: A Practical Look at Virtual Property’ (2006) 80 St. John’s Law Review 1066; Westbrook, above n 1, 786
\(^12\) Edgeworth et al, above n 4, 6.
\(^13\) Ibid 5.
\(^15\) Ibid 542.
enforceable right, and consequently a possibility of legal action, in one game may not be present or appropriate in another. For instance, some games such as *Grand Theft Auto* permit violence and crimes such as theft. This contrasts to other games, such as *Second Life*, where crimes are arguably forbidden on moral grounds.

Therefore, due to the fluid and indeterminate nature of virtual worlds, property rights (if recognised) may need to be decided on a case by case basis depending on the particular context. Additionally, as the technological terrain continues to evolve, the suggested legal structure must be capable of adapting to fast changing climates. Otherwise, the applicable law may become outdated and hence a hindrance rather than an aid.

Secondly, the ‘international scope’ of virtual worlds raises a cross-jurisdiction issue. The ability of virtual worlds to transcend traditional State boundaries hence allows players to interact with others from different jurisdictions. In the event of a dispute, this raises serious concerns regarding which laws should be applied and how the relevant laws are to be enforced overseas. This is especially significant if virtual property is to be recognised as legal property due to the fact that property rights attract significant remedies. Furthermore, the potential sphere of enforceability is further widened as property rights (unlike contractual rights) are enforceable against third parties. In response to this potential breadth, a common objection to the recognition of property rights is that the law of contract is available. However, the enforcement of contractual conditions is arguably insufficient to accommodate the expanding interconnectedness of virtual worlds, as contractual rights are only enforceable between the parties to a contract.

Within this context, contracts primarily exist between players and the gaming developers (in the form of End User License Agreements or Terms of Service) rather than between the players themselves. Consequently, a player would have no contractual remedies against a third party player. This interconnectedness of virtual worlds consequently necessitates some considerations of international law, and the interaction and cooperation between different countries. However, as seen

16 Ibid 543.
18 Matt Weinberger, ‘Second Life was 13 years early to virtual reality – and it’s getting ready to try again’, (30 March 2015, *Business Insider Australia*).
19 DaCunha, above n 17, 63–4.
20 Lawrence, above n 14, 543.
21 Ibid 542.
23 Ibid 217.
24 Wayne Morgan, Property Law Lecture (Lecture, The Australian National University, 18 February 2016).
26 DaCunha, above n 17, 45.
in other fields of international law, it is difficult to develop a consistent law of global application that is equally enforced.27

Overall, the difficulty of enforceability stemming from the indefinite and international scope of virtual property is a persuasive reason against recognising it as property. Fears of opening a Pandora’s box may be the reason behind a general reluctance to recognise property rights in virtual property.

IV. Conclusion

Under Australian common law, it is difficult to conclude definitely that virtual property falls within the bundle of rights conception, primarily due to the breadth of the term. However, should virtual property ever be recognised, the pressing issue of enforceability must be addressed. Without means of enforcement when disputes arise, the recognition of virtual property would be moot. Unfortunately, fears of opening the floodgates to new litigation stemming from the inherent difficulty of virtual property enforcement may deter courts from recognising such proprietary rights.

Nevertheless, with the continual growth in popularity of virtual gaming and rising economic values of virtual property, it is inevitable that a legal conception of virtual property will be necessary. As reality and virtual worlds increasingly overlap, the need to develop a legal system to regulate virtual property will increase. Furthermore, as more people come to treat virtual property as actual property,28 real-life crimes stemming from virtually-based disagreements (such as in the case of Qui Chengwei29) may become more rampant if no legal recourse is provided to players when disputes arise.30 However, while a legal framework is needed, virtual property may not necessarily be dealt with through the law of property.

27 Dannenberg (ed) et al, above n 22, 217; DaCunha, above n 17, 72.
28 Hunt, above n 7, 159.
29 Chein, above n 10, 1059–60; Westbrook, above n 1, 789.
30 Meeham, above n 1, 47.
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Yanner v Eaton (1999) 201 CLR 351 336–7
Structural Violence in Latin America: Access to Contraception & Abortion

Claire Wong

Abstract

As the 24-hour news cycle works harder than ever before to release headline after headline expounding acts of violence that occur around the world, it is of the utmost importance to recognise that while direct bodily harm may be the easiest to understand and document, the effects of violence inflicted through structures must not be discounted. ‘Structural Violence in Latin America: Access to Contraception & Abortion’ examines structural violence through the analysis of the link between the Zika virus outbreak in Brazil in late 2015 and barriers to healthcare in Latin America, a geo-political region where religious dominance has severely restricted access to contraception and abortions.

