

# CROSS-SECTIONS

THE BRUCE HALL ACADEMIC JOURNAL



VOLUME XI 2015



*Cross-sections: The Bruce Hall Academic Journal*  
is an annual publication co-ordinated by the students of  
Bruce Hall and The Australian National University.

**Bruce Hall**

Building 40 Daley Road  
The Australian National University  
Canberra ACT 2601, Australia

P: +61 2 6125 6000  
F: +61 2 6125 6010  
W: <http://brucehall.anu.edu.au>  
E: [enquiries.bruce@anu.edu.au](mailto:enquiries.bruce@anu.edu.au)  
E: [brucehallCS2015@gmail.com](mailto:brucehallCS2015@gmail.com)

**Cover Image**

*'Untitled'* 2015  
Kelsey Walsh



**Published by ANU eView**  
The Australian National University  
Canberra ACT 2601, Australia  
E: [anupress@anu.edu.au](mailto:anupress@anu.edu.au)

**This title is also available online at**  
<http://eview.anu.edu.au>

**Printed by ZX China Industrial Limited**  
<http://www.zx-printing.com>

Opinions published in *Cross-sections: The Bruce Hall Academic Journal* do not necessarily represent those of Bruce Hall, The Australian National University, nor the Editors.

ISSN: 1832-9578 (print) ISSN: 1834-7983 (online)

Copyright © 2015 Bruce Hall & The Australian National University  
Copyright © 2015 ANU eView

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the publisher.

*Felix Qui Potuit Rerum Cognoscere Causas*

Happy is [s]he who is able to discover the reason for things.



# Editorial Team

## Editors

Claire Shiuan Wong  
Shan-Verne Liew  
Xi Wen (Carys) Chan

## Copy Editors

Adele Jackson  
Arthy Ananthapavan  
Betty Xiong  
Caleb Au  
Eleanor Lau  
Glenn Cardinio  
Harry McLaurin  
Josephine Davies  
Madeline Lang Verge  
Mary Parker  
Matthew Loutfi Faltas  
Niko Bakker  
Patrick Cordwell  
Radhika Bhatia  
Sam Taylor

## Front Cover

Cormac Relf  
Kelsey Walsh



## Academic Referees

DR BERT FRAUSSEN  
Postdoctoral Fellow  
School of Sociology  
Research School of Social Science  
College of Arts and Social Sciences  
The Australian National University

ASSOCIATE PROFESSOR JAMIE PITTOCK, FHEA  
Fenner School of Environment and Society  
College of Medicine, Biology and Environment  
The Australian National University

ASSOCIATE PROFESSOR DAVID HARLEY  
National Centre for Epidemiology and Population Health and ANU Medical School  
Research School of Population Health  
College of Medicine, Biology and Environment  
The Australian National University

ASSOCIATE PROFESSOR KATH HALL  
ANU College of Law  
Deputy Director (Law), Transnational Research Institute on Corruption  
The Australian National University

ASSOCIATE PROFESSOR PIERRE VAN DER ENG  
Reader  
Research School of Management  
College of Business and Economics  
The Australian National University

PROFESSOR MARTIN ASPLUND  
Research School of Astronomy and Astrophysics  
College of Physical and Mathematical Sciences  
The Australian National University

DR RACHAEL BLOUL  
Lecturer  
School of Sociology  
Research School of Social Sciences  
College of Arts and Social Sciences  
The Australian National University

PROFESSOR RACHAEL BRIGGS  
Department of Philosophy  
School of Arts and Sciences  
Stanford University

DR TUSHAR DAS  
Lecturer  
ANU Legal Workshop  
ANU College of Law  
The Australian National University

KATE OGG  
Lecturer  
ANU College of Law  
The Australian National University

DR PETER SUNEHAG  
Senior Research Scientist  
Google — DeepMind



# Contents

|  |             |
|--|-------------|
| <b>About the Front Cover</b>   | <b>xi</b>   |
| <b>Foreword</b>  | <b>xiii</b> |
| <b>Editorial Note</b>  | <b>xv</b>   |
| <b>Author Profiles</b>   | <b>xvii</b> |
| <b>No Peace for Women: A Critique of Transitional Justice Fora</b><br>Matilda Gillis   | <b>1</b>    |
| <b>'Political Science': Why it is Reasonable to Accept Some Scientific Theories on Moral<br/>or Political Grounds</b><br>Siobhan Tobin | <b>15</b>   |
| <b>Investigating Reward Modulation in Denoising Autoencoders</b><br>Matthew Alger  | <b>23</b>   |
| <b>People vs Technology: A Case Study of Deforestation in Borneo</b><br>Talia Gedik  | <b>45</b>   |
| <b>A Century of Denial: How Turkey Forgot the Armenian Genocide</b><br>Joseph Dodds  | <b>57</b>   |
| <b>Selective Incentive Exchange Theories as an Explanation of Joining Behavior</b><br>Ruth Parsons                                     | <b>73</b>   |
| <b>Interpreting Three Dimensional Hydrodynamic Simulations with Python</b><br>Guy Leckenby   | <b>83</b>   |
| <b>Multifactorial Determinants of Hepatitis C in Australia</b><br>Eileen Baker   | <b>97</b>   |

|  |            |
|--|------------|
| <b>Gendered Narratives of Violence: A Critique of Refugee Review Tribunal<br/>Adjudication of Refugee Status</b> |            |
| Ruohan Zhao  | <b>109</b> |
| <b>The Two Strikes Rule on Executive Pay</b>   |            |
| Tiffany Tang   | <b>125</b> |
| <b>Navigating Cultures and Institutions: Guanxi in Business</b>  |            |
| Lewis Hirst  | <b>135</b> |

## About the Front Cover

*Untitled* (2005), by Kelsey Walsh

*Looking closely, you can see the individual lines and shapes, but only when you step back, can you see how the whole picture fits and works together. Bruce is a diverse and unique community. It is the individuals in the community that make Bruce what it is.*



## Foreword

Back in 2005, I was one of a team of three editors who were charged with the responsibility of bringing to life the idea of establishing a Bruce Hall academic journal. The intention of the journal was to showcase the immense talent and variety of academic interest within the wider student community of Bruce Hall and to provide students with the opportunity for involvement in all aspects of preparing a piece of work for publication in an academic journal, whether as an author, editor or copy editor.

One of the crucial questions for the inaugural edition included (quite obviously) what the title should be, in the hope that the name would be carried forward and eventually become as much part of the vernacular of Bruce Hall as terms like 'High Table', the 'Buttery' and 'Bill Packard'. We opened the title to a Hall-wide competition, and *Cross-sections* appealed to us as a name that at once both encompassed the breadth of the body of work that would be housed under this banner and provided the flexibility necessary to adapt to the natural transformations of the journal over time.

Although encompassing entirely different subject matter to the inaugural edition, it is heartening to see that at the core of *Cross-sections* today remains a commitment to the foundations on which the publication was built. The selection of pieces within this years' edition exceed even the loftiest hopes that we had as an initial editorial team. The commitment to academic excellence is evident in each piece and should encourage all readers to broaden their own academic interests by exploring pieces outside of each individual's area of experience.

In the ten years that have passed since that first edition, I have personally been able to draw on many of the skills that being involved in *Cross-sections* gave me; teamwork, time management and performance under extreme sleep deprivation are all skills that are honed at university, and are tested in bringing a publication of this magnitude to fruition in an academic year. It is my hope that all of you that have been involved in the publication this year in any capacity have found within the process something that you are able to take forward with you in the remainder of your academic careers and beyond.

Catherine Stapylton  
Former Editor  
*Cross-sections* 2005, Volume I



## Editorial Note

Like every past volume, the 11<sup>th</sup> edition of *Cross-sections* continues to demonstrate Bruce Hall's motto: 'happy is [s]he who is able to discover the reason for things'.

To call the editorial journey a roller-coaster would be far too cliché. Imagine instead a road trip taken with hallmates who have inevitably become friends, bonded by spontaneous pit stops, a constantly revised road map and communication at all times of the night. The road was longer than expected, shorter than desired and thoroughly rewarding.

This volume was built by many more people than just its authors and editors. We are grateful to last year's Editors, because *Cross-sections* would be a stapled stack of paper without their handover; to Tim Mansfield and Bradley Carron-Arthur, for reaching out to students and staff; and to our Copy Editors, who slaved away and succeeded against unforgiving standards.

We are also grateful to Eleanor Lau, Glenn Cardinio and Matthew Faltas, for perfecting much of the minutiae in this volume; to Matthew Alger, for imparting valued technical advice; to Kelsey Walsh and Cormac Relf for designing a captivating front cover; and to the academic referees, who generously gave authors and candidates their time, expertise and diligence.

When the first volume of *Cross-sections* was published ten years ago, in 2005, the Editors wrote in their Editorial Note:

We hope that future editorial teams will develop the reputation of our fledgling publication to a point where its prominence within the Hall and the University will induce others to take up the concept.

*Cross-sections* has spread its wings. The journal has now hosted 11 generations of outstanding student work, totalling over 120 articles, over 65 artworks, and well over 170 authors.

During that time, the journal has undoubtedly 'inspired others to take up the concept'. It has also experienced changes such as an unfortunate decline in fine arts students (and artwork), and a transition from Australian Government Publishing Service referencing standards to the *AGLC*. Each year, however, this journal gets better, making it harder for successive Editors to find further improvements.

We have endeavoured to bring a few things of our own to this volume of *Cross-sections*: a blind article selection process, two stages of academic review, abstracts or extracts for each article, and a much more rigorous copy editing regimen that is consistent with some of ANU's leading academic journals.

We were humbled by the incredible quantity of high calibre work that Bruce Hall students submitted this year. Although a lot of excellent work could not be included within the limited space of a single volume, we are honoured to be able to showcase even just a tiny part of that boundless academic talent.

We think *Cross-sections* will live up to its name — to provide a cross-section of the talents and topics to which Bruce Hall residents devote their academic efforts.

Twenty years from now, when your children clamour for help with their philosophy, artificial intelligence or social studies school project, we hope you reach for this journal, which should no doubt be occupying pride of place on your bookshelf.

*Claire Shiuan Wong, Shan-Verne Liew and Xi Wen (Carys) Chan*  
*The 2015 Cross-sections Editors*



## Authors

### **Catherine Stapylton**

Catherine was a resident of Bruce Hall from 2004–08 and spent her time between South, Middle Extension and eventually ‘retired’ to Packard. She was the Senior Resident of Middle Extension in 2006. After graduating with a Bachelor of Laws (Honours) / Bachelor of Arts in 2008, Catherine quickly moved to the sunnier climate of Brisbane to thaw out after five long Canberra winters and pursued a career as a banking and finance lawyer at King & Wood Mallesons. She has now made a questionable life choice to brave the winters of a colder climate again, and relocated to London in 2015 to pursue a career as a Transaction Manager at a US banking institution.

### **Eileen Baker**

After completing a Bachelor of Science / Bachelor of Asia Pacific Studies at ANU, Eileen is enjoying her second year of medicine and her second year of living at Bruce Hall. Having done an Honours year in Population Health she quite likes the sound of combining clinical medicine and public health, but is very much happy to just see where medicine takes her.

### **Guy Leckenby**

Guy is in his second year at the bountiful Bruce Hall and is studying a Bachelor of Philosophy (Science) (Honours). Using research in an attempt to find out what he wants to do in Physics and of course discovering fundamental facts about the universe. He plans to continue with a PhD after graduating.

### **Joe Dodds**

Joe is a third year Bachelor of Arts / Bachelor of Laws student from Melbourne and a current resident at Bruce. He took an interest in genocide studies after travelling to Namibia, Rwanda and Cambodia. In the future he hopes to work in politics overseas and go cage-diving with sharks.

### **Lewis Hirst**

Lewis is an ex-resident and a former Asia-Pacific Learning Community Coordinator of Bruce Hall, currently enduring Honours in Business. Having graduated with a Bachelor of Asia Pacific Studies in 2014, his interest in the region will see him travelling in the near future, before starting a career in some aspect of international business.

### **Matilda Gillis**

Matilda is in her fifth year of an Bachelor of Arts / Bachelor of Laws degree, majoring in Political Science. She is particularly interested in the links between collective memory, history and justice and in the particular difficulties experienced by women in obtaining access to justice.

### **Matthew Alger**

Matthew is a third year student completing a Bachelor of Science (Advanced) (Honours). He is majoring in theoretical physics and computer science, and minoring in mathematics. He enjoys Python, Javascript, Sublime Text, RollerCoaster Tycoon and helping other students.

### **Ruohan Zhao**

Ruohan is a current Bruce Hall resident of Clunies Ross and is in her fifth year of an Bachelor of Arts / Bachelor of Laws degree, majoring in German Studies and minoring in Political Science. Ruohan is undertaking Honours in German Studies in 2016 but has no idea what she wants to do after she graduates; all she knows is that she dreams of returning one day to Berlin and seeing where life takes her from there.

### **Ruth Parsons**

Ruth is a second year student and Bruce Hall resident enrolled in a combined Bachelor of Laws / Bachelor of Policy Studies. She hopes to complete an honours year in Policy Studies developing her research skills and interest in policy.

### **Siobhan Tobin**

Siobhan is in her third year of the Bachelor of Philosophy (Science) (Honours) program. Her primary academic concern is physics; however, she also dabbles in philosophy. She would like to thank past philosophers of Bruce Hall for pointing her in the direction of philosophy of science. Siobhan disagrees with Lawrence Krauss' view that the subject is a useless enterprise. When she isn't ranting about #feministphysics, Siobhan enjoys cake decorating and cake eating, and playing with her model horses.

### **Talia Gedik**

Talia Gedik is in her third year of a Bachelor of Arts / Bachelor of Laws degree. Within Arts she is majoring in Environmental Studies. She is particularly passionate about conservation and hopes to contribute to this field in the future.

### **Tiffany Tang**

Tiffany is a Bruce Hall resident in her third year of a combined Bachelor of Laws / Bachelor of Music degree. An accomplished pianist, she is highly passionate about international law and human rights, and hopes to work for the United Nations in the future.



# No Peace for Women: A Critique of Transitional Justice Fora

*Matilda Gillis*

*'[W]ho prefers a negative peace which is the absence of tension to a positive peace which is the presence of justice'?<sup>1</sup>*

## I. INTRODUCTION

The international community is often ready to declare 'peace' following a conflict. It quickly declared 'peace' in Timor Leste, for example, as it did following the end of apartheid in South Africa. But in each circumstance, the peace declared was, simply, a public peace, that is, a peace meaning the absence of open tension. It will be considered here that this 'negative peace' is no real peace in the absence of justice for women, whose suffering during the conflict often goes unrecognised and for whom 'peace' time often means heightened instances of gender-based violence. This essay will argue that this flows from the failure on the part of transitional justice mechanisms to address women's rights, particularly their right to be free from violence, beyond a superficial level. The essay will nonetheless advocate the continued engagement with transitional justice fora as a place where women's rights can (and should) be addressed in post-conflict societies and that meaningful engagement within those mechanisms is possible.

To support this argument, the key concepts central to this essay, namely: i) transitional justice, ii) the Timor-Leste 'conflict' and, iii) the thesis presented in O'Rourke's and Bell's article, 'Does Feminism Need a Theory of Transitional Justice? An Introductory Essay',<sup>2</sup> will first be outlined. The O'Rourke and Bell thesis will then be assessed and critiqued against a case study of Timor Leste. It will be argued here that transitional justice mechanisms have not adequately addressed women's rights because, even when gender has been considered in those mechanisms, the consideration has been merely superficial and limited. What occurred in Timor Leste will be shown to confirm the Bell/O'Rourke thesis. It will then be argued, however, that O'Rourke's and Bell's proposed solution to

---

<sup>1</sup> Martin Luther King, 'Letter from Birmingham Jail' (1998) 50 *Literary Cavalcade* 27. See also Johan Galtung, *Peace by Peaceful Means: Peace and Conflict, Development and Civilization* (Sage Publishing UK, 1996) 32.

<sup>2</sup> See Christine Bell and Catherine O'Rourke, 'Does Feminism Need a Theory of Transitional Justice? An Introductory Essay' (2007) 1 *International Journal of Transitional Justice* 23.

this problem, namely, that feminist support should focus exclusively on securing material gains for women, rather than trying to fit within transitional justice frameworks, is flawed. This essay will argue that, contrary to the Bell/O'Rourke thesis, a better way to address women's rights in post-conflict societies does involve working within transitional justice fora and that this is consistent with appropriate feminist priorities. To be outside of legal and significant non-legal transitional processes means that women lose a source of power and recognition of their rights and, flowing from that, a loss of legitimacy. Justice by law and public recognition of rights can thereby be lost to women, and, perhaps even more importantly, so too can the justice that comes from the informing of history and memory that transitional processes can potentially provide. The essay will conclude with a proposal for a way in which women's rights can be addressed in a meaningful way through a change of focus within transitional justice fora.

While Bell and O'Rourke do not identify with a particular feminist perspective, their wariness of mainstream processes means they can probably be identified as part of the 'realist' feminist school of thought.<sup>3</sup> While the present essay is not based in any particular, single feminist perspective and largely engages with more general 'substantial elements of feminist methodology',<sup>4</sup> it does perhaps most closely identify with Harris-Rimmer's construction of a 'feminist strategic legalist approach'. This approach advocates the 'full participation of women' in 'transitional justice processes' and appreciates (at least) the potential for mainstream transitional justice processes to achieve the justice to which they aspire.<sup>5</sup>

## II. KEY CONCEPTS

### A. *Transitional Justice*

Transitional justice developed as a legal response to human rights abuses and can broadly be described as 'the range of mechanisms used to assist the transition of a state or society from one form of (usually repressive rule) to a more democratic order' or, rather, those mechanisms which are used to move a state or society from war to peace.<sup>6</sup> The mechanisms usually include trials and truth commissions and may be assessed on the extent to which they deliver 'justice'.<sup>7</sup>

<sup>3</sup> This approach is discussed as 'the realist challenge' in Susan Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor* (Routledge, 2010) 109; Susan Harris-Rimmer, 'Sexing the Subject of Transitional Justice' (2010) 32 *Australian Feminist Law Journal* 123, 128.

<sup>4</sup> This is similar to Aoláin's approach in Fionnuala Ní Aoláin, 'Advancing Feminist Positioning in the Field of Transitional Justice' (2012) 6 *International Journal of Transitional Justice* 205, 208.

<sup>5</sup> Harris-Rimmer, 'Sexing the Subject of Transitional Justice', above n 3, 146.

<sup>6</sup> Catherine Turner, 'Deconstructing Transitional Justice' (2013) 24 *Law Critique* 193, 193–4.

<sup>7</sup> *Ibid* 198.

### B. *The Timor Leste Conflict*

In 1999, East Timor voted for independence from Indonesia. Following this referendum, as Hyne et al describe the situation, ‘pro-Indonesian militia groups across East Timor responded with a campaign of systematic destruction which lasted until peacekeeping forces arrived in late September’.<sup>8</sup> During that campaign of destruction, ‘hundreds were killed or disappeared and 75% of homes, public buildings and infrastructure’ were destroyed.<sup>9</sup> The United Nations administered ‘transitional justice’ following this crisis, which culminated in East Timor becoming an independent nation in 2002.

### C. *The Bell and O’Rourke Thesis*

Bell and O’Rourke outline both the ways in which women have traditionally been excluded from transitional justice fora and the key reforms which have occurred.<sup>10</sup> The latter is of particular interest here because, in the light of those reforms, it is no longer realistic, as it once was, to say that transitional justice fora do not address women’s rights. Bell and O’Rourke scrutinise attempts that have been made to ‘add gender’ to transitional justice mechanisms, namely: i) securing ‘recognition of women’s experiences of gender-based violence in armed conflict as among the most serious crimes of war’,<sup>11</sup> ii) attempting ‘to bridge the gap between legal standards and their enforcement by securing prosecutions for these crimes’,<sup>12</sup> and iii) securing ‘reforms in courtroom procedures in order to ensure that victims of sexual violence are not re-victimised by the adversarial legal process’.<sup>13</sup> They argue that these attempts at reform have only ‘produced the phenomenon... ‘running hard to stand still’<sup>14</sup> and that there is a ‘questionable capacity of institutional reform to deliver feminist transformation’.<sup>15</sup> They conclude that feminism should look away from transitional justice fora and focus on securing real, material gains for women.<sup>16</sup>

<sup>8</sup> Michelle Hynes et al, ‘A Determination of the Prevalence of Gender-Based Violence among Conflict-affected Populations in East Timor’ (2004) 28 *Disasters* 294.

<sup>9</sup> *Ibid.*

<sup>10</sup> Bell and O’Rourke, above n 2, 24–32. See also Susanne Buckley-Zistel and Magdalena Zolkos, ‘Introduction: Gender in Transitional Justice’ in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011) 1, 6.

<sup>11</sup> Bell and O’Rourke, above n 2, 26.

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid.*

<sup>14</sup> *Ibid.* 33.

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.* 44.

### III. THE FAILURE TO ADDRESS WOMEN'S RIGHTS: 'A LUA CONTINUA!'<sup>17</sup>

This essay will draw upon the Bell/O'Rourke thesis as the base for an argument that transitional justice fora have failed to address women's rights, particularly their right to be free from violence, in a meaningful way. The three categories of gender-based reform outlined above will structure this section. It will, by employing the case study of Timor-Leste, be shown that in each area of reform, women's rights have been addressed inadequately. Timor-Leste was a proclaimed UN 'success story, an example of how gender concerns and women's equality can be incorporated into peace building measures'.<sup>18</sup> But there was no successful transition in Timor-Leste, let alone the transformation for women promised by transitional justice.<sup>19</sup> As Mani says, justice and peace are 'inseparable and interdependent',<sup>20</sup> and women in Timor-Leste were left vulnerable and without the lasting peace that genuine justice brings.

The analysis here is restricted to the formal transitional justice processes put in place in Timor-Leste, in particular, the Indonesian Ad-Hoc Human Rights Court, Serious Crimes Process (SCP) and East-Timor Commission for Reception, Truth and Reconciliation (CAVR).<sup>21</sup>

#### A. Inadequate: Recognition of Women's Experiences

Bell and O'Rourke identify the attempt to address women's rights by recognising women's experiences during conflict as being serious and important crimes. Rights cannot be addressed if they are not first recognised.<sup>22</sup> Recognition, broadly, is about determining the facts and relevant identities of the conflict,<sup>23</sup> acknowledging suffering and harm and reconstructing a society after conflict.<sup>24</sup> Because transitional justice processes 'shape public discourse and attitudes',<sup>25</sup> where its

<sup>17</sup> Translation is 'The Fight Continues!' Curt Gabrielson, 'East Timorese Women's Fight Against Violence' (January 2002) *International Council World Affairs Newsletter*, quoted in Harris-Rimmer, *Gender and Transitional Justice*, above n 3, 1.

<sup>18</sup> Elisabeth Porter, 'Gender-Inclusivity in Transitional Justice Strategies: Women in Timor-Leste' in Buckley-Zistel and Stanley (eds), above n 10, 211. See also UN News Centre, 'Ban Praises Timor-Leste's Progress and Consolidation of its Security' (15 August 2012, UN News Centre).

<sup>19</sup> Fionnuala Ní Aoláin, 'Gendered Under-Enforcement in the Transitional Justice Context' in Buckley-Zistel and Stanley (eds), above n 10, 59, 80. See also Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 2.

<sup>20</sup> Rama Mani, 'Does Power Trump Morality? Reconciliation or Transitional Justice?' in Edel Hughes, William Schabas and Ramesh Thakur (eds), *Atrocities and International Accountability: Beyond Transitional Justice* (United Nations University Press, 2007) 23, 27–8.

<sup>21</sup> See generally Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 40.

<sup>22</sup> See Laura Grenfell, 'Paths to Transnational Justice for Afghan Women' (2004) 73 *Nordic Journal of International Law* 505, 526.

<sup>23</sup> Katherine M Franke, 'Gendered Subjects of Transitional Justice' (2006) 15 *Columbia Journal of Gender and Law* 813, 814.

<sup>24</sup> See generally Michael Galchinsky, 'Lament as Transitional Justice' (2014) 15 *Human Rights Review* 259, 266.

<sup>25</sup> Brandon Hamber, 'Masculinity and Transitional Justice: An Exploratory Essay' (2007) 1 *International Journal of Transitional Justice* 375, 390.



mechanisms do not recognise particular persons or crimes, there are powerful and 'practical consequences'<sup>26</sup> for any real achievement of justice and peace. There has been a shift away from earlier 20th century transitional justice processes, such as the Nuremberg trials, which failed to recognise women's rights as an aspect of transition.<sup>27</sup> The violation of women's rights during conflict is now, at least usually, considered. But this reform has not resulted in substantive positive outcomes.

In Timor-Leste, the three main transitional justice mechanisms each had the capacity to address gender-based rights violations in their mandates.<sup>28</sup> There was a strong international law basis in each.<sup>29</sup> As Kent says, it was assumed that, in light of that, mechanisms such as the SCP, 'would provide a form of public recognition to victims' experiences' and that the rights violations women had experienced would be recognised.<sup>30</sup> However, two features meant that the recognition of women's rights was 'flawed and partial':<sup>31</sup> i) only deemed 'extraordinary' violations of rights, such as rape 'perpetrated by publicly recognized political actors'<sup>32</sup> and ii) only violations that occurred during the actual conflict, were recognised.

Other violations of women's rights during the conflict, such as domestic violence, were deemed inherently 'ordinary' and beneath official notice. They were thereby rendered invisible, meaning that a majority of women victims were left 'neglected

<sup>26</sup> Aoláin, 'Gendered Under-Enforcement in the Transitional Justice Context', above n 19, 68.

<sup>27</sup> Aoláin, *Advancing Feminist Positioning in the Field of Transitional Justice*, above n 4, 211. See also Buckley-Zistel and Stanley, above n 10, 3; Susan Mackay, 'Gender Justice and Reconciliation' (2000) 23 *Women's Studies International Forum* 561, 568–9.

<sup>28</sup> See United Nations Transitional Administration in East Timor, *Regulation No 2001/10 On the Establishment of a Commission for Reception, Truth and Reconciliation in East Timor*, UNTAET/REG/2001/10 (13 July 2001) ss 4–9, cited in Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 82. See *Presidential Decree No 96/2001* (Indonesia) amending Presidential Decree No 53/2001 establishing an Ad Hoc Human Rights Court at the Central Jakarta District Court, 1 August 2001, issued 2 August 2001, cited in Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 51; United Nations Transitional Administration in East Timor, *Regulation No 2001/10 On the Establishment of a Commission for Reception, Truth and Reconciliation in East Timor*, UNTAET/REG/2001/10 (13 July 2001), cited in Porter, above n 18, 221, 227.

<sup>29</sup> See Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 81–2. See, eg, *Declaration on the Elimination of Violence Against Women*, GA Res 48/104, UN GAOR, 85th plen mtg, UN Doc A/RES/48/104 (20 December 1993); *Convention on the Elimination of All Forms of Discrimination against Women*, opened for signature 18 December 1979, 1249 UNTS 13 (entered into force September 1981).

<sup>30</sup> Lia Kent, 'Interrogating the "Gap" Between Law and Justice: East Timor's Serious Crimes Process' (2012) 34 *Human Rights Quarterly* 1021, 1026.

<sup>31</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 147. See also Fionnuala Ní Aoláin and Catherine Turner, 'Gender, Truth and Transition' (2007) 16 *UCLA Women's Law Journal* 229, 257.

<sup>32</sup> Romi Sigsworth and Nahla Valji, 'Continuities of Violence Against Women and the Limitations of Transitional Justice: The Case of South Africa' in Buckley-Zistel and Stanley (eds), above n 10, 115, 119. See also David C Gray and Benjamin A Levin, 'Feminist Perspectives on Extraordinary Justice' in Martha Albertson Fineman and Estelle Zinsstag (eds), *Feminist Perspectives on Transitional Justice: From International and Criminal to Alternative Forms of Justice* (Intersentia, 2013) 63.

and unrecognised' by Timorese post-conflict society.<sup>33</sup> Although some progress was made in the 'Lobo case' in promoting domestic violence as a violation of women's rights and as an unacceptable criminal act,<sup>34</sup> this was an isolated case, it came very late in the transitional process and the public figure involved made it worthy of attention.

There was also a failure on the part of transitional justice mechanisms to realise that conflict had not ended for women. Heightened violence against women in transitional societies has actively been linked to periods of armed conflict<sup>35</sup> and transitional justice processes are expected not just to provide 'accountability for the past' but also to prevent 'abuses in the future'.<sup>36</sup> The rhetoric of the time was that Timor-Leste was now 'post-conflict'.<sup>37</sup> But domestic violence rates, for example, severely increased following the official end of conflict. In 2001, '40% of all reported crime in Timor-Leste was found to relate to domestic violence'.<sup>38</sup> It was, 'not the Indonesians, but East Timorese men' who were being violent.<sup>39</sup> The continuities of violence against women were simply not recognised.

Aoláin says that 'disarmament of weapons is not the disarmament of minds'.<sup>40</sup> Recognition in transitional justice fora can act to disarm minds, but it did not occur in Timor-Leste. Despite reform, women and their rights remained inadequately addressed. O'Rourke and Bell said that reform only went so far in addressing women's rights. They said that reform ran hard to stand still. The O'Rourke/Bell thesis is therefore confirmed.

<sup>33</sup> Sigsworth and Valji, above n 32; Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 135. See also Jelke Boesten, 'Analyzing Rape Regimes at the Interface of War and Peace in Peru' (2010) 4 *International Journal of Transitional Justice* 110, 113.

<sup>34</sup> See generally Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 132–4.

<sup>35</sup> Gray and Levin, above n 32, 63; Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 2.

<sup>36</sup> Grenfell, above n 22, 505–6.

<sup>37</sup> See above n 18.

<sup>38</sup> UNFPA, 'Gender Based Violence in Timor Leste, A Case Study' [2005] *UNFPA Women, Peace and Security Initiative* 1, cited in Nina Hall, 'East Timorese Women Challenge Domestic Violence' (2009) 44 *Australian Journal of Political Science* 309, 314. See also National Statistics Directorate, 'Timor-Leste Demographic and Health Survey 2009-10' (Report, DHS Program, December 2010); Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 127; AusAID Office Of Development Effectiveness, 'East Timor Country Supplement: Violence Against Women in Melanesia and East Timor' (Report, Department of Foreign Affairs and Trade, 2008) 191.

<sup>39</sup> Quote from an East-Timorese woman in Gender Affairs Unit, *Situational Analysis of Gender in Post-Conflict East Timor* (Gender Affairs Unit, 2002), cited in Hall, above n 38. See also Mica's story in Gabrielle Eva Carol Groves, Bernadette P Resurreccion and Philippe Doneys, 'Keeping the Peace is Not Enough: Human Security and Gender-based Violence during the Transitional Period of Timor-Leste' (2009) 24 *Sojourn: Journal of Social Issues in Southeast Asia* 186, 200.

<sup>40</sup> Fionnuala Ní Aoláin, 'Women, Security, and the Patriarchy of Internationalized Transitional Justice' (2009) 31 *Human Rights Quarterly* 1055, 1067.

### B. *Inadequate: Securing Prosecutions and Crime Categorisation*

Bell and O'Rourke scrutinise the categorising of the violation of women's rights as 'crimes' and securing prosecutions for them. This categorisation brings with it greater legitimacy and attention. It also reinforces the initial recognition, for as O'Rourke says, transitional justice mechanisms 'by naming certain forms of harm for particular rebuke and punishment, while remaining silent on other forms of harm, can strongly influence social understanding of particular harms'.<sup>41</sup> In Timor-Leste, women's rights were indeed addressed in this way. Both the Ad-Hoc Human Rights Court and SCP had jurisdiction to prosecute crimes relating to violence against women.<sup>42</sup> But this advance was a fragile one because the reality was that the majority of such crimes were not prosecuted, and outcomes for women by prosecution of the crimes committed against them were restricted by the strong focus on sexual violence.

Despite findings of sexual violence and other violence in both KPP-HAM and UN Reports,<sup>43</sup> and that 'prosecutions had a good chance of success',<sup>44</sup> no prosecutions were brought for sexual violence or other violations of women's rights to the Ad-Hoc Human Rights Court.<sup>45</sup> Women also suffered from more general limitations of the trials, which were confined (i) temporally to crimes which had occurred between April and September 1999, ignoring 'the long history of abuse of Timorese women from 1975',<sup>46</sup> and (ii) to those which had occurred within only three of Timor's thirteen districts.<sup>47</sup> These trials were, arguably, Timorese women's only real chance put their suffering 'on the record, even if only in indictment form, in the only jurisdiction which mattered'.<sup>48</sup> The SCP did consider three cases involving gender persecution.<sup>49</sup> But three cases, where systematic violence against women

<sup>41</sup> Catherine O'Rourke, 'Transitioning to What? Transitional Justice and Gendered Citizenship in Chile and Colombia' in Buckley-Zistel and Stanley (eds), above n 10, 136, 137.

<sup>42</sup> See above n 28.

<sup>43</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 57. See, eg, KPP-HAM, 'Executive Summary', *Full Report of the Investigative Commission into Human Rights Violations in East Timor* (2000), quoted in Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 57–8.

<sup>44</sup> *Ibid.*

<sup>45</sup> *Ibid.* 68. See also Amnesty International and Judicial Monitoring Programme, 'Indonesia: Justice for Timor Leste: The Way Forward' (Report, ASA 21/006/2004, 31 March 2004) 29.

<sup>46</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 69.

<sup>47</sup> *Ibid.* 60.

<sup>48</sup> *Ibid.* 69.

<sup>49</sup> See *Prosecutor v Kasa* (Dili District Court Special Panel for Serious Crimes, Case No 11/CG/2000, 9 May 2001) ('Kasa'); *Prosecutor v Da Silva, Cardoso* (Dili District Court Special Panel for Serious Crimes, Case No 4/CG/2000, 5 April 2003) ('Lolotoe'); *Prosecutor v Soares* (Dili District Court Special Panel for Serious Crimes, Case No 14/2001, 12 September 2002) ('Soares'). See generally Susan Harris-Rimmer, 'Wearing His Jacket: A Feminist Analysis of the Serious Crimes Process in Timor-Leste' (2009) 16 *Australian International Law Journal* 81, 87.

had occurred,<sup>50</sup> is hardly an adequate address of the issue.<sup>51</sup> The legitimacy of those cases was, in any case, severely undermined by the lack of substantive legal reasoning given in the judgments.<sup>52</sup>

Where violations of women's rights were addressed in Timor-Leste,<sup>53</sup> there with an almost exclusive focus on sexual violence, conforming with the pattern seen in most transitional justice fora.<sup>54</sup> This is a pathway to over-identifying 'women with the sexual domain and the category of victims'.<sup>55</sup> The diversity of the violations of women's rights was undermined at the initial recognition level, and that translated to this aspect of Timor-Leste's transitional justice fora. Accordingly, even where 'some measure of formal justice was obtained in these cases' there were these limitations.<sup>56</sup> The O'Rourke/Bell thesis is again confirmed.

### C. *Inadequate: Courtroom Procedures and Prosecutorial Strategies*

Bell and O'Rourke identify attempts to address women's rights through particular prosecutorial strategies and reforms of courtroom procedure as, for example, encouraging women to feel safe in telling their stories in public fora so that the stories were not lost in secrecy and shame. Justice depends on stories being told and known, and accordingly, 'effective victim and witness protection is a cornerstone for transitional justice measures'.<sup>57</sup>

In Timor-Leste's transitional fora, women were to be able to be witnesses and tell the stories of their rights violations, but this became largely a formal and theoretical addressing of women's rights. Those rights were commonly actively undermined by particular prosecutorial strategies, courtroom procedures and the conduct of the litigation. There are stark examples of this. In the Ad-Hoc Human Rights court, women were typically asked (without prosecutor or judge objection) whether they were 'wanting to be raped'.<sup>58</sup> There was 'serious harassment of female witnesses' who were intimidated and whose requests to not testify before the accused were usually ignored.<sup>59</sup> Furthermore, 'gendered discourse' was prominent in these processes in Timor-Leste, which often became a showcase of 'military,

<sup>50</sup> See above n 43.

<sup>51</sup> Megan Hirst and Howard Varney, 'Justice Abandoned: an assessment of the serious crimes process in East Timor' (Report, International Center for Transitional Justice Occasional Paper Series, June 2005) 19.

<sup>52</sup> See Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 87–92. See especially *Prosecutor v Da Silva, Cardoso* (Dili District Court Special Panel for Serious Crimes, Case No 4/CG/2000, 5 April 2003) 274.

<sup>53</sup> See above n 49.

<sup>54</sup> Harris-Rimmer, 'Sexing the Subject of Transitional Justice', above n 3, 132. See also Franke, above n 23, 822.

<sup>55</sup> Buckley-Zistel and Zolkos, above n 10.

<sup>56</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 98.

<sup>57</sup> Grenfell, above n 22, 527.

<sup>58</sup> Amnesty International and Judicial Monitoring Programme, above n 41, 42.

<sup>59</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 70.

masculine voices shouting down feminised justice'.<sup>60</sup> The CAVR process had explicit instructions in UN Regulation 2001/10 as to supporting female witnesses, by, for example, 'providing women with the option of in-camera testimony' and showing sensitivity to cultural barriers, by the use of 'women statement-takers and victim support staff' when discussing sexual violations.<sup>61</sup> But this came too late to inform the SCP or Ad-hoc Human Rights Court trials,<sup>62</sup> after many had already witnessed the previous aggressive strategies by the various officials within those mechanisms. Once again, there was some formal address of women's rights, but that address was largely superficial. Reform ran hard to stand still. The O'Rourke/Bell thesis is again confirmed.

#### D. Conclusion

While transitional justice fora have increasingly addressed women's rights, they have not done so adequately. In Timor-Leste it was shown that women's rights were largely addressed in a superficial and ineffective manner across three broad targeted areas of reform.

#### IV. PEACE FOR WOMEN? A CRITIQUE AND PROPOSAL

O'Rourke and Bell argue that, in light of the manifest inadequacy of transitional justice fora to address women's rights, feminist support should focus on other ways to improve the material position of women. This section will argue against this conclusion and against the view that continued engagement with transitional justice fora and legal processes is inconsistent with appropriate feminist priorities.<sup>63</sup> With a shift in focus within transitional justice mechanisms, women's rights can be (and could have been) adequately addressed.

When women step outside of legal processes such as trials and significant non-legal processes such as truth commissions, they lose the law not just as a source of power and authority, but as a site of legitimacy and collective memory. The rule of law is undoubtedly not always 'neutral, universal and apolitical',<sup>64</sup> but it is, despite its limitations, an 'exercise of justice' and, being a system of 'regulated and coded prescriptions ... [it] ensures stability, regulatory, and consistency'.<sup>65</sup> For women's rights not to be addressed within trials and other legal processes is to deprive women, not simply of redress for the specific wrongs committed against them, but of access to a source of power that can lend force and legitimacy to their claims. Women's rights can then be pushed to the margins and socially constructed as something not sufficiently worthy for bodies of law and lawmakers

<sup>60</sup> Ibid 69.

<sup>61</sup> Porter, above n 18, 227–8.

<sup>62</sup> Harris-Rimmer, *Gender and Transitional Justice: The Women of East Timor*, above n 3, 135.

<sup>63</sup> See above n 5.

<sup>64</sup> See also Buckley-Zistel and Zolkos, above n 10, 15.

<sup>65</sup> Nikita Dhawan, 'Transitions to Justice' in Buckley-Zistel and Stanley (eds), above n 10, 264, 278.

to take seriously, as men's rights are.

Women in this situation will also, and perhaps most importantly, experience a loss of power and legitimacy because of the implications for historical construction and collective memory of their claims. Trials, and truth commissions for example are also a forum of memory, where collective memory of the conflict itself and its aftermath is constructed, recorded, taught and remembered. This is achieved by the very nature of a trial as a public forum, and also by reason of the inherent aspects of a trial, such as the testimony of witnesses and the presentation of, for example, photos, films and documents. Ricoeur says that often trials and various commissions, by presenting history in an open, public and respected forum, provide the only actual record of memory possible.<sup>66</sup> This is perhaps particularly so in transitional processes. Transitional justice, which is used to shift a nation from war to peace, begins almost immediately following the end of a conflict. This means that the transitional justice mechanisms provide the first real opportunity for recollection and the forming of collective memory as to what exactly occurred. Transitional justice becomes a crucial avenue for the subsequent social understanding of the actual conflict. Accordingly, if women's rights are not addressed in transitional fora, women and their stories of violation and suffering risk being on the periphery of the collective memory of the local and international community.

Since a core belief for feminism must be the equality of women and men, and, in particular, the strengthening of women and the promotion of their rights, it is difficult to see, given those reasons above and the importance of trials to the forming of a society's collective memory, how not engaging with transitional justice fora could somehow be better for women following a conflict. Of course transitional justice is not perfect. The transitional justice mechanisms in Timor Leste demonstrated that. It is not at all proposed here that the Bell and O'Rourke thesis is incorrect in saying that more support (from civil society and social programs for example) is needed than simply legal fora and truth commissions.<sup>67</sup> Of course any feminist analysis must, as any good analysis does, advance women's interests while remaining 'attuned to the inherent bias of transitional justice'.<sup>68</sup> But removing women from these institutions and processes impacts adversely on history and on society's collective memory. To do so seems regressive and harmful and places women's rights outside of the very social structures which can improve their lives in post-conflict societies.