The Zika virus outbreak in Brazil in late 2015 that swiftly spread to surrounding countries in Central and South America launched a little-known, seemingly harmless disease to the forefront of public health discourse. Whilst the evidence is currently incomplete, scientists have discovered a high rate correlation between the virus and a birth defect called microcephaly, characterised by a shrunken head and incomplete brain development — a twentyfold increase in cases have been reported in Brazil since late 2015, enough to prompt the declaration of a global public health emergency by the World Health Organization. However, significant barriers to healthcare have emerged in Latin America, a highly religious geo-political region, where access to contraception and abortions are severely restricted. This essay seeks to explore the idea of social forces shaping individual suffering presented by Farmer, and the embodiment of inequality and consequent perpetuation of social vulnerability shown by Horton and Barker in understanding the wider narrative regarding access to contraception and abortion.

The cultural norms often form the foundation upon which structural violence is constructed, and play a significant role in Farmer’s multiaxial model of suffering, and can itself be interpreted as a form of violence. Cultural violence often exists in conjunction with structural violence, and is defined in Galtung’s 1990 work as ‘those aspects of culture ... that can be used to justify or legitimize direct or structural violence’.¹ Normative violence is one facet of cultural violence — the social approval of a violence to the point of widespread acceptance.² Thus,

cultural norms are the process in which a perspective of violence becomes the socially accepted narrative across a culture, and its entrenchment through attitudes and beliefs. As Farmer demonstrates in his 1996 article, the distribution of structural violence can only be understood when individual biography is placed within the ‘larger matrix of culture, history, and political economy’.\textsuperscript{3} Socially distinguished factors such as race, gender and socioeconomic have historically designated ever-shifting populations as socially vulnerable and more susceptible to suffering. Farmer’s ‘Axis of Gender’ provides a prism through which the normative violence that women encounter in day-to-day life around the world can be viewed, where societal structures render women politically, legally and economically inferior to men.\textsuperscript{4} Gender alone cannot stand in counterpoint to an oppressive model of society which privileges heterosexual, able-bodied, Caucasian males. Intersectional vectors of oppression ultimately mean that alternative sexual preference, disability, race and socioeconomic status all interact with one another to form a complete picture of an individual’s place in the artificially engineered hierarchy of society.

Cultural stigma against reproductive freedom Latin America, ubiquitous to many parts of the world, leads to a lack of accessible abortion clinics, heightening the likelihood of illegal abortions, and potential for social alienation. In Latin America, the cultural norm has foundations in the strong Catholic leanings of the region.\textsuperscript{5} However, whilst the Catholicism practised by many Latin Americans seems to be the cause of oppression, the historical context of Catholicism and its introduction through the invasion and colonisation by Europeans itself constitutes a form of oppression. Through violating the social expectation of womanhood, abortion stigma is seeded into the consciousness of the region, becoming part of the culture’s social narrative. Various methods through which abortion is stigmatised, including the attribution of personhood to the foetus, and its connotation of being ‘dirty’ have all served to constrain the agency of women. This forms a vector upon which the causes leading to the lack of contraception and abortion in Latin America can be better understood.