In light of that, it is proposed that the answer to better addressing women's rights still lies within transitional justice mechanisms. The precise means as to how this can be done is beyond the particular investigation of this essay. But it is proposed that the inadequacies in addressing women's rights demonstrated in Part II of this

<sup>66</sup> See generally Paul Ricoeur, *Memory, History, Forgetting* (University of Chicago Press, 2004).

<sup>67</sup> Bell and O'Rourke, above n 2, 44.

<sup>68</sup> Aoláin, *Advancing Feminist Positioning in the Field of Transitional Justice*, above n 4, 221.

essay could have been rectified and, accordingly, that women's rights could be better addressed in the future with a shift in focus within transitional justice fora from mere consideration of rights, provision of accountability and recording of conflict, to an understanding of transitional justice as a site of transformation and empowerment for women.<sup>69</sup> In Timor Leste, as has been demonstrated, transitional justice for a were not empowering for women. The transitional justice mechanisms did not engage with Timorese women. Their stories did not inform the process. But if such a shift occurred, and women were to be more actively consulted and were to participate more fully in these transitional mechanisms, then they would be, through increased access to power and the machinery of power, themselves empowered and more in control.<sup>70</sup> The increased involvement of women in transitional justice fora would lead not just to an increased possibility for justice in individual cases. The contribution of women to the collective memory of their societies and the public recording of the violation of their rights that took place would help to empower women in their own post-conflict societies and act as a deterrent to such violations in future conflicts.

## V. CONCLUSION

*'Wars don't simply end. And wars don't end simply'.<sup>71</sup>*

This essay began with the idea that justice is required for peace. This essay demonstrated that women's rights have not been adequately addressed in transitional justice fora. As there has been no justice for women, there has been no peace for women in their 'peace time'. But the essay has also demonstrated that the solution is not for women to dis-engage with the very transitional justice mechanisms which have the potential to empower them, nor for feminists to shift their priorities away from support for the engagement of women with those mechanisms.

## Acknowledgements

Matilda would like to thank Kate Ogg for the International Human Rights Law course and for all her support with this essay.

<sup>69</sup> Harris-Rimmer, 'Sexing the Subject of Transitional Justice', above n 3, 135. See also Ruti Teitel, *Transitional Justice* (Oxford University Press, 2000) 6.

<sup>70</sup> See generally Patricia Lundy and Mark McGovern, 'Whose Justice? Rethinking Transitional Justice from the Bottom Up' (2008) 35 *Journal of Law and Society* 265, 266; Office of the United Nations High Commissioner for Human Rights, *Rule-of-Law Tools for Post-Conflict States: National Consultations on Transitional Justice*, HR/PUB/09/2 (2009).

<sup>71</sup> Cynthia Enloe, *The Curious Feminist: Searching for Women in a New Age of Empire* (University of California, 2004) 193, quoted in Sigsworth and Valji, above n 32, 115.

## References

### A. Articles, Books and Reports

Amnesty International and Judicial Monitoring Programme, 'Indonesia: Justice for Timor Leste: The way forward' (Report, ASA 21/006/2004, 31 March 2004)

Aoláin, Fionnuala Ní, 'Advancing Feminist Positioning in the Field of Transitional Justice' (2012) 6 *International Journal of Transitional Justice* 205

Aoláin, Fionnuala Ní and Catherine Turner, 'Gender, Truth and Transition' (2007) 16 *UCLA Women's Law Journal* 229

Aoláin, Fionnuala Ní, 'Gendered Under-Enforcement in the Transitional Justice Context' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011)

Aoláin, Fionnuala Ní, 'Women, Security, and the Patriarchy of Internationalized Transitional Justice' (2009) 31 *Human Rights Quarterly* 1055

AusAID Office Of Development Effectiveness, 'East Timor Country Supplement: Violence Against Women in Melanesia and East Timor' (Report, Department of Foreign Affairs and Trade, 2008)

Bell, Christine and Catherine O'Rourke, 'Does Feminism Need a Theory of Transitional Justice? An Introductory Essay' (2007) 1 *International Journal of Transitional Justice* 23

Boesten, Jelke, 'Analyzing Rape Regimes at the Interface of War and Peace in Peru' (2010) 4 *International Journal of Transitional Justice* 110

Budryte, Dovile, Lisa Vaughn and Natalya Reigg (eds), *Feminist Conversations: Women, Trauma and Empowerment in Post-Transitional Societies* (University Press of America, 2009)

Buchanan, Ruth and Peer Zumbansen (eds), *Law in Transition: Human Rights, Development and Transitional Justice* (Hart Publishing, 2014)

Buckley-Zistel, Susanne and Magdalena Zolkos, 'Introduction: Gender in Transitional Justice' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011)

Buckley-Zistel, Susanne and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011)

Dhawan, Nikita, 'Transitions to Justice' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave MacMillan, 2011)

Fineman, Martha Albertson and Estelle Zinsstag (eds), *Feminist Perspectives on Transitional Justice: From International and Criminal to Alternative Forms of Justice* (Intersentia, 2013)

Fiske, Lucy and Rita Shackel, 'Gender, Poverty and Violence: Gender, Poverty and Violence: Transitional Justice Responses to Converging Processes of Domination of Women in Eastern DRC, Northern Uganda and Kenya' (2015) 51 *Women's Studies International Forum* 110

Franke, Katherine M, 'Gendered Subjects of Transitional Justice' (2006) 15 *Columbia Journal of Gender and Law* 813



- Fuller, Lisa, 'Burdened Societies and Transitional Justice' (2012) 15 *Ethical Theory and Moral Practice* 369
- Galchinsky, Michael, 'Lament as Transitional Justice' (2014) 15 *Human Rights Review* 259
- Galtung, Johan, *Peace by Peaceful Means: Peace and Conflict, Development and Civilization* (Sage Publishing UK, 1996)
- Gray, David, and Benjamin Levin, 'Feminist Perspectives on Extraordinary Justice' in Martha Albertson Fineman and Estelle Zinsstag (eds), *Feminist Perspectives on Transitional Justice: From International and Criminal to Alternative Forms of Justice* (Intersentia, 2013)
- Grenfell, Laura, 'Paths to Transnational Justice for Afghan Women' (2004) 73 *Nordic Journal of International Law* 505
- Groves, Gabrielle Eva Carol, Bernadette P Resurreccion and Philippe Doney, 'Keeping the Peace is Not Enough: Human Security and Gender-based Violence during the Transitional Period of Timor-Leste' (2009) 24 *Sojourn: Journal of Social Issues in Southeast Asia* 186
- Hall, Nina, 'East Timorese Women Challenge Domestic Violence' (2009) 44 *Australian Journal of Political Science* 309
- Hamber, Brandon, 'Masculinity and Transitional Justice: An Exploratory Essay' (2007) 1 *International Journal of Transitional Justice* 375
- Harris-Rimmer, Susan, *Gender and Transitional Justice: The Women of East Timor* (Routledge, 2010)
- Harris-Rimmer, Susan, 'Sexing the Subject of Transitional Justice' (2010) 32 *Australian Feminist Law Journal* 123
- Harris-Rimmer, Susan, 'Wearing His Jacket: A Feminist Analysis of the Serious Crimes Process in Timor-Leste' (2009) 16 *Australian International Law Journal* 81
- Hynes, Michelle, Jeanne Ward, Kathryn Robertson and Chadd Crouse, 'A Determination of the Prevalence of Gender-Based Violence among Conflict-affected Populations in East Timor' (2004) 28 *Disasters* 294
- Hirst, Megan and Howard Varney, 'Justice Abandoned: an assessment of the serious crimes process in East Timor' (Report, International Center for Transitional Justice Occasional Paper Series, June 2005)
- Kent, Lia, 'Interrogating the "Gap" Between Law and Justice: East Timor's Serious Crimes Process' (2012) 34 *Human Rights Quarterly* 1021
- King, Martin Luther, 'Letter from Birmingham Jail' (1998) 50 *Literary Cavalcade* 27
- Lundy, Patricia and Mark McGovern, 'Whose Justice? Rethinking Transitional Justice from the Bottom Up' (2008) 35 *Journal of Law and Society* 265
- Mackay, Susan, 'Gender Justice and Reconciliation' (2000) 23 *Women's Studies International Forum* 561
- Mani, Rama, 'Does Power Trump Morality? Reconciliation or Transitional Justice?' in Edel Hughes, William Schabas and Ramesh Thakur (eds), *Atrocities and International Accountability: Beyond Transitional Justice* (United Nations University Press, 2007)

National Statistics Directorate, 'Timor-Leste Demographic and Health Survey 2009–10' (Report, DHS Program, December 2010)

O'Rourke, Catherine, *Gender Politics in Transitional Justice* (Routledge, 2013)

O'Rourke, Catherine, 'Transitioning to What? Transitional Justice and Gendered Citizenship in Chile and Colombia' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave MacMillan, 2011)

Porter, Elisabeth, 'Gender-Inclusivity in Transitional Justice Strategies: Women in Timor-Leste' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011)

Rae, James Deshaw, *Peace building and Transitional Justice in East Timor* (First Forum Press, 2009)

Ricoeur, Paul, *Memory, History, Forgetting* (University of Chicago Press, 2004)

Sigsworth, Romi and Nahla Valji, 'Continuities of Violence Against Women and the Limitations of Transitional Justice: The Case of South Africa' in Susanne Buckley-Zistel and Ruth Stanley (eds), *Gender in Transitional Justice* (Palgrave Macmillan, 2011)

Teitel, Ruti, *Transitional Justice* (Oxford University Press, 2000)

Turner, Catherine, 'Deconstructing Transitional Justice' (2013) 24 *Law Critique* 193

Yarwood, Lisa (ed), *Women and Transitional Justice: The Experience of Women as Participants* (Routledge, 2013)

### B. Cases

*Prosecutor v Da Silva* (Dili District Court Special Panel for Serious Crimes, Case No 4/CG/2000, 5 April 2003) ('*Lolotoe*')

*Prosecutor v Kasa* (Dili District Court Special Panel for Serious Crimes, Case No 11/CG/2000, 9 May 2001) ('*Kasa*')

*Prosecutor v Soares* (Dili District Court Special Panel for Serious Crimes, Case No 14/2001, 12 September 2002) ('*Soares*')

### C. International Instruments

*Convention on the Elimination of All Forms of Discrimination Against Women*, opened for signature 18 December 1979, 1249 UNTS 13 (entered into force September 1981).

*Declaration on the Elimination of Violence Against Women*, GA Res 48/104, UN GAOR, 85th plen mtg, UN Doc A/RES/48/104 (20 December 1993)

### D. Other Materials

*Office of the United Nations High Commissioner for Human Rights*, Rule-of-Law Tools for Post-Conflict States: National Consultations on Transitional Justice, HR/PUB/09/2 (2009)

UN News Centre, 'Ban Praises Timor-Leste's Progress and Consolidation of its Security' (15 August 2012, UN News Centre) <<http://www.un.org/apps/news/story.asp?NewsID=42685>>

# 'Political Science': Why it is Reasonable to Accept Some Scientific Theories on Moral or Political Grounds

*Siobhan Tobin*

*Names are called and mud is slung. The weight of the world's injustices is dumped firmly on the shoulders of those maintaining 'incorrect' methodological views. This is not a practice for the cardiovascularly challenged.*<sup>1</sup>

## Article

At first glance (or rather, at first Google) combining the themes of science and morality, or science and politics, seems to be a dangerous thing to do. From scientists having their mouths taped shut by governments,<sup>2</sup> to the ethics of studies where ethnicity is the independent variable,<sup>3</sup> from the intensely political process governing the allocation of research funds to academic institutions, to the scientific basis of morality itself,<sup>4</sup> it is clear that science as it is practiced today is woven into the very fabric of society. In this essay I will argue that it is sometimes reasonable to accept a scientific theory on moral or political grounds, primarily from the basis of underdetermination, which was pioneered by Quine,<sup>5</sup> and then adopted by members of the 'strong programme' of sociology of scientific knowledge. For the purposes of this work, I have selected the writings of Bloor, Barnes and Shapin.<sup>6</sup> After outlining the argument, three criticisms — one by Brown, two from Laudan — will be examined. Finally I will look at rephrasing my original statement if necessary in order to accommodate the strengthened underdetermination argument.

To begin with though, let's look at the statement I have put forward and highlight

---

<sup>1</sup> Steven Shapin, 'Here and Everywhere: Sociology of Scientific Knowledge' (1995) 21 *Annual Review of Sociology* 289, 292.

<sup>2</sup> Bruce Cheadle, 'Scientist "Muzzling" To Be Investigated By Federal Information Watchdog', *Huffington Post* (online) 4 January 2013.

<sup>3</sup> Raj Bhopal, 'Is Research into Ethnicity and Health Racist, Unsound, or Important Science?' (1997) 314 *BMJ* 1751.

<sup>4</sup> Kyle S Van Houtan, 'Conservation as Virtue: a Scientific and Social Process for Conservation Ethics' (2006) 20 *Conservation Biology* 1367.

<sup>5</sup> Kyle Stanford, 'Underdetermination of Scientific Theory' (16 September 2013, Stanford Encyclopedia of Philosophy) <<http://plato.stanford.edu/entries/scientific-underdetermination>>.

<sup>6</sup> Shapin, above n 1.

some possible ambiguities. *It is sometimes reasonable to accept a scientific theory on moral or political grounds.* This says nothing about the truth or otherwise of scientific theories explicitly; however, the use of the word ‘accept’ I believe could be interpreted in several ways. ‘Accept as true’ is quite a different reading compared to ‘accept for practical use’. Whether science is a true account of the physical world (if there even is a physical world!) is a debate for the realists and the anti-realists,<sup>7</sup> and although the ideas of the strong programme belong in the anti-realist camp,<sup>8</sup> encompassing this debate is beyond the scope of this piece. So I shall take the latter interpretation, because regardless of whether science is actually true or not, we still want to use it. In the same vein, we could discuss what is a scientific theory exactly and not get very far. ‘Moral and political values’ are examples of *non-epistemic values*,<sup>9</sup> that is, values not associated with theories of knowledge.

Lastly, the other key words are ‘sometimes reasonable’: these strongly suggest that there are some scientific theories which are less influenced by moral or political values than others, that possessing non-epistemic values is neither necessary nor sufficient grounds by which a scientific theory may be accepted, and that we are to reach sensible conclusions about individual scientific theories, as suggested by the word ‘reasonable’ (not necessarily super watertight logical ones).

Indeed, the sociology of scientific knowledge (SSK) is motivated by a desire to understand the process of scientific inquiry, what is studied by science, and how such conclusions are reached, by individuals and institutions.<sup>10</sup> Those who subscribe to the strong programme focus on the principle of meaning finitism, which leads to the notion that all science is governed by social interactions and communication: ‘that intellectuals’ intelligible communication about modern scientific culture will always be compromised by the cultural categories shared between ourselves [sociologists], the laity, and the scientists we talk about’.<sup>11</sup> More broadly SSK examines science and its practise on a case-by-case basis to see how social settings, workplace culture, individuals’ motivations and institutional values could potentially change the choice of adopted theory.<sup>12</sup> The underdetermination argument comes into play in order to justify the selection of scientific theories by non-epistemic values.

<sup>7</sup> Rachel Briggs, ‘Realism and Anti-Realism’ (Speech delivered at the Philosophy of Science Lecture, Australian National University, 28 October 2014).

<sup>8</sup> Anjan Chakravartty, ‘Scientific Realism’ (27 April 2011, Stanford Encyclopedia of Philosophy) <<http://plato.stanford.edu/entries/scientific-realism>>.

<sup>9</sup> Briggs, above n 7.

<sup>10</sup> Shapin, above n 1.

<sup>11</sup> Ibid 315.

<sup>12</sup> Chakravartty, above n 8.

The basic underdetermination argument, taken from Kyle Stanford and Andre Kukla,<sup>13</sup> is as follows:

- P1 Every hypothesis has indefinitely many equivalent rival hypotheses that account for the data accrued during the course of an experiment;
- P2 '[T]he empirical content of a theory is the only determinant of belief-worthiness';<sup>14</sup>
- C1 ∴ '[T]here is no rational basis for believing any [one] theory'.<sup>15</sup>

Or even more succinctly in Quine's own words, 'theories and beliefs in general are under-determined by the totality of possible sensory evidence time without end'.<sup>16</sup>

Now the argument from underdetermination comes in two flavours: holist and contrastive.<sup>17</sup> The former is a dead end as far as arguing for value-laden science goes. It concerns the idea that you cannot separate a single dodgy hypothesis from the background knowledge that led to that hypothesis being produced via experiment.<sup>18</sup> Our project is instead with the latter: a set of data can be explained by a theory, but there are many other alternative — or contrasting — theories that could explain the data set too.<sup>19</sup>

If we were faced with a smorgasbord of theories every time we went to explain our observations and could only choose a theory based on how well it accounted for the empirical evidence, and all theories fulfilled this criterion equally well, then we simply couldn't choose a theory to accept! Yet scientists do choose theories, which give rise to more theory options and so on. Beyond empirical values, there are also general theoretical values (coherence, fruitfulness, strength), which could differ between the theories on offer.<sup>20</sup> In the extreme case that there are infinitely many theories to choose from originally, then there would arguably be a subset of theories with the same fruitfulness etc., in which case you have the same problem. This is where the sociologists (Barnes, Bloor and Shapin) step in and announce that what splits hairs between scientific theories is in fact whether they are accepted or not, which is determined by the behaviour of the humans running the experiment, funding the experiment, discussing the experiment, etc.<sup>21</sup> Thus we sometimes accept theories on the grounds of values and not solely on empirical evidence,

<sup>13</sup> Stanford, above n 5; Andre Kukla, 'Non-Empirical Theoretical Virtues and the Argument from Underdetermination' (1994) 41 *Erkenntnis* 157.

<sup>14</sup> Kukla, above n 13, 157.

<sup>15</sup> Ibid.

<sup>16</sup> Willard Van Orman Quine, *Word and Object* (MIT Press, 1960) 71.

<sup>17</sup> Stanford, above n 5.

<sup>18</sup> Ibid.

<sup>19</sup> Kukla, above n 13.

<sup>20</sup> Briggs, above n 7.

<sup>21</sup> Elizabeth Anderson, 'Uses of Value Judgments in Science: A General Argument, with Lessons from a Case Study of Feminist Research on Divorce' (2004) 19 *Hypatia* 1.

because values are the distinguishing features of the successful theory over its rivals. Hence the argument is now extended to:

- P3 All the hypotheses have equal belief-worthiness;
- C2 ∴ '[T]here is no rational basis for believing any [one] theory'.<sup>22</sup>
- P4 If some basis for belief is not rational, then it is irrational;
- P5 We believe in one single scientific theory when explaining the results of an experiment;
- C3 ∴ The basis for our belief in a single theory is irrational;
- P6 Values — moral, political or otherwise — are irrational;
- C4 ∴ *It is sometimes reasonable to accept a scientific theory on moral or political grounds.*

I take this strengthened argument from underdetermination to be sound and defend it against objections found in the literature. The first premise is what Laudan attacks in his first objection alongside Leplin.<sup>23</sup> Theories or hypotheses may be empirical equals at one time, but separate as our experiments get better. New experimental methods demand a rethink of the data analysis, which tends to favour one theory or some theories over many others. There are now cases by which empirical data is sufficient to accept a scientific theory, when progress is made and experimental precision is improved, even though this may not have been the case initially. Note that the statement '*It is sometimes reasonable to accept a scientific theory on moral or political grounds*' still holds because of the inclusion of 'sometimes'.

However, Laudan came up with a second, subtler objection to the argument from underdetermination. He hones in on the use of the words 'determine' and 'underdetermine', and defines deductive and ampliative underdetermination for his purpose: 'In other words, deductive underdetermination says that the data are always entailed by/compatible with more than one distinct theory, ampliative underdetermination that the data always equally support more than one distinct theory'.<sup>24</sup> If you opt for the former definition, then you are linking the theories (cause) with the data (effect); thus, you need to have a cause (deductive reason) for choosing the theory in the first place. And yet where is the logical link to the 'causal interconnections going on in the heads of scientists who believe those statements'?<sup>25</sup> With Laudan's second definition of underdetermination (ampliative), Okasha offers the following assessment of an example theory *T*.<sup>26</sup>

<sup>22</sup> Ibid.

<sup>23</sup> Stanford, above n 5.

<sup>24</sup> Samir Okasha, 'The Underdetermination of Theory by Data and the "Strong Programme" in the Sociology of Knowledge' (2000) 14 *International Studies in the Philosophy of Science* 283.

<sup>25</sup> Larry Laudan, *Beyond Positivism and Relativism: Theory, Method, and Evidence* (Westview Press, 1996).

<sup>26</sup> Okasha, above n 24.

Suppose that  $T$  is ampliatively underdetermined — all the available data equally supports at least one alternative theory, so the scientist has no good reason for believing  $T$ . Again, this does not tell us what the cause of the scientists belief is. But it does tell us something, namely, that the cause is not to be found among the scientists own reasons for believing  $T$ , for we are agreed that he has none. And this is news for someone interested in producing a causal explanation of the scientists belief. For it means that the usual way of explaining a belief — by citing the agents own reasons for the belief — cannot apply. This does not prove that the correct explanation of the belief must involve social factors, of course, but it does make the search for such factors a perfectly reasonable undertaking, which it would not be otherwise.

For Okasha, this does not entirely eliminate the possibility that scientists accept theories for non-epistemic values, as Laudan only highlights the non-existence of a firm, deductive, logical link between the acceptance of the theory and the theory acting in the physical world, and hence Laudan has still left the door open for the sociologists to escape.

Brown struggles with the argument from underdetermination at the point when background interests are considered distinguishing features of competing theories (P5 and P6). If underdetermination can be used in the case of equal empirical value, then it can surely be applied again to equal background conditions, providing another infinite set of theories that we cannot select between.<sup>27</sup> This is illustrated in Figure 1:

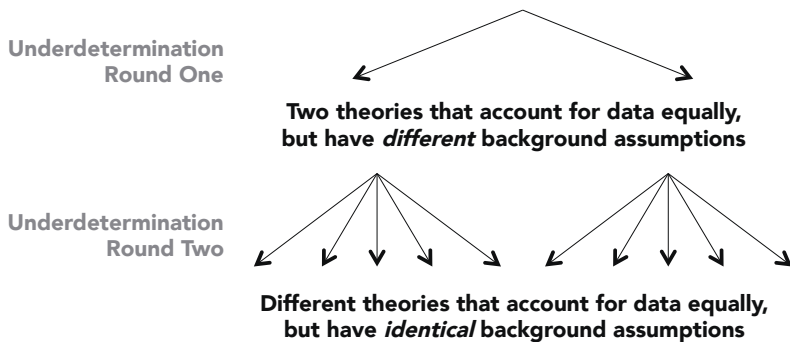


Figure 1: Brown's Criticism: Regress of Underdetermination

In this way Brown accuses those who argue from underdetermination that they only pursue underdetermination so long as it is convenient, and so their argument

<sup>27</sup> James Brown, *The Rational and the Social* (Routledge, 1989).

trips over its own feet.<sup>28</sup> In reality we do not find we have to choose between infinitely many theories at any stage — we are aware of only a select few. Brown relegates underdetermination to a problem in principle, rather than a challenge to be encountered while actually doing science, for ‘there is simply no need to invoke interests to explain what rational factors have left unaccounted for — there is no [irrational] residue’.<sup>29</sup> ‘Nature’ offers just a few theories, which can be ‘ranked’ by other epistemic values. In his reply to Brown,<sup>30</sup> Foss points out that Brown is begging the question by dodging the issue of underdetermination completely — after all, there is no underdetermination if ‘nature’s power to rank-order’ scientific theories is there all along.<sup>31</sup> Foss goes on to highlight the foolishness of Brown’s position by showing that an appeal to ‘nature’s power’ also solves the problem of induction.

Above all, the weakest part of the argument from underdetermination is what is inferred by underdetermination itself: the step from P1, P2 and P3 to C2. We saw this in Laudan’s work, where the nuances of compatibility, support, entailment and explanation were investigated in the context of the data-theory relationship, but it is Foss who phrases it best:<sup>32</sup>

Underdetermination has nothing to do with explanation of beliefs, which is in the domain of science (especially psychology), but with the justification of theories, in the domain of philosophy. It is not a problem to be solved but an insight into the relationship between evidence statements and theoretical statements...

Brown identifies a conflict in that rationality and irrationality are mutually exclusive, and philosophy says science is governed by the former, the sociologists say it is the latter. Does this ultimately affect the strength of the conclusion of our argument? I believe not, for the wording in the first premise is specific enough to counter the dichotomy aired by Brown, and no rephrasing of the statement presented is necessary. ‘Belief-worthiness’ is specified: the rational justification of scientific theories provided by ‘classic’ philosophy of science is what makes a theory or hypothesis worthy of belief. Underdetermination marks the point at which epistemology alone becomes inadequate in the practice of science, as it shows that there are no clues given by epistemology as to which theories to accept. Whether a theory from the set of belief-worthy theories is accepted or believed by scientists or not is determined by sociology, as per the Foss quote above. This process is illustrated in detail in Okasha’s book. I conclude that the argument

<sup>28</sup> Okasha, above n 24; Jeffrey Foss, ‘Masters in Our Own House: A Reply to Brown’ (1996) 35 *Dialogue* 1.

<sup>29</sup> Brown, above n 27.

<sup>30</sup> Foss, above n 28.

<sup>31</sup> Brown, above n 27.

<sup>32</sup> Foss, above n 28.



from underdetermination leads to the statement *it is sometimes reasonable to accept scientific theories on the grounds of moral or political values*.

### Acknowledgements

I would like to thank Carl Brusse for co-ordinating an excellent philosophy of science course, which featured a stellar line-up of academics in the field. In particular I wish to acknowledge Rachael Briggs for her advice regarding this essay. On a more humorous note, many thanks to my classmates for keeping me on my toes in tutorials and not letting me rant on about the idea that we are living in a computer simulation too much.

### References

- Anderson, Elizabeth, 'Uses of Value Judgments in Science: A General Argument, with Lessons from a Case Study of Feminist Research on Divorce' (2004) 19 *Hypatia* 1
- Bhopal, Raj, 'Is Research into Ethnicity and Health Racist, Unsound, or Important Science?' (1997) 314 *BMJ* 1751
- Briggs, Rachel, 'Realism and Anti-Realism' (Speech delivered at the Philosophy of Science Lecture, Australian National University, 28 October 2014)
- Brown, James, *The Rational and the Social* (Routledge, 1989)
- Chakravartty, Anjan, 'Scientific Realism' (27 April 2011, Stanford Encyclopedia of Philosophy) <<http://plato.stanford.edu/entries/scientific-realism/>>
- Cheadle, Bruce, 'Scientist "Muzzling" To Be Investigated By Federal Information Watchdog', *Huffington Post* (online) 4 January 2013
- Foss, Jeffrey, 'Masters in Our Own House: A Reply to Brown' (1996) 35 *Dialogue* 1
- Houtan, Kyle S Van, 'Conservation as Virtue: a Scientific and Social Process for Conservation Ethics' (2006) 20 *Conservation Biology* 1367
- Kukla, Andre, 'Non-Empirical Theoretical Virtues and the Argument from Underdetermination' (1994) 41 *Erkenntnis* 157
- Laudan, Larry, *Beyond Positivism and Relativism: Theory, Method, and Evidence* (Westview Press, 1996)
- Okasha, Samir, 'The Underdetermination of Theory by Data and the "Strong Programme" in the Sociology of Knowledge' (2000) 14 *International Studies in the Philosophy of Science* 283
- Quine, Willard Van Orman, *Word and Object* (MIT Press, 1960)
- Shapin, Steven, 'Here and Everywhere: Sociology of Scientific Knowledge' (1995) 21 *Annual Review of Sociology* 289
- Stanford, Kyle, 'Underdetermination of Scientific Theory' (16 September 2013, Stanford Encyclopedia of Philosophy) <<http://plato.stanford.edu/entries/scientific-underdetermination/>>



# Investigating Reward Modulation in Denoising Autoencoders

*Matthew Alger*

## Abstract

*In this report, we describe basic concepts of machine learning, and introduce and test a mechanism of combining supervised and unsupervised learning called reward modulation. Having reward modulation of 0 means that training is fully unsupervised, and having modulation of 1 means that training is fully supervised.*

*Tests were performed by changing reward modulation over time in three different ways: as a step function (equivalent to the common machine learning technique of fine tuning), as a linear function, and as a hyperbolic function. This was applied to denoising autoencoders, which were then used to classify MNIST images and solve simple MDPs.*

*While changing reward modulation over time seems to have a noticeable impact on the classification task, there is no obvious impact on the MDP tasks. This may be due to the small size of the problems involved, hence more testing is required on larger grids and mazes.*

## I. INTRODUCTION

Machine learning algorithms are a class of algorithms which learn a model of a class of data given some set of input data. This model may be used to accomplish a variety of tasks, such as classification and regression.

There are three main forms of machine learning. These are supervised learning, unsupervised learning, and reinforcement learning.

This report will outline some common concepts in machine learning, and introduce a mechanism of combining supervised and unsupervised learning called reward modulation. Note that this is not the same as semi-supervised learning — reward modulation requires labelled information for all inputs, whereas semi-supervised learning does not. This is because the motivations behind semi-supervised learning and reward modulation differ: With semi-supervised learning, the computer is trying to learn from an incomplete set of data, but with reward modulation, we are trying to find a better solution by requiring that any parameters we find must represent a good model of the inputs.

### A. Supervised Learning

Supervised learning is a form of machine learning where the computer is given as input a set of pairs, with each pair representing an input and the desired output. The computer is then tasked with learning a map between the inputs and the outputs. Examples of supervised learning problems include classification, regression, and sequence prediction.

#### 1. Classification

Classification is a task where the computer aims to assign the correct label to a given vector. Once the computer has been trained, it can be given a vector and it will return the best label it can find. A notable example of a classification task is handwritten digit recognition, in which the computer is given an image of some handwritten digit, and it must then assign as a label the digit that the image represents. The MNIST dataset,<sup>1</sup> shown in figure 1, is commonly used as input for this task.

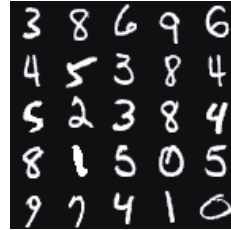


Figure 1: The MNIST dataset contains 70000  $28 \times 28$  px images of handwritten digits, which can each be interpreted as a vector in  $\mathbb{R}^{784}$ .

In training for a classification task, the computer is given a set of learning data  $\mathcal{D}$ . This consists of pairs of input vectors and their associated labels, which we will refer to as  $\vec{x}$  and  $k$  respectively. It then attempts to find a good map between input vectors and labels. The exact method of this learning process depends on the algorithm used.

#### 2. Regression

Regression is a task where the computer aims to find the relationship between one or more input variables and a real-valued output variable. After the computer has been trained, it can be given values of the input variables, and it will return the value of the dependent variables. This is identical to the problem of classification, but with a real-valued output instead of discrete categories.

During training, the computer is given a set  $\mathcal{D}$  of pairs of values of independent variables and the associated values of the dependent

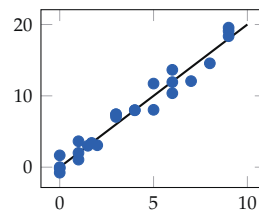


Figure 2: A linear regression finds a line of best fit for some data points.

<sup>1</sup> Yann LeCun, Corinna Cortes and Christopher J C Burges, 'The MNIST Database' (2012, University of Essex) <<http://algoval.essex.ac.uk/rep/seqrec/MNist.html>>.

variables. These are both represented as vectors, called  $\vec{x}$  and  $\vec{y}$  respectively. The computer then attempts to find a function approximating the relationship between independent and dependent variables. As with classification, the exact method of this function approximation depends on the algorithm used.

The accuracy of the learned function depends heavily on the method of learning used. For example, the linear regression algorithm can only find linear relationships.

### 3. *Sequence Prediction*

Sequence prediction is a task where the computer is given a vector representing the current state of some system, and aims to predict what the next state of this system will be. Once the computer has been trained, it can be given one state of a system and will return a prediction of the next state. During training, the computer is supplied a set of pairs of states and the associated next states, which it will learn a map between. An example of a state prediction task would be predicting the effects of gravity on some object, where the computer is supplied the position and velocity of the object and is tasked with predicting the subsequent position and velocity of the object.

### B. *Unsupervised Learning*

Unsupervised learning is a form of machine learning where the computer is only given input data, without any associated expected output data, and is tasked with finding patterns in it. Examples of unsupervised learning problems that will be covered in this report include model learning and denoising.

#### 1. *Model Learning*

Model learning is a task where the computer aims to find a different representation of some class of input data. This representation either provides a more abstract form of input data, or simply provides a different form of the input data (for example, the representation may be simply a higher dimensional projection of the input data, allowing it to be more easily separated for a classification problem). In both cases, the new representation may allow other machine learning algorithms to work more effectively, by using the new representation as input instead of the raw data.

The computer is trained by supplying it with a set of input data, which it then learns to identify key features of. Usually, the computer will have some secondary task to accomplish which will be used to validate how good the model is — for example, denoising autoencoders attempt to learn to reduce noise in input data, and learn a model as a side-effect.

Examples of algorithms that learn models are autoencoders and restricted

Boltzmann machines.

2. *Denoising*

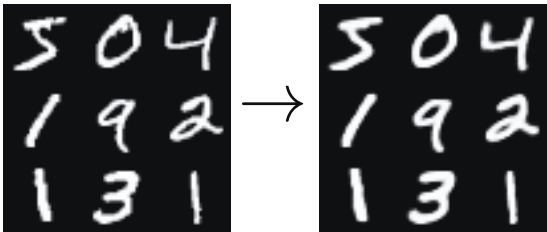


Figure 3: Original MNIST digits, and their denoised versions generated by a denoising autoencoder.

Denoising is a task where the computer learns to accept input data and return a less noisy version of that data, such as the example in figure 3. This is closely related to model learning, as the algorithms used to denoise data also learn a model as a side-effect.

The model is usually a transformation from the input data to the other representation of the input data. This transformation encodes the general features learned from the class of input data.

Denoising autoencoders are an example of a denoising algorithm.

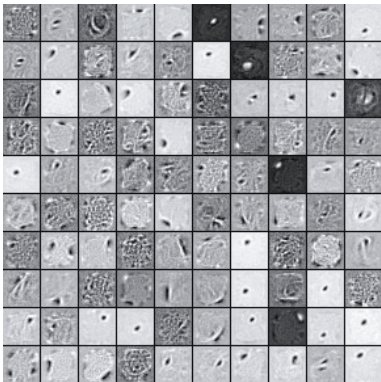


Figure 4: Part of the transformation learned by the denoising autoencoder in figure 3. These images are element-wise multiplied by input data and added together to get the learned representation of the input data.

### C. Reinforcement Learning

Reinforcement learning is a form of machine learning where an agent is in an environment where it observes the state of the environment and may then take a number of actions. Each action changes the state of the environment in some way. The agent receives some scalar value called a reward after each action. The aim is to maximise long-term accumulated reward.

The reinforcement learning tasks described here are represented by Markov decision processes.

A Markov decision process (MDP) is a set of states  $\mathcal{S}$ , a set of actions  $\mathcal{A}$  available at each state, a (possibly non-deterministic) function  $s : \mathcal{S} \times \mathcal{A} \rightarrow \mathcal{S}$  taking a state and an action to another state, and a reward function  $R : \mathcal{S} \rightarrow \mathbb{R}$ . They model environments in which an agent can take actions to move through the states, and eventually receive some kind of reward.

An example of a MDP is the mountain car problem. The agent is a car in a valley, and it can accelerate left, right, or not at all at any point in time. If the car reaches a certain height, it can exit the valley, and receive a reward. However, the car cannot accelerate fast enough to escape the valley under its own power. The aim of the car is to reach a certain height up the side of the valley, a goal which it cannot achieve without utilising the shape of the valley to gain enough speed. When the car reaches the given height, it receives a reward. The state here comprises the position and speed of the car.

For learning methods that require a “reward” at each state proportional to how good that state is, we can run the MDP until the end state is reached, and then assign each state a value based on future rewards. This is called the value of a state. This can be given as the instantaneous reward of the state itself, plus some constant  $0 < \gamma \leq 1$  multiplied by the value of the next state. In this way, a value is assigned to each state. This is described in equation 1, where  $\vec{x}_i$  is the  $i$ th state,  $V(\vec{x}_i)$  is the reward assigned to that state, and  $R(\vec{x}_i)$  is the instantaneous reward at that state.

$$V(\vec{x}_i) = R(\vec{x}_i) + \gamma V(\vec{x}_{i+1}) \quad (1)$$

In general, the value of the state  $\vec{x}$  taking the action  $k$  may be written  $V(\vec{x}, k)$ .

Solutions to MDPs with a discrete, finite set of possible actions can be found using methods similar to those used in classification problems. The state vector is given as input to some algorithm, and the “labels” returned by the algorithm are interpreted as actions. By restricting the reward given to the range  $[0, 1]$ , we can interpret the expected probabilities in the output vector as expected rewards,

and require the computer to minimise the difference between expected and actual reward.

In a similar way, techniques used in regression can also be applied to MDPs with continuous actions.

#### D. Algorithms and Implementation

There are many different ways to implement supervised learning, unsupervised learning, and reinforcement learning problems. Some algorithms for these tasks include logistic regression, multi-layer perceptrons, autoencoders, and denoising autoencoders.

##### 1. Logistic Regression

Logistic regression is a form of supervised learning which learns to classify input data into discrete categories, called labels.

Like all supervised learning, the input data is a set of pairs of corresponding inputs and outputs. A set of such input data is denoted  $\mathcal{D}$  and an element in the input data is denoted  $(\vec{x}, k)$ .  $\vec{x}$  represents the input vector and  $k$  represents the corresponding output label.

To classify an input  $\vec{x}$ , logistic regression applies a linear transformation and a translation to  $\vec{x}$ . The resulting output is then passed through the softmax function, such that each component of the final output is in the range  $(0, 1)$ , and the sum of all components is 1. We call this output  $\vec{y}(\vec{x})$ , and it is defined in equation 2, where  $W$  is called the weight matrix and  $\vec{b}$  is called the bias vector. Together, we refer to  $W$  and  $\vec{b}$  as the model, and denote it  $\theta$ .  $\vec{y}$  is entirely defined by  $\theta$ , so we denote  $\vec{y}$  for some specific  $\theta$  as  $\vec{y}_\theta$ .

$$\vec{y}_\theta(\vec{x}) = \text{softmax}(W\vec{x} + \vec{b}) \quad (2)$$

The entries of  $\vec{y}(\vec{x})$  look a lot like probabilities, so we interpret them as such: The  $i$ th entry of  $\vec{y}(\vec{x})$ , denoted  $y(\vec{x})_i$ , is the predicted probability that  $\vec{x}$  carried the  $i$ th label. As such, classification is simple: The predicted label,  $l$ , is the value of  $i$  such that  $y(\vec{x})_i$  is maximised<sup>2</sup>, as shown in equation 3.

$$l_\theta(\vec{x}) = \underset{i}{\operatorname{argmax}}(y_\theta(\vec{x})_i) \quad (3)$$

The aim of logistic regression, then, is to *find*  $\theta$  such that the number of incorrect labellings is minimised. One way to represent this is as a loss function  $\mathcal{L}(\mathcal{D}, \theta)$ .

<sup>2</sup> Note that we don't really need to apply softmax at all to classify, since the largest entry in  $\vec{y}(\vec{x})$  is at the same index whether or not we apply softmax. However, applying softmax allows us to interpret the entries as probabilities, which is useful for other tasks.



If  $\theta$  is optimal, then  $\mathcal{L}(\mathcal{D}, \theta)$  will be 0 for any  $\mathcal{D}$ . We can write  $\mathcal{L}$  as the average number of incorrectly labelled inputs, as shown in equation 4.

$$\mathcal{L}(\mathcal{D}, \theta) = \frac{1}{|\mathcal{D}|} \sum_{(\vec{x}, k) \in \mathcal{D}} \begin{cases} 1 & l_{\theta}(\vec{x}) = k \\ 0 & l_{\theta}(\vec{x}) \neq k \end{cases} \quad (4)$$

Minimising the loss function would then give a suitable  $\theta$ . However, this loss function is not differentiable, meaning that the common methods of minimisation based on differentiation will not work. To this end, we instead design a differentiable loss function based on the probability predictions in  $\vec{y}$ . Good values for  $\theta$  will result in correct labels being assigned high probabilities in  $\vec{y}$ . We can invert this, and instead look for values of  $\theta$  such that  $y(\vec{x})_k \rightarrow 1$ . To phrase this as a minimisation problem, we can take the negative log of  $y(\vec{x})_k$  — as  $y(\vec{x})_k \rightarrow 1$ ,  $-\log y(\vec{x})_k \rightarrow 0$ . This is described in equation 5. We call this particular loss function the negative log-likelihood.

$$\mathcal{L}(\mathcal{D}, \theta) = \sum_{(\vec{x}, k) \in \mathcal{D}} -\log y_{\theta}(\vec{x})_k \quad (5)$$

We now want to find  $\theta$ . This can be accomplished by a process called gradient descent, in which we repeatedly change  $\theta$  based on how much it affects the loss across some data set  $\mathcal{D}$ . This is described in equation 6. The value  $r$  is called the learning rate.

$$\theta_{i+1} = \theta_i - r \sum_{(z \in \mathcal{D})} \frac{d\mathcal{L}(\{z\}, \theta)}{d\theta} \quad (6)$$

Gradient descent requires iterating over the entire data set  $\mathcal{D}$  for each epoch. This is sometimes slow, so we might instead use stochastic gradient descent for each item  $z \in \mathcal{D}$  (equation 7). This is sometimes faster at the cost of accuracy.

$$\theta_{i+1} = \theta_i - r \frac{d\mathcal{L}(\{z\}, \theta)}{d\theta} \quad (7)$$

These methods can also be combined using batches. A subset of the data set, called a batch, is used with equation 6 to train  $\theta$ . This is then repeated until all data has been used to train  $\theta$ . The process is then repeated.

Since logistic regression is essentially a linear transformation, it can only accurately classify data that are linearly separable — that is, data in  $n$  dimensions that can be split into categories by an  $n$ -dimensional hyperplane.

The concepts behind logistic regression can be easily extended to other supervised learning problems. For example, by removing the softmax from the definition of  $\vec{y}$ , we can perform regression with  $\vec{y}$  as the output vector.

## 2. Multilayer Perceptrons

Multilayer perceptrons are similar to logistic regression in that they also classify input data into discrete categories, but they are more powerful: They can also classify data that are not linearly separable. This is accomplished with the use of what are called hidden layers — an input vector  $\vec{x}$  is non-linearly mapped to a “hidden” vector  $\vec{h}$ , which is non-linearly mapped again to obtain an output vector  $\vec{y}$ . This mapping can be repeated for arbitrarily many hidden layers. These non-linearities are what allow multilayer perceptrons to classify non-linearly separable data.

Like logistic regression, a multilayer perceptron can also be represented by a model  $\theta$  of weight matrices  $W_1, W_2, \dots, W_n$ , and bias vectors  $\vec{b}_1, \vec{b}_2, \dots, \vec{b}_n$ . A multilayer perceptron with  $n$  hidden layers taking an input vector  $\vec{x}$  to an output vector  $\vec{y}_\theta(\vec{x})$  would be represented by the following equations, where  $s$  is a non-linear function such as tanh or sigmoid and  $\vec{h}_{n_\theta}(\vec{x})$  is the  $n$ th hidden layer:

$$\vec{h}_{1_\theta}(\vec{x}) = s(W_1\vec{x} + \vec{b}_1) \quad (8)$$

$$\vec{h}_{2_\theta}(\vec{x}) = s(W_2\vec{h}_{1_\theta}(\vec{x}) + \vec{b}_2) \quad (9)$$

$$\vdots$$

$$\vec{y}_\theta(\vec{x}) = s(W_{n+1}\vec{h}_{n_\theta}(\vec{x}) + \vec{b}_{n+1}) \quad (10)$$

The cost function is the same as for logistic regression — the negative ‘log-likelihood’ (equation 5) — and gradient descent is again used with this cost function on  $\theta$ .

## 3. Denoising Autoencoders

An autoencoder is a form of unsupervised learning, where the input vector  $\vec{x}$  is acted upon non-linearly to produce an output vector  $\vec{x}'(\vec{x})$ , called the reconstruction of  $\vec{x}$ . This is essentially a multilayer perceptron, with an autoencoder with one hidden layer described by equations almost identical to equations 8 and 10:

$$\vec{h}_\theta(\vec{x}) = s(W_1\vec{x} + \vec{b}_1) \quad (11)$$

$$\vec{x}'_\theta(\vec{x}) = s(W_2\vec{h}_\theta(\vec{x}) + \vec{b}_2) \quad (12)$$

where the model  $\theta$  describes both  $\vec{h}_\theta$  and  $\vec{x}'_\theta$ , and comprises weight matrices  $W_1$  and  $W_2$ , and bias vectors  $\vec{b}_1$  and  $\vec{b}_2$ . A common restricting is setting  $W_2$  such that  $W_2 = W_1^T$ . This is called tied weights.

The autoencoder is designed to learn a map between the input  $\vec{x}$ , some number of hidden layers  $\vec{h}_1, \vec{h}_2, \dots, \vec{h}_n$ , and an output  $\vec{x}'$ , such that  $\vec{x} = \vec{x}'(\vec{x})$ . The key idea behind this is that the hidden layers will be some alternate, more abstract representation of the input data, from which the data can be reconstructed as  $\vec{x}'$ . The hidden layers can then be used as input to some other learning process, such as logistic regression.

One possible cost function would be as follows:

$$\mathcal{L}(\mathcal{D}, \theta) = \sum_{\vec{x} \in \mathcal{D}} ||\vec{x} - \vec{x}'(\vec{x})|| \quad (13)$$

Another common cost function is the reconstruction cross-entropy.<sup>3</sup> This is shown in the following equation, with  $d$  as the dimension of the input:

$$\mathcal{L}(\mathcal{D}, \vec{x}') = - \sum_{i=0}^{d-1} \left( x_i \log x'_i(\vec{x}) + (1 - x_i) \log(1 - x'_i(\vec{x})) \right) \quad (14)$$

Clearly, as  $\vec{x}'(\vec{x})$  grows more similar to  $\vec{x}$ , this value will decrease, making it a suitable minimisation function.

This approach may not work as well as intended - the autoencoder may simply learn the identity function,<sup>4</sup> which would not result in a useful abstraction  $\vec{h}$ . To avoid this, we introduce an extra step: We add noise to the input vector, and then task the autoencoder with denoising it. This is described in equations 15 and 16, once again for a single hidden layer autoencoder, where  $\vec{n}$  is a mask vector of random ones and zeros and  $\vec{x} * \vec{n}$  is the element-wise product of  $\vec{x}$  and  $\vec{n}$ .

$$\vec{h}_\theta(\vec{x}) = s(W_1(\vec{x} * \vec{n}) + \vec{b}_1) \quad (15)$$

$$\vec{x}'_\theta(\vec{x}) = s(W_2\vec{h}(\vec{x}) + \vec{b}_2) \quad (16)$$

This is called a denoising autoencoder. Using the transformation described by  $\theta$  in a regular autoencoder will result in denoised versions of the input vector  $\vec{x}$ , such as those shown in figure 3.

Denoising autoencoders are more effective than non-denoising autoencoders at generating alternative representations of inputs.<sup>5</sup>

<sup>3</sup> Pascal Vincent et al, 'Extracting and Composing Robust Features with Denoising Autoencoders' (Paper presented at the International Conference on Machine Learning, Helsinki, 2008).

<sup>4</sup> Ibid; Yoshua Bengio, 'Learning Deep Architectures for AI' (2009) 2 *Foundations and Trends in Machine Learning* 1.

<sup>5</sup> Vincent et al, above n 3.

Denoising autoencoders can also be stacked to improve their abstractions. In this case, the hidden layer from a denoising autoencoder is used as input to a second denoising autoencoder, which may then have its hidden layer used as input to a third, and so on.

### E. Reward Modulation

As previously stated, denoising autoencoders can be used to perform supervised tasks by using their hidden layer as input to a supervised algorithm such as logistic regression. The denoising autoencoder is then trained in the usual way, alongside the logistic regression. This kind of combined supervised–unsupervised learning can be far more effective than using purely supervised learning.<sup>6</sup>

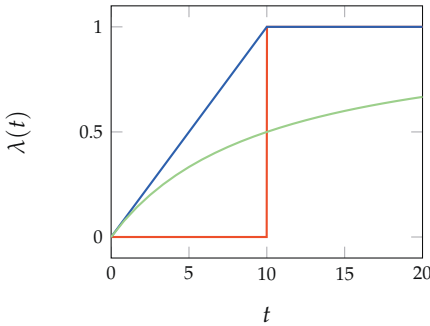


Figure 5: Different modulation functions  $\lambda(t)$ . Step, linear, and hyperbolic.

A common technique when using this method of supervised learning is called fine tuning. Fine tuning is the technique of training the supervised and unsupervised components of the algorithm separately for some amount of time, and then training the whole algorithm exclusively on the loss from the supervised component. This has good results,<sup>7</sup> but begs the question of whether there is a benefit from instead *smoothly* changing from unsupervised to supervised learning over time.

This is reward modulation. If we write the denoising autoencoder’s original loss function as  $\mathcal{F}_\theta$ , and the logistic regression loss function as  $\mathcal{R}_\theta$ , then the loss function of the denoising autoencoder becomes

$$\mathcal{L}(\mathcal{D}, \theta) = (1 - \lambda(t))\mathcal{F}_\theta + \lambda(t)\mathcal{R}_\theta \quad (17)$$

where  $\lambda(t)$  is a function that takes the current epoch and returns the modulation, a real number in the range  $[0, 1]$ . If  $\lambda(t) = 0$ , we have effectively entirely

<sup>6</sup> Hugo Larochelle, Michael Mandel, Razvan Pascanu and Yoshua Bengio, ‘Learning Algorithms for the Classification Restricted Boltzmann Machine’ (2012) 13 *Journal of Machine Learning Research* 643; Institute for Learning Algorithms, ‘Stacked Denoising Autoencoders (SdA)’ (6 September 2015, Deep Learning)<http://deeplearning.net/tutorial/SdA.html>.

<sup>7</sup> Bengio, above n 4; Institute for Learning Algorithms, above n 6.

unsupervised learning. If  $\lambda(t) = 1$ , we have supervised learning only. If  $\lambda(t) = \begin{cases} 0 & t < 50 \\ 1 & t \geq 50 \end{cases}$ , then we recover the process of fine tuning described above.

In this report we investigate three forms of  $\lambda(t)$ . These are listed below, with  $p$  as some constant parameter:

- $\lambda$  as a step function,  $\lambda(t) = \begin{cases} 0 & t < p \\ 1 & t \geq p \end{cases}$
- $\lambda$  as a linear function,  $\lambda(t) = \frac{t}{p}$
- $\lambda$  as a hyperbolic function,  $\lambda(t) = 1 - \frac{p}{p+t}$

The value of  $\lambda(t)$  is constrained to the range  $[0, 1]$ . These are plotted in figure 5 with  $p = 10$ .

We aim to find whether changing reward modulation over the course of training improves the quality and speed of solutions to various machine learning tasks.

## II. EXPERIMENTAL DESIGN

We conducted three experiments: one classification experiment, and two MDP experiments.

### A. Classification Task — Digit Recognition

#### 1. Outline

The first experiment was a classification task, performed on the MNIST dataset.<sup>8</sup> The goal of the task was to correctly classify images from the MNIST dataset as the digits they represent.

This experiment was performed using two denoising autoencoders, each with one hidden layer. The first denoising autoencoder was a standard denoising autoencoder, and the second denoising autoencoder (referred to here as the RM denoising autoencoder) changed reward modulation while training.

The denoising autoencoders were trained on inputs  $(\vec{x}, k)$ , with  $\vec{x} \in [0, 1]^{28 \times 28}$  as an image from the MNIST dataset, and  $k \in \{0, 1, \dots, 9\}$  as its associated label. The number of incorrect labellings were recorded after each epoch, and these are plotted in figures 7, 8, 9, and 10.

---

<sup>8</sup> LeCun, Cortes and Burges, above n 1.

## 2. Implementation

The denoising autoencoders were implemented using the Python libraries NumPy,<sup>9</sup> and Theano.<sup>10</sup> NumPy was used to manipulate the large amounts of input data as matrices, and Theano was used to symbolically manipulate these matrices to form the denoising autoencoder itself.

Each denoising autoencoder mapped an input  $\vec{x}$  to a hidden layer  $\vec{h}(\vec{x})$ , which was then mapped to a reconstruction of the original input  $\vec{x}'(\vec{x})$  using tied weights. A logistic regression was also implemented on top of the denoising autoencoders, mapping the hidden vectors  $\vec{h}(\vec{x})$  to output vectors  $\vec{y}(\vec{x})$ . The denoising autoencoders are described in equations 18 to 20, with  $W$  and  $A$  as the denoising autoencoder and logistic regression weight matrices respectively, and  $\vec{b}, \vec{b}'$ , and  $\vec{c}$  as the autoencoder, reconstruction, and logistic regression bias vectors respectively.

$$\vec{h}(\vec{x}) = \text{sigmoid}(W\vec{x} + \vec{b}) \quad (18)$$

$$\vec{x}'(\vec{x}) = \text{sigmoid}(W^T\vec{h}(\vec{x}) + \vec{b}') \quad (19)$$

$$\vec{y}(\vec{x}) = \text{softmax}(A\vec{h}(\vec{x}) + \vec{c}) \quad (20)$$

$\vec{h}(\vec{x})$  contained 700 nodes, as this was found during initial testing to be a good balance between solution quality and speed.  $y_i(\vec{x})$  represented the likelihood that  $\vec{x}$  carried the label  $i$ .

The model of each denoising autoencoder was trained by stochastic gradient descent (equation 7) on the weight matrices and bias vectors, using batch sizes of 20. The learning rates  $r$  of the denoising autoencoders were a function of the current epoch  $t$ , with  $r(t) = 0.1 \times \frac{4}{4+t}$ , such that the learning rates decreased over time. Each denoising autoencoder was trained for 40 epochs.

After each trial, the model was evaluated by predicting the labels of 10000 test images in the MNIST dataset that were not used to train the model. The percentage of incorrect labels was recorded. The error rates found for the non-RM denoising autoencoder are plotted against epochs in figure 7, and the error rates found for the RM denoising autoencoders are plotted against epochs in figures 8, 9, and 10.

Both denoising autoencoders used two loss functions — one loss function for the unsupervised component, and one loss function for the logistic regression. The standard denoising autoencoder used the reconstruction cross-entropy for its unsupervised loss function (equation 14), and the negative log-likelihood for its

<sup>9</sup> Stéfan van der Walt, S Chris Colbert and Gaël Varoquaux, 'The NumPy Array: A Structure for Efficient Numerical Computation' (2011) 13 *Computing in Science and Engineering* 22.

logistic regression loss function (equation 5). The RM denoising autoencoder used the same loss function for the logistic regression component, but used a reward modulating, epoch-dependent loss function for the unsupervised component, which combined the reconstruction cross-entropy loss with the supervised loss from the logistic regression. This is described in equation 23.

$$\mathcal{F}(\mathcal{D}, \vec{x}') = \sum_{i=0}^9 \left( x_i \log x'_i(\vec{x}) + (1 - x_i) \log(1 - x'_i(\vec{x})) \right) \quad (21)$$

$$\mathcal{R}(\mathcal{D}, \vec{y}) = \sum_{(\vec{x}, k) \in \mathcal{D}} -\log y_\theta(\vec{x})_k \quad (22)$$

$$\mathcal{L}(\mathcal{D}, \vec{x}', \vec{y}) = (1 - \lambda(t))\mathcal{F}(\mathcal{D}, \vec{x}') + \lambda(t)\mathcal{R}(\mathcal{D}, \vec{y}) \quad (23)$$

Three different functions  $\lambda(t)$  were trialled. These were step modulation (equation 24), linear modulation (equation 25), and hyperbolic modulation (equation 26).

$$\lambda(t) = \begin{cases} 0 & t < p \\ 1 & t \geq p \end{cases} \quad (24)$$

$$\lambda(t) = \frac{t}{p} \quad (25)$$

$$\lambda(t) = 1 - \frac{p}{p+t} \quad (26)$$

The trials were repeated for different values of the parameter  $p$ . These values were 0, 1, 2, 4, 10, 15, and 20 for step modulation; 1, 2, 4, 10, 20, 40, and 80 for linear modulation; and  $\frac{1}{2}$ ,  $\frac{5}{2}$ ,  $\frac{9}{2}$ ,  $\frac{13}{2}$ , 10, 12, 20, and 200 for hyperbolic modulation. These values were chosen to represent a wide range of values, so it would be possible to determine which region of values is better for use in reward modulation.

## B. MDP Task — Grid

### 1. Outline

The second experiment was a navigation task. An agent was placed in a square grid and tasked with navigating to the bottom-right corner.

The agent was given as input the coordinates of its current location. These coordinates were represented by images from the MNIST dataset, such that one input contained two images. The agent then output an action as an integer in  $\{0, 1, 2, 3\}$ . The action was interpreted as a direction for the agent to move: 0 for

right, 1 for up, 2 for left, and 3 for right. If the agent would ever attempt to move outside the grid, it would instead not move at all.

Each epoch, the agent was allowed to navigate the grid from random starting coordinates. The coordinates of the agent were input to the agent. The output was used to choose the direction to move the agent with probability  $1 - \epsilon$ , where  $\epsilon$  was a constant parameter. With probability  $\epsilon$ , the agent would instead move randomly. This process was repeated until the agent reached the bottom-right corner of the grid, or until the agent had made 1000 moves.

Once the agent had finished navigating the grid, a reward was given. This reward was either 0 if the agent did not reach the bottom-right corner, or 1 if it did. This reward was then used to calculate the discounted future reward for each state, as in equation 1, with  $\gamma = 0.9$ . The agent was then trained based on the state-action-reward data obtained during all previous navigations.

## 2. Implementation

The grid was implemented as an object which stored the location of the agent, as well as information about the width and height of the grid.

The agent was implemented in two different ways: firstly with a denoising autoencoder, and secondly with a RM denoising autoencoder as described previously. The autoencoders had 700 nodes in their hidden layers, and (as with classification) used a learning rate of  $r(t) = 0.1 \times \frac{4}{4+t}$ , where  $t$  is the epoch. Each autoencoder had a logistic regression layer implemented alongside it, which used the hidden layer as input. Both autoencoders and their logistic regression layers are described by equations 18 to 20.

The input to the autoencoders was two images from the MNIST dataset, represented by a vector  $\vec{x} \in [0, 1]^{28 \times 28 \times 2}$ . The output vector  $\vec{y}(\vec{x})$  from the logistic regression was interpreted as a list of expected rewards, with the  $i$ th component of  $\vec{y}(\vec{x})$  representing the expected reward gained from taking the  $i$ th action at state  $\vec{x}$ .

The reconstruction cross-entropy (equation 14) was used as the loss function for the denoising autoencoder component of the agents. The average absolute difference between the expected and the actual reward was used as the loss function for the logistic regression component. This is described in equation 27, where  $\vec{x}$  is a state vector,  $k$  is the action taken at that state, and  $R(\vec{x}, k)$  is the reward given from taking action  $k$  at state  $\vec{x}$ .

$$\mathcal{L}(\mathcal{D}, \vec{y}) = \sum_{(\vec{x}, k) \in \mathcal{D}} ||y(\vec{x})_k - R(\vec{x}, k)|| \quad (27)$$



The agent was randomly placed into a grid, and navigated the grid as described in the outline.  $\epsilon$ , the chance that the agent would act randomly, was varied over time as  $\epsilon(t) = \frac{1}{1+t}$ , where  $t$  is the epoch. The states observed over the course of navigating the grid were then stored, along with the corresponding action that the agent took and the discounted future reward that was received as a result.

Previously stored state-action-reward pairs were used as the data set in training. The training was accomplished using stochastic gradient descent (equation 7) with batch sizes of 20.

Validation was accomplished by placing the agent in the top-left corner of the grid, and measuring how many moves it took to reach the goal of the bottom-right corner. During validation,  $\epsilon$  was set to 0. If the agent made 1000 moves without finding the goal, the validation step would be terminated and a value of 1000 recorded.

Three different forms of reward modulation were trialled in the RM agent. These were step modulation (equation 24) with  $p = 50$ , linear modulation (equation 25) with  $p = 25$  and  $p = 50$ , and hyperbolic modulation (equation 26) with  $p = 50$  and  $p = 1^{11}$ .

The non-RM agent and the RM agents were trained for 60 epochs on a  $3 \times 3$  grid and a  $5 \times 5$  grid. The results for these tests are plotted in figure 11 and figure 12 respectively.

### C. MDP Task — Maze

#### 1. Outline

The third experiment was a harder navigation task. The maze task was identical to the grid task, except that the grid had walls placed between some cells. This formed a maze similar to the maze pictured in figure 6. The walls were generated using a randomised depth-first search.

As with the grid task, the agent was given as input the coordinates of its current location, which were once again represented by images from the MNIST dataset. Actions were again interpreted as directions in which to move. If

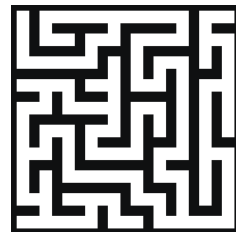


Figure 6: A grid maze.

<sup>11</sup> The parameter  $p$  for linear modulation was changed from 50 to 25 between experiments, and the parameter  $p$  for hyperbolic modulation changed from both 50 and 1 to just 1 between experiments. This change was made in light of new data from the classification task. Ideally, the older trials would be re-run with the new parameters, but due to the computational power required to run trials, this was unfortunately not possible.

the agent would ever attempt to move outside the grid or into a wall, it would instead not move at all.

Each epoch, the agent was allowed to navigate the maze from random starting coordinates. Random actions would be taken with probability  $\epsilon(t) = \frac{1}{1+t}$  where  $t$  is the epoch. The navigation stage stopped when the agent reached the goal, or when the agent had taken more than 1000 moves and had not found the goal.

Once the agent had finished navigating the grid, a reward was given. This reward was either 0 if the agent did not reach the bottom-right corner, or 1 if it did. This reward was then used to calculate the discounted future reward for each state, as in equation 1, with  $\gamma = 0.9$ . The agent was then trained based on the state-action-reward data obtained during all previous navigations.

## 2. Implementation

The maze was implemented as an object which stored the location of the agent, as well as the location of the walls of the maze.

The agents used the same code and parameters as for the grid task, with the navigation step modified to account for the existence of walls.

As with the grid task, three different forms of reward modulation were trialled in the RM agent. These were step modulation (equation 24) with  $p = 50$ , linear modulation (equation 25) with  $p = 25$ , and hyperbolic modulation (26) with  $p = 1$ .

The agents were trained for 60 epochs on a  $3 \times 3$  maze. These results are plotted in figure 13. The agents were also trained for 60 epochs on a  $5 \times 5$  maze, but no agents reached the goal within the allowed number of moves.

## III. RESULTS

### A. Classification

The following plots are of the performance of the trialled denoising autoencoders on the classification task over time.

| RM form    | Best final error rate | $\lambda(t)$         |
|------------|-----------------------|----------------------|
| None       | 3.19%                 | —                    |
| Step       | 2.38%                 | $H(t - 20)$          |
| Linear     | 2.44%                 | $\frac{t}{20}$       |
| Hyperbolic | 2.45%                 | $1 - \frac{1}{1+2t}$ |

Table 1: Best final error rates of each method of reward modulation

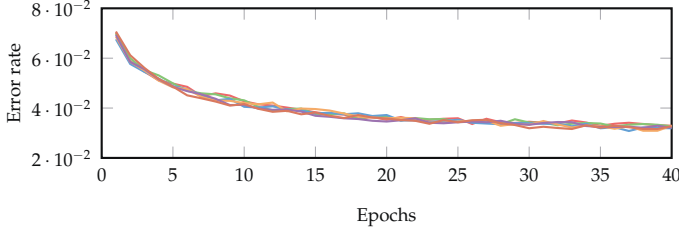
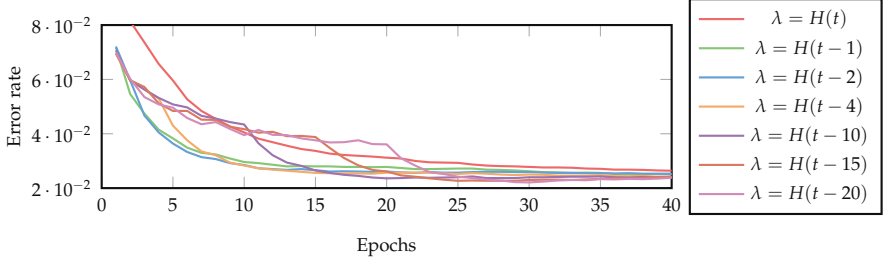
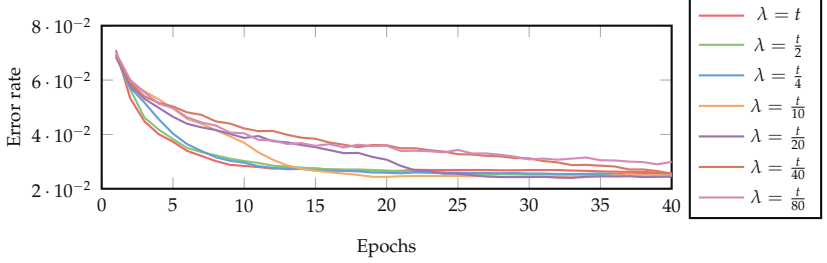
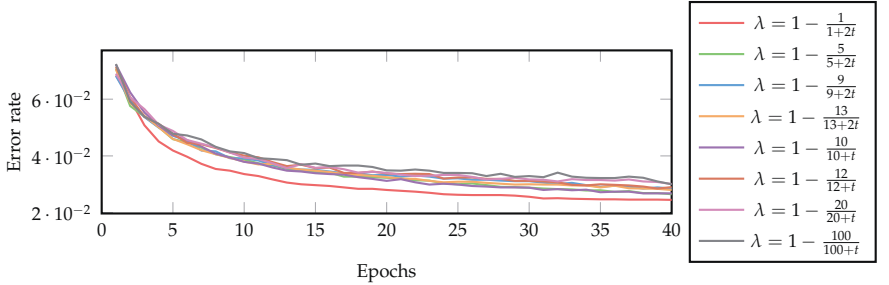


Figure 7: Performance of non-RM denoising autoencoders on the classification task.

Figure 8: Performance of step RM denoising autoencoders.  $H(t)$  is the Heaviside step with  $H(0) = 0$ .Figure 9: Performance of linear RM denoising autoencoders with different changes in  $\lambda$ .Figure 10: Performance of hyperbolic RM denoising autoencoders with different changes in  $\lambda$ .

## Grid

The following plots are of the solution length of grid worlds. The trials were carried out five times for each form of reward modulation, and then averaged for each epoch. The error rates were then averaged for every ten epochs, and these averages are plotted.

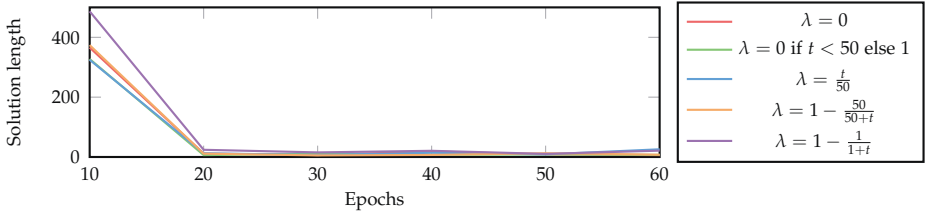


Figure 11: Solution lengths averaged every ten epochs for a  $3 \times 3$  grid world with different reward modulation over time.

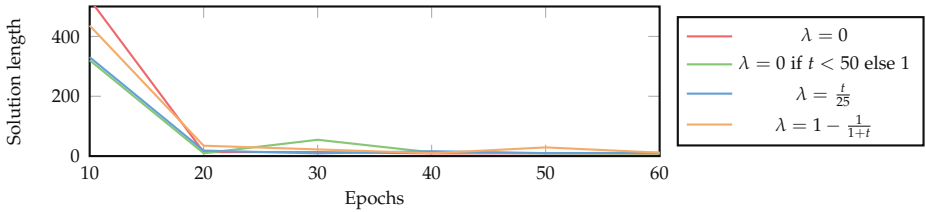


Figure 12: Solution lengths averaged every ten epochs for a  $5 \times 5$  grid world with different reward modulation over time.

## Maze

The following plot is of the solution length of the maze world. The trials were carried out and averaged as for the grid world data.

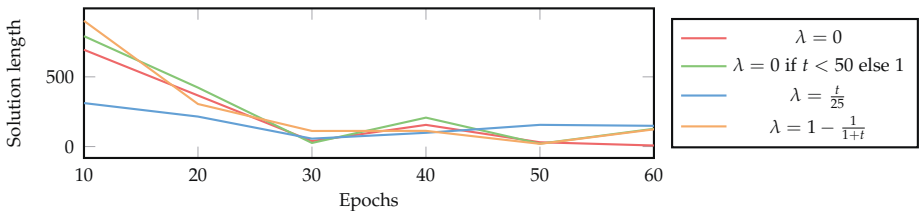


Figure 13: Solution lengths averaged every ten epochs for a  $3 \times 3$  maze world with different reward modulation over time.

#### IV. DISCUSSION

Table 1 clearly shows that reward modulation has some noticeable effect on error rate for the classification problem: With no reward modulation, the best final error rate was 3.19%, but with all forms of reward modulation, the best final error rate was under 2.45%. While 7 shows that due to the random initial configurations of the systems the error rates have some level of uncertainty, it is also clear from the same figure that this uncertainty is around  $\pm 0.1\%$ , which is not a large enough error to account for the improvement as a result of reward modulation.

However, no such effect is noticeable on the MDP tasks. Figures 11, 12, and 13 show no significant difference in performance between the RM agents and the non-RM agent. It is possible that these tasks are too simple to gain improvement — larger grids and mazes, or more complicated MDPs like the grid task with perceptual aliasing, may show differences between RM and non-RM learning. However, we lack the computational power to test these larger problems.

Additionally, there are many free parameters in this experiment, such as the learning rate  $r(t)$ , the exploration  $\epsilon(t)$ , the reward decay  $\gamma$ , the batch size, the hidden layer dimension, the supervised and unsupervised cost functions, as well as the reward modulation  $\lambda(t)$  itself. Only a limited number of tests could be carried out in this experiment due to the lack of adequate computational power — each trial took several hours to run, and only a few trials could be running at any one time. As such, compromise was necessary in selection of these parameters, such as the choice of 700 as the hidden layer dimension to balance speed and quality of the learned model. This is not ideal, as it is entirely possible that RM may be more or less successful with different choices of these parameters.

The results for classification raise further questions for investigation. The hyperbolic RM (figure 10) seems to get better with lower values of  $p$  in the modulation  $\lambda(t) = 1 - \frac{p}{p+t}$ . For sufficiently small  $p$ , this is essentially one epoch of entirely unsupervised training, followed by almost entirely supervised training. That low values of  $p$  result in better solutions faster matches the results for step and linear RM (figures 8 and 9 respectively). When step modulation was used with  $\lambda(t) = \begin{cases} 0 & t < 1 \\ 1 & t \geq 1 \end{cases}$  (such that unsupervised training took place for exactly one epoch, followed by entirely supervised training), the error rate very rapidly approached the best final error rate. This was also observed with small values of  $p$  in linear modulation  $\lambda(t) = \frac{t}{p}$ . The same was not observed when there was no initial unsupervised training ( $p = 0$  in figure 8). This implies that the first unsupervised step is very important to getting a good solution. Further investigation may determine whether there is a benefit to starting reward modulation at a non-zero value, such that the first training step is partially unsupervised and partially supervised.

Of additional note is the speed at which an optimal solution was found for the grid and maze problems with MNIST images. The input vectors were 1568-dimensional for a very small problem, and yet the denoising autoencoder agents succeeded in finding the optimal solution within 20 – 30 epochs.

## V. CONCLUSION

Time-dependent reward modulation seems to greatly improve error rates on the MNIST classification problem, but there is no such effect apparent for MDPs. However, the latter result may be simply due to the small problem size tested. Further trials are needed to determine which reward modulation function is best, and to determine whether there is an effect for larger, more complex MDPs.

## References

- Bengio, Yoshua, 'Learning Deep Architectures for AI' (2009) 2 *Foundations and Trends in Machine Learning* 1
- Bergstra, James, Olivier Breuleux, Frédéric Bastien, Pascal Lamblin, Razvan Pascanu, Guillaume Desjardins, Joseph Turian, David Warde-Farley and Yoshua Bengio, 'Theano: A CPU and GPU Math Compiler in Python' (Paper presented at the Python in Science Conference, Austin, 28 June 2010)
- Institute for Learning Algorithms, 'Stacked Denoising Autoencoders (SdA)' (6 September 2015, Deep Learning) <<http://deeplearning.net/tutorial/SdA.html>>
- Larochelle, Hugo, Michael Mandel, Razvan Pascanu and Yoshua Bengio, 'Learning Algorithms for the Classification Restricted Boltzmann Machine' (2012) 13 *Journal of Machine Learning Research* 643
- LeCun, Yann, Corinna Cortes and Christopher J C Burges, 'The MNIST Database' (2012, University of Essex) <<http://algoval.essex.ac.uk/rep/seqrec/MNist.html>>
- Sunehag, Peter and Marcus Hutter, 'Intelligence as Inference or Forcing Occam on the World' (Paper presented at the Artificial General Intelligence International Conference, Quebec City, 1 August 2014)
- Vincent, Pascal, Hugo Larochelle, Yoshua Bengio and Pierre-Antoine Manzagol, 'Extracting and Composing Robust Features with Denoising Autoencoders' (Paper presented at the International Conference on Machine Learning, Helsinki, 2008)
- Walt, Stéfan van der, S Chris Colbert and Gaël Varoquaux, 'The NumPy Array: A Structure for Efficient Numerical Computation' (2011) 13 *Computing in Science and Engineering* 22





# People vs Technology: A Case Study of Deforestation in Borneo

*Talia Gedik*

## Abstract

*It is now widely accepted that the world is facing a plethora of environmental problems which have resulted from the actions of humans. Some believe that technology is the best, and possibly the only, solution to these problems. However, this paper will show that, whilst technology is helpful in some respects, it is the management of people which is crucial to improving the environment. It does this through exploring the issue of deforestation in Borneo.*

## I. INTRODUCTION

In recent times a lot of emphasis has been placed upon the significant role that technology can play in managing the environment. However, this paper will argue that whilst technology is a good aid, it is people which are the crucial factor. This argument will be supported through the use of a case study on deforestation in Borneo. Borneo, located in Southeast Asia, is the third largest island in the world and is under the administration of Indonesia, Malaysia and Brunei.<sup>1</sup> It was once covered in dense rainforests from coast to coast, however, these forests have been reduced to about half their former extent due to deforestation.<sup>2</sup> Deforestation can be defined as the loss of original 'frontier forest' cover.<sup>3</sup> Arguably, the best technical solution to deforestation in Borneo is Reducing Emissions from Deforestation and Forest Degradation (REDD+). There are also other technical tools that can be used, such as satellite imagery, tree barcoding and agricultural technologies. However, these technologies cannot manage deforestation on their own; what is first required is the effective management of people. There are many different actors who play a part in this role, such as governments, non-governmental organisations (NGOs), indigenous people, industries and local individuals and communities.

---

<sup>1</sup> Swee-Peck Quek, 'Borneo' in David Clague and Rosemary Gillespie (eds), *Encyclopedia of Islands* (University of California Press, 1<sup>st</sup> ed, 2009) 111–12.

<sup>2</sup> Ibid 115.

<sup>3</sup> Richard Widick, 'Deforestation' in Helmut K Anheier and Mark Jeurgensmeyer (eds), *Encyclopedia of Global Studies* (SAGE Publications, 1<sup>st</sup> ed, 2012) 361.

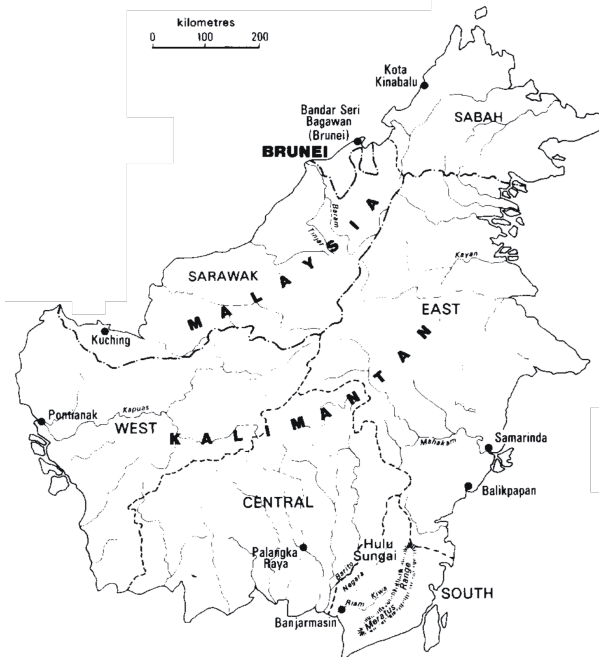


Figure 1: Map of Borneo.<sup>4</sup>

## II. CAUSES OF DEFORESTATION

Deforestation in Borneo can and does occur from natural events. Rainforests require a lot of water and consequently the occurrence of extreme drought can have devastating impacts. Drought can lead to high levels of tree mortality, especially in regard to larger trees.<sup>5</sup> Furthermore, drought makes rainforests increasingly susceptible to fires.<sup>6</sup> Many severe droughts, and consequently fires, in Borneo occurred due to El Niño events. One of the worst El Niño events to affect Borneo took place in 1997–1998. This led to the destruction of 4.56 million hectares of forest land in Sumatra and Kalimantan alone.<sup>7</sup> El Niño events have increased in frequency, duration, and intensity, possibly as a result of climate change.<sup>8</sup> The

<sup>4</sup> H Brookfield and Y Byron, 'Deforestation and Timber Extraction in Borneo and the Malay Peninsula: The Record Since 1965' (1990) 1 *Global Environmental Change, Human and Policy Dimensions* 42.

<sup>5</sup> Matthew D Potts, 'Drought in a Bornean Everwet Rain Forest' (2003) 91 *Journal of Ecology* 467.

<sup>6</sup> S Robert Aiken, 'Runaway Fires, Smoke-Haze Pollution, and Unnatural Disasters in Indonesia' (2004) 94 *Geographical Review* 55.

<sup>7</sup> Ibid 65.

<sup>8</sup> Ibid 57.

threat of fire has also been amplified by people opening up the forests through clearing, which dries the forests out.<sup>9</sup> Natural events lead to deforestation in Borneo; however, these events are exacerbated by humans.

Human activity is the primary cause of deforestation in Borneo. Socioeconomic factors are a key driver as many people rely on forest resources or cleared forest land for income.<sup>10</sup> The economy of Borneo depends fundamentally on resource-based production; mainly the produce of land.<sup>11</sup> Food crops, such as rice, are the most important crops for domestic consumption. However, cleared land is mostly used for tree crops, such rubber, timber and oil palms, for exportation.<sup>12</sup> Furthermore, land is cleared for mining.<sup>13</sup> Political factors also contribute towards deforestation. Policy makers have failed to make adequate legislation to protect against deforestation and existing legislation is poorly enforced.<sup>14</sup> There is also a large amount of corruption within the political bodies of Borneo which enables deforestation. In summary, human activities cause an immense amount of deforestation.

### III. IMPACTS OF DEFORESTATION

Deforestation has a significant effect on the environment. Firstly, deforestation in Borneo has an effect on climate change. Undisturbed rain forests function as significant carbon sinks; however, as the forest area is degraded, its ability to absorb carbon dioxide is dramatically decreased. Furthermore, the clearing of land releases large amounts of carbon dioxide.<sup>15</sup> Secondly, deforestation poses a threat to biodiversity.<sup>16</sup> Kalimantan, Indonesian Borneo, is a particular biodiversity hotspot. Two-thirds of it is covered in tropical forests which are rich in natural resources and exotic flora and fauna.<sup>17</sup> This biodiversity is being threatened by the clearing of forest land as many species are unable to survive dramatic changes in their habitat. Furthermore, many endangered species, such as orangutans, are threatened by rampant poaching which has been assisted by the increased number of roads and logging trails created by deforestation.<sup>18</sup> Deforestation has a devastating effect on the environment on both a global and local scale.

<sup>9</sup> WWF, 'Threats to Borneo Forests' (8 November 2013, WWF) <[http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/forests/forests\\_work/heart\\_of\\_borneo/threats/](http://www.wwf.org.au/our_work/saving_the_natural_world/forests/forests_work/heart_of_borneo/threats/)>.

<sup>10</sup> Erik Meijaard et al, 'People's Perceptions about the Importance of Forests on Borneo' (2013) 8 *PLOS ONE* 73008.

<sup>11</sup> H Brookfield and Y Byron, above n 4.

<sup>12</sup> Ibid.

<sup>13</sup> WWF, above n 9.

<sup>14</sup> William F Laurance, 'Reflections on the Tropical Deforestation Crisis' (1999) 91 *Biological Conservation* 109.

<sup>15</sup> Laurance, above n 14.

<sup>16</sup> Ibid.