In his 1996 article, Farmer provides a foundation for clearer examination of structural violence, which he sums up as social forces ‘ranging from poverty to racism’ which shape individual suffering.\textsuperscript{6} Further clarifications by Farmer provide more detail on the definition of structural violence as social arrangements which actively harm or disadvantage individuals who are ‘embedded in the

\textsuperscript{4} Michelle Zimbalist Rosaldo (ed) and Louise Lamphere (ed), Woman, Culture and Society (Stanford University Press, 1st ed, 1974).
\textsuperscript{5} Alice Norris et al ‘Abortion Stigma: A Reconceptualization of Constituents, Causes and Consequences’ (2011) 21 Women’s Health Issues 49.
\textsuperscript{6} Farmer, above n 3, 261.
political and economic organization of our social world’. The concept of structural violence is best understood as an artificially engineered aspect of social interaction, which can be expressed in a multitude of forms, from the biased economic and gender biased social model that governed Haiti in the late 1950s which affected Acephie Joseph, to the brutality and lack of legal structures that plagued Chouchou Louis. However, as Farmer further extrapolates, structural violence is all too often invisible to the casual observer, whether that is due to physical or emotional distance, sheer scale, or the dynamics of the suffering. This form of violence is both unfathomable to those who do not fall within its parameters of harm, and a stark reality for those who do.

The idea of socially engineered disadvantages which constrain the agencies of individuals provides a scope through which the restrictions to contraception and abortions in Latin America can be better understood as a form of structural violence. In Latin America, long-held conservative religious ideals regarding family planning and female sexuality have transformed cultural values into legislative norms, and as a result, women are often prevented from accessing contraception either by her partner, or by the lack of resources in the healthcare system. Medical restrictions and cultural stigma enforced through legal recourses prevent the termination of unwanted pregnancies — a high statistical probability in a region where over 50% of pregnancies are unplanned. Consequently, there is a high number of illegal (and potentially unsafe) abortions which occur across Latin America, and the lack of options for women in these situations constrains their individual choice over their body, constituting a form of structural violence. The enshrinement of barriers to the right of exercising choice over one’s own body in legal and public health frameworks are an ongoing infringement to individual agency, the effects of which range from physical and mental to emotional and social.

The pervasiveness of structural violence guarantees inevitable interaction with it, whether that interaction is an advantage or a disadvantage. Disadvantage is exemplified through forms of violence, and can alter an individual’s decision pathways or disposition, thus entrenching it in the behavioural patterns of a culture. This idea of social vulnerability is touched upon by Baker and Horton,

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8 Farmer, above n 3, 271.
12 Ghassan Hage, ‘Comesa Time We Are All Enthusiasm: Understanding Palestinian Suicide Bombers in Times of Exighophobia’ (2003) 15 Public Culture 80.
in their examination of how the same health issue can be experienced differently by different populations due to race and socioeconomic factors. A particular case outlined the legacy that seemingly low-impact choice of dentists to pull damaged teeth over attempting to save them can have on the future prospects of the patient. The crooked teeth that results from premature removal of teeth is a visual marker of difference which highlights the perceived stigmatised difference from the ‘norm’ which is carried throughout an individual’s life, and can lead to the perpetuation of violence.

Structural violence and cultural norms continue to perpetuate the constraints over bodily agency everywhere that access to contraception and abortions are not offered. The restriction over existing technologies which offer women control over their body and reproductive process, in combination with a prevalent social model which exercises oppression upon gender, perpetuates a loss of control and power in women. The cycle of violence that is perpetuated cannot be broken without the provision of healthcare measures which allow individuals to exercise their basic right to autonomy over their body, which, in Latin America, takes the form of removing legal and cultural barriers to contraception and abortion services.

In conclusion, structural violence and cultural norms both have a substantial impact on the greater narrative of violence that affects human society, and Farmer’s multiaxial model of suffering and Horton and Baker’s concept of perpetuation of violence through social vulnerability greatly aids the explanation and understanding of access to contraception and abortion in Latin America, especially in the midst of the Zika virus outbreak.

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Legal Brief on Commercial Space Flight Regulation

Sally Wong

Abstract
The submitted piece is a legal brief on the regulation of collisions of commercial space flight vessels with other space objects. It illuminates the inadequacy of current international treaties that regulate outer space exploration and explores the complexity of jurisdiction in outer space. The brief proposes a comprehensive liability scheme, the development of domestic regulation of commercial spaceships and the removal and the management of space debris to regulate collisions in outer space.