<sup>17</sup> Tehmina Khan, 'Kalimantan's Biodiversity: Developing Accounting Models to Prevents Its Economic Destruction' (2014) 27 *Accounting, Auditing and Accountability Journal* 150.

<sup>18</sup> WWF, above n 9.

Deforestation has a range of impacts on the people of Borneo. Clearly, deforestation has some positive impacts as the clearing of land provides a source of income for many people. It can also be used for agriculture to provide the community with food and other products.<sup>19</sup> However, deforestation has many negative impacts on the people of Borneo too. Rainforests provide health benefits, such as cool shade, high-quality drinking water, clean air and a source of natural medicines.<sup>20</sup> They also offer a source of food, construction materials, other natural products and have cultural and spiritual benefits.<sup>21</sup> However, all of these outlined benefits decrease immensely with deforestation. Furthermore, rainforests in Borneo are home to many Indigenous peoples. The rampant pace of clearing forest land is causing severe displacements, and even extinctions, of Indigenous groups.<sup>22</sup> For example, in Sarawak many indigenous Dayak groups have been overrun by extensive logging.<sup>23</sup> Therefore, deforestation has many positive and negative effects on people.

#### IV. TECHNICAL TOOLS

##### A. *'Best Technical Solution'*

Arguably, the best technical solution to deforestation in Borneo is Reducing Emissions from Deforestation and Forest Degradation (REDD+). It is a scheme focused on climate protection which provides financial compensation to those who avoid converting forests to other land uses.<sup>24</sup> The expected amount of carbon dioxide emitted due to the degradation of forests is calculated and if emissions are below this reference level, carbon credits may be awarded. These carbon credits can be purchased by companies that wish to offset their emissions or by voluntary carbon funds.<sup>25</sup> In 2010, Indonesia and Norway signed a REDD+ partnership agreement. Norway's initiative has triggered, what appears to be, a promising reformation process. For example, Indonesia implemented a two-year suspension on new concessions for the conversion of peat and natural forests.<sup>26</sup> REDD+ is thought to be a good technical management tool as forests are often exploited for income, therefore, monetary compensation for decreasing environmental impacts can help to mitigate this issue. However, to date, REDD+ has been relatively unsuccessful due to ineffective law enforcement, corruption and the perceived lack

---

<sup>19</sup> Meijaard et al, above n 10.

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> Laurance, above n 14.

<sup>23</sup> Ibid.

<sup>24</sup> Oscar Venter and Lian Pin Koh, 'Reducing Emissions from Deforestation and Forest Degradation (REDD+): Game Changer or Just Another Quick Fix?' (2012) 1249 *Annals of the New York Academy of Sciences* 137.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

of benefits by those on the ground.<sup>27</sup> REDD+, in theory, is an excellent tool for managing the issue of deforestation. However, in practice, the lack of cooperation and support among various actors has rendered it ineffective. Therefore, although it may be the best technical tool to manage deforestation, it is not a solution on its own.

### B. Other Technical Tools

Satellite technology is another technical means that can assist in the management of forests in Borneo. Satellite technologies are used for detecting change in forest cover in a quick and accurate way.<sup>28</sup> They are very helpful in forest management but must be linked to research, forest policy and management to be useful.<sup>29</sup> Satellite technology is currently being used by governments throughout Borneo. For example, in 2004, the Indonesian Ministry of Forestry reported that they had complete Landsat coverage of Indonesian forests.<sup>30</sup> However, there have been problems with the use of satellite technology by governments in Borneo. Some have produced interpretations of satellite imagery that are biased, poorly documented or timed to satisfy political agendas. Satellite technology can be used by other actors, such as NGOs. For example, Forest Watch Indonesia have initiated projects in Central Kalimantan.<sup>31</sup> This enables them to easily identify deforestation hotspots, take action and collect evidence to hold companies and governments accountable. Although, satellite technology cannot solely manage the forests of Borneo, it can be utilised by various actors to manage people and the environment.

Furthermore, tree barcodes are another technical tool that can assist in forest management. A barcode can be stapled onto either end of a log and it identifies where the tree was cut, its species, diameter and length. Logging firms that use this system can prove that their timber is legally and sustainably harvested, and thus distinguish it from the majority of wood and wooden products produced in Borneo.<sup>32</sup> That, in turn, should provide the company with better access to Western markets and earn it higher prices. Sumalindo Lestari Jaya, a large firm, was the first to join the barcode project. This firm believes that there is money to be made by following the law and taking care of the forest.<sup>33</sup> However, a barcode is obsolete unless consumers are conscious about the products they buy and are willing to pay higher prices for legally and sustainably harvested timber. Therefore, barcoding is another technical tool employed in Borneo that can help forest management but it relies on industries and consumers to be successful.

<sup>27</sup> Michael Huettnner, 'Risks and Opportunities of REDD+ Implementation for Environmental Integrity and Socio-economic Compatibility' (2011) 15 *Environmental Science and Policy* 4.

<sup>28</sup> Douglas O Fuller and Rinku Roy Chowdhury, 'Monitoring and Modelling Tropical Deforestation: Introduction to the Special Issue' (2006) 27 *Singapore Journal of Tropical Geography* 1.

<sup>29</sup> *Ibid* 17.

<sup>30</sup> *Ibid*.

<sup>31</sup> *Ibid*.

<sup>32</sup> *Ibid*.

<sup>33</sup> *Ibid*.

Another technical tool to help manage the forests of Borneo is agricultural technology. Agricultural technologies, such as the use of better crop varieties and the use of pesticides, increase productivity. This increase in productivity may help to limit agricultural expansion as farmers get higher outputs from utilising the same amount of land. This lessens the desire to increase agricultural land area.<sup>34</sup> In Borneo, the old system of slash-and-burn was extremely harmful to the environment, has been replaced in many areas by agroforestry, a system that combines agricultural and forestry technologies.<sup>35</sup> However, agricultural technologies rely on people implementing them. People cannot use these agricultural technologies if they do not know of them and will generally not implement them if they do not see an immediate benefit.<sup>36</sup> Therefore government policy is needed to promote the better use of agricultural technologies.

## V. MANAGING PEOPLE

### A. Government Management

The governments of Borneo have a great deal of control over how people manage the forests. Many laws and policies concerning the management of forests have been enacted by each of the three states that administer Borneo. For example, under the 1934 Forest Act of Brunei, removing forest on State land without permission is prohibited. However, despite this, there are many problems associated with governance in each country. Of particular importance is the issue of corruption. For example, the chief minister of Sarawak, Pehin Sri Haji Taib, played a principle role in the corruption and abuse of public funds to enrich himself, his family and his political allies through destructive logging of rainforests.<sup>37</sup> Furthermore, each of the countries' records of forest conservation are very patchy. For example, in Indonesia, the government legislated to ban the expansion of oil palm plantations on peat lands in 2007. This legislation was repealed two years later to allow for the conversion of two million hectares of peat lands.<sup>38</sup> The issue of corruption and self-interest among government officials must be dealt before objective decisions in the best interest of the environment can be made. Furthermore, the governments must take the socioeconomic impact of forest management into consideration as many people rely on forest resources for income.<sup>39</sup> However, a better understanding from governments on how the sustainable use of forest resources is important for future income could help reconcile this issue somewhat. Although current

<sup>34</sup> Romain Pirard and Karine Belna, 'Agriculture and Deforestation: Is REDD+ Rooted in Evidence?' (2012) 21 *Forest Policy and Economics* 62.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

<sup>37</sup> Tisha Raj, 'Who is King Sarawak's Rainforest? An Insight to Sarawak's Land Corruption Led by its Chief Minister and His Family' (2013) 3 *Earth Common Journal* 1, 2.

<sup>38</sup> Venter and Koh, above n 24.

<sup>39</sup> Patrice Levang, Edmond Dounias and Soaduon Sitorus, 'Out of the Forest, Out of Poverty?' (2005) 15 *Forests, Trees and Livelihoods* 211.

government management of people's interaction with the forests of Borneo is not perfect, it has a lot of potential.

### *B. Intergovernmental Management*

Although Borneo is administered by three different countries, these countries have come together to cooperatively manage some areas of Borneo. Their main agreement is the Heart of Borneo (HoB) Initiative.<sup>40</sup> The HoB refers to the main part of the island where forests remain intact. The agreement commits the countries to a common conservation vision to ensure the sustainable management of forests and the effective management of resources.<sup>41</sup> The HoB initiative is a significant milestone for intergovernmental cooperation. It puts pressure on individual governments to impose effective management strategies and increases their accountability. It has already led to a number of positive decisions. For example, the Indonesian government pulled back from a Chinese-funded logging deal that would have cleared 1.8 million hectares of forest.<sup>42</sup> However, there are several issues with the HoB Initiative. The relationships between the three countries is sensitive and its requirement for a high level of cooperation may strain these relationships further.<sup>43</sup> Furthermore, the cost of preservation is also a challenge for already-poor countries.<sup>44</sup> Cooperation between the three states is an important step towards managing the forests of Borneo effectively, however, it is not without its problems.

### *C. NGO Management*

NGOs also play a large role in forest management in Borneo. NGOs have the ability to engage in research, conservation, lobbying, public education, coordination of funding, and protest action.<sup>45</sup> The WWF is an NGO of particular significance in the region and has undertaken a lot of work there. For example, the WWF is working to safeguard Sumatra's species by collaborating with local communities, industries and governments to alleviate human-wildlife conflict through improving enforcement of legislation and providing alternate income opportunities for local people.<sup>46</sup> NGOs are significant in influencing how the governments and the people of Borneo manage the forest and they also work to conserve the forests themselves. For example, the World Land Trust has purchased two sections of forest in Malaysian Borneo as safe havens for orangutans.<sup>47</sup> NGOs influence how

---

<sup>40</sup> WWF, above n 9.

<sup>41</sup> Ibid.

<sup>42</sup> Sonia Kolesnikov-Jessop, 'Fighting to Save Borneo's Vital Last Rain Forests', *The New York Times* (online) 19 September 2006.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> W B Wood, 'Tropical Deforestation: Balancing Regional Development Demands and Global Environmental Concerns' (1990) 1 *Global Environmental Change* 23.

<sup>46</sup> WWF, above n 9.

<sup>47</sup> Venter and Koh, above n 24.

various actors manage the forests of Borneo and they often undertake management activities themselves.

#### *D. Indigenous Management*

Various indigenous groups of Borneo manage forest land. Most of the remaining areas of high natural value in the world are inhabited by indigenous people, which shows the efficacy of indigenous resource management systems.<sup>48</sup> Different indigenous groups in Borneo employ different methods of land management. The Dayak people of East Kalimantan, have many complex customary rules that control the use and inheritance of these forests and help to avoid over-exploitation of resources.<sup>49</sup> Indigenous people have, for centuries, effectively managed how the forests of Borneo are utilised by people. Governments, in the past, have generally encroached upon the relationship that indigenous people have with the land. They could learn a lot from indigenous management and use this information to produce more effective policies. The indigenous people of Borneo are very effective in managing their utilisation of forest resources.

#### *E. Industry Management*

The industries that depend on forest resources in Borneo have a huge role to play in forest management. Many industries have been forced by legislation to ensure that the forests are used and managed in a more environmentally-sustainable way. For example, Malaysia has implemented many laws and regulations on trade in timber, including the Sarawak Timber Industry Regulations in 1983. Some industries have taken it upon themselves to employ sustainable forest use. For example, Samling, a timber company in Sarawak, develops plantations in degraded land in order to regenerate forests.<sup>50</sup> There are various certificates that companies can obtain for sustainable forest practices, such as the Rainforest Alliance certificate, which gives them an advantage as consumers become increasingly conscious of resource management.<sup>51</sup> The way in which industries manage the forests of Borneo is affected by government legislation and personal, community and consumer values.

<sup>48</sup> Cristina Eghenter, 'What Is Tana Ulen Good For? Considerations on Indigenous Forest Management, Conservation, and Research in the Interior of Indonesian Borneo' (2000) 28 *Human Ecology* 331.

<sup>49</sup> E Mulyoutami, R Rismawan and L Joshi, 'Local Knowledge and Management of Simpukng (Forest Gardens) Among the Dayak People in East Kalimantan, Indonesia' (2009) 257 *Forest Ecology and Management* 2054.

<sup>50</sup> Samling Group, 'Sustainable Forest Management' (2015, Samling) <<http://www.samling.com/sfm.php>>.

<sup>51</sup> Rainforest Alliance, 'Certification, Verification and Validation Services' (2015, Rainforest Alliance) <<http://www.rainforest-alliance.org/certification-verification>>.



### F. *Local Individual and Community Management*

Local individuals and communities have the ability to contribute to managing the forests. Local individuals cause much of the damage to forest areas.<sup>52</sup> However, often their poverty prevents them from prioritising forest management. Therefore, it is the responsibility of the government to enact legislation and policies that enable individuals to take better care of their environment. In some instances, local communities have brought about conservation initiatives themselves. For example, the village of Bundu Tuhan established a nature reserve in 1983. The reserve is exclusively community managed according to collectively-established rules and regulations, and entry into the reserve is controlled.<sup>53</sup> It has been highly effective in conserving the forest. Local people often need government assistance to manage the forests sustainably, however, others have created their own management initiatives as at Bundu Tuhan.

## VI. CONCLUSION

People are the primary cause of deforestation in Borneo and thus must be managed. REDD+ is arguably the best technical solution to this issue, however, it cannot manage forests by itself. Neither can other technical tools, such as satellite imagery, tree barcoding and agricultural technology. All of these must be implemented by people alongside human action. There are a large variety of actors, such as governments, NGOs, indigenous people, industries and local individuals and communities, who all help to manage each other's relationships with the forests. Admittedly, at present, the issue of deforestation in Borneo is not being effectively managed by people. This is a problem that must be addressed because, although technical tools are important aids, the environment cannot be managed without the work of people.

---

<sup>52</sup> W B Wood, above n 45.

<sup>53</sup> Justine Vaz and Angus Agama, 'Seeking Synergy Between Community and State-Based Governance for Biodiversity Conservation: The Role of Indigenous and Community-Conserved Areas in Sabah, Malaysian Borneo' (2013) 54 *Asia Pacific Viewpoint* 141.

## References

- Aiken, S Robert, 'Runaway Fires, Smoke-Haze Pollution, and Unnatural Disasters in Indonesia' (2004) 94 *Geographical Review* 55
- Brookfield, Harold and Yvonne Byron, 'Deforestation and Timber Extraction in Borneo and the Malay Peninsula: The Record Since 1965' (1990) 1 *Global Environmental Change* 42
- Eghenter, Cristina, 'What Is Tana Ulen Good For? Considerations on Indigenous Forest Management, Conservation, and Research in the Interior of Indonesian Borneo' (2000) 28 *Human Ecology* 331
- Fuller, Douglas O and Rinku Roy Chowdhury, 'Monitoring and Modelling Tropical Deforestation: Introduction to the Special Issue' (2006) 27 *Singapore Journal of Tropical Geography* 1
- Huettner, Michael, 'Risks and Opportunities of REDD+ Implementation for Environmental Integrity and Socio-economic Compatability' (2011) 15 *Environmental Science and Policy* 4
- Khan, Tehmina, 'Kalimantan's Biodiversity: Developing Accounting Models to Prevents Its Economic Destruction' (2014) 27 *Accounting, Auditing and Accountability Journal* 150
- Kolesnikov-Jessop, Sonia, 'Fighting to Save Borneo's Vital Last Rain Forests', *The New York Times* (online) 19 September 2006
- Langner, Andreas, Jukka Miettinen and Florian Siegert, 'Land Cover Change 2002–2005 in Borneo and the Role of Fire Derived from MODIS Imagery' (2007) 13 *Global Change Biology* 2329
- Laurance, William F, 'Reflections on the Tropical Deforestation Crisis' (1999) 91 *Biological Conservation* 109
- Levang, Patrice, Edmond Dounias and Soaduo Sitorus, 'Out of the Forest, Out of Poverty?' (2005) 15 *Forests, Trees and Livelihoods* 211
- Meijaard, Erik, Nicola K Abram, Jessie A Wells, Anne-Sophie Pellier, Marc Ancrenaz, David L A Gaveau, Rebecca K Runting and Kerrie Mengersen, 'People's Perceptions about the Importance of Forests on Borneo' (2013) 8 *PLOS ONE* 73008
- Mulyoutami, E, R Rismawan and L Joshi, 'Local Knowledge and Management of Simpukng (Forest Gardens) Among the Dayak People in East Kalimantan, Indonesia' (2009) 257 *Forest Ecology and Management* 2054
- Pirard, Romain and Karine Belna, 'Agriculture and Deforestation: Is REDD+ Rooted in Evidence?' (2012) 21 *Forest Policy and Economics* 62
- Potts, Matthew D, 'Drought in a Bornean Everwet Rain Forest' (2003) 91 *Journal of Ecology* 467
- Quek, Swee-Peck, 'Borneo' in David Clague and Rosemary Gillespie (eds), *Encyclopedia of Islands* (University of California Press, 1<sup>st</sup> ed, 2009) 111
- Rainforest Alliance, 'Certification, Verification and Validation Services' (2015, Rainforest Alliance) <<http://www.rainforest-alliance.org/certification-verification>>

Raj, Tisha, 'Who is King Sarawak's Rainforest? An Insight to Sarawak's Land Corruption Led by its Chief Minister and His Family' (2013) 3 *Earth Common Journal* 1

Samling Group, 'Sustainable Forest Management' (2015, Samling) <<http://www.samling.com/sfm.php>>

Vaz, Justine and Angus Agama, 'Seeking Synergy Between Community and State-Based Governance for Biodiversity Conservation: The Role of Indigenous and Community-Conserved Areas in Sabah, Malaysian Borneo' (2013) 54 *Asia Pacific Viewpoint* 141

Venter, Oscar and Lian Pin Koh, 'Reducing Emissions from Deforestation and Forest Degradation (REDD+): Game Changer or Just Another Quick Fix?' (2012) 1249 *Annals of the New York Academy of Sciences* 137

Widick, Richard, 'Deforestation' in Helmut K Anheier and Mark Jeurgensmeyer (eds), *Encyclopedia of Global Studies* (SAGE Publications, 1<sup>st</sup> ed, 2012)

Wood, W B, 'Tropical Deforestation: Balancing Regional Development Demands and Global Environmental Concerns' (1990) 1 *Global Environmental Change* 23

WWF, 'Threats to Borneo Forests' (2 November 2013, WWF) <[http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/forests/forests\\_work/heart\\_of\\_borneo/threats/](http://www.wwf.org.au/our_work/saving_the_natural_world/forests/forests_work/heart_of_borneo/threats/)>



# A Century of Denial: How Turkey Forgot the Armenian Genocide

*Joseph Dodds*

## Abstract

*[T]he Armenian massacre was the greatest crime of the war, and the failure to act against Turkey is to condone it ... the failure to deal radically with the Turkish horror means that all talk of guaranteeing the future peace of the world is mischievous nonsense.<sup>1</sup>*

## I. INTRODUCTION

‘Complete annihilation requires the banishment of recollection and the suffocation of remembrance’.<sup>2</sup> For nearly one hundred years Turkish policy has been one of complete denial of the Armenian genocide.<sup>3</sup> This essay will trace the various denialist methods Turkey has used to absolve herself of criminal responsibility for the systematic, centrally planned and premeditated Armenian genocide.

It will begin by looking to the immediate aftermath of the First World War, a period in which a newly formed Turkey was eager to absolve itself of the atrocities of the Ottoman Rule. It will note however the change in international mood that precipitated the beginnings of denialism.

The second phase analyzed will be the late 1960s until the present day, defined by this essay as ‘active suppression’. It will look to the effects that Turkey had in employing and enabling international and domestic scholars to question the very existence of the Armenian genocide. Further, Turkey’s active suppression of recognition for the Armenian genocide via institutes and diplomatic pressures will be examined.

Finally, this essay will assess the implications steadfast denialism has had in the contemporary political sphere. In addition to explaining what effect denialism has on Armenians, this essay will demonstrate how a political impasse has been reached between Turkey and Armenia, and how this impasse has extended

---

<sup>1</sup> Theodore Roosevelt in Elting Morrison (ed), *The Letters of Theodore Roosevelt* (Harvard University Press, 1954) 6328.

<sup>2</sup> Richard G Hovannisian, ‘Denial of the Armenian Genocide in Comparison with Holocaust Denial’ in Richard G Hovannisian (ed), *Remembrance and Denial: The Case of the Armenian Genocide* (Michigan, 1999) 201, 202.

<sup>3</sup> Samuel Totten and William S Parsons, *Century of Genocide: Essays and Eyewitness Accounts* (Routledge, 2012).

to international actors as the benefits of tacit denialism continue to outweigh recognition.

## II. STRATEGIES OF DENIAL

### A. *The Post-War Period*

For a period of roughly two years, 1918–20, the transitional Republic of Turkey was prepared to acknowledge the genocide. The atrocities had attracted widespread international attention during the war,<sup>4</sup> and a 1915 declaration by the Triple Entente had designated the Armenian massacres as ‘crimes against humanity and civilization’.<sup>5</sup> Thus, as World War I came to a close and the Turkish government attempted to salvage what was left of their empire, acknowledgement of responsibility for the Armenian genocide seemed to be a realistic concession.<sup>6</sup> The signing of the armistice on October 30th 1918 led to the 1919 ‘Commission on Responsibilities and Sanctions’ that was empowered to investigate war crimes including those of the Ottoman Empire.<sup>7</sup> Eventually however, wide-scale recognition of the Armenian genocide fell to the political wayside. Though the 1920 Treaty of Sèvres gave provision for the Turks to hand over those responsible for the atrocities, an invasion in Anatolia by the Greeks changed the political climate and empowered the Kemal nationalist movement in Turkey.<sup>8</sup> To speed through a comprehensive post-war treaty with the Turks, the Treaty of Lausanne compromised and declared an amnesty for all criminal offences from 1914 to 1922.<sup>9</sup> This amnesty covered the bulk of the Armenian genocide. It was a noticeable shift in international policy and ‘a mood of escapism from WWI in Europe, isolationism in the United States (‘US’) and revolutionary utopianism in Russia’ gave rise to denialism in Turkey.<sup>10</sup> With Europe and the US turning attention quickly back to the rebuilding of domestic institutions and economies, Turkey’s crimes were essentially willingly forgotten in favour of bringing closure to the ‘Great War’. The ebb of international interest in the Armenian question transformed Turkish policy. Taking licence from international silence the official policy of Turkey became one of complete denial. The consolidation of the communist USSR to the north and the advent of strong, nationalist rule in the new Turkish Republic effectively ended all discussion of the Armenian genocide and began a period of silence and passive denial.

<sup>4</sup> Maria Karlsson, ‘Tall Tales of Genocide: An Argumentative and Comparative Analysis of Western Denial of the Holocaust and of the Armenian Genocide’ (Working Paper No 45, Center for European Studies, 2011) 29.

<sup>5</sup> Aida Alayarian, *Consequences Of Denial: The Armenian Genocide* (Karnac Books, 2008) 21.

<sup>6</sup> Ibid.

<sup>7</sup> Taner Akçam, *A Shameful Act: The Armenian Genocide and the question of Turkish Responsibility* (Macmillan, 2006) 230.

<sup>8</sup> Karlsson, above n 4, 29.

<sup>9</sup> Alayarian, above n 5, 21.

<sup>10</sup> Ibid 22.

## B. *Turkey's Adaptive Denial*

Turkish denial of the Armenian Genocide has adapted to contemporary international events. From the rise of the nationalist government in the early 1920s until the Cold War, Turkey had pursued a policy of 'silence where possible and diplomacy where necessary'.<sup>11</sup> A Western strategy to ingratiate a strong, secular ally in Turkey had effectively deleted any memory of the Armenian genocide from the minds of the international community.<sup>12</sup>

However initial acts of recognition and a wave of assassinations of Turkish officials in the 1970s led to an evolving strategy.<sup>13</sup> The year 1965 marked the fiftieth anniversary of the Armenian Genocide and instigated a clamour for recognition. Uruguay became the first country to formally recognise the Armenian Genocide in domestic legislation.<sup>14</sup> Four days later a demonstration of around 100,000 people successfully lobbied the USSR to commission a memorial commemorating the anniversary in Tsitsernakaberd.<sup>15</sup> Further debate was generated as the 1960s saw the declassification of vast government archives documenting diplomatic correspondence and contemporary evidence of the genocide. These changes led to a new interest in the Armenian genocide and consequently a more active form of suppression from the Turkish government.

## C. *Active Suppression*

### 1. *Academic Engagement*

Moving from a strategy of absolute denialism, Turkey embraced a policy of rationalization of events, using sympathetic academics, and strident diplomacy to trivialize the events and remove the label of genocide from the Armenian Genocide. In many ways, the final hurdle to complete denial was the whitewashing of history — 'following the physical destruction of a people and their material culture, memory is all that is left and is targeted as the last victim'.<sup>16</sup>

Turkey has created and maintained connections with academics through the establishment of Turkish institutes. Though the stated purpose of these institutes

<sup>11</sup> Marjorie Housepian Dobkin, 'What Genocide? What Holocaust? News from Turkey, 1915–1923' in Richard G Hovannisian (ed), *The Armenian Genocide in Perspective* (Transaction Books, 1987) 106.

<sup>12</sup> Steven L B Jensen, 'Turkey, the US and the Armenian Genocide' in Steven L B Jensen (ed), *Genocide: Cases, Comparisons and Contemporary Debates* (Danish Centre for Holocaust and Genocide Studies, 2003).

<sup>13</sup> Vahagn Avedian, 'Recognition, Responsibility and Reconciliation: The Trinity of the Armenian Genocide' (2013) 70 *Europa Ethnica* 77, 77.

<sup>14</sup> *Day of Remembrance for the Armenian Martyrs 1965* (Uruguay) s 13.326. See generally Dennis Lynch, 'Who Recognizes Armenian Genocide? 20 States That Formally Acknowledge 1915 Events', *International Business Times* (online, 21 April 2015) <<http://www.ibtimes.com/who-recognizes-armenian-genocide-20-states-formally-acknowledge-1915-events-1891494>>.

<sup>15</sup> Louise I Shelley, *Policing Soviet Society* (Routledge, 1996) 183.

<sup>16</sup> Hovannisian, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', above n 2, 202.

is to promote Turkish society, in some cases, this has also extended to promoting denialism of the Armenian Genocide. The Washington D.C. Institute founded in 1982 with a fund of \$3 million includes board members such as Stanford Shaw, Justin McCarthy and Heath W. Lowry, all prominent Armenian Genocide deniers.<sup>17</sup> The Institute is largely engaged in sponsoring activities that promote Turkish interests. In addition to informally advising the Turkish ambassador, the Institute holds conferences, funds publications and assists academics in pursuing research that, in many cases, has denied the Armenian genocide. In 1994 Princeton University received a \$1.5 million grant from the Republic of Turkey to establish the Atatürk chair with the inaugural chairman being Heath Lowry, the then executive director of the Institute of Turkish Studies.<sup>18</sup> Further investment in universities has seen the grants politicised, this being evident in 1997, when the University of California returned a \$1 million grant from the Republic of Turkey as researchers in Istanbul found they were to be refused access to files that may confirm the Armenian Genocide.<sup>19</sup>

Another tactic developed to actively deny the genocide was scientificism,<sup>20</sup> the Turkish government dispersing propaganda, suppressing archival evidence and encouraging questioning of the factual basis for the Armenian Genocide. Academics and scholars were instrumental to the formation of this revisionist history, and began to engage in debate that denied the existence of empirical proof of genocide. In some texts, 'starving Armenians' began to be depicted as a rebellious, disloyal and terroristic minority on the fringes of a beleaguered empire.<sup>21</sup> As historical facts became disputed, bodies of work presented by scholars have revised events to excuse and explain the actions of the Ottoman Government.

Turkish encouragement through research grants and chairmanships produce academic works 'beyond revisionism'<sup>22</sup> and present arguments that are 'distortions caused by the selective use or omission of crucial facts'.<sup>23</sup> Turkey's support of academic denial of the Armenian Genocide is self-perpetuating, academic works continually refining and revising the denialism thesis by referencing each other. This cycle has done much to 'professionalize' the denial of the Armenian Genocide.<sup>24</sup> Turkey has been able to question and refute the genocides factual existence by promoting and supporting the extensive creation of denialist literature.

<sup>17</sup> Ibid 274.

<sup>18</sup> Yair Auron, *The Banality of Denial* (Transaction Publishers, 2004) 54.

<sup>19</sup> Antoon de Baets, *Censorship of Historical Thought* (Greenwood Publishing Group, 2002) 472.

<sup>20</sup> Alayarian, above n 5, 18.

<sup>21</sup> Roger W Smith, 'Denial of the Armenian Genocide' in Hovannisian, above n 2, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', 83.

<sup>22</sup> Karlsson, above n 4, 30, quoting Hovannisian, 'The Critic's View: Beyond Revisionism', above n 23.

<sup>23</sup> Richard G Hovannisian, 'The Critic's View: Beyond Revisionism' (1978) 9 *International Journal of Middle Eastern Studies* 379, 381.

<sup>24</sup> Karlsson, above n 4, 30.



## 2. Diplomatic Pressures

Similarly, Turkey has attempted to silence and suppress international discussion of the Armenian genocide. The use of coercive diplomatic measures in furthering a denialist policy has been effective in preventing comprehensive global recognition of the genocide.

Lobbying is especially prevalent in the US where numerous commemorative resolutions and bills have been rejected or withdrawn due to intense diplomatic pressure. In 2011, the US Department of Justice found that the Republic of Turkey had paid four lobbying groups approximately \$3.3 million to prevent recognition of the genocide in Congress.<sup>25</sup> On all recognition resolutions, Turkey has threatened economic or diplomatic repercussions. An initial attempt at recognition in a 1975 resolution was withdrawn at Turkish urging while another bid to pass a resolution of recognition in 1990 led to sanctions on US businesses and military installations in Turkey.<sup>26</sup> Later resolutions in 2007 and 2010 were also both withdrawn with Turkey threatening 'serious consequences' to US military operations based out of the Turkish air bases.<sup>27</sup>

These actions form a historical precedent of Turkish diplomatic sanctioning of states that pursue recognition. A 2011 French bill to outlaw genocide denial (including the Armenian genocide) saw Turkey refuse French military vehicles within its airspace or at its ports and recall its ambassador.<sup>28</sup> Similar action was taken against almost identical Swiss legislation in 2003.<sup>29</sup> Swedish recognition in Parliament was also sanctioned, with the Turkish ambassador to Stockholm being recalled and the cancellation of the visit of President Erdogan and a trade delegation that was due to occur the next week. Turkish pressure is not limited to government recognition either. In 1982, after learning of the desire of some speakers to reference the Armenian genocide, Turkish officials pressured the cancellation of a genocide conference in Tel Aviv, Israel. Citing worries for the safety of the Turkish Jews present, the Turkish government exerted so much pressure on the organisers that the conference was eventually relocated.<sup>30</sup>

The Turkish government has pursued suppressive policies that sanction states and international actors that recognise the Armenian genocide. By exerting coercive pressure on international actors through diplomatic, economic and political avenues, the Turkish government has largely prevented clear international consensus on recognition of the Armenian genocide.

<sup>25</sup> News.am, 'Turkey Spent \$3.3 Million on Anti-Genocide Campaign in US', *News.am* (online) 14 March 2011.

<sup>26</sup> Alayarian above n 5, 27.

<sup>27</sup> Avedian, above n 13, 78.

<sup>28</sup> The Editor, 'Watch your Words', *The Economist* (online) 21 December 2011.

<sup>29</sup> Ibid.

<sup>30</sup> Israel W Charny, *Toward the Understanding and Prevention of Genocide: Proceedings of the International Conference on the Holocaust and Genocide* (Westview Press, 1984) 281–92.

### 3. *Turkey's Domestic Suppression*

Turkey has actively and continually suppressed internal discourse regarding the Armenian genocide, pursuing an effective program of litigation and 'rememorialization' that silences domestic discussion.

Firstly, Turkey has significantly revised the place of Armenians in history, reducing them to marauding ethnic 'gangs' that perpetrated significant violence themselves and were largely caught in the crossfire of conflict. Pushed by various state organs, educational institutions and encouraged by nationalistic news publications, the atrocities that befell the Armenians are increasingly seen as unfortunate examples of 'collateral damage' or sedition. Rather than being victims of the genocide, the Armenians are said to have advanced under protection by Tsarist Russian forces,<sup>31</sup> and to have committed similar atrocities as the Ottoman Turks. In 2010, a mass gravesite in Erzurum was uncovered, a report indicating it was the final resting place of hundreds of 'Muslim Turks massacred by Armenians'.<sup>32</sup> The leader of the archaeological dig and the director of the Atatürk University Turkish-Armenian relations research group said according to eyewitnesses, Tashnak Armenian gangs 'massacred the women on the pasture lands'.<sup>33</sup> The massacre of ethnic Muslims however is at odds with other contemporary accounts that detail Armenians as the victims of the attacks. Russian forces that took Erzurum in 1916 found that over 90 percent of the ethnic Armenians had been executed or deported by the Young Turk government, with barely 100 left alive.<sup>34</sup> Where gravesites are found, it is often contested as to whether they are the remains of Armenians or other Ottoman citizens. The distinction is very difficult to draw but politically charged, with Armenians seeing the graves as remnants of genocide, the Turks — nothing but the leftovers of conflict. The continuing historical battle regarding the role of Armenians during the genocide is one that Turkey is more than content to promote as it obscures consensus on the events of 1915.

Similarly, Turkey has rehabilitated the images of the Young Turks, the WWI-era government largely responsible for the direction and execution of the genocide. In August 1996 the remains of the Young Turk Minister of War, Enver Pasha, were repatriated from Tajikistan to be reinterred in Istanbul. Though Pasha was largely responsible for the Ottoman Empire's ill-fated alliance with Germany, the botched Caucasus campaign and the forced emigration of hundreds of thousands of ethnic Armenians to Syria and Iraq,<sup>35</sup> he was given a hero's funeral replete with

<sup>31</sup> Justin McCarthy, *Death and Exile: The Ethnic Cleansing of Ottoman Muslims, 1821–1922* (Darwin Press, 1995).

<sup>32</sup> The Editor, 'Mass Graves Found in Erzurum, Turkey of Armenian Massacre', *The National Turk* (online) 18 June 2010.

<sup>33</sup> Ibid.

<sup>34</sup> Robert H Hewsen, 'Summit of the Earth: The Historical Geography of Bardzr Hayk' in Richard G Hovannisian (ed), *Armenian Karin/Erzerum* (Mazda Publishers, 2003) 51–6, 60.

<sup>35</sup> Richard G Hovannisian, 'The Armenian Genocide and Patterns of Denial' in Hovannisian (ed), *The Armenian Genocide in Perspective*, above n 11, 60.

nationalistic symbology. Pasha was buried at Abide-i Hürriyet (the Monument of Liberty), and his funeral service included words by then Turkish President Süleyman Demirel, who described Pasha as a 'hero in the eyes of the Turkish nation, whose exile has ended'.<sup>36</sup> Another 'hero' in the eyes of the Turkish nation is also commemorated at Abide-i Hürriyet: Talaat Pasha. As Minister of the Interior from 1913–17, Pasha's responsibility for the unmitigated atrocities and deportations led to his assassination in Berlin in 1921, however he too was reinterred with honours after his body was repatriated in 1943. The rehabilitation of the images of the wartime instigators of genocide has legitimized the right-wing nationalists in Turkey who insist that no genocide was committed. Further, it has reinvigorated a cult of personality surrounding their memories and sought to exclude the atrocities that they committed.

Finally, on the first of June 2005, a new provision in the Turkish penal code substantially hindered the ability of critics to comment on government practice. Section 301 of the penal code was included to prohibit the denigration of the 'Turkish nation', whether this is through insults to the Turkish Republic or the criticism of government institutions.<sup>37</sup> The consequences of breaching section 301 are harsh and can include up to three years in jail.<sup>38</sup> In preventing public dissent, the Turkish government has actively pursued high-profile litigation via section 301, seeking to highlight rather than conceal the force and ambit of the provisions. In February 2005, Turkish Nobel laureate Orhan Pamuk stated that 'thirty thousand Kurds have been killed here, and a million Armenians too' and was subsequently tried for insulting 'Turkishness' and the armed forces.<sup>39</sup> Though the numerous charges were eventually dropped or withdrawn, Mr Pamuk remains one of the highest-profile individuals to be tried; a notorious list, which includes Turkish novelist Elif Shafak, the chair of the EU parliamentary committee on Turkey — Joost Lagendijk, as well as around 60 other individuals.<sup>40</sup> Though the suppression of domestic criticism through section 301 has been declared by the European Court of Human Rights to be 'a continuing threat to the exercise of the right to freedom of expression',<sup>41</sup> it is indicative that Turkey would rather see this provision remain in place, than liberalize the penal code and potentially smooth its entry into the Eurozone. Another striking effect of Turkey's suppression agenda has been the arming of Turkish ultra-nationalists. In January 2007 Hrant Dink was assassinated as he returned to his office. Mr. Dink had been charged under section 301 as editor-in-chief of the bilingual Armenian-Turkish newspaper *Agos* for 'denigrating

<sup>36</sup> Deitrich Jung and Wolfango Piccoli, *Turkey at the Crossroads: Ottoman Legacies and a Greater Middle East* (Zed Books, 2001).

<sup>37</sup> Stephen J Flanagan and Samuel Brannen, *Turkey's Evolving Dynamics: Strategic Choices for US Turkey Relations* (Centre for Strategic and International Studies, 2009).

<sup>38</sup> Ibid.

<sup>39</sup> The Editor, 'Partial Reprieve for Turk Writer', *BBC News* (online) 29 November 2005.

<sup>40</sup> Dilek Zaptcioğlu, 'Freedom of Opinion in Turkey: Turkish Intellectuals Between Democracy and Nationalism', *Der Spiegel* (online) 22 September 2006.

<sup>41</sup> *Altug Taner Akcam v Turkey* (European Court of Human Rights, 27520/07, 25 October 2011)

Turkishness' and was shot three times in the head by a nationalist who proclaimed 'I shot the infidel!'<sup>42</sup> Indeed, upon hearing that Dink had been killed, the Justice Minister Cemil Cicek noted only that it seemed a 'well-calculated provocation' at a time when the 'so called Armenian genocide is being discussed in some countries'.<sup>43</sup> The fact that the Turkish Republic punishes open discourse regarding the Armenian genocide gives weight to the ultra-nationalist cause and legitimizes radical, often fatal action taken against individuals who raise the issue of the genocide. Litigation against writers and thinkers in domestic forums through penal provisions is one strategy that Turkey has pursued in attempting to quash discussion regarding the events of 1915.

The reimagining of the events of 1915 not only makes contemporary Turkish citizens ignorant to the atrocities, but also unwilling or even outraged by demands for recognition of the genocide. In a 2014 survey of over 1,000 Turks, the Centre for Economics and Foreign Policy Studies found that only nine percent of respondents agreed that Turkey should take responsibility for the genocide. This is in stark contrast to 23 percent who believe that Turkey should acknowledge 'all Ottoman citizens' who lost their lives during World War I, and 21 percent who argue that no steps at all should be taken to recognise any of the atrocities.<sup>44</sup> It is clear that the strategies that have sidelined Armenians in Turkish history have been largely successful. Any contemporary government who even desired to recognise the Armenian genocide would face the political challenge of convincing a population who, for nearly a century, have faced sustained domestic propaganda that the genocide never occurred.

#### 4. Comparisons With The Holocaust

Another more insidious tactic of denial is that of relativization with the defining example of what genocide is — the Holocaust. The Armenian genocide is widely seen as the precursor to the Holocaust, Hitler asking, prior to the blitzkrieg of Poland, 'who, after all, speaks today of the annihilation of the Armenians?'<sup>45</sup> Both the Holocaust and Armenian genocide began with widespread international attention, and on the scale of human atrocities, the Armenian case would seem to sit most closely to the Holocaust.<sup>46</sup> Though it seems that the Armenian example was a major catalyst for Raphael Lemkin's theoretical framework on the concept

<sup>42</sup> Jenna Krajeski, 'Hrant Dink's Voice', *New Yorker Magazine* (online) 27 January 2012.

<sup>43</sup> Paul de BERNARD and Thomas Grove, 'Turkish-Armenian Editor Shot Dead in Istanbul', *Reuters* (online) 19 January 2007.

<sup>44</sup> Centre for Economics and Foreign Policy Studies, 'Turks Regretful Over the Armenian Tragedy of 1915 But Refuse to Qualify it as a Genocide' (Report No 2015/1, Centre for Economics and Foreign Policy Studies, December 7 2014).

<sup>45</sup> Peter Balakian, *The Burning Tigris: The Armenian Genocide and America's Response* (Harper Collins, 2003) 164.

<sup>46</sup> Bauer Yehuda, 'Essay on the Place of the Holocaust in History' (1987) 2 *Holocaust and Genocide Studies* 209, 217.

of genocide,<sup>47</sup> the events of World War II and the Holocaust subsequently became canon for the eventual definition. Thus, it is in the context of strong recognition of the Holocaust,<sup>48</sup> that Turkey has attempted to reduce the Armenian Genocide to that of an 'amorphous human disaster'.<sup>49</sup> By comparing and contrasting the Holocaust and the Armenian massacres, Turkey has sought to frame the differences as amounting to 'legitimate' and 'illegitimate' genocides. Whereas the Holocaust received international condemnation, and literature is directed at avoiding such an atrocity again, much of Armenian literature debates fact and history. Similarly, scholarly inquiry differs between the genocides, German authors engage and analyze the impacts of the Holocaust while Turkish authors continue to deny genocide ever occurred.<sup>50</sup> Finally, Turkey has fully subscribed to the 'uniqueness' view of the Holocaust, where the Holocaust was, and is, genocide without equivalency.<sup>51</sup> In doing so, they seek to make absolute distinctions between the genocides, where the Holocaust remains incomparable, and the Armenian experience is reduced to the 'alleged' Armenian Genocide. By fully embracing the Holocaust, the Turkish government has relativized and refuted the characterization of the Armenian Genocide as genocide. Thus it has promoted denialism to develop a foothold in international relations.

Turkey's comprehensive program of multiple suppressive techniques means that it has engaged in 'collaborative repression',<sup>52</sup> this being largely successful in preventing the creation of a consistent international view on the events of the Armenian genocide. By utilising and extending networks of denialist academics and institutes, Turkey has enabled the undermining of previously settled historical fact regarding the genocide. Similarly, the liberal use of coercive international diplomacy has meant that 100 years later, only 22 countries formally recognise the genocide.<sup>53</sup> Finally comparison with the Holocaust, and a strident contrasting of the Jewish and Armenian experiences has formed the basis for contemporary Turkish denialism.

### III. THE IMPLICATIONS OF DENIALISM

The continuing denial of the Armenian genocide has political implications in the present. Not only does the stability of the South Caucasus region depend on stable

<sup>47</sup> Ashley Kalagian Blunt, 'After a Century of Injustice: Moving Toward Turkish Recognition of the Armenian Genocide' (2014) 21 *Peace and Conflict Studies* 69, 73.

<sup>48</sup> Hovannisian, 'The Armenian Genocide and Patterns of Denial', above n 35, 128.

<sup>49</sup> Vahakn N Dadrian, 'Ottoman Archives and the Denial of the Armenian Genocide' in Hovannisian (ed), *The Armenian Genocide in Perspective*, above n 11, 28–34.

<sup>50</sup> Hovannisian, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', above n 2, 201, 203.

<sup>51</sup> Blunt, above n 47, 74.

<sup>52</sup> Ibid 76.

<sup>53</sup> Alexander-Michael Hadjilyra, *The Armenians of Cyprus* (Kalaydjian Foundation, 2009) 32; Colin Tatz, '100 Years On, Australia's Still Out of Step on the Armenian Genocide', *The Conversation* (online) 24 April 2015.

Armenian-Turkish relations, but also on an individual level it is essential that reconciliation eventually be reached to 'humanize de-humanized actions'.<sup>54</sup> The ongoing effect of Turkish denialism is to assist the perpetrators of the genocide by absolving them of posthumous responsibility<sup>55</sup> and to deny Armenians a fundamental chapter of their cultural history.

#### A. *A Denial As The Final Stage Of Genocide*

Culpable harm was done to the Armenian people. By the end of 1918, 1.5 million Ottoman Armenians had been killed, massacred or had died while enduring deportation marches.<sup>56</sup> Innumerate more women and children were forcibly assimilated into Turkish society, only to be ignored as refugees due to their 'Turkified' status.<sup>57</sup> While virtually all Armenian holdings, property and goods were expropriated to Turkish coffers; religious, educational and cultural institutions were systematically destroyed and dismantled by the Young Turks.<sup>58</sup> The acts done against the Armenian people were not the shortcomings of a mismanaged evacuation plan, but a 'death warrant to a whole race'.<sup>59</sup>

The effects of Turkish denialism therefore constitute an involute problem. It is widely shown to be a necessary element for the genocide recovery process that the victims and perpetrators engage in dialogue.<sup>60</sup> In the Armenian case though, the lack of immediate recognition in the aftermath did much to hinder recovery from the effects of the genocide. Apart from preliminary criminal trials in 1919, the perpetrators of the Armenian genocide were released without charge as international focus moved towards the acceptance of the Turkish state rather than investigating war crimes. Today, as we pass the 100th anniversary of the genocide, it is now impossible for the question of criminal prosecution to be considered. However, when, in the Armenian case, cultural origins are directly 'associated with loss, anger and rage',<sup>61</sup> denialism perpetuates an identity trauma. If denial is accepted to be the final stage in genocide,<sup>62</sup> then the Turkish denialist policy can be seen as an 'attack on the collective identity... and national cultural continuity

<sup>54</sup> Alayarian, above n 5, 143.

<sup>55</sup> Henry C Theriault, 'Denial and Free Speech: The case of the Armenian Genocide' in Richard G Hovannisian (ed), *Looking Backward, Moving Forward: Confronting the Armenian Genocide* (Transaction Publishers, 2003) 231, 242.

<sup>56</sup> Henry C Theriault, 'Reparations for Genocide: Group Harm and the Limits of Liberal Individualism' (2014) 14 *International Criminal Law Review* 441, 443.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Henry Morgenthau, *Ambassador Morgenthau's Story* (Doubleday, 1918) 309.

<sup>60</sup> Blunt, above n 47, 75; Gabriele Schwab, 'Haunting Legacies: Trauma in Children of Perpetrators' (2004) 7 *Postcolonial Studies* 177, 179.

<sup>61</sup> Alayarian, above n 5, xxviii.

<sup>62</sup> Hovannisian, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', above n 2, 202.

of the victim people.<sup>63</sup>

### B. Armenia's National Struggle

It is in this context that wider political issues can be examined. Armenia is a state built upon the displaced victims of genocide and diaspora. Therefore, to preserve a collective national and historical identity, it is crucial that the Armenian people preserve a viable state with a coherent view on how it came to be.<sup>64</sup> The genocide is largely responsible for a worrying power imbalance. The diaspora fundamentally changed the demographic potency of Turks in relation to Armenians, leading to the fragmentation and dispersion of Armenians across the world and the weakening of the Armenian population in terms of number and national identity. The imbalance is clear today, with Turkey being a regional power of 74 million compared with 3 million people in Armenia.<sup>65</sup> The territorial curtailment and appropriation of nearly all Armenian property to ethnic Turks furthered this imbalance. Identification of the scale of this shift can be seen in the contemporary valuation of the estimated \$3.7 billion in reparations requested by the Armenian delegation at the 1919 Paris Peace Conference. In contemporary terms, this would correspond to \$51.5 billion.<sup>66</sup> Turkey is a middle power in economic and political terms and the consequences of this ascendancy is impunity in its relations with Armenia.

Elements of the Armenian-Azerbaijani conflict can be understood in direct relation to ongoing issues regarding recognition of the genocide. The prevention of ethnic massacres was a key consideration in Armenia's decision to support the secessionist in the Azerbaijani Nagorno-Karabakh region.<sup>67</sup> Turkey took the opportunity to punish Armenia, closing its border and imposing trade embargoes restricting vital wheat shipments.<sup>68</sup> The withdrawal of Turkish sanctions and the reopening of borders is now based on Armenia withdrawing support for the separatists as well as abandoning its quest for international recognition of the Armenian genocide.<sup>69</sup> By tying aggressive policies to a renunciation of the Armenian genocide issue, Turkey has attempted to force Yerevan to abandon international recognition in favour of economic prosperity.

<sup>63</sup> Israel W Charny, 'The Psychology of Denial of Known Genocides' in Israel Charny (ed), *Genocide* (ABC-CLIO, 1999) [2:22].

<sup>64</sup> Richard G Hovannisian (ed), *Looking Backward, Moving Forward: Confronting the Armenian Genocide* (Transaction Publishers, 2003) 10.

<sup>65</sup> United Nations Populations Division, 'Total Population' (1 July 2013, World Bank) <<http://www.data.worldbank.org/indicator/SP.POP.TOTL.html>>.

<sup>66</sup> Levon Marashlian, 'Finishing the Genocide: Cleansing Turkey of Armenian Survivors 1920–1923' in Hovannisian, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', above n 2, 117.

<sup>67</sup> Representatives Berman, Peters, Schiff and Eshoo, 'Congressional Statements marking Sumgait Massacres' (28 February 2012, ANCA) <[http://www.anca.org/press\\_releases/press\\_releases.php?prid=2108](http://www.anca.org/press_releases/press_releases.php?prid=2108)>.

<sup>68</sup> Avedian, above n 13, 85.

<sup>69</sup> Ibid.

Turkish denialism prevents international recognition of the single most formative and catastrophic event in Armenia's history. The international dispersion of Armenians has impeded the coordination and creation of a cohesive identity. The effects are also manifested in the mentality of Armenians, where identity trauma has been left unaddressed.<sup>70</sup> Though many states regard recognition of the genocide as a political issue for the two states,<sup>71</sup> it is difficult to see a conciliatory end to the well funded and driven denialist campaign Turkey has embarked on. Continuing Turkish refusals to allow substantive discussions regarding recognition of the Armenian genocide has ensured that the issue pervades all relations between the two states. In this sense denialism represents a political impasse that continues to the present day.

#### IV. CONCLUSION

If denial is truly the final stage of genocide then it may be said that the Armenian example has been overwhelmingly successful. Nearly a century after the beginning of the genocide, international opinion on recognition remains fragmented and Turkish denial constitutes a persistent contempt for the Armenian people.

The genocide's designation as a taboo topic has been exceedingly durable, and academic and diplomatic measures have contributed to a reframing of the debate as a question of fact rather than assessment of impact. However the creation of a taboo surrounding the genocide obfuscates responsibility and condemns scholarly activity into a cycle of verification and rebuttal that cannot progress to assess the circumstances in which such atrocities occurred.

On a moral basis, denial leads to an ultimate goal of preventing the Armenian genocide from becoming part of the global collective memory.<sup>72</sup> To deny this genocide on the basis of lack of historical fact is to subject all genocides to rigorous questions of whether 'enough' destruction of the group has occurred. This is important, as 'denial is becoming the inevitable future of genocide'.<sup>73</sup> Turkey is only successful so long as other actors accept that denialism is a precondition to any form of bilateral diplomatic, economic or political engagement. 'And so year by year, person by person, the genocide blurs, doubt corrodes it, and the easy word 'alleged' creeps back in to mock the Armenian anguish'.<sup>74</sup> This seems to still be the case ... even after 100 years.

<sup>70</sup> Fatma Göçek, 'Reconstructing the Turkish Historiography on the Armenian Massacres and Deaths of 1915' in Hovannisian, *The Armenian Genocide in Perspective*, above n 11, 209.

<sup>71</sup> Trend News Agency, 'US Assistant Secretary of State: Turkey, Armenia Must Themselves Solve Their Problems' (18 March 2010, Trend News Agency) <<http://en.trend.az/regions/scaucasus/armenia/1655960.>>

<sup>72</sup> Richard G Hovannisian, 'Introduction: Confronting the Armenian Genocide' in Hovannisian, *The Armenian Genocide in Perspective*, above n 11, 1-2.

<sup>73</sup> Henry C Theriault, 'Universal Social Theory and the Denial of Genocide: Norman Itzkowitz Revisited' (2001) 3 *Journal of Genocide Research* 241, 241.

<sup>74</sup> Hovannisian, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial', above n 2, 201, 205.



## References

### A. Books and Book Chapters

- Akçam, Taner, *A Shameful Act: The Armenian Genocide and the question of Turkish Responsibility* (Macmillan, 2006)
- Alayarian, Aida, *Consequences Of Denial: The Armenian Genocide* (Karnac Books, 2008)
- Balakian, Peter, *The Burning Tigris: The Armenian Genocide and America's Response* (Harper Collins, 2003)
- Charny, Israel, *Toward the Understanding and Prevention of Genocide: Proceedings of the International Conference on the Holocaust and Genocide* (Westview Press, 1984)
- Charny, Israel W, 'The Psychology of Denial of Known Genocides' in Israel Charny (ed), *Genocide* (ABC-CLIO, 1999)
- de Baets, Antoon , *Censorship of Historical Thought* (Greenwood Publishing Group, 2002)
- Flanagan, Stephen J and Samuel Brannen, *Turkey's Evolving Dynamics: Strategic Choices for US Turkey Relations* (Centre for Strategic and International Studies, 2009)
- Hadjilyra, Alexander Michael, *The Armenians of Cyprus* (Kalaydjian Foundation, 2009)
- Hewsen, Robert H, 'Summit of the Earth: The Historical Geography of Bardzr Hayk' in Richard G Hovannisian (ed), *Armenian Karin/Erzerum* (Mazda Publishers, 2003)
- Hovannisian, Richard G, 'Denial of the Armenian Genocide in Comparison with Holocaust Denial' in Richard G Hovannisian (ed), *Remembrance and Denial: The Case of the Armenian Genocide* (Michigan, 1999) 51
- Hovannisian, Richard G (ed), *The Armenian Genocide in Perspective* (Transaction Books, 1987)
- Jensen, Steven L B, 'Turkey, the US and the Armenian Genocide' in Jensen, Steven L B (ed), *Genocide: Cases, Comparisons and Contemporary Debates* (Danish Centre for Holocaust and Genocide Studies, 2003)
- Jung, Deitrich and Wolfango Piccoli, *Turkey at the Crossroads: Ottoman Legacies and a Greater Middle East* (Zed Books, 2001)
- McCarthy, Justin, *Death and Exile: The Ethnic Cleansing of Ottoman Muslims, 1821–1922* (Darwin Press, 1995)
- Morgenthau, Henry, *Ambassador Morgenthau's Story* (Doubleday, 1918)
- Shelley, Louise I, *Policing Soviet Society* (Routledge, 1996)
- Theriault, Henry C, 'Denial and Free Speech: The case of the Armenian Genocide' in Richard G Hovannisian (ed), *Looking Backward, Moving Forward: Confronting the Armenian Genocide* (Transaction Publishers, 2003)
- Totten, Samuel and William S Parsons, *Century of Genocide: Essays and Eyewitness Accounts* (Routledge, 2012)

### B. Journal Articles

Avedian, Vahagn, 'Recognition, Responsibility and Reconciliation: The Trinity of the Armenian Genocide' (2013) 70 *Europa Ethnica* 77

Blunt, Ashley Kalagian, 'After a Century of Injustice: Moving Toward Turkish Recognition of the Armenian Genocide' (2014) 21 *Peace and Conflict Studies* 69

Hovannisian, Richard G, 'The Critic's View: Beyond Revisionism' (1978) 9 *International Journal of Middle Eastern Studies* 379

Schwab, Gabriele, 'Haunting Legacies: Trauma in Children of Perpetrators' (2004) 7 *Postcolonial Studies* 177

Theriault, Henry C, 'Reparations for Genocide: Group Harm and the Limits of Liberal Individualism' (2014) 14 *International Criminal Law Review* 441

Theriault, Henry C, 'Universal Social Theory and the Denial of Genocide: Norman Itzkowitz Revisited' (2001) 3 *Journal of Genocide Research* 241

Yehuda, Bauer, 'Essay on the Place of the Holocaust in History' (1987) 2 *Holocaust and Genocide Studies* 209

### C. Internet Resources

de Bendern, Paul and Thomas Grove, 'Turkish-Armenian Editor Shot Dead in Istanbul', *Reuters* (online) 19 January 2007

Khetani, Sanya, 'France has Angered Turkey by Passing a Bill Recognizing the Armenian Genocide', *Business Insider* (online) 23 January 2012

Krajieski, Jenna, 'Hrant Dink's Voice', *New Yorker Magazine* (online) 27 January 2012

Lynch, Dennis, 'Who Recognizes Armenian Genocide? 20 States That Formally Acknowledge 1915 Events', *International Business Times* (online) 21 April 2015

News.am, 'Turkey Spent \$3.3 Million on Anti-Genocide Campaign in US', *News.am* (online) 14 March 2011

Tatz, Colin, '100 Years On, Australia's Still Out of Step on the Armenian Genocide', *The Conversation* (online) 24 April 2015.

The Editor, 'Mass Graves Found in Erzurum, Turkey of Armenian Massacre', *The National Turk* (online) 18 June 2010

The Editor, 'Partial Reprieve for Turk Writer', *BBC News* (online) 29 November 2005

The Editor, 'Watch Your Words', *The Economist* (online) December 21 2011

Trend News Agency, 'US Assistant Secretary of State: Turkey, Armenia Must Themselves Solve Their Problems', *Trend News Agency* (online) 18 March 2010

United Nations Populations Division, 'Total Population' (1 July 2013, [worldbank.org](http://www.data.worldbank.org/indicator/SP.POP.TOTL.html)) <<http://www.data.worldbank.org/indicator/SP.POP.TOTL.html>>

Zapcioglu, Dilek, 'Freedom of Opinion in Turkey: Turkish Intellectuals Between Democracy and Nationalism', *Der Spiegel* (online) 22 September 2006

#### *D. Other Materials*

*Altug Taner Akçam v Turkey* (European Court of Human Rights, 27520/07, 25 October 2011)

Centre for Economics and Foreign Policy Studies, 'Turks Regretful Over the Armenian Tragedy of 1915 But Refuse to Qualify it as a Genocide' (Report No 2015/1, Centre for Economics and Foreign Policy Studies, December 7 2014)

*Day of Remembrance for the Armenian Martyrs 1965* (Uruguay)

Representatives Berman, Peters, Schiff and Eshoo, 'Congressional Statements Marking Sumgait Massacres' (28 February 2012, ANCA) <[http://www.anca.org/press\\_releases/press\\_releases.php?prid=2108](http://www.anca.org/press_releases/press_releases.php?prid=2108)>

Karlsson, Maria, 'Tall Tales of Genocide: An Argumentative and Comparative Analysis of Western Denial of the Holocaust and of the Armenian Genocide' (Working Paper No 45, Center for European Studies, 2011)



# Selective Incentive Exchange Theories as an Explanation of Joining Behavior

*Ruth Parsons*

## Abstract

*The capacity of interest groups to influence public policy depends on their ability to attract and retain members. This paper examines selective incentive exchange theories as an explanation of interest group joining behavior. It compares Mancur Olson's formulation of selective incentive exchange theory with subsequent extensions of Olson's theory. Applying criteria from John Gerring's article, 'What Makes a Concept Good?', this paper finds that Olson's original theory is superior to the revised theories. Application of Gerring's criteria to analyse the conceptual adequacy of selective incentive exchange theories results in a more comprehensive understanding of interest group membership.*

## I. INTRODUCTION

The critical 'first step' in understanding interest group behaviour is inquiring into why individuals choose to join interest groups.<sup>1</sup> Analysis of joining behaviour is highly important to interest groups, who rely on membership for financial resources and legitimacy in the eyes of policy makers. Selective incentive exchange theories provide models by which to understand and simplify joining behaviour. Mancur Olson, in *The Logic of Collective Action*,<sup>2</sup> proposes that individuals only join interest groups if they are provided with a material incentive. This theory is based on the economic theory of exchange that individuals only act where it is cost-effective and, hence, rational. However, Olson's theory is limited because it does not consider other types of selective incentives, such as psychological incentives, and is therefore not a complete explanation of joining behaviour. Extensions to Olson's theory have adopted the same framework, but consider different types of selective incentives, notably 'solidary' and 'purposive' incentives. These revised theories are problematic because it is difficult to measure incentives if they are not tangible. Olson's is a stronger theory because it is logical and coherent, but it is limited because it can only explain some joining behaviour. The revised theories may be able to explain more, but are weaker because they are more convoluted and cannot be easily empirically tested. Whether Olson's theory and the revised theories explain (or do not explain) joining behaviour can be assessed by analysis

---

<sup>1</sup> David Knoke, *Organizing for Collective Action: The Political Economies of Associations* (Aldine Transaction, 1990) 28.

<sup>2</sup> Mancur Olson, *The Logic of Collective Action* (Harvard University Press, 1971).

of their conceptual adequacy. This essay considers criteria from John Gerring's paper, 'What Makes a Concept Good?',<sup>3</sup> to consider the conceptual adequacy of both Olson's theory and the revised theories of selective incentive exchange theory.

## II. SELECTIVE INCENTIVE EXCHANGE THEORIES

Mancur Olson's formulation of selective incentive exchange theory hinges on the statement: '*rational, self-interested individuals will not act to achieve their common or group interest*'.<sup>4</sup> Olson goes on to argue that individuals only contribute to common group interest because they are 'coerced into joining the association by legal requirements. . . ' or because they 'receive selective material rewards'.<sup>5</sup> Olson finds '[o]nly a *separate and selective* incentive will stimulate a rational individual in a latent group to act in a group-oriented way. . . The incentive must be 'selective' so that those who do not join the organization working for the group's interest, or in other ways contribute to the attainment of the group's interest, can be treated differently from those who do'.<sup>6</sup> Olson argues that formation and maintenance fail if the incentives are insufficient, rather than because of the absence of collective interest in a group goal.<sup>7</sup>

Selective incentives must outweigh the cost of contributing to collective action in order for membership to be cost-effective and, hence, rational. Olson's assumption that individuals are rational is not unique to exchange theories.<sup>8</sup> It is a common, and reasonable assumption adopted to simplify and understand behaviour in the disciplines of political science, sociology and microeconomics. The assumption that humans only contribute if it is rational to do so is fair 'until firm evidence to the contrary is available'.<sup>9</sup>

Critics of Olson's theory argue that the assumptions on which the theory is based are overly restrictive.<sup>10</sup> These critics argue that Olson 'overstates the generality of his conclusions'.<sup>11</sup> For example, while the assumption that individuals are rational is reasonable, Olson oversimplifies the explanation of when collective action will be rational. In reality, rationality of membership 'varies from situation to situation and depends upon . . . [the good's] value to the individual, the probability that the

<sup>3</sup> John Gerring, 'What Makes a Concept Good? A Criterial Framework for Understanding Concept Formation in the Social Sciences' (1999) 31 *Polity* 357.

<sup>4</sup> Olson, above n 2, 2 (emphasis in original).

<sup>5</sup> Jack Walker, *Mobilizing Interest Groups in America: Patrons, Professionals and Social Movements* (University of Michigan Press, 1991) 46.

<sup>6</sup> Olson, above n 2, 51 (emphasis in original).

<sup>7</sup> *Ibid.*

<sup>8</sup> Anthony Heath, *Rational Choice and Social Exchange: A Critique of Exchange Theory* (Cambridge University Press, 1976) vii.

<sup>9</sup> *Ibid.* viii.

<sup>10</sup> Pamela Oliver, 'Rewards and Punishments as Selective Incentives for Collective Action: Theoretical Investigations' (1980) 85 *American Journal of Sociology* 1356 1358.

<sup>11</sup> *Ibid.*

good will be provided without his contribution, and the effect (if any) of group size'.<sup>12</sup> Another example of restrictive assumptions is that exchange theorists, Olson included, assume individuals have perfect information. For a decision to be rational, an individual must be well informed about the types of groups that exist and the incentives they offer, in order to choose the most cost-effective, and rational, option. Moe argues that the assumption of perfect information is unrealistic.<sup>13</sup> So, rationality of membership depends on an array of variables. Olson, in developing his theory, prefers simplification (and arguably, overly restrictive assumptions), to a more realistic analysis of factors that motivate rational membership.

Even though Olson's theory is based on restrictive assumptions, it does effectively describe some memberships.<sup>14</sup> The theory is best applied to economic interest groups, or interest groups that primarily provide material incentives.<sup>15</sup> Business oriented groups are more likely to fall within Olson's framework because they are better poised to provide material incentives. Usually, business-oriented groups provide tangible benefits (such as conferences or publications) and gain membership from this practice.<sup>16</sup> An example where joining behaviour correlated with Olson's theory is membership of the 'AARP'.<sup>17</sup> The provision of a variety of selective material benefits to members of the AARP resulted in the organisation growing to be one of the largest voluntary organisations in America with over 28 million members.<sup>18</sup> Thus, Olson's theory is able to explain some instances of joining behaviour, like the AARP, but not all.

In reality, a range of incentives may motivate joining behaviour. Not all members choose to join interest groups for material gain and many who do join may find that the cost of membership exceeds the material benefits they receive in return.<sup>19</sup> Non-material incentives to engage in collective action include 'altruism, belief in a cause or ideology, loyalty, beliefs about right and wrong, camaraderie, friendship, love, acceptance, security, status, prestige, power, religious beliefs [and] racial prejudice'.<sup>20</sup>

Clearly, there exist many possible motives for action. Olson himself acknowledged that economic incentives are not the only incentives that motivate membership.<sup>21</sup> He

<sup>12</sup> Ibid.

<sup>13</sup> Terry M Moe, 'Towards a Broader View of Interest Groups' (1981) 43 *Journal of Politics* 531.

<sup>14</sup> David C King and Jack L Walker, 'The Provision of Benefits by Interest Groups in the United States' (1992) 54 *Journal of Politics* 394, 396.

<sup>15</sup> Frank R Baumgartner and Beth L Leech, *Basic Interests: The Importance of Groups in Politics and in Political Science* (Princeton University Press, 1998) 71.

<sup>16</sup> King and Walker, above n 14.

<sup>17</sup> American Association of Retired Persons ('AARP'). Ibid.

<sup>18</sup> Ibid, citing Deborah M Burek, Karen E Koek and Annette Novallo, *Encyclopedia of Associations* 1990 (Gale Research, 24<sup>th</sup> ed, 1989).

<sup>19</sup> James Q Wilson, *Political Organizations* (Princeton University Press, 1<sup>st</sup> ed, 1974) 25.

<sup>20</sup> Terry M Moe, *The Organization of Interests: Incentives and the Internal Dynamics of Political Interest Groups* (University of Chicago Press, 1980) 113.

<sup>21</sup> Olson, above n 2, 60.

concedes that individuals may be motivated by 'prestige, respect, friendship and other social and psychological objectives'.<sup>22</sup> However, Olson argues that consideration of these incentives takes the theory out of the realm of economic analysis.<sup>23</sup> One example is the United States interest group, the 'Common Cause'.<sup>24</sup> This group achieved a membership of 260,000 while providing almost no material selective incentives.<sup>25</sup> Instead, MacFarland suggests that the group 'appeals to conscience or calls to protect the public interest'.<sup>26</sup> Various theoretical extensions of Olson's theory have sought to consider other types of incentives that motivate membership.

The revised theories generally concur that there are three categories of incentives: material, solidary and purposive.<sup>27</sup> Clark and Wilson argue solidary benefits 'arise from the act of associating'.<sup>28</sup> Solidary benefits might include friendship, heightened social status and professional connections.<sup>29</sup> Purposive incentives, on the other hand, 'are even less tangible than solidary benefits, involving the good feelings people get from contributing to a cause in which they believe'.<sup>30</sup>

The problem with considering purposive and solidary benefits within an economic model is that these types of incentives are difficult to identify and quantify. Money and tangible benefits (material benefits) are easy to define and quantify because they can be given a monetary value. It is possible to derive scientifically valid conclusions using money as a unit of measurement. In contrast, it is difficult to measure and compare intangible benefits, such as professional contacts, social interaction, or a sense of accomplishment or purpose. Some of these benefits are purely psychological.<sup>31</sup> Purposive benefits are particularly difficult to measure and 'can be expanded to "explain" virtually every possible case'.<sup>32</sup> Wilson argues:<sup>33</sup>

It is hard to imagine how we could discover how many units of status a person would forego to obtain a unit of power or even what a unit of status is and whether it is the same from person to person or for one person in different contexts. Finally, even if the motives, and

---

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> King and Walker, above n 14, 396, citing Andrew S MacFarland, *Common Cause: Lobbying in the Public Interest* (Chatham House Publishers, 1984).

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> See, eg, Peter B Clark and James Q Wilson, 'Incentive Systems: A Theory of Organizations' (1961) 6 *Administrative Science Quarterly* 129; Robert H Salisbury, 'An Exchange Theory of Interest Groups' (1969) 13 *Midwest Journal of Political Science* 1; King and Walker, above n 14.

<sup>28</sup> Baumgartner and Leech, above n 15, 69, citing Clark and Wilson, above n 27, 34-5.

<sup>29</sup> Ibid.

<sup>30</sup> Ibid.

<sup>31</sup> Baumgartner and Leech, above n 15, 71.

<sup>32</sup> Ibid.

<sup>33</sup> Wilson, above n 19, 26.



trade-offs among motives, of a number of persons could be learned by laboratory experiment or by depth interviewing, the predictions we could make about behaviour would hold only for those persons (not persons generally) and then only for such persons so long as their motivational structure remained unchanged.

Thus, where the type of incentive is difficult to identify, using economic theory to study joining behaviour may lead to conclusions that are of little worth.<sup>34</sup>

However, it can be argued that empirical study is somewhat possible without concrete units of measurement. For example, a large-scale survey conducted by King and Walker, asked the executive secretaries of voluntary organisations to identify the selective benefits provided to encourage membership. The survey asked the executive secretaries to rank the importance of each incentive.<sup>35</sup> Contrary to Olson's theory, the survey found that relatively few groups provided selective material benefits.<sup>36</sup> In groups that did provide material incentives, they were rated as the least important class of benefits.<sup>37</sup> Conversely, they found that 'purposive or collective benefits consistently receive high rankings by the leaders of all types of groups'.<sup>38</sup> The large survey sample would hopefully minimise bias. Nonetheless, the survey was limited to the subjective opinion of the executive secretaries, not individual motives of the members.

So, in terms of explaining joining behaviour, Olson's theory is logical and coherent. However, its application is limited. On the other hand, the revised theories are more widely applicable, but difficult to test empirically. The effectiveness (or otherwise) of theories of joining behaviour can be explained through examining the conceptual adequacy of Olson's theory and the revised theories.

### III. CONCEPTUAL EVALUATION OF OLSON'S THEORY AND THE REVISED THEORIES

The conceptual adequacy of the theories can be assessed by applying criteria from John Gerring's paper, 'What Makes a Concept Good?',<sup>39</sup> Gerring proposes that a 'good' concept is determined by a 'trade-off' among eight criteria: familiarity, resonance, parsimony, coherence, differentiation, depth, theoretical utility, and field utility.<sup>40</sup> The criteria of familiarity, field utility, coherence and differentiation are used in this analysis. This approach is appropriate within Gerring's framework because he argues that the value, or otherwise, of concepts are 'best understood as a matter of *prioritisation*, a sacrifice of certain conception virtues for the more

<sup>34</sup> Ibid 25.

<sup>35</sup> King and Walker, above n 14, 399.

<sup>36</sup> Ibid 406.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Gerring, above n 3.

<sup>40</sup> Ibid 357.

firm possession of others'.<sup>41</sup> Even a 'good' concept is not required to satisfy all eight of Gerring's criteria.<sup>42</sup> Olson's theory is a 'good' concept because, to use Gerring's terms, it fulfills the criteria of familiarity, coherence, theoretical utility and differentiation. In contrast, the revised theories are more widely applicable, but sacrifice achieving coherence, differentiation, familiarity, and to some extent, theoretical utility. They are not such 'good' concepts.

Olson, by adopting existing economic theories of public goods and applying it to explain joining behaviour, arguably satisfies the 'familiarity' criterion proposed in Gerring's framework. Familiarity refers to 'the degree to which [the word] conforms... with established usage'.<sup>43</sup> Olson proposes that *rational* individuals only participate in *collective action* or provision of *public goods* where they are provided with *selective incentives*. The incentives must be *selective* to prevent people gaining benefits without contributing to their attainment (*free riding*). These italicised words have established definitions in economic theory, thus Olson's theory becomes understandable by transposing these established definitions onto Olson's framework. Admittedly, the concepts require some basic academic understanding. Gerring concedes that while ordinary language is ideal, it is often necessary to use specialised language, even though it will incur a 'cost'.<sup>44</sup> Nonetheless, the economic concepts employed by Olson are ones that have reasonably settled meaning across the disciplines of microeconomics, political science and sociology. Olson avoids 'using diagrammatic-mathematical language of economics' in order to make the theory accessible to anyone, no matter their disciplinary background.<sup>45</sup> The concepts are not 'dead', 'foreign' or 'highly specialised'.<sup>46</sup> Thus, the concepts adopted by Olson from economic theory are likely to satisfy Gerring's criterion of familiarity.

Olson, in adopting economic theory of exchange and applying it to interest groups satisfies Gerring's criterion of coherence. Gerring finds that a concept is coherent where the components are logically related. The components of economic theory are well established and easily 'grouped' together. Thus, Olson's formulation of selective incentive exchange theory, almost by default, is likely to satisfy Gerring's criterion of 'coherence'.

Further, Olson's theory is particularly effective in that it was, to use Gerring's description, a 'building-block' for the formulation of other theories.<sup>47</sup> Gerring calls the ability to aid in the formation of theories 'theoretical utility'.<sup>48</sup> Olson's

---

<sup>41</sup> Ibid 387 (emphasis in original).

<sup>42</sup> Ibid.

<sup>43</sup> Ibid 369.

<sup>44</sup> Ibid.

<sup>45</sup> Olson, above n 2, 3.

<sup>46</sup> Gerring, above n 3, 369.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid 381.

work has been described as ‘enormously useful and path breaking’,<sup>49</sup> and has encouraged the development of a range of theoretical extensions and refinements. To name a few: Salisbury,<sup>50</sup> Clark and Wilson,<sup>51</sup> Oliver,<sup>52</sup> and Moe.<sup>53</sup>

Olson’s work was path breaking because it ‘strikes at the heart’ of previous theories of group membership.<sup>54</sup> Before Olson, membership was explained by the pluralist notion that individuals joined groups where there is a common interest.<sup>55</sup> Olson’s theory is distinct because it is rational. Gerring argues that a good concept is one that can be clearly differentiated from neighboring concepts.<sup>56</sup>

In contrast, Gerring finds that a ‘poorly bounded concept has definitional borders which overlap neighboring concepts’. <sup>57</sup> The revised theories, by considering purposive incentives within an economic framework, fail to achieve ‘differentiation’. The revised theories consider ‘purposive incentives’, which are almost identical to the pluralist notion that people join groups in pursuit of group goals.<sup>58</sup> Pluralism finds that individuals join groups to further group interests. Purposive incentives, similarly, are incentives that ‘consist of the realisation of ... goals of the organisation or group’.<sup>59</sup> Thus, the concepts are very similar. In fact, King and Walker argue that ‘desires for purposive benefits are desires for collective goods’.<sup>60</sup> This is particularly unsatisfactory under Gerring’s framework. King and Walker argue that the ‘purposive category is a catch-all that verges on a tautology’.<sup>61</sup> These authors reason:<sup>62</sup>

If we work within Olson’s structure, the purposive argument goes like this: Why do individuals join a group to advance a collective good? Because they have a purposive desire to see that collective good advanced. The argument is circular, and it does not take us very far.

Thus, the revised theory does not provide sufficient ‘differentiation’, to use Gerring’s term.

---

<sup>49</sup> King and Walker, above n 14, 422.

<sup>50</sup> Salisbury, above n 27.

<sup>51</sup> Clark and Wilson, above n 27.

<sup>52</sup> Oliver, above n 10.

<sup>53</sup> Moe, ‘Towards a Broader Theory of Interest Groups’, above n 13.

<sup>54</sup> *Ibid* 533.

<sup>55</sup> *Ibid*.

<sup>56</sup> Gerring, above n 3, 375–6.

<sup>57</sup> *Ibid* 376.

<sup>58</sup> Moe, ‘Towards a Broader Theory of Interest Groups’, above n 13, 531.

<sup>59</sup> Salisbury, above n 27, 16.

<sup>60</sup> King and Walker, above n 14, 397 (emphasis in original).

<sup>61</sup> *Ibid*.

<sup>62</sup> *Ibid*.

Nor do the revised theories satisfy the criterion of ‘familiarity’. Salisbury’s concepts of ‘solidary’ and ‘purposive’ incentives require explanation and are not concepts widely understood outside political science.

The revised theories, especially in comparison to Olson’s theory, lack internal coherence. It is difficult to see how purposive interests, or the desire to realise the goals of the organisation, are rational within the ordinary understanding of the word. ‘Rational’, understood as ‘cost-effective’, does not seem to be logically linked to purposive motivations. For example, can a sense of purpose be a rational motive for membership? Possibly not. It is difficult to see how purposive incentives are logically linked to rational economic theory of exchange.

The theoretical extensions to some extent satisfy the criteria of ‘theoretical utility’. Salisbury’s refinement of Olson’s theory introduced the ‘entrepreneur’, and this ‘has been recognised by virtually every researcher of group origins and maintenance since’.<sup>63</sup> This was useful, but not to the same degree as Olson’s path-breaking contribution.

#### IV. CONCLUSION

This essay argues that Olson’s theory is particularly effective because it is logical, coherent and can be empirically tested. However, Olson’s theory adopts a number of restrictive assumptions and has limited application. The revised theories are more widely applicable, but cannot be as easily empirically tested. Applying Gerring’s framework effectively identifies the strengths and weaknesses of the concepts that comprise the theories, to aid an understanding of why the theories are effective or otherwise. Gerring argues that conceptual adequacy can be understood by a series of ‘tradeoffs’ or a ‘tug of war’.<sup>64</sup> Olson’s theory wins the conceptual tug of war, because it satisfies Gerring’s criteria of familiarity, coherence, theoretical utility and differentiation. The revised theories lose because while they are more widely applicable, they are less coherent and lack differentiation. To use Gerring’s words, assessing the adequacy of a theory is a highly complex process — there is no ‘best’ solution.<sup>65</sup> Using Gerring’s criteria and considering the ‘tug of war’ leads to a better understanding of the conceptual adequacy of the theories explaining joining behaviour.

<sup>63</sup> Baumgartner and Leech, above n 15, 70.

<sup>64</sup> Gerring, above n 3, 367.

<sup>65</sup> *Ibid.*

## References

- Baumgartner, Frank R and Beth L Leech, *Basic Interests: The Importance of Groups in Politics and in Political Science* (Princeton University Press, 1998)
- Burek, Deborah M, Karen E Koek and Annette Novallo, *Encyclopedia of Associations* 1990 (Gale Research, 24<sup>th</sup> ed)1989
- Clark, Peter B and James Q Wilson, 'Incentive Systems: A Theory of Organizations' (1961) 6 *Administrative Science Quarterly* 129
- Gerring, John, 'What Makes a Concept Good? A Criterial Framework for Understanding Concept Formation in the Social Sciences' (1999) 31 *Polity* 357
- Heath, Anthony, *Rational Choice and Social Exchange: A Critique of Exchange Theory* (Cambridge University Press, 1976)
- King, David C and Jack L Walker, 'The Provision of Benefits by Interest Groups in the United States' (1992) 54 *The Journal of Politics* 394
- Knoke, David, *Organizing for Collective Action: The Political Economies of Associations* (Aldine Transaction, 1990)
- MacFarland, Andrew S, *Common Cause: Lobbying in the Public Interest* (Chatham House Publishers, 1984)
- Moe, Terry M, *The Organization of Interests: Incentives and the Internal Dynamics of Political Interest Groups* (University of Chicago Press, 1980)
- Moe, Terry M, 'Towards a Broader View of Interest Groups' (1981) 43 *The Journal of Politics* 531
- Oliver, Pamela, 'Rewards and Punishments as Selective Incentives for Collective Action: Theoretical Investigations' (1980) 85 *American Journal of Sociology* 1356
- Olson, Mancur, *The Logic of Collective Action* (Harvard University Press, 1971)
- Salisbury, Robert H, 'An Exchange Theory of Interest Groups' (1969) 13 *Midwest Journal of Political Science* 1
- Walker, Jack, *Mobilizing Interest Groups in America: Patrons, Professionals and Social Movements* (University of Michigan Press, 1991)
- Wilson, James Q, *Political Organizations* (Princeton University Press, 1<sup>st</sup> ed, 1974)



# Interpreting Three Dimensional Hydrodynamic Simulations with Python

Guy Leckenby

## Abstract

*The spectra produced by astronomical objects provides us with a vast amount of information on the chemical composition and structure of the object. For stars, the most luminous astronomical objects, these spectra are produced in the upper atmosphere and hence accurate modelling of the photosphere and chromosphere are required to draw correct conclusions from the spectra observed. Recent advances in the understanding of spectral lines in stars and an increase in computational capacity have lead to much more complex three dimensional hydrodynamic time-dependent models which have demonstrated excellent agreement with observation.*

*This paper demonstrates the elegance of using Python to provide an interpretive interface for these models as well as providing reasons for why astrophysical computing as a field is moving towards Python as the language of choice. This is demonstrated by the introduction of a rudimentary Python module for interfacing with the 3D models accompanied by comparative plotting examples of a variety of profiles. Suggestions are also provided for further improvements and expansions for the module for wider astronomical use in stellar modelling.*

## I. INTRODUCTION

As light is the main source of information we receive from outside the solar system, it is essential to understand the spectra of astronomical objects to understand the universe. In particular the spectra of stars are crucial as they are the most common luminous object in the universe and the light we receive from them informs our understanding of their own internal structures but also the other visible objects in the universe through photon interactions. The spectra studied from stars are absorption spectra produced in the stars atmosphere. The absorption is with respect to the continuum spectrum of the star where the continuum is generated by the super heated gas in the photosphere which produces a smooth intensity distribution.<sup>1</sup> Gas that exists in the chromosphere then absorbs from the continuum to produce the observed absorption spectra. Hence a full understanding of the processes occurring inside stellar atmospheres is crucial for understanding the structures of the universe.