I. Introduction
Recent advancements in commercial space flight technologies demand international law instruments provide more comprehensive regulations on issues such as jurisdiction in space, liability for collision with other space objects and space debris. Up until the beginning of the twenty first century, space exploration was conducted predominantly by governmental entities, regulated largely under five main multilateral treaties finalised through the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). However, with the growth in non-governmental and commercial interest in the use of space such as Virgin Galactic and EADS Astrium, questions arise of how the existing international law applies to these activities and what areas of international and domestic law require further development to meet these new interests. In this brief, there will be particular focus on how Article VIII of the Treaty on the Principles Governing the Activities of the States in Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty), regulates commercial space flight, particularly in the case of collisions with other space objects.

2 Ibid 3.
II. Definitions and Background

A. Commercial Space Flight

There is no clear international consensus of the border between air space and outer space. Customary international law suggests that the Von Kármán line (one hundred kilometers above the Earth’s sea level) is the boundary, confirmed by the definition of outer space included in the draft document entitled Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Other State Objects.

Most commercial space flights offered will be suborbital, attaining an altitude of around one hundred kilometers and experiencing a few minutes of microgravity before returning to Earth, for the purpose of shortening travelling time. Examples of commercial companies offering suborbital flights include Virgin Galactic with SpaceShip Two, Orbspace and Up Aerospace.

B. Article VIII of the Outer Space Treaty

Article VIII of the Outer Space Treaty provides that

A State Party to the Treaty on whose registry an object launched into outer space is carried shall have jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body...

Contrary to airspace, customary international law precludes outer space from being subject to the territorial sovereignty of any States. However, under Article VIII, States have ownership and jurisdiction over objects launched into space that have been registered in their country.

The rest of Article VIII establishes that space objects are not defined by their presence in outer space or on a celestial body or return to Earth. An ordinary meaning interpretation of ‘object’, in light of the object and purpose under Article 31 of the Vienna Convention of the Law of Treaties, would determine a commercial space flight to be an ‘object’ under the Outer Space Treaty. The purpose of the treaty is to ensure the peaceful exploration of outer space for the benefit of mankind, applying to governmental and non-governmental activities. Articles VI and VII of the treaty give States responsibility and liability for all space activities registered in their State. Thus, read in context with these provisions, it can be concluded

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7 Ferreira-Snyman, Above n 4, 12.
8 Neger and Walter, above n 5, 239.
10 Above n 3.
that Article VIII is intended to give States jurisdiction over commercial objects launched into space, including space flight crafts. Whilst the treaty was drafted and negotiated well before the development of commercial space flight technologies, there would be no reason not to expand its scope to apply to commercial space flights.

### III. Regulation of Commercial Space Flight

#### A. Article VIII and domestic legislation

Articles VIII and VI of the *Outer Space Treaty* pass the primary responsibility to States to regulate, authorise and supervise the activities of commercial space flight companies, under domestic legislation. States will want to heavily control commercial space flight activity conducted in their territory, as under Article VII of the Treaty they have international liability for damage to another State’s object, persons or territory in the air or in outer space. As such, the United States and the European Union, the States of registry of the largest stakeholders in commercial space flight have proposed and adopted comprehensive domestic codes like the *US Commercial Space Launch Act*\(^\text{12}\) to oversee, authorise and regulate the commercial spacecraft. Launch licenses, permits, safety approvals and licenses to operate space crafts are among the areas regulated by domestic legislation. The main aim of these domestic codes is to minimise risk of collision by ensuring safety protocols are met.\(^\text{13}\)

Leaving the safety and environmental regulations entirely to the States may be problematic, as some countries with underdeveloped space tourism industries may use their low safety standards and regulations to attract commercial space flight companies.\(^\text{14}\) The problem of ‘flags of convenience’ in the High Seas, may translate to outer space, which could create safety hazards for passengers and other space objects.\(^\text{15}\) Whilst State sovereignty should be respected and each State should be able to regulate enterprises registered in their State, it is important to develop minimum safety guidelines of commercial space crafts under international law, especially whilst technology and space travel are in their early stages and still highly dangerous.

\(^{11}\) Freeland, above n 1, 95.


\(^{13}\) Freeland, above n 1, 105.

\(^{14}\) Adrian Taghdiri, ‘Flags of Convenience and the Commercial Space Flight Industry: The Inadequacy of Current International Law to Address the Opportune Registrations of Space Vehicles in Flag States’ (2013) 19 *Boston University Journal of Science & Technology Law*.

Article VIII of the *Outer Space Treaty* articulates a series of governing principles about ensuring the use and exploration of outer space is for the benefit of mankind.\(^{16}\) However, it does not directly regulate commercial space flight activities, leaving this largely to the States. To find more comprehensive regulations of commercial space flight in international law, including liability schemes for collisions and space debris, the Department will need to look further than Art VIII of the Outer Space Treaty. The following part of the brief will outline other sources of international law that can be referred to for additional protocols, especially preceding a collision. Furthermore, working models of commercial space flight regulations in the US and the European Union can provide assistance to the Department.

**B. In the Event of a Collision**

1. **Concurrent jurisdictions**

When there is a collision between two space objects of different nationalities, there are two jurisdictions involved, as provided by Art VIII of the Outer Space Treaty. However, the Treaty does not deal with the problem of which country should adjudicate the case, which State’s legislation applies or whether it should be left to the International Court of Justice.\(^ {17}\) Articles VI and VII give States liability for objects launched into space by governmental and non-governmental activities. This suggests that most international space law disputes would be State against State and be resolved in the typical international law dispute settlement forums. However, with the rise in commercial and non-governmental entities interested in launch activities, States require avenues to bring claims against private entities whether they be within or outside their jurisdiction.\(^ {18}\)

This issue of concurrent jurisdictions in outer space can be possibly resolved by looking at the well-established body of law of the High Seas, which dates back to the 1926 *Lotus case*.\(^ {19}\) Like outer space, the High Seas are under no States’ jurisdiction but ships are under their flag State’s jurisdiction. Churchill RR and Lowe AV stated that:


\(^{19}\) *S.S Lotus (France v Turkey)* (1927) 248 ICGJ (‘Lotus’).
Collisions may involve two States, each of which considers the collision and those responsible for it to be within its jurisdiction. Existence of concurrent jurisdiction was upheld by the Permanent Court of International Justice in the case of the French ship Lotus, which had collided with a Turkish vessel.

The Lotus rule has been heavily criticised and was reversed in the International Convention for the Unification of Certain Rules relating to Penal Jurisdiction in Matters of Collision and Other Incidents in Navigation, and adopted in High Seas Convention, which reserved proceedings to the State in whose ship the defendant is a national. The rationale behind this being that a State retains enforcement jurisdiction over its nationals, wherever they may be, with some exceptions. The principle that a defendant may only be sued in the courts of the country in which he resides, is a national of or has his place of business in, is a very old and well established one in maritime torts. This rule could potentially be applied in commercial space flight collisions in the following types of disputes:

State versus private entity under their jurisdiction

Whilst States are internationally liable, private entities are not precluded from liability under domestic law. If the State chooses to bring the private entity to their domestic court, the private entity would rely on their national law, under the Brussels’ Rule.

State versus private entity not under their jurisdiction

States may want to bring a claim against the private entity not within their jurisdiction. This may occur if a commercial space craft collides with a State’s satellite or object or if a State’s national suffers damage from a collision and the State chooses to exercise diplomatic protection. As per the Brussels’ Rule, the State suffering damages would bring the claim to the private entity’s national court and the defendant’s national laws would apply.

2. Liability

20 Convention of the High Seas 1958, 450 UNTS 11 art 6 (‘High Seas Convention’).
22 International Convention for the Unification of Certain Rules relating to Penal Jurisdiction in Matters of Collision and Other Incidents in Navigation 1952 439 UNTS 2333 (‘Brussels’ Rule’).
23 Above n 20.
25 Von der Dunk, above n 18.
26 Above n 22.
Articles VIII and VII of the Outer Space Treaty alongside the Liability Convention create a complex liability structure, blending domestic and international law. States are given legislative power to regulate their private, commercial space flight companies but when it comes to international liability for damages caused by collisions, States are responsible, not private entities. As noted above, States can bring cases against other States and possibly private entities but recourse for individuals may be limited. This is particularly problematic in the case of commercial space flight collisions, as private individuals will be the victims and lack judicial remedy in the international realm unless their State exercises diplomatic protection. Even in domestic courts, individuals would be significantly legally disadvantaged against large private entities or the State.