---

<sup>1</sup> Lothar Schanne, 'Astronomical Optical Spectroscopy; Spectra of Stars and Other Celestial Objects' (8 July 2014, Astrospectroscopy) <<http://www.astrospectroscopy.eu/indexe.html>>.

A good example of the importance of understanding stellar atmospheres is the importance of hydrogen. Hydrogen is the most abundant element in stellar atmospheres and hence it is a good characterising element for determining the properties of the star via spectroscopy. Due to its simple atomic structure, hydrogen is much more sensitive to the atmospheric properties than heavier elements,<sup>2</sup> and hence the wings and core structure of the absorption lines relate directly to atmospheric conditions.<sup>3</sup> The Balmer series in particular is commonly used to study stellar atmospheres as it occupies the visible region taking advantage of the opacity of the atmosphere for ground observations. As the lower levels of the hydrogen atom are much more frequently populated, significant opacity is produced at the core of the absorption lines whilst interactions with charged species and other hydrogen atoms result in extended wings. Furthermore, as hydrogen forms the main continuum opacity source, changes in hydrogen abundance barely affect the line's strengths and as gravity and heavy element abundance produce weak effects on the absorption line, surface temperature perturbation has the most dramatic effect in determining the shape of the Balmer lines.<sup>4</sup> Hence, the Balmer lines are a very powerful surface temperature indicators and as they are reddening independent they may, in principle, provide an accuracy on the order of 50 K.<sup>5</sup>

Understanding of the stellar atmosphere does not stop with hydrogen however. The entire chemical composition of stars, in particular our sun, is derived from absorption spectra. Chemical abundance data also informs our understanding of the internal workings of stars and thus comparison with observed spectra provides a fundamental comparison with helioseismologic models.<sup>6</sup> Understanding stellar compositions is also essential for determining the spread of elements in other astronomical objects as each stellar system is believed to have been generated from the same nebula.

For stellar spectra to be used for these purposes however, powerfully predictive models are needed. Due to the complexity of a stellar atmosphere, a vast collection of factors affect the observed wing shape. In particular, the absorption coefficient is affected by normal absorption (natural broadening), the velocity of the absorbing particle (thermal Doppler and microturbulent broadening), interactions with charged particles (linear Stark broadening), and interactions with neutral particles (van der Waals broadening).<sup>7</sup> Early models, such as those by Vidal,<sup>8</sup> have now been superseded by more powerful and comprehensive calculations.

<sup>3</sup> O Kochukhov, S Bagnulo and P S Barklem, 'Interpretation of the Core-Wing Anomaly of Balmer Line Profiles of Cool Ap Stars' (2002) 367 *The Astrophysical Journal* L75, L75.

<sup>4</sup> Barklem et al, above n 2.

<sup>6</sup> Martin Asplund, Nicolas Grevesse, A Jacques Sauval and Pat Scott, 'The Chemical Composition of the Sun' (2009) 47 *Annual Review of Astronomy and Astrophysics* 481, 483.

<sup>7</sup> C R Cowley and F Castelli, 'Some Aspects of the Calculation of Balmer Lines in the Sun and Stars' (2002) 387 *Astronomy and Astrophysics* 595, 595.

<sup>8</sup> C R Vidal, J Cooper and E W Smith, 'Hydrogen Stark Broadening Calculations with the Unified Classical Path Theory' (1970) 10 *Journal of Quantitative Spectroscopy and Radiative Transfer* 1011.



With recent advances in computational capacity, the classical approximations used in previous stellar atmospheric models have been challenged. In particular, the assumptions of a static 1D atmosphere with a mixing length treatment of convection and the assumption of local thermal equilibrium (LTE) throughout the atmosphere have attracted significant scrutiny.<sup>9</sup> Whilst no model is yet able to fully remove both of these assumptions simultaneously, attempts have been made to remove each individually. For the geometrical assumption, there has been significant development in full three dimensional hydrodynamical time-dependent simulations of convection ('3D models') for application to the solar photosphere.<sup>10</sup> These predictions from these 3D models are in excellent agreement with the observed spectra for the  $H\alpha$  and  $H\beta$  Balmer lines which Fuhrmann, Axer and Gehren claim are the most powerful benchmarks for atmospheric models.<sup>11</sup> Furthermore, the 3D models correctly predict the lifetimes and sizes of solar granulation observed at high spatial resolution.<sup>12</sup> However the radical prediction of significantly lowered oxygen, carbon and nitrogen abundances by the 3D models have led to considerable disagreement with helioseismological models of the stellar interior. Whilst this presents concerning implications, the 3D models have significantly more predictive power over the stellar spectrum than the previous 1D LTE models.<sup>13</sup>

## II. INTERACTING WITH THE 3D MODELS

As with all complex computational models, an accessible interface is needed for the results to be of scientific value. The remainder of this paper will examine an interface for the hydrodynamic 3D models, in particular using the Python programming language. The 3D modelling considered here is the 3D, radiative, hydrodynamical, and conservative STAGGER-CODE.<sup>14</sup> This model employs a rectangular section of the solar atmosphere with, for example, dimensions of  $6 \times 6 \times 3.8 \text{ Mm}^3$  which has a Cartesian resolution of  $240^3$  data points. The horizontal grid is equally placed whilst the vertical grid is non-linear to accommodate for higher resolution over high temperature gradients. The top and bottom edges of the simulation are open, transmitting boundaries to allow for appropriate handling of free convection flows to ensure realistic treatment.<sup>15</sup>

<sup>9</sup> Tiago M D Pereira et al, 'How Realistic are Solar Model Atmospheres?' (2013) 554 *Astronomy and Astrophysics* 1, 1.

<sup>10</sup> Asplund et al, above n 6, 484; Ludwig et al, above n 5, L1.

<sup>11</sup> K Fuhrmann, M Axer and T Gehren, 'Balmer Lines in Cool Dwarf Stars' (1993) 271 *Astronomy and Astrophysics* 451, 454.

<sup>12</sup> Pereira et al, above n 9.

<sup>13</sup> Martin Asplund and Karin Lind, 'The Light Elements in the Light of 3D and Non-LTE Effects' (Paper presented at the IAU Symposium No 268, Geneva, 9 February 2010).

<sup>14</sup> A Nordlund and Klaus Galsgaard, 'A 3D MHD Code for Parallel Computers' (1995, Computational Astrophysics Web Server) <<http://astro.ku.dk/aake/NumericalAstro/papers/kg/mhd.ps.gz>>.

<sup>15</sup> Pereira et al, above n 9.

As atmospheric properties are not directly observable but rather inferred from spectral absorbance lines, the 3D models are used to predictively match observed spectra to determine the composition and temperature flows. In particular, the 3D models produce a variety of spectra that can be directly compared to observation. The models employed in this paper produce spectra for the total flux profile, the perpendicular spatially averaged intensity profile, spatially resolved intensity profiles, angularly resolved intensity profiles and a continuum intensity (or flux) associated with each profile. This data is stored in NetCDF file storage (a universal data storage format run by Unidata) and hence program routines need to be developed to extract the data and present it in a useful format.

Currently, the Research School of Astronomy and Astrophysics ('RSAA') uses the IDL language, a programming language popular in the field of astronomy for its vectorised and numerical data analysis. IDL is very good at astronomical data processing due to it being an array focused language as well as also having mature and extensive astronomical libraries such as `idlutils`. However student access to IDL is at best difficult and otherwise the subscription fee is quite substantial which can present problems during collaborations. Furthermore, as the language was first constructed in 1977 and is based primarily on FORTRAN and C, it has some frustrating syntax requirements that can be difficult to learn and requires extensive knowledge to produce elegant and efficient code. It is also a rather narrow in its applications and not suited to generalised programming due to its focus on numerical analysis only.

There is a movement building throughout the astronomical community to move to Python as it deals with many of these problems. Firstly it is open source and hence accessible to the entire global community which in turns generates an extensive user base. Python was designed recently with its inception during 1989 but having major re-releases in 2000 and 2008 and it was designed specifically for scientific use. It is also designed to take full advantage of its interpretive nature and is a highly abstracted language which is more intuitive for the programmer and allows for easier debugging. Hence basic operations can often be done more easily, more elegantly and cheaper in Python than in IDL. It also has much more flexibility in non-numerical aspects of programming like databases, web page generation, web services, text processing, and process control.<sup>16</sup> The disadvantages of Python mainly stem from the youth of the language and as a result many processes well established in IDL are in current construction or not existent at all in Python. However these problems are being rectified as the Python community matures.

---

<sup>16</sup> Kelle Cruz, 'IDL vs Python' (4 May 2009, AstroBetter) <<http://www.astrobetter.com/blog/2009/05/04/idl-vs-python>>.

As a result of the problems with IDL, there is clearly a need for routines in Python to interpret, compare and display the results produced by the 3D models. Presented below is some preliminary Python code which achieves this function.

### III. DESIGNING THE INTERFACE

The data in the 3D models is stored in NetCDF format, which is a data storage format that is independent of any software, it just requires an interface module in the language you are working with. The Python NetCDF module uses an object oriented interface as Python is primarily an object oriented language. To achieve the desired interface for interacting with the 3D models, the data needed to be extracted and then manipulated with a set of functions. As the interface requires multiple actions on different profiles, an object oriented approach centred around each profile was ideal as it not only runs cleaner and more simply but also reduces redundancy. The code that was produced with this in mind the generates a basic interface module for the 3D models is displayed in Appendix A. In particular, this module is named `profPlot` ('the module').

The module was constructed with a set of desired outcomes in mind. In particular, it had to:

- calculate the temporal average of any profile;
- continuum normalise any profile;
- calculate the equivalent width for any profile; and
- plot any combination of these profiles for comparison.

The module was required to do this for every variable in the data which vary in dimensions and shape. This is ideal for an object oriented approach.

The module was constructed primarily around the idea of taking the NetCDF variables and converting them to workable objects to perform functions on. There are three object classes defined in the code, a normal variable, a spatial variable and an angular variable. Normal variables encompass simple multi dimensional arrays with the dimensions of time steps,  $g$  factor values, and finally the intensity profile.<sup>17</sup> The variable object include the perpendicular intensity profile, `prof_int`, and the flux profile, `prof_flux`. The angular and spatial variables, `prof_angle` and `prof_xy` respectively, have all the dimensions of the parent class, 'variable', but include angular and spatial resolution respectively and were hence implemented as child classes.

Using the functions attributed to each class, options can be executed such as temporal averaging, continuum normalisations and equivalent width calculations.

---

<sup>17</sup> These concepts will be more thoroughly explored in Section IV.

Furthermore, the primary function of the module is to produce comparison plots to examine the effects of convection (and other elements of the 3D modelling process) on the various profiles. Hence the plot function is of crucial construction. The plot function takes in a list of profiles to be plotted and returns a graph of the comparison. As each variable is an object, the construction of the plotting list can often be completed by a simple for loop which provides extensive flexibility. Part of this flexibility is that other functions outside the module can still be plotted with the desired profiles<sup>18</sup> by simply adding a `pylab.plot(xVals, yVals)` call before the `profPlot.plot` call. The module also supports alternating the  $x$  value that the profiles are plotted against. For example, another common scale is to use the Doppler velocity units with respect to the base wavelength. Any wavelength can be expressed in terms of a reference wavelength,  $\lambda_0$  and the appropriate Doppler shift by

$$\lambda - \lambda_0 = \frac{v}{c}\lambda_0.$$

Hence, a velocity scale can be produced that varies linearly with respect to wavelength. This use of Doppler notation is particularly useful when considering line profiles in a moving medium such as a stellar atmosphere because it allows the direct translation of physical velocities into the Doppler broadening presented in the absorption spectra.

The data is presented in large multi dimensional arrays that include up to five different variables. The intensity profiles can be selected by inputting the appropriate indexing during initialisation of the variable. Otherwise, if the indexing is not included, the module resorts to pre-set defaults. For the time step, the module automatically take the temporal average, and for the  $g$  factor value, the angles and  $xy$  coordinates, the middle index is selected by default.

The module evidently has limitations to its capabilities and for a variety of reasons, users may want to access the core data. To this purpose, each variable object opens the NetCDF file in read only format. Hence the raw NetCDF dataset can be accessed through any `self.rootgrp` call using the NetCDF module syntax. This allows for descriptions of the shapes of variables, access to the raw data and attributes of the NetCDF file. Further information on the Python's NetCDF module can be found through the netCDF4 Module manual by Whitaker.<sup>19</sup>

#### IV. CAPABILITIES OF THE INTERFACE

As the module was designed with flexibility in mind, not all the capabilities of the module will be demonstrated here but rather the most useful selection. The file used is a solar spectrum centred on the Fe(I) emission line at 5041.7559 Å ('FeI-504'). This allows for full demonstrations of not only convective influences but

<sup>18</sup> An example is seen in Section IV.

<sup>19</sup> J Whitaker, 'Module NetCDF4' (23 December 2005, Google Code) <<http://netcdf4-python.googlecode.com/svn/trunk/docs/netCDF4-module.html>>.

abundance changes.

One of the requirements was to produce temporal averaging and continuum normalisation for each profile provided as these are how spectral lines are conventionally presented in astrophysics. Both calculations involve basic multi dimensional array mechanics which is managed in Python through numpy. These capabilities are demonstrated in Figure 1 and the flux profile will be used. The flux of a star is of special distinction in astronomy as it differs from the intensity which is a common source of confusion. The intensity represents the physical number of photons being received by the observer per unit of time. The flux however is the intensity integrated over any closed surface enclosing the star (the surface can be any shape, the same number of photons will pass through). Hence it is the total amount of light being emitted from the star over its entire sphere at any one.

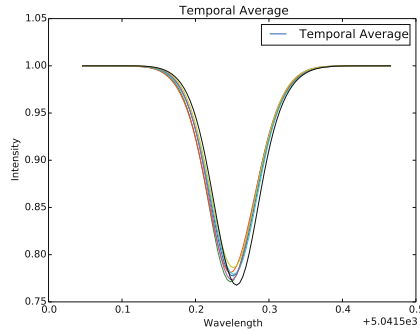


Figure 1: The temporal average and the individual time steps for the flux profile.

As is evident from Figure 1, the temporal changes are minimal but still important. The thick dotted line represents the temporal average. Note that for each profile produced, if a time step is not specified, the temporal average is taken by default. Note also that the continuum norm is also calculated practically by default (there is no function to produce a list of the actual intensity values, this can only be accessed directly through NetCDF commands).

The 3D models also provide variation in abundance in terms of the  $gf$  values which is demonstrated in Figure 2. Varying the  $gf$  values allows a simulation of variation in the abundance as the equivalent width is proportional to the abundance by  $gf$ . However during the calculations, the  $gf$  term is varied instead of abundance as it is more convenient (less computationally heavy) to adjust the  $gf$  value then to recompute the quantum effects of abundance and then combine it with the changes in abundance. The 3D models often produce an output of  $\pm n0.2$  of the standard  $\log g$  value to provide a variety of abundances to consider (for our data,  $n = 1$  producing 3  $gf$  values as in Figure 2). Changing the abundance of an

element, especially one with a relatively low abundance in the stellar composition like Iron (0.3% of total atoms), drastically changes the strength of the spectral absorbance line.

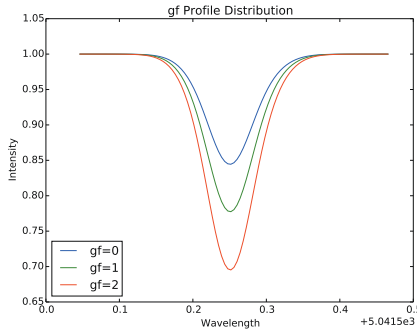


Figure 2: The 3 different  $gf$  values for the flux profile.

This is evident in Figure 2 as those with higher  $gf$  values, corresponding to higher abundance, produce stronger absorption lines. Note that by default the middle  $gf$  value is chosen.

The equivalent width is a quantitative measure of the strength of spectral lines and is a commonly used piece of data to initially assess the spectra. The equivalent width itself corresponds to the normalised area of the absorption line which is equivalent to a rectangle (of normalised height 1) with width equal to the area of the absorption line. The equivalent width for any given profile can be calculated using the `self.equivWidth()` function included in the module. Computing the equivalent width for the time averaged flux profile of the solar FeI-504 emission line gives  $W_\alpha = 1.8812 \times 10^{-2} \text{ \AA}$ , for example.

The 3D models maintain angular resolution of the spectrum through the variable `prof_angle`. This takes the intensity profile at a variety of polar ( $\mu$ ) and azimuthal ( $\phi$ ) angles (in spherical polar coordinates). The profile does not change drastically throughout the azimuthal distribution. However the polar angles produce considerable variation, as demonstrated in Figure 3. Note that each angle has its own observed continuum level. To provide the comparison in Figure 3, the intensity profiles were normalised against the perpendicular continuum. As is evident from Figure 3, increasing  $\mu$  values (corresponding to greater angles away from the perpendicular) leads to a decrease in the intensity. This is intuitive as for any given section of the solar atmosphere, it is expected that the intensity will obey a cosine relation over the polar angles which is demonstrated in Figure 3. That is lots of light will be emitted perpendicularly and zero will be emitted at perfect right angles the modelled patch. Note that each profile plotted in Figure 3 is an average over its respective  $\phi$  values using the `self.phiAvg()` function.

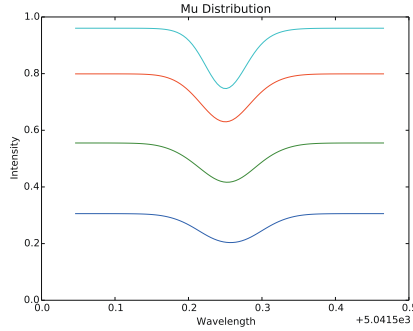


Figure 3: The distribution of  $\mu$  intensity profiles.

Furthermore, the 3D models maintain spatial resolution of the spectrum through the variable `prof_xy`. This takes the perpendicular intensity over the modelling surface grid. The solar data set used for the examples provides a Cartesian grid of  $120 \times 120$  data points. This spatial resolution shows how convective flows and atmospheric granulation affect the produced absorbance lines through thermal Doppler and microturbulent broadening.

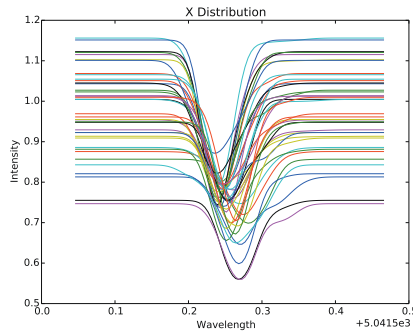


Figure 4: The distribution of  $x$  intensity profiles with  $y = 60$ .

Figure 4 demonstrates a `xpos` cross section of the modelled atmospheric rectangle with `ypos = 60`. Note only one in every three data points was plotted to reduce the cluttering generated by over plotting 120 profiles. Further note that again, the values are normalised against the average continuum level and hence the spread above and below a continuum of 1 is expected. It is clear from the figure that those profiles with lower continuum values (lower intensity profiles generated by cooler gas) are shifted right of the average to longer wavelengths whilst profiles with higher continuum values (high intensity produced by hot gas) are shifted

left to shorter wavelengths. This is the result of Doppler shifting by convective flows with large hot flows of upward moving gas producing a redshift whilst with smaller downflows of cooler gas produce a blueshift. This clearly demonstrates that convective flows have large effects on the thermal Doppler broadening of the observed wings of spectral lines demonstrating the need for 3D models over 1D approximations.

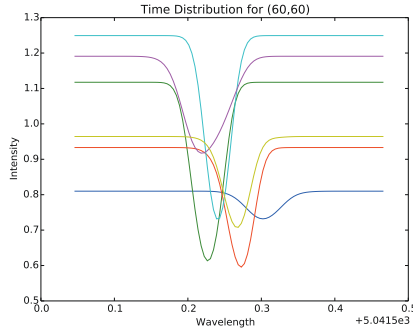


Figure 5: The time step distribution at a specific point, (60,60).

Figure 5 plots all six time steps in the data file for the centre point of the grid, (60,60), displaying the shift of the profile over time. It is clear that the individual profile changes dramatically in response to convective flows. Profiles are visible over all ranges of absorbance and intensity ranging from low-low to high-high and everything in between. This demonstrates how the 3D model is dynamic in its use of convective flows, which affect the intensity and Doppler shift enormously over the time steps. Furthermore, it demonstrates the dynamic nature of the abundance which also varies with time producing very deep and very shallow absorbance lines. Hence, examining the spatial resolution of the model demonstrates how complex and realistic it is.

This covers the majority of the capabilities of the module. Obviously it is significantly flexible but as it only plots the data given, there are some inherent limits to its applicability. One thing to note is that other functions, if specified using numpy before the `profPlot.plot` is called, can also be plotted over the graph. For instance, consider Figure 6 where a simple sine curve has been plotted against the perpendicular intensity and the total flux profiles. Note also the subtle differences between the intensity profile and the flux profile. Both have every similar equivalent widths however the flux profile is slightly broader as the global integration takes into account the rotational broadening (of the whole star). Hence the distinction between flux and intensity is an important one.



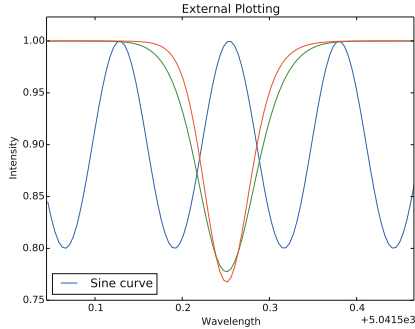


Figure 6: A sine curve plotted over the intensity and flux profiles.

## V. REFLECTIONS AND IMPROVEMENTS

With each project completed in Python, further experience in object oriented programming is gained. In particular, whilst working on the construction of the module, numerous problems were encountered that often required complete restructuring of the module. Some of the issues that still plague the module are presented below.

Of primary concern is that the module is not fully optimised. Currently, to calculate a time averaged profile the full multi dimensional array is averaged. Whilst this is appropriate for comparing flux and intensity profiles (which correspond to different variable arrays in the data), when comparing the full cross section of the spatial profile (as in Figure 4), the profile is averaged 120 times. As all 120 profiles come from the same array, this array needs only be averaged once. This produces considerable computational delay which only affects a select range of profiles but results in the computation not being optimised for full generality. This is a result of less than ideal class structure however to fix the issue would require completely re-evaluating the class structure and restarting the debugging process.

Also of minor concern is that currently, the module relies heavily on the assumption that the data structures of the NetCDF files will be identical to the provided example solar data. In particular, NetCDF stores its variables in multi dimensional arrays. If the dimensions of these arrays change, then the module becomes useless because all of the in built slicing of arrays no longer function.

For example, if a simplified profile was included that no longer had the `nt` or `ngf` dimensions, the module would crash with an index error. Fortunately, the 3D models used at RSAA always produce data of the same format. Consider Figure 7 which came from a profile file of FeI-504 for a Red Giant atmosphere with only 1 time step and `gf` value provided. The profiles plotted are an `xpos` cross section (as in Figure 4) with every fifth element considered. As is evident, the profiles are

considerably stronger ( $W = 0.1028$ ) than the sun due to the lower atmospheric temperature in red giants such that the line opacity increases. However the profiles are also much more broadened and distorted due to the more complex convection processes occurring. This example demonstrates the flexibility of the module given a specific data format.

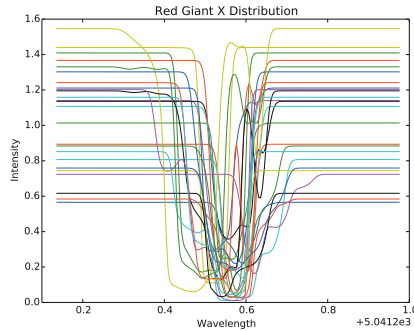


Figure 7: The distribution of  $x$  profiles for a Red Giant.

Due to Python's extensive user modules, it is not particularly hard to open and read the data files as efficiently as possible. In fact most actions required by the module can be coded from scratch in less than 50 lines. Hence the wider applications of the module are limited because unlike IDL, not a lot of preparatory work is needed before the data is accessible in the desired format. Furthermore the module does not include anything further than comparative plotting which limits its uses in quantitative astronomy without further development. However if regular and repetitive production of the demonstrated plots is required, the module will significantly increase productivity.

## V. CONCLUSIONS

In this investigation it has been demonstrated that an advanced interface for the analysis of the results of full three dimensional hydrodynamical time-dependent simulations of convection can be implemented successfully using the Python programming language. Included (Appendix A) is a rudimentary implementation of such an interface which allows for a variety of comparative plotting techniques. This includes demonstrations of all the key features of the 3D models as well as qualitative analysis of a variety of profiles. Furthermore, external functions including experimental observations can be over plotted to provide comparisons and assess the success of the 3D models.

There are extensive improvements to be made to make the module presented in Appendix A useful in astrophysical terms. Quantitative analysis methods could

be included and the integration with external plotting of observations could be improved upon. Furthermore, several optimisations in the class structure could be implemented to produce a faster and more efficient module. However basic functionality is implemented smoothly and demonstrates the ease and elegance of Python in astronomical applications.

Understanding the processes in the solar atmosphere informs our understanding of other stars and the formation of the spectra that reach us. In particular, spectra from observations provide a huge amount of information of the stellar system and are used to determine temperatures and other features used to classify stars. Hence good modelling is required to draw correct conclusions about the nature of the star. The mixing length and local thermal equilibrium assumptions provided for the traditional one dimensional models of stellar atmospheres are currently being replaced by three dimensional hydrodynamical time-dependent simulations for vastly improved predictive power. As with any modelling system, interpretive routines are required to turn numerical predictions into useful results. This paper has demonstrated that Python can be used just as effectively as IDL to produce the required interface with the 3D models, often more elegantly and efficiently.

## References

- Asplund, Martin and Karin Lind, 'The Light Elements in the Light of 3D and Non-LTE Effects' (Paper presented at the IAU Symposium No 268, Geneva, 9 February 2010)
- Asplund, Martin, Nicolas Grevesse, A Jacques Sauval and Pat Scott, 'The Chemical Composition of the Sun' (2009) 47 *Annual Review of Astronomy and Astrophysics* 481
- Barklem, P S, H C Stempels, C Allende Prieto, O P Kochukhov, N Piskunov and B J O'Mara, 'Detailed Analysis of Balmer Lines in Cool Dwarf Stars' (2002) 385 *Astronomy and Astrophysics* 951
- Cowley, C R and F Castelli, 'Some Aspects of the Calculation of Balmer Lines in the Sun and Stars' (2002) 387 *Astronomy and Astrophysics* 595
- Cruz, Kelle, 'IDL vs Python' (4 May 2009, AstroBetter) <<http://www.astrobetter.com/blog/2009/05/04/idl-vs-python>>
- Fuhrmann, K, M Axer and T Gehren, 'Balmer Lines in Cool Dwarf Stars' (1993) 271 *Astronomy and Astrophysics* 451
- Kochukhov, O, S Bagnulo and P S Barklem, 'Interpretation of the Core-Wing Anomaly of Balmer Line Profiles of Cool Ap Stars' (2002) 367 *The Astrophysical Journal* 578
- Ludwig, H G, N T Behara, M Steffan and P Bonifacio, 'Impact of Granulation Effects on the Use of Balmer Lines as Temperature Indicators' (2009) 502 *Astronomy and Astrophysics* L1
- Nordlund, A and Klaus Galsgaard, 'A 3D MHD Code for Parallel Computers' (1995, Computational Astrophysics Web Server) <<http://astro.ku.dk/aake/NumericalAstro/papers/kg/mhd.ps.gz>>
- Pereira, Tiago M D, Martin Asplund, Remo Collet, Irina Thaler, Regner Trampedach and Jorrit Leenaarts, 'How Realistic are Solar Model Atmospheres?' (2013) 554 *Astronomy and Astrophysics* A118
- Schanne, Lothar, 'Astronomical Optical Spectroscopy; Spectra of Stars and Other Celestial Objects' (8 July 2014, Astrospectroscopy) <<http://www.astrospectroscopy.eu/indexe.html>>
- Vidal, C R, J Cooper and E W Smith, 'Hydrogen Stark Broadening Calculations with the Unified Classical Path Theory' (1970) 10 *Journal of Quantitative Spectroscopy and Radiative Transfer* 1011
- Whitaker, J, 'Module NetCDF4' (23 December 2005, Google Code) <<http://netcdf4-python.googlecode.com/svn/trunk/docs/netCDF4-module.html>>

# Multifactorial Determinants of Hepatitis C in Australia

*Eileen Baker*

## Abstract

*Hepatitis C (HCV) is a blood borne virus that causes a significant burden of disease in Australia and around the world. In 2012 there were 230 000 Australians living with HCV and 10 114 new diagnoses. Aboriginal and Torres Strait Islander people are disproportionately represented in these figures, with the incidence of HCV in the Aboriginal and Torres Strait Islander population four times higher than for other Australians. Moreover, notification rates continue to increase among Aboriginal and Torres Strait Islander people while rates are decreasing nationally.*

*Injecting drug use and incarceration are important risks. Understanding the multiple interacting factors that contribute to risk is essential for explaining the increased burden of HCV among Aboriginal and Torres Strait Islander people. Here I explore the risk factors for HCV and present a multifactorial model of the interrelated social, environmental and infectious determinants of this disease, with a focus on Aboriginal and Torres Strait Islander people.*

## I. INTRODUCTION

Hepatitis C (HCV), caused by a blood-borne virus, is a major global health burden with 130–150 million people chronically infected.<sup>1</sup> Chronic infection can lead to progressive liver inflammation, which in turn leads to fibrosis and cirrhosis, and ultimately end stage liver disease and liver cancer.<sup>2</sup> In 2012 230 000 Australians were chronically infected with HCV and the incidence was 44.2 per 100 000 person years at risk.<sup>3</sup> Incidence is four times higher among Aboriginal and Torres Strait Islander people than other Australians.<sup>4</sup>

HCV was first identified in 1989 and antibody testing has been available in Australia since 1990.<sup>5</sup> Annual notifications of HCV from 1991 reveal a relatively

---

<sup>1</sup> World Health Organization, 'Hepatitis C' (Fact Sheet, 164, World Health Organization)2014.

<sup>2</sup> Department of Health, 'Fourth National Hepatitis C Strategy 2014–2017' (Strategy Paper, Department of Health, 2014).

<sup>3</sup> The Kirby Institute, 'HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia' (Annual Surveillance Report, The Kirby Institute, 2013).

<sup>4</sup> Ibid.

<sup>5</sup> Shepard, Colin W, Lyn Finelli and Miriam J Alter, 'Global Epidemiology of Hepatitis C Virus Infection' (2005) 5 *The Lancet Infectious Diseases* 558.

rapid increase up to 1995, then slowing, with notifications peaking in 2000 (Figure 1).<sup>6</sup> The decrease in annual notifications since then is believed to be due to a decline in the number of injecting drug users in Australia, linked to a decrease in heroin availability.<sup>7</sup>

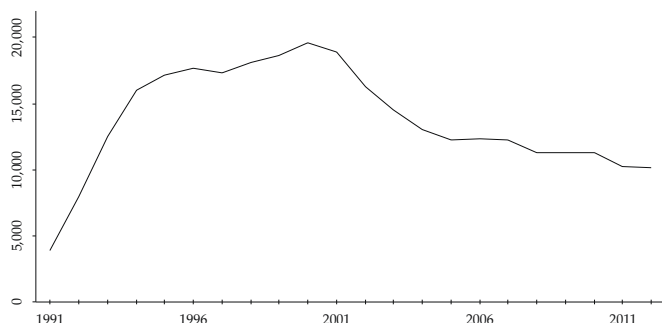


Figure 1: Annual hepatitis C notifications in Australia, 1991–2012.<sup>8</sup>

Aboriginal and Torres Strait Islander status is often not reported with HCV notifications, reducing the usefulness of national surveillance data. In 2012 Aboriginal and Torres Strait Islander status was not reported in 59% of notifications.<sup>9</sup> Nevertheless, the available data indicates that for 2012 the rate of HCV notifications among Aboriginal and Torres Strait Islander people (166.2 per 100 000 population) was much higher than for other Australians (40.3 per 100 000 population).<sup>10</sup> Crucially, while the notification rate among other Australians has declined between 2008 (51.1 per 100 000 population) and 2012, the notification rate among Aboriginal and Torres Strait Islander people has increased — it was 130.2 per 100 000 population in 2008.<sup>11</sup>

<sup>6</sup> It is important to note that a new notification of hepatitis C does not necessarily mean that the person is newly infected with hepatitis C — there is often a long period of time between infection and diagnosis. For example only approximately 5% of hepatitis C cases diagnosed between 2008 and 2012 were thought to have been acquired in the two years before the diagnosis.

<sup>7</sup> Karina Razali et al, 'Modelling the Hepatitis C Virus Epidemic in Australia' (2007) 91 *Drug and Alcohol Dependence* 228.

<sup>8</sup> Figure by the author, based on data from: Kirby Institute, above n 3; Ming Lin et al, 'Australia's Notifiable Diseases Status, 2000: Annual Report of the National Notifiable Diseases Surveillance System' (2002) 26 *Communicable Diseases Intelligence* 118; National Centre in HIV Epidemiology and Clinical Research, 'HIV/AIDS, Viral Hepatitis and Sexually Transmissible Infections in Australia' (Annual Surveillance Report, Australian Institute of Health and Welfare, 2004); National Centre in HIV Epidemiology and Clinical Research, 'HIV/AIDS, Viral Hepatitis and Sexually Transmissible Infections in Australia' (Annual Surveillance Report, The University of New South Wales, Sydney, 2009).

<sup>9</sup> Kirby Institute, above n 3.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

## II. RISK FACTORS

HCV is a blood-borne virus. In Australia, like most high-income countries, the most important risk factor is injecting drug use.<sup>12</sup> Approximately 90% of new cases and 80% of prevalent cases of HCV in Australia are due to unsafe injecting.<sup>13</sup> Therefore, personal characteristics and environments that are associated with injecting drug use influence risk. The former include mental illness, abuse of alcohol and other substances, education and other facets of socioeconomic status, and the latter includes prisons and communities with high rates of injecting drug use.

Unsafe injecting practices are common among injecting drug users.<sup>14</sup> A high proportion of injecting drug users are HCV positive and sharing needles and other contaminated equipment such as spoons, cotton wool and water allows the transmission of HCV.<sup>15</sup> In 2012, 52% of males, and 54% of females attending needle and syringe programs tested positive for HCV antibodies.<sup>16</sup> Aboriginal and Torres Strait Islander people are more than twice as likely as other Australians to use illicit substances.<sup>17</sup>

Among injecting drug users, females, prisoners (past and present), and Aboriginal and Torres Strait Islander people, have an increased risk of HCV,<sup>18</sup> with the latter having a rate of HCV three to 13 times higher than other injecting drug users.<sup>19</sup>

Most data on the frequency of sharing needles and other injecting equipment comes from needle and syringe programs. Annual surveys over the last five years have shown that 25 to 28% of respondents had re-used needles in the month before the survey and it is likely rates are higher among those who do not access exchange programs.<sup>20</sup> The 2010 National Prison Entrants' survey found 20% of entrants had shared needles or syringes in the previous month.<sup>21</sup>

Incarceration, a situation that brings together at risk populations and risky behaviours, is associated with greatly increased HCV risk. Injecting drug users

<sup>12</sup> Shepard, Finelli and Alter, above n 5.

<sup>13</sup> Kirby Institute, above n 3.

<sup>14</sup> Lisa Maher et al, 'Incidence and Risk Factors for Hepatitis C Seroconversion in Injecting Drug Users in Australia' (2006) 101 *Addiction* 1499.

<sup>15</sup> Shepard, Finelli and Alter, above n 5.

<sup>16</sup> Kirby Institute, above n 3.

<sup>17</sup> Australian Bureau of Statistics, 'The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples' (Catalogue Report No 4704, Australian Bureau of Statistics, 2011).

<sup>18</sup> Department of Health, above n 2.

<sup>19</sup> National Centre in HIV Epidemiology and Clinical Research, 'Return on Investment 2: Evaluating the Cost-Effectiveness of Needle and Syringe Programs in Australia' (Discussion Paper, University of New South Wales, 2009).

<sup>20</sup> Department of Health, above n 2.

<sup>21</sup> Public Health Association of Australia, 'National Prison Entrants' Bloodborne Virus and Risk Behaviour: 2004, 2007 and 2010' (Survey Report, Kirby Institute and the National Drug Research Institute, 2011).

and Aboriginal and Torres Strait Islander people are overrepresented in custodial settings, and unsafe injecting practices and the use of unsterile tattooing and piercing equipment are common in jails. The prevalence of HCV among inmates of Australian jails is over 30 times higher than in the general population.<sup>22</sup> A 2010 survey revealed 22% of people entering jail were positive for HCV antibodies and 35–47% and 50–70% of male and female inmates,<sup>23</sup> respectively, in Australian jails are HCV positive.<sup>24</sup>

Sharing razors, toothbrushes and other personal items with an infected person and tattooing and piercing with infected equipment represent risk factors.<sup>25</sup> Because of the increased risk of blood contact, living with someone with HCV is a risk factor.<sup>26</sup> Transmission occurred as a consequence of blood transfusions, organ donations and other medical procedures before screening was introduced in 1990.<sup>27</sup> Sexual transmission occurs rarely.<sup>28</sup> Workplace exposure to blood, especially needle stick injuries, also represents a risk for HCV infection.<sup>29</sup> Dialysis patients, renal transplant recipients and people with haemophilia also have higher rates of HCV, which is linked to the receipt of blood and blood products.<sup>30</sup>

Birth in a high prevalence country increases risk.<sup>31</sup> People with human immunodeficiency virus (HIV) are also more likely to have HCV — the transmission routes are similar and HIV/AIDS is associated with immunosuppression.<sup>32</sup> Maternal-foetal transmission occurs in 3 to 8% of the pregnancies of HCV positive women,<sup>33</sup> so being born to an HCV positive mother is also a risk factor.

### III. A MULTIFACTORIAL MODEL EXPLAINING THE DETERMINANTS OF HCV

The transmission of HCV might seem straightforward: if someone comes into contact with the blood of a HCV positive person they can become infected. But an exploration of the factors that contribute to blood contact with an HCV positive person reveals a complicated picture: multiple determinants combine to determine HCV risk (Figure 2). Understanding these determinants enhances understanding

---

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Department of Health, above n 2.

<sup>25</sup> Shepard, Finelli and Alter, above n 5; R Erben et al, 'Success Stories: Environmental, Social, Emotional and Spiritual Health of Aboriginal and Torres Strait Islanders' (Report, Cooperative Research Centre for Aboriginal Health, 2009).

<sup>26</sup> Kirby Institute, above n 3.

<sup>27</sup> Department of Health, above n 2.

<sup>28</sup> Shepard, Finelli and Alter, above n 5.

<sup>29</sup> Ibid.

<sup>30</sup> Hepatitis C Virus Projections Working Group, 'Estimates and Projections of the Hepatitis C Virus Epidemic in Australia' (Report, National Centre in HIV Epidemiology and Clinical Research, 2006).

<sup>31</sup> Department of Health, above n 2.

<sup>32</sup> Ibid.

<sup>33</sup> Shepard, Finelli and Alter, above n 5.



of the disparity in HCV between Aboriginal and Torres Strait Islander people and other Australians.

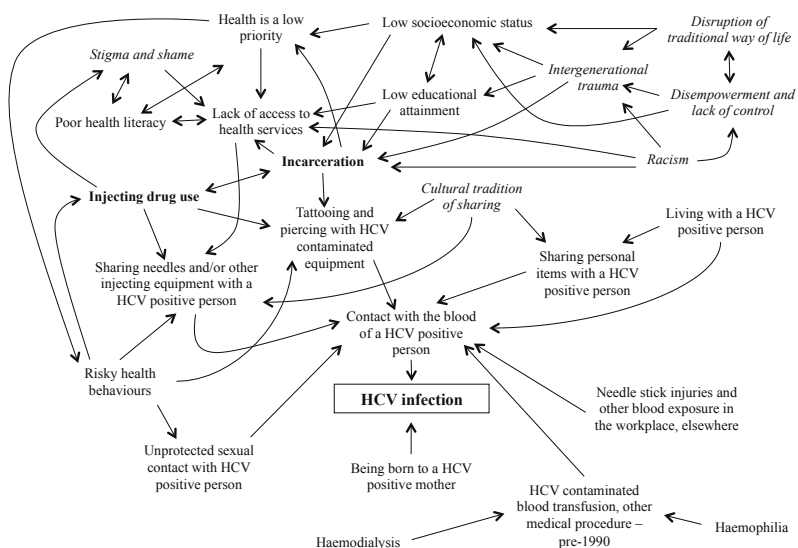


Figure 2: Multifactorial social, environmental and infectious determinants of Hepatitis C

The two key risk factors for HCV in Australia are shown in bold. Italics are used to indicate the determinants that are particularly pertinent to the higher burden of HCV among Aboriginal and Torres Strait Islander people compared to other Australians. Note: The term environmental is used here in a broad sense, to include factors such as the circumstances in which a person lives.