An example from the United States Supreme Court illustrates the lack of domestic legal recourse and redress for citizens injured outside the United States territorial air space. In Smith v United States, Mr Smith, who died in Antarctica, claimed his death resulted from the government’s negligence, but his case was dismissed. This was on the basis that the United States had no subject matter jurisdiction over the issue that occurred in a foreign state, including the sovereignless state of Antarctica. Whilst the Outer Space Treaty clearly articulates that States have international liability for their objects launched into space, there is no indication of domestic liability. Should an individual bring a case against their own State, domestic legislature may preclude liability from States. Courts may find, as the Court did in Smith, that outer space is also considered a ‘foreign territory’ and their enforcement jurisdiction does not apply. This calls for international guidelines on liability in domestic law for space collisions, to ensure individuals have remedies. Whilst international law was previously confined to States, there has been a recent drive for international law to protect individuals and smaller players, especially in these instances where States have significant advantage.

The current international liability scheme for damages caused by collisions in space is the Convention on International Liability for the Damage Caused by Space Objects. Articles II and IV(a) of the Liability Convention requires absolute liability on the launching state for damage caused by a space object on the surface of the earth or to an aircraft in flight. Articles III and IV(b) establishes fault liability for damages caused by a space object in space. The Convention provides procedures for States to file claims against other States but not for an individual. The only forum available

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27 Joel F Stroud, ‘Space law provides insights on how the existing liability framework responds to damages caused by artificial outer space objects’ (2002) 37 Real Property, Probate and Trust Journal 363.
28 Von der Dunk, above n 18.
30 Federal Torts Claims Act, 28 USC § 2680.
to private citizens is the ‘Convention Claims Commission’,\(^{32}\) but private citizens still must petition their government to take their claims to this Commission.\(^{33}\) Furthermore, this Commission is only to be used as a last resort, when all diplomatic means and alternative dispute settlements have been exhausted. Whilst the *Liability Convention* provides some framework for determining liability in the event of a collision, these avenues are predominantly for the States to use. With the growth of commercial space flight and space tourism industries, a larger body of international law providing remedies for individuals will need to be developed.

### 3. *Space debris caused by collision*

When there is a collision between a commercial space craft and a space object, there will be debris left behind, concentrated in the orbits where most human activity take place.\(^{34}\) This area is becoming increasingly crowded with space craft and satellites and is also where the highest probability of collision lies, posing a real navigational hazard to space flight.\(^{35}\) The *Outer Space Treaty* and the other international conventions pay little attention to environmental issues like space debris,\(^{36}\) leaving most of this regulation up to domestic legislatures. One of the few sources of international law, which regulates space debris, is the Inter-Agency Space Debris Committee’s Space Debris Mitigation Guidelines, but only requires voluntary compliance of States and is not legally binding under international law.\(^{37}\)

There are several ambiguous areas in relation to space debris created by the *Outer Space Treaty* and the *Liability Convention*. Firstly, whether space debris is still considered an ‘object launched by a State’ and thus, if the State is liable for the damage caused by the debris and responsible for the removal.\(^{38}\) Spacefaring states like the United States and Russia do not support the view that States are responsible, arguing that under the common heritage approach of space, space debris removal is a common responsibility.\(^{39}\) In addition, the implications of granting legal liability to these States for space debris is large and comes with an enormous economic burden of developing technology to remove debris.

\(^{32}\) Ibid.
\(^{33}\) Nelson, above n 16.
\(^{36}\) Taghdiri, above n 14.
\(^{37}\) Ferreira-Snyman, above n 4, 10.
To impose obligations on States to remove space debris produced in the past could be too costly, however, States should take positive steps to reduce the chances of collisions and explosions through stringent safety guidelines and regulations through domestic legislation and ratifying international regulations for commercial flight.

IV. Conclusion

The Outer Space Treaty is still regarded as the most important international convention regulating the activities in space, including commercial space flight. Article VIII of the Treaty vests most of the regulatory power of commercial space flight ventures to the party States. Whilst spacefaring nations have risen and developed useful regional and national regulatory models, there are still many grey areas of space law for international law to colour. These include developing a means to address the removal and management of space debris, as well as a comprehensive liability scheme to assist individuals who are currently at the mercy of complex jurisdictional boundaries.

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