Drug use is strongly associated with crime and incarceration — for both drug related offences and other crimes.<sup>34</sup> A large proportion of inmates have injected drugs and one-third continue to inject in prison. Of these users, 90% share injecting equipment.<sup>35</sup> Some inmates begin injecting drugs while in jail as a coping mechanism.<sup>36</sup> The result is that injecting drug users in jail are 24 more times likely to have HCV than non-users, and 8 times more likely to contract HCV while in jail.<sup>37</sup>

<sup>34</sup> Mick Dodson and Boyd Hunter, 'Selected Crime and Justice Issues for Indigenous Families' (2006) 75 *Family Matters* 34.

<sup>35</sup> Kate Dolan et al, 'Incidence and Risk for Acute Hepatitis C Infection During Imprisonment in Australia' [2010] *European Journal of Epidemiology* 143.

<sup>36</sup> Devon Indig et al, '2009 NSW Inmate Health Survey: Key Findings Report' (Findings Report, Justice Health Statewide Service, 2009).

<sup>37</sup> M F Vescio et al, 'Correlates of Hepatitis C Virus Seropositivity in Prison Inmates: A Meta-Analysis' (2008) 62 *Journal of epidemiology and community health* 305.

Aboriginal and Torres Strait Islander people made up 27% of Australia's prison population in 2013,<sup>38</sup> despite being 3% of Australia's population.<sup>39</sup> Economic, cultural and social disadvantage,<sup>40</sup> drug and alcohol abuse,<sup>41</sup> and bias within the police and the criminal justice system,<sup>42</sup> have all been blamed. Epidemiological studies have identified drug and alcohol abuse, low educational attainment, unemployment and financial stress as important factors.<sup>43</sup>

There are a number of reasons why injecting drug users might share needles and other injecting equipment (4). People may be unable or unwilling to access needle and syringe exchange programs, or be unable to afford clean items.<sup>44</sup> They may have a poor understanding of the risks of sharing, feel that their health — and therefore safe injecting — is not a big priority, and they may feel pressured to share, despite their own apprehensions.<sup>45</sup> Access to clean needles and other equipment is limited in jail. Despite evidence from overseas indicating their effectiveness, there is considerable resistance to introducing needle exchange programs in Australian jails, and no jail-based programs currently exist.<sup>46</sup> Sharing personal items, including items that can be contaminated with HCV such as needles and toothbrushes, is an important cultural tradition in many sections of the Aboriginal and Torres Strait Islander community.<sup>47</sup>

Engaging in risky health behaviours is an important factor in many routes of HCV transmission. Poor health literacy and according health a low priority both

<sup>38</sup> Australian Bureau of Statistics, 'Prisoners in Australia 2014' (Statistic No 4517.0, Australian Bureau of Statistics, 17 April 2015).

<sup>39</sup> Australian Bureau of Statistics, 'Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2001–26' (Statistic, 3238.0, Australian Bureau of Statistics) 12 June 2014.

<sup>40</sup> Commonwealth, Royal Commission into Aboriginal Deaths in Custody, *National Report* (1991).

<sup>41</sup> N Pearson, 'On the Human Right to Misery, Mass Incarceration and Early Death' (Speech delivered at Speech delivered at the Dr Charles Perkins Memorial Oration, MacLaurin Hall, The University of Sydney, 25 October 2001).

<sup>42</sup> C Cunneen and D McDonald, 'Keeping Aboriginal and Torres Strait Islander People Out of Custody' (Executive Summary, Aboriginal and Torres Strait Islander Commission, 1997) 2.

<sup>43</sup> Boyd Hamilton Hunter, 'Factors Underlying Indigenous Arrest Rates' (Report, NSW Bureau of Crime Statistics and Research, 2001) 2; Don Weatherburn, Lucy Snowball and Boyd Hunter, 'The Economic and Social Factors Underpinning Indigenous Contact with the Justice System: Results from the 2002 NATSISS Survey' (Report, NSW Bureau of Crime Statistics and Research, 2006); Don Weatherburn, Lucy Snowball and Boyd Hunter, 'Predictors of Indigenous Arrest: An Exploratory Study' (2008) 41 *Australian and New Zealand Journal of Criminology* 2.

<sup>44</sup> S McNally and R Latham, 'Recognising and Responding to Hepatitis C in Indigenous Communities in Victoria: A Research Project exploring Barriers to Hepatitis C Treatment' (2009) 9 *Australian Indigenous Health Bulletin* 4.

<sup>45</sup> McNally and Latham, above n 44; Michael W Ross et al, 'Explanations for Sharing Injection Equipment in Injecting Drug Users and Barriers to Safer Drug Use' (1994) 89 *Addiction* 473.

<sup>46</sup> Aba Rodas, Adam Bode and Kate Dolan, 'Supply, Demand and Harm Reduction Strategies in Australian Prisons: An Update' (Report, National Drug and Alcohol Research Centre, November 2011) 2.

<sup>47</sup> McNally and Latham, above n 44; Anke van der Sterren and Ian Anderson, 'Building Responses to Blood-Borne Virus Infection among Kooris Using Injection Drugs: Improving the Link between Policy and Service Delivery' (Discussion Paper No 7, Victorian Aboriginal Health Service Co-operative and VicHealth Koori Health Research and Community Development Unit, December 2002) 15.

contribute to risky health behaviours. Disease due to HCV is often not clinically apparent for 20 years or more, and for someone with more immediate concerns such as their next meal, paying the rent, or in the case of someone being in jail, coping with the stresses of life in custody, it is unlikely to represent a significant perceived threat. Low socioeconomic status, disempowerment and lack of control, as well as poor health literacy and low education levels are all linked to risky health behaviours.<sup>48</sup>

Access to health services is much more than physical access, health services cannot be considered accessible to someone who does not feel comfortable being there. To give just a few examples relevant to Aboriginal and Torres Strait Islander people, this may be because the environment is not culturally safe, fear of recognition or judgement by staff and community members, fear of embarrassment or language barriers.<sup>49</sup>

The Aboriginal and Torres Strait Islander concept of shame is more than guilt; it has important cultural implications that affect interactions with the health system.<sup>50</sup> HCV is strongly associated with shame and this has very significant impacts for health service access, including access to information about HCV and prevention programs.<sup>51</sup>

Institutional racism cannot be ignored in the context of poor health status among Aboriginal and Torres Strait Islander people. Racism contributes to the stigma and shame surrounding HCV,<sup>52</sup> and the lack of control, disempowerment and intergenerational trauma experienced by the Aboriginal and Torres Strait Islander community.<sup>53</sup>

Many of the distal determinants stem from the disruption of traditional ways of life and profound disempowerment as a result of colonisation and government policy.<sup>54</sup> The result has been cycles of emotional trauma, socioeconomic disadvantage and low educational attainment, contributing to low health literacy, lack of access to health services, risky health behaviours, as well as incarceration

<sup>48</sup> Stephanie Bell, Bob Boughton and Ben Bartlett, 'Beyond Band-aids: Education as a Determinant of Indigenous Health' (Paper presented at Paper presented at the Social Determinants of Aboriginal Health Workshop, Adelaide, July 2004).

<sup>49</sup> Department of Health and Ageing, 'National Aboriginal and Torres Strait Islander Sexual Health and Blood Born Virus Strategy 2005–2008' (Strategy Paper, Department of Health and Ageing, 2005).

<sup>50</sup> McNally and Latham, above n 44.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.

<sup>53</sup> Judy Atkinson, *Trauma Trail, Recreating Song Lines: The Transgenerational Effects of Trauma in Indigenous Australia* (Spinifex Press, 2002).

<sup>54</sup> Ernest Hunter, *Aboriginal Health and History: Power and Prejudice in Remote Australia* (Cambridge University Press, 1993); C D Rowley, *The Destruction of Aboriginal Society* (Australian National University Press, 1972); W E H Stanner, *Continuity and Change in White Man Got No Dreaming: Essays 1938–73* (Australian National University Press, 1979).

and injecting drug use.<sup>55</sup>

#### IV. CONCLUSION

Injecting drug use and incarceration are important contributors to the disproportionate HCV burden among Indigenous Australians. These stem ultimately from social disadvantage. HCV notifications continue to rise for Aboriginal and Torres Strait Islanders while they decrease for other Australians. Addressing this requires a public health approach that targets both proximal and distal risk factors. Culturally appropriate initiatives aimed at minimising the sharing of needles and other personal items are vital. So too are strategies to address the disadvantage and disempowerment suffered by Aboriginal and Torres Strait Islander people. These distal determinants have profound effects on the lives of Aboriginal and Torres Strait Islander people, so such strategies will also have a major impact on overall health and well being of this community as a whole.

#### Acknowledgements

Many thanks to David Harley for his valuable feedback on this work, as well as his continued support and encouragement.

---

<sup>55</sup> Department of Families, Housing, Community Services and Indigenous Affairs, 'Closing the Gap on Indigenous Disadvantage: The Challenge for Australia' (Discussion Paper, Department of Families, Housing, Community Services and Indigenous Affairs, February 2009); J Atkinson, J Nelson and C Atkinson, 'Trauma, Transgenerational Transfer and Effects on Community Wellbeing' in N Purdie, P Dudgeon and R Walker (eds), *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice* (Australian Institute of Health and Welfare, 2010) 135; M Franklin and I White, 'The History and Politics of Aboriginal Health' in J Reid and P Trompf (eds), *The Health of Aboriginal Australia* (Harcourt Brace Jovanovich Group, 1991).

## References

- Atkinson, Judy, *Trauma Trail, Recreating Song Lines: The Transgenerational Effects of Trauma in Indigenous Australia* (Spinifex Press, 2002)
- Atkinson, J, J Nelson and C Atkinson, 'Trauma, Transgenerational Transfer and Effects on Community Wellbeing' in N Purdie, P Dudgeon and R Walker (eds), *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice* (Australian Institute of Health and Welfare, 2010)135
- Australian Bureau of Statistics, 'Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2001–26' (Statistic No 3238.0, Australian Bureau of Statistics, 12 June 2014)
- Australian Bureau of Statistics, 'Prisoners in Australia 2014' (Statistic No 4517.0, Australian Bureau of Statistics, 17 April 2015)
- Australian Bureau of Statistics, 'The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples' (Catalogue Report No 4704, Australian Bureau of Statistics, 2011)
- Bell, Stephanie, Bob Boughton and Ben Bartlett, 'Beyond Band-aids: Education as a Determinant of Indigenous Health' (Paper presented at the Social Determinants of Aboriginal Health Workshop, Adelaide, July 2004)
- Cunneen, C and D McDonald, 'Keeping Aboriginal and Torres Strait Islander People Out of Custody' (Executive Summary, Aboriginal and Torres Strait Islander Commission, 1997)
- Department of Families, Housing, Community Services and Indigenous Affairs, 'Closing the Gap on Indigenous Disadvantage: The Challenge for Australia' (Discussion Paper, Department of Families, Housing, Community Services and Indigenous Affairs, February 2009)
- Department of Health, 'Fourth National Hepatitis C Strategy 2014–2017' (Strategy Paper, Department of Health, 2014)
- Department of Health and Ageing, 'National Aboriginal and Torres Strait Islander Sexual Health and Blood Born Virus Strategy 2005–8' (Strategy Paper, Department of Health and Ageing, 2005)
- Commonwealth, Royal Commission into Aboriginal Deaths in Custody, *National Report* (1991)
- Dodson, Mick and Boyd Hunter, 'Selected Crime and Justice Issues for Indigenous Families' (2006) 75 *Family Matters* 34
- Dolan, Kate, Suzy Teutsch, Nicolas Scheuer, Michael Levy, William Rawlinson, John Kaldor, Andrew Lloyd and Paul Haber, 'Incidence and Risk for Acute Hepatitis C Infection During Imprisonment in Australia' [2010] *European Journal of Epidemiology* 143
- Erben, R, J Judd, J Ritchie and L Rowling, 'Success Stories: Environmental, Social, Emotional and Spiritual Health of Aboriginal and Torres Strait Islanders' (Report, Cooperative Research Centre for Aboriginal Health, 2009)

Franklin, M and I White, 'The History and Politics of Aboriginal Health' in J Reid and P Trompf (eds), *The Health of Aboriginal Australia* (Harcourt Brace Jovanovich Group, 1991)

Hepatitis C Virus Projections Working Group, 'Estimates and Projections of the Hepatitis C Virus Epidemic in Australia 2006' (Report, National Centre in HIV Epidemiology and Clinical Research, 2006)

Hunter, Boyd Hamilton, 'Factors Underlying Indigenous Arrest Rates' (Report, NSW Bureau of Crime Statistics and Research, 2001)

Hunter, Ernest, *Aboriginal Health and History: Power and Prejudice in Remote Australia* (Cambridge University Press, 1993)

Indig, Devon, Libby Topp, Bronwen Ross, Hassan Mamoon, Belinda Border, Shalin Kumar and Martin McNamara, '2009 NSW Inmate Health Survey: Key Findings Report' (Findings Report, Justice Health Statewide Service, 2009)

Lin, Ming, Paul Roche, Jenean Spencer, Alison Milton, Phil Wright, David Witteveen, Robyn Leader, Angela Merianos, Chris Bunn, Heather Gidding, John Kaldor, Martyn Kirk, Rob Hall and Tony Della-Porta, 'Australia's Notifiable Diseases Status, 2000: Annual Report of the National Notifiable Diseases Surveillance System' (2002) 26 *Communicable Diseases Intelligence* 118

Maher, Lisa, Bin Jalaludin, Kerry G Chant, Rohan Jayasuriya, Tim Sladden and John M Kaldor, 'Incidence and Risk Factors for Hepatitis C Seroconversion in Injecting Drug Users in Australia' (2006) 101 *Addiction* 1499

National Centre in HIV Epidemiology and Clinical Research, 'HIV/AIDS, Viral Hepatitis and Sexually Transmissible Infections in Australia' (Annual Surveillance Report, Australian Institute of Health and Welfare, 2004 and 2009)

National Centre in HIV Epidemiology and Clinical Research, 'Return on Investment 2: Evaluating the Cost-Effectiveness of Needle and Syringe Programs in Australia' (Discussion Paper, University of New South Wales, 2009)

McNally, S and R Latham, 'Recognising and Responding to Hepatitis C in Indigenous Communities in Victoria: A Research Project exploring Barriers to Hepatitis C Treatment' (2009) 9 *Australian Indigenous Health Bulletin* 4

Pearson, N, 'On the Human Right to Misery, Mass Incarceration and Early Death' (Speech delivered at Speech delivered at the Dr Charles Perkins Memorial Oration, The University of Sydney, 25 October 2001)

Public Health Association of Australia, 'National Prison Entrants' Bloodborne Virus and Risk Behaviour Survey Report 2004, 2007, and 2010' (Survey Report, Kirby Institute and the National Drug Research Institute, 2011)

Razali, Karina, Hla Hla Thein, Jane Bell, Mark Cooper-Stanbury, Kate Dolan, Greg Dore, Jacob George, John Kaldor, Maria Karvelas, Jiong Li, Lisa Maher, Sharyn McGregor, Margaret Hellard, Fiona Poeder, Julianne Quaine, Kim Stewart, Helen Tyrrell, Martin Weltman, Owen Westcott, Alex Wodak and Matthew Law, 'Modelling the Hepatitis C Virus Epidemic in Australia' (2007) 91 *Drug and Alcohol Dependence* 228

Rodas, Aba, Adam Bode and Kate Dolan, 'Supply, Demand and Harm Reduction Strategies in Australian Prisons: An Update' (Report, National Drug and Alcohol Research Centre, November 2011)

Ross, Michael W, Alex Wodak, Aaron Stowe and Julian Gold, 'Explanations for Sharing Injection Equipment in Injecting Drug Users and Barriers to Safer Drug Use' (1994) 89 *Addiction* 473

Rowley, C D, *The Destruction of Aboriginal Society* (Australian National University Press, 1972)

Shepard, Colin W, Lyn Finelli and Miriam J Alter, 'Global Epidemiology of Hepatitis C Virus Infection' (2005) 5 *The Lancet Infectious Diseases* 558

Stanner, W E H, *Continuity and Change in White Man Got No Dreaming: Essays 1938–73* (Australian National University Press, 1979)

Sterren, Anke van der and Ian Anderson, 'Building Responses to Blood-Borne Virus Infection among Kooris Using Injection Drugs: Improving the Link between Policy and Service Delivery' (Discussion Paper No 7, Victorian Aboriginal Health Service Co-operative and VicHealth Koori Health Research and Community Development Unit, December 2002)

The Kirby Institute, 'HIV, Viral Hepatitis and Sexually Transmissible Infections in Australia' (Annual Surveillance Report, The Kirby Institute, 2013)

Vescio, M F, Longo B, Babudieri S, Starnini G, Carbonara S and Rezza G, 'Correlates of Hepatitis C Virus Seropositivity in Prison Inmates: A Meta-Analysis' (2008) 62 *Journal of Epidemiology and Community Health* 305

Weatherburn, Don, Lucy Snowball and Boyd Hunter, 'Predictors of Indigenous Arrest: An Exploratory Study' (2008) 41 *Australian and New Zealand Journal of Criminology* 2

Weatherburn, Don, Lucy Snowball and Boyd Hunter, 'The Economic and Social Factors Underpinning Indigenous Contact with the Justice System: Results from the 2002 NATSISS Survey' (Report, NSW Bureau of Crimes Statistics and Research, 2006)

World Health Organization, 'Hepatitis C' (Fact Sheet No 164, World Health Organization, 2014)





# Gendered Narratives of Violence: A Critique of Refugee Review Tribunal Adjudication of Refugee Status

Ruohan Zhao

## Abstract

*'When an asylum seeker who is in fact a Convention refugee is disbelieved there is a failure on a number of levels. There is a miscarriage of justice and a betrayal of the principle of asylum. There is a failure to offer protection when it is needed and owed. There is also a failure to bear witness to the asylum seeker's experience of persecution, and consequently an unwitting completion of the persecutor's project — to render the victim of persecution discredited and silent'.<sup>1</sup>*

## I. INTRODUCTION

In the high-stakes process of making a claim for a protection visa, narratives play a fundamental role in the adjudication of refugee status. However, considerable tension exists in the adjudication of claims of persecution based on sexual violence. In particular, narratives of female victims of sexual violence are often subjected to elevated scrutiny,<sup>2</sup> and their narrative must conform to 'the hegemonic narrative of persecution' to be recognised as worthy of protection.<sup>3</sup> This essay argues that considerable gaps in adjudication exist, in which Refugee Review Tribunal ('RRT') Members subjectively and inconsistently assess credibility and well-founded fear of harm for protection claims of women fleeing sexual violence. As experiences of sexual violence are not monolithic, credibility should not be easily impacted by inconsistencies and deviations from traditional narratives of sexual violence. Due to the unpredictable pattern of sexual violence and cultural attitudes towards violence against women, the RRT requires a more nuanced and context-specific approach when adjudicating gender-based claims.

---

<sup>1</sup> Guy Coffey, 'The Credibility of Credibility Evidence at the Refugee Review Tribunal' (2003) 15 *International Journal of Refugee Law* 377, 417.

<sup>2</sup> Connie G Oxford, 'Protectors and Victims in the Gender Regime of Asylum' (2005) 17 *National Women's Studies Association Journal* 18; Sara L Zeigler and Kendra B Stewart, 'Positioning Women's Rights within Asylum Policy: A Feminist Analysis of Political Persecution' (2009) 30 *Frontiers: A Journal of Women Studies* 115; Melanie Randall, 'Refugee Law and State Accountability for Violence Against Women: A Comparative Analysis of Legal Approaches to Recognizing Asylum Claims Based on Gender Persecution' (2002) 25 *Harvard Women's Law Journal* 281.

<sup>3</sup> Oxford, above n 2, 35.

Part II introduces two decisions of Australia's Refugee Review Tribunal ('RRT'). Each decision concerns a female Zimbabwean asylum seeker, but together highlight the inconsistencies in adjudicating claims based on sexual violence. Part III analyses the two decisions against the legal framework and critiques the subjectivity, inconsistency and lack of cultural and context-specific sensitivities in decision-making. Lastly, Part IV examines decisions of the Canadian Refugee Appeal Division ('RAD') for a comparative study of how gender guidelines are applied when adjudicating claims based on sexual violence.

## II. RRT DECISIONS

### A. 1310898

In 1310898 ('Decision A'),<sup>4</sup> the Tribunal found a young, single woman from Zimbabwe to be a refugee. She claimed that she was the victim of a gang rape by a Zimbabwean political gang called ZANU-PF. After the rape, her guardians filed a police report, but the perpetrators visited the applicant at her house and damaged her property in order to silence and intimidate her. The applicant developed post-traumatic stress disorder ('PTSD'), agoraphobia, depression and anxiety as a result of her rape and lived in constant fear of her perpetrators. On review, the Member accepted her testimony, despite the claim being made after several years of delay.<sup>5</sup> Additionally, the member held that the Zimbabwean government would be ineffective in protecting women and as this violence is tolerated and condoned. Therefore, the applicant had a well-founded fear of persecution.

### B. 1318662

In comparison, 1318662 ('Decision B') was not decided in the applicant's favour.<sup>6</sup> It concerned another young Zimbabwean woman, who was the victim of domestic violence and rape by her ex-partner, with whom she had a child. After they separated, he continued visiting her, abusing her and forcibly taking her to his house. This continued until the applicant left for Australia in 2008. It was alleged the ex-partner continued to come to their family home to threaten her and she feared he would kill her upon return. The Member found her not to be a credible witness because of an inconsistency in her story regarding the abduction of her child by the ex-partner,<sup>7</sup> namely that the child had never been abducted. The Member also held that the ex-partner's abuse had stopped a few years before the applicant moved to Australia.<sup>8</sup> Coupled with the applicant's delay in lodging an application, the member held there was no real chance or risk of harm upon her return to Zimbabwe.

<sup>4</sup> 1310898 [2014] RRTA 246 (31 March 2014).

<sup>5</sup> Ibid [36].

<sup>6</sup> 1318662 [2014] RRTA 726 (22 October 2014).

<sup>7</sup> Ibid [22]–[24].

<sup>8</sup> Ibid [24], [33]–[36].

### III. AN INSURMOUNTABLE THRESHOLD

In order to be granted a protection visa, the applicant must prove that there is a 'well-founded' fear of persecution based on a ground enunciated in the Refugee Convention if they were returned to their country of origin.<sup>9</sup> For female asylum seekers who are victim of sexual violence, their persecution falls into the category of gender-based violence under the Refugee Convention. Superimposed over this legal assessment is credibility, namely that the witness' narrative of persecution is credible. Part III uses the selected decisions as counterpoints to illustrate how divergent adjudication on claims of persecution based on sexual violence can be: Decision A appropriately factors the trauma and nature of sexual violence into every step of adjudication. Decision B fails to consider the context of sexual violence and country information, thus discrediting and devaluing the victim's narrative.

#### A. Credibility

Credibility is arguably the most important feature of a claim,<sup>10</sup> as the applicant must be accepted as a credible witness to have their narrative of persecution accepted. Due to the scarcity of corroborative evidence, consistency in the applicant's narrative is decisive in determining credibility.<sup>11</sup> If an applicant's narrative is inconsistent or contains gaps, they are likelier to be held unreliable and their claim will most likely fail. In order to regulate credibility assessments, there are guidelines to direct the RRT.<sup>12</sup> Moreover, there are also guidelines for gender-related claims, which asks members to consider the applicants' reluctance to disclose traumatic events, difficulties in establishing claims and a fear of rejection and reprisals from family.<sup>13</sup> Only substantial inconsistencies without reasonable explanation should be used to infer low credibility.<sup>14</sup>

Nevertheless, members' 'capricious sense of what is important' may still influence their perception of whether narratives are credible.<sup>15</sup> This unpredictability in credibility assessment is highlighted by each respective Member's treatment of three important considerations: inconsistency in narrative, delay in making a claim

<sup>9</sup> *Migration Act 1958* (Cth) s 46(2)(a).

<sup>10</sup> Oxford, above n 2, 33.

<sup>11</sup> See, eg, Trish Luker, 'Decision Making Conditioned by Radical Uncertainty: Credibility Assessment at the Australian Refugee Tribunal' (2013) 25 *International Journal of Refugee Law* 502, 521–5.

<sup>12</sup> Australian Government (Migration Review Tribunal, Refugee Review Tribunal), 'Guidance on the Assessment of Credibility' (March 2012, Refugee Review Tribunal) <<http://www.mrt-rrt.gov.au/Files/HTML/G1-Guidance-on-the-Assessment-of-Credibility.html>>.

<sup>13</sup> Australian Government (Migration Review Tribunal, Refugee Review Tribunal), 'Gender Guidelines' (21 August 2010, Refugee Review Tribunal) <<http://www.mrt-rrt.gov.au/Files/HTML/GuidelineGender.html>>.

<sup>14</sup> Michael Kagan, 'Is Truth in the Eye of the Beholder? Objective Credibility Assessment in Refugee Status Determination' (2003) 17 *Georgetown Immigration Law Journal* 367, 389.

<sup>15</sup> Anthea Vogl, 'Telling Stories from Start to Finish: Exploring the Demand for Narrative in Refugee Testimony' (2013) 22 *Griffith Law Journal* 63, 73.

and adherence to a traditional narrative of sexual violence.

### 1. *Inconsistency in Narrative*

It is assumed people retelling true stories can retell the narrative identically each time.<sup>16</sup> However, human memory is variable, and this variability is compounded when applicants experience traumatic events.<sup>17</sup> Trauma alters perceptions of time, distorts the sequence of events, generates ‘memory blocks’ that may be temporary or permanent.<sup>18</sup> Additionally, in the context of sexual violence, women suffering from post-traumatic stress disorder (PTSD) often have difficulty retelling their narrative in a confident, coherent, chronological or articulate manner.<sup>19</sup>

This was appropriately identified in Decision A, when the Member acknowledged that PTSD was debilitating for the applicant, who lived in constant fear and distrust of men, and that the inconsistencies which arose in her narrative were reasonably accounted for due to her PTSD.<sup>20</sup> While there was no official diagnosis of PTSD in Decision B, it cannot be conclusively ruled out that the applicant did not suffer lasting trauma. The applicant claimed that the inconsistencies were due to memory lapses caused by the stress of the application.<sup>21</sup> Admittedly, while the applicant’s inconsistency was significant, the explanation of memory lapses was not completely implausible, due to the stress from the application, which may have been exacerbated by her fear of returning to Zimbabwe.

The guidelines note that ‘contradictions, inconsistencies and omissions in evidence may, although not necessarily, mean that a person’s evidence is unreliable and, therefore, lacks credibility’.<sup>22</sup> The Member based their finding of lack of credibility on the victim’s inconsistency in retelling her child’s alleged abduction by her ex-partner. Yet the applicant’s narrative was ‘reasonably consistent’ in relation to her family whilst she has been in Australia – namely that he was threatening her through her family. Thus, the inconsistency in retelling the abduction should not necessarily discredit her whole narrative as there was clearly coherence in other areas of her story, particularly as the Member had accepted that she was the victim of previous domestic violence.

---

<sup>16</sup> Ibid 75.

<sup>17</sup> Kagan, above n 14, 388.

<sup>18</sup> Helen Baillot, Sharon Cowan and Vanessa E Munro, ‘Seen But Not Heard? Parallels and Dissonances in the Treatment of Rape Narratives Across the Asylum and Criminal Justice Contexts’ (2009) 36 *Journal of Law and Society* 195, 215–16.

<sup>19</sup> Irena Liberman, ‘Women and Girls Facing Gender-Based Violence, and Asylum Jurisprudence’ (2002) 29 *Human Rights* 9, 11.

<sup>20</sup> 1310898 [2014] RRTA 246 (31 March 2014) [50].

<sup>21</sup> 1318662 [2014] RRTA 726 (22 October 2014) [20].

<sup>22</sup> Australian Government (Migration Review Tribunal, Refugee Review Tribunal), above n 12, [5.4].

## 2. Delay

There is an assumption that 'claimants in genuine fear of persecution will make their claim at the earliest possible opportunity'.<sup>23</sup> Consequently, tardy disclosure of sexual violence is interpreted as a sign of low credibility.<sup>24</sup>

This assumption is clearly demonstrated in Decision B, as the member did not accept that the application was delayed because the applicant did not know domestic violence could trigger protection obligations.<sup>25</sup> However, this was not an illogical nor implausible reason. Applicants often live in societies in which domestic violence is commonplace and widely condoned.<sup>26</sup> In Zimbabwe, there exists a 'shared sense of fatalism that abuse is part of a woman's lot in life'.<sup>27</sup> Moreover, as few women know their rights in Zimbabwe,<sup>28</sup> it cannot be assumed that they will have extensive knowledge of their legal rights in Australia.

Additionally, asylum seekers generally have difficulties navigating the legal system.<sup>29</sup> In countries in which cultural factors, particularly shame and reluctance to engage with authorities, are prevalent, victims may feel disempowered and not make a timely application.<sup>30</sup> This was reiterated in RRT guidelines, which cited 'stress, anxiety, inadequate immigration advice and uncertainty about the relevance of certain information' as reasons for delay.<sup>31</sup>

Despite the applicant also delaying her application in Decision A, the Member recognised these barriers which lead to the delay. He accepted the inconsistencies and took the trauma of sexual assault into account, holding that disclosing the rape was too difficult for the applicant.<sup>32</sup> In comparison, the Member in Decision B did not address the difficulties faced by female applicants, their scarce knowledge of the complicated system and limited capacity to seek legal advice. Instead, he imposed his own belief about how the applicant ought to have

<sup>23</sup> Jenni Millbank, "'The Ring of Truth': A Case Study of Credibility Assessment in Particular Social Group Refugee Determinations' (2009) 21 *International Journal of Refugee Law* 1, 13.

<sup>24</sup> Siobhán Mullally, 'Domestic Violence Asylum Claims and Recent Developments in International Human Rights Law: A Progress Narrative?' (2011) 60 *International and Comparative Law Quarterly* 459, 481.

<sup>25</sup> 1318662 [2014] RRTA 726 (22 October 2014) [30]–[31].

<sup>26</sup> Aili Mari Tripp and Landan Affi, 'Domestic Violence in a Cultural Context' (2004) 27 *Family Advocate* 33, 36.

<sup>27</sup> *Ibid* 34.

<sup>28</sup> Michelle J Hindin, 'Understanding Women's Attitudes Towards Wife Beating in Zimbabwe' (Bulletin No 81, World Health Organization, 2003) 502.

<sup>29</sup> Melanie Griffiths, 'Vile Liars and Truth Distorters: Truth, Trust and the Asylum System' (2012) 28 *Anthropology Today* 8; Steve Norman, 'Assessing the Credibility of Refugee Applicants: A Judicial Perspective' (2007) 19 *Journal of International Refugee Law* 273; Pamela Goldberg, 'Contextualizing Gender-Based Harm: A Critique of Law and the US Department of Justice Proposed Regulations' (2001) 24 *In Defense of the Alien* 224.

<sup>30</sup> Zeigler and Stewart, above n 2, 122.

<sup>31</sup> Australian Government (Migration Review Tribunal, Refugee Review Tribunal), above n 12, [2.7].

<sup>32</sup> 1310898 [2014] RRTA 246 (31 March 2014) [36].

acted,<sup>33</sup> compromising the decision with their own subjective belief of appropriate victim behaviour in this context. As Mullally argues, predisposed assumptions about ‘appropriate victim behaviour’, distort the assessment of credibility or willingness to acknowledge the severity of the risk.<sup>34</sup>

### 3. *Traditional Narratives*

Determining credibility often involves ‘applying a set of norms or assumptions to the applicant’s testimony that correspond with contextually specific expectations’.<sup>35</sup> In the context of sexual violence, it is often the case that the overarching narrative must paint the victim as the archetype of a weakened, submissive woman constantly at the mercy of her partner.<sup>36</sup> For example, the applicant in Decision A retold a vicious narrative of violence — the victim was badly traumatised, harassed, threatened by her perpetrators and shamed.<sup>37</sup> While this decision was correctly decided, sexual violence is more nuanced and women are often in danger of future harm in silent ways.

The applicant’s narrative in Decision B was different because she did not conform to the archetype of a passive, suffering woman; she took control of her own agency to leave her abusive relationship. Thus, she was considered as being in less danger of harmed. If the applicant embellished her story with a fake abduction, she did so because she believed her own narrative did not conform to one of the archetypal battered woman, despite suffering ongoing fear and threats from her partner.<sup>38</sup> While it cannot be conclusively determined whether there had been an abduction, it clear that the applicant had a history of domestic violence and that she was clearly scared of her perpetrator, regardless of whether there had been any recent threats. Therefore, for the Member to state that she was willing to ‘use her terrible and sad past history of abuse’ to prove untruthful evidence, evinces a devaluation of a woman’s suffering.<sup>39</sup>

Such statements reproduce a ‘structural dynamic of inequality through the subordination of subversive stories to hegemonic narratives of gender and persecution that may undermine gender justice’.<sup>40</sup>

Admittedly, there are always female applicants who exploit the system; fool-proof credibility assessments are impossible. However, the Refugee Convention promotes decisions erring on the side of protection and belief,<sup>41</sup> even if people

<sup>33</sup> James A Sweeney, ‘Credibility, Proof and Refugee Law’ (2009) 21 *International Journal of Refugee Law* 700, 705.

<sup>34</sup> Mullally, above n 24, 482.

<sup>35</sup> Vogl, above n 15, 68.

<sup>36</sup> Zeigler and Stewart, above n 2, 120.

<sup>37</sup> 1310898 [2014] RRTA 246 (31 March 2014) [45]–[46], [50].

<sup>38</sup> See Oxford, above n 2, 35.

<sup>39</sup> 1318662 [2014] RRTA 726 (22 October 2014) [33].

<sup>40</sup> Ibid.

<sup>41</sup> Kagan, above n 14, 414–5.

circumvent the system. Thus, credibility assessments should also be given the benefit of the doubt unless significant inconsistencies arise. The alternative is to deny legitimate applicants protection and 'betray the commitment states have made to protect people in danger of persecution'.<sup>42</sup>

### B. *Well-Founded Fear*

Persecution is 'well-founded' if it amounts to a 'real chance' of serious harm if the applicant was returned to their country of origin.<sup>43</sup> A 'real chance' is not remote or insubstantial. It can be less than 50% or low as a 10% chance.<sup>44</sup> If there is inadequate state protection or condonation of the alleged acts of persecution, real chance of persecution can be proven because it is presumed that the state would not intervene to prevent such acts. Thus, members should acquaint themselves with the applicant's country information, in order to better understand the woman's experience in her country and accurately assess the real chance of sexual violence reoccurring if they were returned.<sup>45</sup> As Decision B demonstrates, female asylum seekers are still held to 'extraordinarily stringent evidentiary and legal standards' for the threshold of well-founded fear.<sup>46</sup>

#### 1. *Country Information*

Country information is meant to bring a level of objectivity to the measurement of real chance, as the subjective fear experienced by the applicant is tested against the objective and current situation in the country of origin. Aspects of country information include government policy, capacity and willingness of police to intervene in cases of potential persecution.

In Decision A, the member ruled Zimbabwe was not safe for a victim of gang rape.<sup>47</sup> The Member identified that single women in Zimbabwe are generally at risk of being raped by men,<sup>48</sup> as gender-based violence was prevalent in Zimbabwe, and police do not afford women with adequate protection against sexual assault. Without male protection in Zimbabwe, a young single woman has 'a real chance of suffering sexual harassment and violence, including rape and even procurement for prostitution'.<sup>49</sup> Based on this information, it can be concluded that there is a generalised context of discrimination and insecurity for women with abusive ex-partners in Zimbabwe.

---

<sup>42</sup> Ibid 415.

<sup>43</sup> *Chan Yee Kin v MIEA* (1989) 169 CLR 379.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

<sup>46</sup> Lydia Brashear Tiede, 'Battered Immigrant Women and Immigration Remedies: Are the Standards Too High?' (2001) 28 *Human Rights* 21, 22.

<sup>47</sup> 1310898 [2014] RRTA 246 (31 March 2014) [37]–[38], [40].

<sup>48</sup> Ibid [25], [45]–[46].

<sup>49</sup> Ibid [39].

While Decision B held that the applicant would be safe if returned to Zimbabwe,<sup>50</sup> the Member did not appreciate that the applicant was a single mother who was previously raped and had received no police assistance.<sup>51</sup> Furthermore in Zimbabwe, partners who killed their wives claimed that the 'woman's actions provoked [him] and momentarily made him lose control in a fit of anger'.<sup>52</sup> This highlights the irrationality, unpredictability and victim-blaming of abusive partners, and the volatile environment Zimbabwean women live in.

The member in Decision A understood the narrative in context, explaining the culture of violence against women in Zimbabwe and how police responded to such violence. In Decision B, there was virtually no mention of this country information, despite the applicant being a both young, single woman. These decisions show that objective country information is not being appropriately applied. Such an omission leads to unpredictable decision-making, forcing applicants to expose themselves, and their narrative, to the subjectivity and biases of each member.

## 2. *Real Chance*

The approach taken in Decision A correctly linked the applicant's psychological damage back to a real chance of harm, as it diminished 'her resilience and her ability to protect or defend herself'.<sup>53</sup> The Zimbabwean government was 'not able and willing to provide the level of protection which its citizens are entitled to expect according to international standards'.<sup>54</sup> This generous and context-appropriate application of the test is precisely within the spirit of the Convention,<sup>55</sup> for which the standard of 'well-founded' be pitched at a low threshold.

Without the benefit of Zimbabwean country information, the member in Decision B placed the standard of real chance too onerously. The Member ruled that because the ex-partner stopped threatening the applicant, no real chance of significant harm existed.<sup>56</sup> However, as already mentioned, this narrative was not understood in light of Zimbabwean culture and the patterns of abuse, namely that domestic violence is unpredictable, even after a relationship has ended. In Zimbabwe, a man's control over a woman can be condoned even if they are unmarried or separated.<sup>57</sup> A study found that former partners constituted a large group of perpetrators.<sup>58</sup> For example, a divorced Zimbabwean woman was regularly

<sup>50</sup> 1318662 [2014] RRTA 726 (22 October 2014) [43]–[45].

<sup>51</sup> Ibid [4], [11], [45].

<sup>52</sup> Eunice Njovana and Charlotte Watts, 'Gender Violence in Zimbabwe: A Need for Collaborative Action' (1996) 4 *Reproductive Health Matters* 46, 47.

<sup>53</sup> 1310898 [2014] RRTA 246 (31 March 2014) [50].

<sup>54</sup> Ibid [53].

<sup>55</sup> Joanna Ruppel, 'The Need for a Benefit of the Doubt Standard in Credibility Evaluations of Asylum Applicants' (1992) 23 *Columbia Human Rights Law Review* 1, 32.

<sup>56</sup> 1318662 [2014] RRTA 726 (22 October 2014) [33]–[36], [45].

<sup>57</sup> Ibid 49.

<sup>58</sup> Charlotte Watts et al., 'Withholding of Sex and Forced Sex: Dimensions of Violence Against Zimbabwean Women' (1998) 6 *Reproductive Health Matters* 57, 59.



forced to have sex with her ex-husband.<sup>59</sup> Separation is also associated with escalation of domestic violence.<sup>60</sup> Thus, while the applicant was never married to her ex-partner,<sup>61</sup> such behaviour is widespread within Zimbabwe; marriage is only the mere institutionalisation of this violence. Therefore, the evidence of the ex-partner's prior possessive attitude towards the applicant was relevant and supported a 'real chance' of harm.

Even if it was unlikely that the ex-partner would harm the applicant upon her return, the test is not one of probability, but merely possibility.<sup>62</sup> The most 'untainted' fact of the case was that she had been sexually abused and that she was in Zimbabwe, a country which did not adequately protect women from sexual abuse.<sup>63</sup> While Decision B is not representative of all decisions, it serves to illustrate the inconsistency and subjectivity involved in each case, and the importance of improving adjudication to enhance consistency across RRT decisions.

#### IV. CANADIAN DECISIONS

In Canada, decision-makers must follow the directions in the Guidelines on Women Refugee Claimants Fearing Gender-Related Persecution,<sup>64</sup> which strive to make the framework gender-sensitive to 'raise awareness of the problems peculiar to and the special needs of women refugee applicants'.<sup>65</sup> A study into refugee claims in Canada found that there existed a 'culture of disbelief', manifested through factors such as cultural misunderstandings or insensitivity.<sup>66</sup> The Guidelines acknowledge that female asylum seekers 'face special problems in demonstrating that their claims are credible and trustworthy'.<sup>67</sup> These Guidelines seek to ameliorate these issues by 'apply[ing] the added sensitivities necessary to properly assess credibility'.<sup>68</sup> While the spirit of these Guidelines are comparable to the Australian

<sup>59</sup> Njovana and Watts, above n 52, 48.

<sup>60</sup> Doris Umberson et al., 'Domestic Violence, Personal Control, and Gender' (1998) 60 *Journal of Marriage and Family* 442, 444.

<sup>61</sup> 1318662 [2014] RRTA 726 (22 October 2014) [35]–[36], [38].

<sup>62</sup> *Chan Yee Kin v MIEA* (1989) 169 CLR 379.

<sup>63</sup> *Re SA*, Refugee Appeal No 1/92 (NZ Refugee Status Appeals Authority 1992), citing *IRB Re Sittam Palam*, 13 Immigr L Rep 2D 287 (1990).

<sup>64</sup> *Re SA*, Refugee Appeal No 1/92 (NZ Refugee Status Appeals Authority 1992), citing *IRB Re Sittam Palam*, 13 Immigr L Rep 2D 287 (1990).

<sup>65</sup> Rebecca M M Wallace, 'Making the Refugee Convention Gender Sensitive: The Canadian Guidelines' (1996) 45 *International and Comparative Law Quarterly* 702, 707.

<sup>66</sup> Cecile Rosseau et al, 'The Complexity of Determining Refugeehood: A Multidisciplinary Analysis of the Decision Making Process of the Canadian Immigration and Refugee Board' (2002) 15 *Journal of Refugee Studies* 43, 66.

<sup>67</sup> Wallace, above n 65.

<sup>68</sup> *X(Re)* [2014] CanLII 80156 (9 January 2014) [3]. For example, the Guidelines stipulate that cross-cultural misunderstanding may arise if women come from cultures in which disclosure of sexual violence is considered shameful, and that Member should take this into account when assessing credibility: Wallace, above n 65, pt D.

version,<sup>69</sup> Canadian Members are more proactive in calling attention to decisions which fail to adhere to these Guidelines.

In the appeal of a female Togolese asylum seeker,<sup>70</sup> it was rightly held that the decision-maker should have accepted that a battered woman may decide not to divorce her abuser, especially if divorce was uncommon in their country.<sup>71</sup> The decision-maker erred in assessing credibility by not applying its knowledge of 'violence against women in a thorough and sensitive manner',<sup>72</sup> as the applicant's narrative did not confirm to their subjective conception of how battered women should behave. In another recent decision, a RAD Member found that, had the Guidelines been followed by the decision-maker, the applicant's 'fear of being eventually circumcised' would have been assessed more appropriately.<sup>73</sup> The Member went on to cite that it was a 'perilous political exercise' to oppose female genital mutilation in Mali.<sup>74</sup> Acknowledging the applicant's real chance of being forced to undergo female genital mutilation, the Member allowed the appeal.

RAD decisions have also allowed inconsistencies and delay in the applicant's narrative. In a decision concerning a Cameroonian woman,<sup>75</sup> the Member held evidence used to discredit the applicant's credibility were erroneously weighted.<sup>76</sup> Contradictions with respect to her daughter's birth date, student status and date of moving out did not 'significantly change' her story.<sup>77</sup> In another appeal of a Jamaican woman abused by her husband,<sup>78</sup> the member held that her delay of lodging an application was not unreasonable, due to her lack of 'education and sophistication'.<sup>79</sup>

It is important to note that these decisions are not conclusively representative of the RAD and that the Guidelines are not always followed. While there has been no systematic research on the application of these Guidelines, anecdotal evidence suggests that practitioners felt that they were not properly applied.<sup>80</sup> The Canadian Council for Refugees has also criticised the adjudication process as a 'lottery for

<sup>69</sup> For example, both recognise the importance of acknowledging cultural barriers to giving testimony: Australian Government (Migration Review Tribunal, Refugee Review Tribunal, 'Gender Guidelines' (3 October 2015, Refugee Review Tribunal) <<http://www.mrtrt.gov.au/Files/HTML/GuidelineGender.html>> [3], [13]–[14]; Wallace, above n 65, [3]–[4].

<sup>70</sup> X(Re) [2014] CanLII 66644 (17 September 2014) [52].

<sup>71</sup> Ibid [51], [54].

<sup>72</sup> Ibid [55].

<sup>73</sup> Ibid [35].

<sup>74</sup> Ibid [38].

<sup>75</sup> X(Re) [2014] CanLII 74236 (6 November 2014).

<sup>76</sup> Ibid [36]–[39].

<sup>77</sup> Ibid [40].

<sup>78</sup> X(Re) [2014] 38160 CanLII (3 January 2014).

<sup>79</sup> Ibid [23].

<sup>80</sup> Rosalind Boyd, *Cultural Perspectives on Gender-Responsive Human Security* (Ashgate Publishing, Edition Number, 2014) 111–12.

refugee claimants'.<sup>81</sup> However, what these decisions do demonstrate, is that some Members are willing to call out inadequate application of the Guidelines. These examples illustrate that there are Members who can understand narratives from applicants' cultural perspectives, and that future threats need not manifest in one particular individualised event, but can emerge due to 'generalised oppression and violence'.<sup>82</sup>

Thus, while the Canadian system is not perfect, there are positive signs that Members are applying the Guidelines in a gender-sensitive way. Australian Members can learn from such decisions in Canada and should ask at every critical juncture whether their decision-making accords with their knowledge of victims of sexual abuse from the specific culture. Decision A demonstrates that the RRT is capable of deciding claims in a fair and sensitive manner. Had Decision B been decided with the same sensitivities, the decision, regardless of whether it was positive or negative, would have been fairer, and more appropriate in the context of sexual abuse experienced by the applicant.

## V. CONCLUSION

As each victim of sexual violence's experience is different, it is not uncommon to hear narratives which may be inconsistent or different to traditional conceptions of what constitutes violence against women. Instead of discarding these narratives as false or dishonest, they must be analysed in the context of the physical and psychological trauma of sexual violence. In this essay, it has been argued that the narratives of female asylum seekers are treated inconsistently at the RRT and the legal standards these narratives must achieve are unnecessarily high. While Decision A highlights Australia's capacity to protect vulnerable women, Decision B demonstrates the progress still to be made.

Reduced to its core, refugee laws facilitate surrogate protection when there is a 'fundamental breakdown in state protection in the form of serious human rights violations'.<sup>83</sup> Women who have experienced horrific sexual violence in their countries of origins require protection from gender-based persecution which is unacceptable anywhere in the world. The spirit of the Refugee Convention errs on the side of protection,<sup>84</sup> and as such, female asylum seekers deserve to have their narratives heard and appropriately addressed at the RRT, potentially when the lives of them and their children depend on it.

---

<sup>81</sup> Ibid 112.

<sup>82</sup> Wallace, above n 65, 706.

<sup>83</sup> Allison W Reimann, 'Hope for the Future? The Asylum Claims of Women Fleeing Sexual Violence in Guatemala' (2009) 157 *University of Pennsylvania Law Review* 1250.

<sup>84</sup> See generally, Ruppel, above n 55.

**Acknowledgements**

I am indebted to the following people for their support during the writing and editing of this paper: Scott Pearsall and Tushar Das for their comments and guidance as our Migration Law lecturers; Ayeeda Akhand for getting me through the writer's blocks during late nights; the copy-editors and Cross-Sections team for making this publication happen and last, but certainly not least, my parents whose own migration story inspires me every single day.

## References

### A. Articles, Books and Reports

- Bailiot, Helen, Sharon Cowan and Vanessa E Munro, 'Seen But Not Heard? Parallels and Dissonances in the Treatment of Rape Narratives Across the Asylum and Criminal Justice Contexts' (2009) 36 *Journal of Law and Society* 195
- Boyd, Rosalind, *Cultural Perspectives on Gender-Responsive Human Security* (Ashgate Publishing, 2014)
- Coffey, Guy, 'The Credibility of Credibility Evidence at the Refugee Review Tribunal' (2003) 15 *International Journal of Refugee Law* 377
- Goldberg, Pamela, 'Contextualizing Gender-Based Harm: A Critique of Law and the US Department of Justice Proposed Regulations' (2001) 24 *In Defense of the Alien* 224
- Griffiths, Melanie, 'Vile Liars and Truth Distorters: Truth, Trust and the Asylum System' (2012) 28 *Anthropology Today* 8
- Hindin, Michelle J, 'Understanding Women's Attitudes Towards Wife Beating in Zimbabwe' (Bulletin, 81, World Health Organization)2003
- Kagan, Michael, 'Is Truth in the Eye of the Beholder? Objective Credibility Assessment in Refugee Status Determination' (2003) 17 *Georgetown Immigration Law Journal* 367
- Lieberman, Irena, 'Women and Girls Facing Gender-Based Violence, and Asylum Jurisprudence' (2002) 29 *Human Rights* 9
- Luker, Trish, 'Decision Making Conditioned by Radical Uncertainty: Credibility Assessment at the Australian Refugee Review Tribunal' (2013) 25 *International Journal of Refugee Law* 502
- Millbank, Jenni, 'The Ring of Truth': A Case Study of Credibility Assessment in Particular Social Group Refugee Determinations' (2009) 21 *International Journal of Refugee Law* 1
- Mullally, Siobhán, 'Domestic Violence Asylum Claims and Recent Developments in International Human Rights Law: A Progress Narrative?' (2011) 60 *International and Comparative Law Quarterly* 459
- Njovana, Eunice and Charlotte Watts, 'Gender Violence in Zimbabwe: A Need for Collaborative Action' (1996) 4 *Reproductive Health Matters* 46
- Norman, Steve, 'Assessing the Credibility of Refugee Applicants: A Judicial Perspective' (2007) 19 *Journal of International Refugee Law* 273
- Oxford, Connie G, 'Protectors and Victims in the Gender Regime of Asylum' (2005) 17 *National Women's Studies Association Journal* 18
- Randall, Melanie, 'Refugee Law and State Accountability for Violence Against Women: A Comparative Analysis of Legal Approaches to Recognizing Asylum Claims Based on Gender Persecution' (2002) 25 *Harvard Women's Law Journal* 281
- Reimann, Allison W, 'Hope for the Future? The Asylum Claims of Women Fleeing Sexual Violence in Guatemala' (2009) 157 *University of Pennsylvania Law Review* 1250

Rosseau, Cecile et al, 'The Complexity of Determining Refugeehood: A Multidisciplinary Analysis of the Decision Making Process of the Canadian Immigration and Refugee Board' (2002) 15 *Journal of Refugee Studies* 43

Ruppel, Joanna , 'The Need for a Benefit of the Doubt Standard in Credibility Evaluations of Asylum Applicants' (1992) 23 *Columbia Human Rights Law Review* 1

Sweeney, James A, 'Credibility, Proof and Refugee Law' (2009) 21 *International Journal of Refugee Law* 700

Tiede, Lydia Brashear, 'Battered Immigrant Women and Immigration Remedies: Are the Standards Too High?' (2001) 28 *Human Rights* 21

Tripp, Aili Mari and Landan Affi, 'Domestic Violence in a Cultural Context' (2004) 27 *Family Advocate* 33

Umberson, Doris et al., 'Domestic Violence, Personal Control, and Gender' (1998) 60 *Journal of Marriage and Family* 442

Vogl, Anthea, 'Telling Stories from Start to Finish: Exploring the Demand for Narrative in Refugee Testimony' (2013) 22 *Griffith Law Journal* 63

Wallace, Rebecca M M , 'Making the Refugee Convention Gender Sensitive: The Canadian Guidelines' (1996) 45 *International and Comparative Law Quarterly* 702

Watts, Charlotte et al., 'Withholding of Sex and Forced Sex: Dimensions of Violence Against Zimbabwean Women' (1998) 6 *Reproductive Health Matters* 57

Zeigler, Sara L and Kendra B Stewart, 'Positioning Women's Rights within Asylum Policy: A Feminist Analysis of Political Persecution' (2009) 30 *Frontiers: A Journal of Women Studies* 115

### B. Cases

*Chan Yee Kin v MIEA* (1989) 169 CLR 379

1310898 [2014] RRTA 246 (31 March 2014)

1318662 [2014] RRTA 726 (22 October 2014)

X(Re) [2014] 38160 CanLII (3 January 2014).

X(Re) [2014] CanLII 66644 (17 September 2014)

X(Re) [2014] CanLII 74236 (6 November 2014)

X(Re) [2014] CanLII 80156 (9 January 2014)

*Re SA*, Refugee Appeal No 1/92 (NZ Refugee Status Appeals Authority 1992)

### C. Legislation

*Migration Act 1958* (Cth)

#### D. *Treaties*

*Convention Relating to the Status of Refugees*, opened for signature 28 July 1951, 189 UNTS 137 (entered into force 22 April 1954)

#### E. *Internet Materials*

Australian Government (Migration Review Tribunal, Refugee Review Tribunal), 'Gender Guidelines' (21 August 2010, Refugee Review Tribunal) <<http://www.mrt-rrt.gov.au/Files/HTML/GuidelineGender.html>>

Australian Government (Migration Review Tribunal, Refugee Review Tribunal), 'Gender Guidelines' (3 October 2015, Refugee Review Tribunal) <<http://www.mrt-rrt.gov.au/Files/HTML/GuidelineGender.html>>

Australian Government (Migration Review Tribunal, Refugee Review Tribunal), 'Guidance on the Assessment of Credibility' (March 2012, Refugee Review Tribunal) <<http://www.mrt-rrt.gov.au/Files/HTML/G1-Guidance-on-the-Assessment-of-Credibility.html>>

Immigration and Refugee Board of Canada, 'Chairperson Guidelines 4: Women Refugee Claimants Fearing Gender-Related Persecution' (3 October 2015, Immigration and Refugee Board of Canada) <<http://www.irb-cisr.gc.ca/Eng/BoaCom/references/pol/GuiDir/Pages/GuideDir04.aspx>>





# The Two Strikes Rule on Executive Pay

*Tiffany Tang*

## Abstract

*The 'two strikes' rule was introduced in Australia in order to increase the accountability and transparency of the executive remuneration framework. It conferred an important power on shareholders to hold directors accountable for the remuneration paid each year. However, since its implementation in 2011, there has been much debate as to its effectiveness. This essay examines whether, and if so how, the rule improves the alignment between executive pay and corporate performance.*

*While the current trend indicates a general improvement in the pay-performance link, there remains some concerns and issues that may detract from the rule's effectiveness. Furthermore, as the rule is still relatively new, more research and data would need to be collected to clearly observe the impact of the rule. It may take a few more years before there is sufficient evidence to conclusively determine that the rule has resulted in better economic corporate performance. However, on balance, the two strikes rule has generally improved the alignment between executive pay and corporate performance, as well as the relationship between boards and shareholders more broadly.*

## I. INTRODUCTION

In 2011, the 'two strikes' rule was introduced as part of Government reforms to increase the accountability and transparency of Australia's executive remuneration framework.<sup>1</sup> However, since its implementation, there has been much debate surrounding the rule's effectiveness. This essay will examine whether, and if so how, the rule improves the alignment between executive pay and corporate performance. Section one will explain and contextualise the rule. Section two will examine whether the rule has indeed improved the pay-performance link and how it has done so. Section three will critique the rule and pose possible recommendations to improve it. This essay will ultimately conclude that there has been an overall improvement of the alignment between pay and performance, however, there are some issues that may still need to be addressed.

---

<sup>1</sup> Bernie Ripoll, 'Keynote Address to the KPMG Executive Remuneration Forum for Non-Executive Directors' (Speech delivered at KPMG Executive Remuneration Forum, Australia, 5 March 2013).

## II. PART ONE

### A. *The Two Strikes Rule*

Under the rule, a company receives a ‘first strike’ if 25% or more of the eligible shareholder votes cast at the Annual General Meeting (AGM) are against the company’s remuneration report. At the subsequent AGM, the company is required, in its remuneration report, to propose a course of action to address the concerns or provide reasons for taking no action. If again 25% or more of the shareholders vote ‘no’, a ‘second strike’ is recorded. When this occurs, the shareholders vote again at that same AGM to determine whether the board should stand for re-election.<sup>2</sup> If this resolution is passed by 50% or more votes, then a spill meeting must be held within 90 days of the AGM.<sup>3</sup> All directors, except for the managing director,<sup>4</sup> are required to stand for re-election and cease to hold office immediately before the end of the spill meeting, unless re-elected.<sup>5</sup> Key management personnel or other closely related parties (ie, those named in the remuneration report) cannot vote on the remuneration report or the spill resolution.<sup>6</sup>

Essentially, the effect of the two strikes rule is that it confers an important power on shareholders by which they can hold directors accountable for the remuneration being paid.

### B. *Background*

The two strikes rule came into effect on July 1, 2011 and first applied in the 2011 AGM season.<sup>7</sup> The rule was introduced to strengthen the previous scheme where shareholders only had an advisory vote on remuneration reports.<sup>8</sup> It attempted to achieve this by imposing clear consequences on the board if shareholders’ concerns around remuneration were not addressed.<sup>9</sup>

After the global financial crisis, there was a perception that the ‘nexus between pay and company performance was deteriorating’,<sup>10</sup> and that ‘high remuneration

<sup>2</sup> *Corporations Act 2001* (Cth) s 249L(2); George Wilkins, ‘What is the ‘Two-Strikes’ Rule?’, *The Sydney Morning Herald* (online) 8 October 2012.

<sup>3</sup> *Corporations Act 2001* (Cth) s 250V.

<sup>4</sup> *Ibid* s 250W.

<sup>5</sup> *Ibid* s 250V(1); Teresa Handicott, ‘Executive Pay and the ‘Two Strikes Rule’: Is Board Stability at Risk in Australia’ (1 February 2013, Practical Law Company: A Thomson Reuters Legal Solution).

<sup>6</sup> *Corporations Act 2001* (Cth) ss 250R(4), 250V(2).

<sup>7</sup> *Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Act 2011* (Cth).

<sup>8</sup> Handicott, above n 5.

<sup>9</sup> Explanatory Memorandum, *Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Bill 2011* (Cth); Minister for Financial Services, Superannuation and Corporate Law, ‘Government Responds to the Productivity Commission Report on Executive Remuneration’ (Media Release, No 33, 16 April 2010).

<sup>10</sup> Ripoll, above n 1.

was encouraging excessive risk taking and rewarding short term gain'.<sup>11</sup> There was public outcry in Australia and overseas at what were perceived as excessive increases in executive pay, while company returns were low, as shareholders expected executives to be rewarded based on company performance.<sup>12</sup> The reforms were intended to provide further 'accountability for directors and increased transparency for shareholders'<sup>13</sup> to ensure that remuneration was more closely aligned to corporate performance.<sup>14</sup> Furthermore, the rule aimed to give minority shareholders a voice as there was concern that they were often not being heard on issues, including remuneration, pertaining to company performance.<sup>15</sup>

### III. PART TWO

#### A. *Has Alignment Improved?*

The rule has only been in operation for a few years, however, there generally appears to be an improved linkage between executive pay and corporate performance, as well as between boards and shareholders more broadly.<sup>16</sup> Statistically, the number of companies that received a strike in 2011 significantly decreased in 2012, and similarly in each subsequent year until 2014.<sup>17</sup> According to a keynote address given by Bernie Ripoll in 2013, 108 companies received a first strike in 2011. By contrast, in 2012, only nine of those companies received a second strike and only three faced a spill motion (although none resulted in the replacement of the board).<sup>18</sup> While numbers vary slightly among different sources, the general descending trend suggests that the rule has succeeded in forcing boards to address shareholder concerns, including concerns regarding company performance. Boards are more conscious and are engaging more with shareholders to justify executive pay.<sup>19</sup> While there is insufficient data at this point to definitively conclude that the rule has resulted in better economic performance, it can be inferred from the available evidence that the connection

<sup>11</sup> Ibid.

<sup>12</sup> Eric Johnston, 'Two-Strikes Policy Hits Home', *The Sydney Morning Herald* (online) 21 October 2011; Ripoll, above n 1.

<sup>13</sup> Explanatory Memorandum, Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Bill 2011 (Cth); Wilkins, above n 2.

<sup>14</sup> Ripoll, above n 1.

<sup>15</sup> Leo D'Angelo Fisher, 'Two Strikes Rule is a Strike against Director Arrogance', *Business Review Weekly* (online) 9 May 2013.

<sup>16</sup> Reza Monem and Chew Ng, 'Australia's 'Two-Strikes' Rule and the Pay-Performance Link: Are Shareholders Judicious?' (2013) 9 *Journal of Contemporary Accounting and Economics* 237; Momentum, 'True Cost Of The Two Strikes Rule' (October 2013, UQ Business School) <<https://www.business.uq.edu.au/momentum/true-cost-two-strikes-rule>>.

<sup>17</sup> Stephanie Daveson and Annette O Hara, 'Executive Remuneration: Results Of Spill Meetings Put Effectiveness Of Two Strikes In Question' (7 March 2013, Corrs Chambers Westgarth Lawyers); Ann Byrne, 'Two Strikes Rule Hits The Mark', *Australian Financial Review* (online) 12 December 2012.

<sup>18</sup> Ripoll, above n 1.

<sup>19</sup> Julie Walker, 'Australia Has Had Three Years with the Two-Strikes Law and Executive Pay Pain Won't Go Away', *Business Insider Australia* (online) 17 October 2013.

between executive pay and corporate performance has improved. Otherwise, the data would have likely shown an increase or at least stagnant number in strikes as a demonstration of shareholder dissatisfaction regarding the company's performance.

Further evidence that the link between pay and performance has tightened is that generally, executive pay has dropped quite significantly since the introduction of the rule.<sup>20</sup> There is evidence that in 2012, some executives turned down bonuses, and pay freezes and cuts were adopted.<sup>21</sup> Generally, bonuses are now being tied more closely to performance,<sup>22</sup> rather than being simply a matter of discretion of boards.

Overall, evidence appears to support the notion that the rule has gradually improved the alignment between executive pay and corporate performance. However, more data would need to be collected in order to conclusively determine the actual impact of the rule and the degree of improvement in the pay-performance link.

#### *B. How Has the Rule Improved the Alignment?*

The rule has improved the alignment between executive pay and corporate performance by increasing the board's accountability.<sup>23</sup> This is achieved by the transparency of the new process and the inclusion of clear consequences if the board fails to comply and address the issues.

Firstly, the rule clearly requires the board to justify and explain their proposed action or why no action has been taken, in response to the 'no' vote. This transparency and increased public scrutiny forces directors to directly engage shareholders,<sup>24</sup> and 'devise executive remuneration structures better aligned with the performance of the company'.<sup>25</sup> This ensures that executives are actually being paid for acting in the shareholders' best interests.

Furthermore, the obvious consequence if the board fails to do so is the risk of having a spill motion and needing to stand for re-election. The risk of losing their jobs is a high incentive for boards to address shareholder concerns.

There are other consequences that may also flow from a board failing to respond to shareholders such as the impact on the 'operation and financial performance

<sup>20</sup> Cliona O'Dowd, "'Two Strikes' Falls Foul", *Business Spectator* (online) 27 November 2012.

<sup>21</sup> Handicott, above n 5; Walker, 'Australia Has Had Three Years with the Two-Strikes Law and Executive Pay Pain Won't Go Away', above n 19.

<sup>22</sup> Momentum, above n 16.

<sup>23</sup> Byrne, above n 17; Ripoll, above n 1.

<sup>24</sup> Momentum, above n 16; Julie Walker, "Two Strikes' Law for Shareholders, But Will it Curb Executive Pay?", *The Conversation* (online) 24 October 2011.

<sup>25</sup> Johnston, above n 12.

of a company'.<sup>26</sup> One is the effect on a company's reputation as well as that of its executives.<sup>27</sup> A strike may negatively affect a company's reputation. This in turn may affect the company's share prices and make investors wary of joining the company. In addition, directors who are part of a spilled board may have their reputation damaged as other companies may be concerned about their obligation to the shareholders' interests.

Generally, with shareholders wielding more power and the introduction of clear consequences, directors need to start addressing shareholder concerns lest a spill motion be put forth. Furthermore, it is in the board's best interests<sup>28</sup> because of the potential effect on a company and its executives' reputations,<sup>29</sup> as well as the other possible consequences. In addition, considering the extra time, resources and costs that this involves, it is in the company's best interests to avoid a strike.<sup>30</sup> Overall, since the introduction, companies have shown a 'greater willingness' to listen and respond to concerns.<sup>31</sup>

#### IV. PART THREE

##### A. *It Has Improved But There Are Some Problems*

While it appears that there has been an overall improvement in the link between pay and performance, there are some criticisms that may need to be addressed.<sup>32</sup>

Firstly, a major concern is that the 25% threshold of votes needed for a strike is quite low.<sup>33</sup> It may allow minority shareholders to exploit the rule.<sup>34</sup> Furthermore, it is argued that, instead of using the rule just in relation to remuneration reports, it may be used by shareholders to show general dissatisfaction with the company.<sup>35</sup>

Secondly, critics argue that the rule can lead to inefficiency in the running of the company due to the extra costs, administrative burden<sup>36</sup> and time needed

<sup>26</sup> Stephanie Quine, 'Two-Strikes Law Calls for Better Board Engagement', *Lawyers Weekly* (online) 7 June 2013.

<sup>27</sup> Australian Institute of Company Directors, 'New Executive Pay Worries' (2013, Australian Institute of Company Directors); Stephen Burke, 'Why There's Not Much To Learn From Australia's Approach To Say On Pay' (26 February 2013, Towers Watson).

<sup>28</sup> Aleks Vickovich, 'Two-Strike Rule Has Improved Corporate Governance', *InvestorDaily* (online) 17 January 2013; Fisher, above n 15.

<sup>29</sup> Australian Institute of Company Directors, 'Leading Directors Concerned About Use of the Two Strikes Rule as a Proxy for Other Concerns' (2014, Australian Institute of Company Directors).

<sup>30</sup> Fisher, above n 15.

<sup>31</sup> *Ibid.*

<sup>32</sup> Tony Featherstone, 'Two Strikes Round One', *InvestorDaily* (online) 15 December 2011.

<sup>33</sup> Kate Towey and Sean Cole, 'Focus: 'Two Strikes' Rule Part of Executive Remuneration Shake-Up' (29 June 2011, Allens).

<sup>34</sup> Phillip Wen, 'Axe Two-Strikes Rule, Penrice Directors Say', *The Sydney Morning Herald* (online) 25 January 2013.

<sup>35</sup> Handicott, above n 5.

<sup>36</sup> Momentum, above n 16; Vickovich, above n 28.

to sufficiently address these issues.<sup>37</sup> Consequently, instead of generating improvements, these extra burdens may actually detrimentally impact the company's overall economic performance. Directors may also become overly preoccupied with remuneration issues instead of focusing on the running of the business.<sup>38</sup>

Furthermore, the ability to force a spill could lead to uncertainty in companies,<sup>39</sup> and potentially increased share price volatility,<sup>40</sup> neither which would be in shareholders' interests. The threat of a spill may also deter good directors from taking positions in public companies.<sup>41</sup>

Finally, critics argue that the 90 day deadline, for a spill meeting to be held, is too short as more time is needed to allow an alternative board to be put up for consideration.<sup>42</sup>

Evidently, there are some issues with the rule. It was aimed at creating a way to force directors to account to shareholders on their pay due to shareholder displeasure at the high pay levels when company performance was poor. However, as demonstrated, there are situations where the effect of the rule may be undermined. Therefore, some critics question whether the rule, in effect, actually addresses the issue of company performance.

Overall, despite these potential issues, there does appear to be a general improvement in the pay-performance link. Although, further evidence would be needed to effectively and conclusively balance and compare the benefits and detriments of the rule.

### *B. Possible Recommendations to Better the Rule*

The two strikes rule has already experienced a few alterations such as the amendment to the Corporations Act to prohibit key management personnel to participate in the voting as this created conflicts of interest.<sup>43</sup>

Another recommendation is to change the strike requirements from 25% of voted shares to 25% of all shares on the register.<sup>44</sup> This may better represent the views of shareholders as a whole, and significantly reduce the potential for the rule to be misused by substantial shareholders. It also addresses the fact that in many cases

<sup>37</sup> Herbert Smith Freehills, 'First Spill Meetings Under Two-Strikes Rules' (20 February 2013, Herbert Smith Freehills).

<sup>38</sup> Australian Institute of Company Directors, 'New Executive Pay Worries', above n 27.

<sup>39</sup> Vickovich, above n 28.

<sup>40</sup> Guerdon Associates, 'Two Strikes Rule on Remuneration Report Voting' (5 February 2014, Guerdon Associates).

<sup>41</sup> Myriam Robin, 'How The Two-Strike Rule Became a Big Stick' (15 November 2012, SmartCompany).

<sup>42</sup> O'Dowd, above n 20.

<sup>43</sup> Handicott, above n 5.

<sup>44</sup> *Ibid*; Guerdon Associates, above n 40.

the majority of investors do not even vote which allows for other parties to exert 'undue influence'.<sup>45</sup>

Lastly, to address the 90 day requirement, a longer period is simply suggested to allow shareholders time to consider and debate about the board's successors.

## V. CONCLUSION

While the current trend points to an improvement in the pay-performance link, there are some issues and concerns that might detract from its effectiveness. Several recommendations are posed that may need to be implemented to address the issues in the coming future. However, the rule is still relatively new and it may take a few more years to clearly observe its effect. On balance, the two strikes rule has improved the alignment between executive pay and corporate performance; however, its full effect is still uncertain.

## Acknowledgements

I would like to sincerely thank Dr Kath Hall for her expert advice and invaluable input towards this publication. I would also like to thank my family and Oliver for their continued love, support and encouragement.

---

<sup>45</sup> Ibid.

## References

### A. Newspaper Articles

Byrne, Ann, “Two Strikes’ Rule Hits The Mark’, *Australian Financial Review* (online) 12 December 2012

Featherstone, Tony, ‘Two Strikes Round One’, *InvestorDaily* (online) 15 December 2011

Fisher, Leo D’Angelo, ‘Two Strikes Rule is a Strike against Director Arrogance’, *Business Review Weekly* (online) 9 May 2013

Johnston, Eric, ‘Two-Strikes Policy Hits Home’, *The Sydney Morning Herald* (online) 21 October 2011

O’Dowd, Cliona, “Two Strikes” Falls Foul’, *Business Spectator* (online) 27 November 2012

Quine, Stephanie, ‘Two-Strikes Law Calls for Better Board Engagement’, *Lawyers Weekly* (online) 7 June 2013

Vickovich, Aleks, ‘Two-Strike Rule Has Improved Corporate Governance’, *InvestorDaily* (online) 17 January 2013

Walker, Julie, ‘Australia Has Had Three Years with the Two-Strikes Law and Executive Pay Pain Won’t Go Away’, *Business Insider Australia* (online) 17 October 2013

Walker, Julie, “Two Strikes’ Law for Shareholders, But Will it Curb Executive Pay?”, *The Conversation* (online) 24 October 2011

Wen, Phillip, ‘Axe Two-Strikes Rule, Penrice Directors Say’, *The Sydney Morning Herald* (online) 25 January 2013

Wilkins, George, ‘What is the ‘Two-Strikes’ Rule?’, *The Sydney Morning Herald* (online) 8 October 2012

### B. Legislative Materials

Explanatory Memorandum, Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Bill 2011 (Cth)

*Corporations Act 2001* (Cth)

*Corporations Amendment (Improving Accountability on Director and Executive Remuneration) Act 2011* (Cth)

### C. Internet Materials

Australian Institute of Company Directors, ‘New Executive Pay Worries’ (2013, Australian Institute of Company Directors)

Australian Institute of Company Directors, ‘Leading Directors Concerned About Use Of The Two Strikes Rule As A Proxy For Other Concerns’ (2014, Australian Institute of Company Directors)



Burke, Stephen, 'Why There's Not Much To Learn From Australia's Approach To Say On Pay' (26 February 2013, Towers Watson)

Cole, Sean and Kate Towey, 'Focus: 'Two-Strikes' Rule Part Of Executive Remuneration Shake-Up' (29 June 2011, Allens) <<http://www.allens.com.au/pubs/cg/focgjun11.htm>>

Daveson, Stephanie and Annette O'Hara, 'Executive Remuneration: Results Of Spill Meetings Put Effectiveness Of Two Strikes In Question' (7 March 2013, Corrs Chambers Westgarth Lawyers)

Governance Institute of Australia, 'Bill Covering Two Strikes Test And 'No Vacancy' Rule Introduced Into Parliament' (2011, Governance Institute of Australia)

Guerdon Associates, 'Two Strikes Rule on Remuneration Report Voting' (5 February 2014, Guerdon Associates)

Handicott, Teresa, 'Executive Pay and the 'Two Strikes Rule': Is Board Stability at Risk in Australia' (1 February 2013, Practical Law Company)

Herbert Smith Freehills, 'First Spill Meetings Under Two-Strikes Rules' (2013, Herbert Smith Freehills)

Momentum, 'True Cost Of The Two Strikes Rule' (October 2013, UQ Business School) <<https://www.business.uq.edu.au/momentum/true-cost-two-strikes-rule>>

Robin, Myriam, 'How The Two-Strike Rule Became A Big Stick' (15 November 2012, SmartCompany)

#### *D. Other Materials*

Egan, John, 'Remuneration Policies and the Two Strikes Rule' (Report, Egan Associates, 2014)

Minister for Financial Services, Superannuation and Corporate Law, 'Government Responds to the Productivity Commission Report on Executive Remuneration' (Media Release, No 33, 16 April 2010)

Monem, Reza and Chew Ng, 'Australia's 'Two-Strikes' Rule and the Pay-Performance Link: Are Shareholders Judicious?' (2013) 9 *Journal of Contemporary Accounting and Economics* 237

Ripoll, Bernie, 'Keynote Address' (Speech delivered at KPMG Executive Remuneration Forum, Australia, 5 March 2013)



# Navigating Cultures and Institutions: Guanxi in Business

*Lewis Hirst*

## Abstract

*In the business world, it is often said that 'It is not what you know, but who you know'. In the context of China, this adage is believed to be especially true. This paper explores the development, use, and limitations of guanxi in business — robust networks of social connections that individuals use for instrumental ends. Through the lenses of institutional theory and relational exchange theory, the history and uniqueness of guanxi, and how it can be utilised as a strategic corporate resource, is unpacked. The dark side of guanxi is also examined, in terms of the practical and moral hazards involved in personalising business relationships, highlighting the ways in which foreign firms participate in the guanxi 'game'. Ultimately, the paper muses the future of guanxi, and the role that it may play in China's business environment.*

## I. INTRODUCTION

Since Deng Xiaoping's move for reform in the late 1970s, business in China has experienced rapid and dramatic changes. In 1980, China had little influence on global business, but as of the end of 2014, its economy stands as arguably the world's largest.<sup>1</sup> A driver of this growth, through central planning and administration, has been significant investment in physical infrastructure, and the opening of markets to foreign companies.<sup>2</sup> Often called the 'world's factory' in recent history, China has attracted significant foreign interest in the development of its manufacturing capabilities. In addition, economic development has also led to the rapid burgeoning of middleclass consumers, with recent studies finding that emerging economies in Asia account for 15% of the global market for consumer products in 2007, a figure that is set to grow to 25% by 2017, with Chinese consumers set to feature significantly.<sup>3</sup> Thus, foreign entry into the Chinese market has expanded from predominately manufacturing for export, to trade and

---

<sup>1</sup> International Monetary Fund, 'Current GDP based on PPP' (February 2014, International Monetary Fund) <<http://www.imf.org/external/pubs/ft/weo/2014/02/weodata/weorept.aspx>>.

<sup>2</sup> Michael A Hitt and Kai Xu, 'The Transformation of China: Effects of the Institutional Environment on Business Actions' (Report, Long Range Planning, 2015).

<sup>3</sup> Kristina Rogers, 'Profit or Lose: Balancing the Growth-Profit Paradox for Global Consumer Products Companies and Retailers in Asia's Emerging Markets' (24 October 2013, Ernst & Young).

investment targeted at domestic consumers and businesses.<sup>4</sup> Therefore, a plethora of foreign business interests now have a stake in the Chinese economy.

In spite of China's rapid rise to prominence, the country still harbours a quagmire of complex, nuanced and cumbersome institutions, which poses challenges to the development of business,<sup>5</sup> change the dynamics of market competition,<sup>6</sup> and generate risk in the business environment.<sup>7</sup> These institutions are both formal and informal. Formal institutions are viewed as the codified rules that structure and define relationships among members of a group, organisation or society.<sup>8</sup> Regulatory, economic and political institutions are considered the three major types at a national level.<sup>9</sup> They create social order and stability through definitive guidelines and authoritative behavioural expectations.<sup>10</sup> Alternatively and often in parallel to the formal, exist the informal institutions. Considered relatively enduring systems, they involve shared systems of meaning, norms, values and collective understandings.<sup>11</sup> Although ascribed differently to concepts such as culture, these institutions are comparatively nebulous and difficult to define, most often transmitted through tacit information.<sup>12</sup> Therefore, the dynamics that exist between these institutions in China are often unique to developing economies, and provide a rich and interesting environment for study.<sup>13</sup> However, complicating the relationship are apparent weaknesses in China's formal institutions, which create uncertainty for business.

In the context of China, emphasised by both practitioners and the academic literature,<sup>14</sup> is the importance of networks of interpersonal relationships as an informal institution, which can assist in managing this uncertainty. In particular,

<sup>4</sup> Weilei Stone Shi, Livia Markóczy and Ciprian V Stan, 'The Continuing Importance of Political Ties in China' (2014) 28 *Academy of Management Perspectives* 57.

<sup>5</sup> Mike W Peng, 'Institutional Transitions and Strategic Choices' (2003) 28 *Academy of Management Review* 275.

<sup>6</sup> Wade M Danis, Dan S Chiaburu and Marjorie A Lyles, 'The Impact of Managerial Networking Intensity and Market-Based Strategies on Firm Growth During Institutional Upheaval: A Study of Small and Medium Sized Enterprises in a Transition Economy' (2010) 41 *Journal of International Business Studies* 287.

<sup>7</sup> Oded Shenkar, 'International Joint Ventures' Problems in China: Risks and Remedies' (1990) 23 *Long Range Planning* 82; Michael A Hitt et al, 'The Institutional Effects on Strategic Alliance Partner Selection in Transition Economies: China vs Russia' (2004) 15 *Organization Science* 173.

<sup>8</sup> Douglass C North, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990) 3–11.

<sup>9</sup> Antony Drew and Anton Kriz, 'Institutional Reform and the Changing Face of Guanxi' (2014) 9 *International Journal of Business and Information* 187.

<sup>10</sup> William R Scott, *Institutions and Organizations* (Thousand Oak, 1995) 1–13.

<sup>11</sup> William R Scott, 'Institutional Theory: Contributing to a Theoretical Research Program' in Ken G Smith and Michael A Hitt, *Great Minds in Management: The Process of Theory Development* (Oxford University Press, 2005) 460–84.

<sup>12</sup> Michael R Holmes et al, 'The Interrelationships Among Informal Institutions, Formal Institutions, and Inward Foreign Direct Investment' (2013) 39 *Journal of Management* 531.

<sup>13</sup> Scott, above n 11.

<sup>14</sup> See, eg, Wilfried R Vanhonacker, 'Guanxi Networks in China' (2004) 31 *China Business Review* 48; Peng, above n 5.

the concept of *guanxi* has been used to describe this phenomenon, and its influence on business, both domestic and foreign, has been highlighted.<sup>15</sup> *Guanxi* is a nebulous concept, roughly translated to mean ‘relationships’; the term is used to describe a network of interpersonal connections that are culturally sanctioned to be used instrumentally for mutual advancement of the networked individuals.<sup>16</sup> Although the concept is applied in numerous academic contexts, in particular human resource management, of interest in terms of international business in China, is the continued influence of *guanxi* on the managerial and strategic activities of foreign businesses operating in China. Specifically, questions remain as to how the formal institutional environment creates uncertainty for business, and how *guanxi* can help firms navigate the uncertainty.

In addressing these questions, several topics will be examined below. Firstly, the development and apparent weaknesses in China’s formal institutions, and the role of relational reliability in dealing with uncertainty are addressed. Secondly, the unique role of relationships in the context of China is examined, and how this differs from traditional Network Theory as applied in a Western context. Thirdly, the way in which *guanxi* can be developed as a corporate resource and its uses are explored. Fourthly, the limitations and hazards of *guanxi* utilisation are illustrated, with specific attention paid to the challenges for foreign businesses. Finally, the future of *guanxi* is addressed, and the roles it will play in the evolution of business in China.

## II. DEVELOPMENT OF CHINA’S INSTITUTIONS

Modern China has been slow, yet progressive, in its development of its formal institutions. Learning from the disastrous examples of rapid institutional change, in particular the transition of Russia and their privatisation of state-owned enterprises (SOEs), where a lack of faith in newly created political and regulatory systems led to chaos, in particular rampant corruption and a black-market economy.<sup>17</sup> Therefore, in contrast, the Chinese leadership adopted a hesitant but pragmatic process of reform, with a focus on economic reforms, but supported by concomitant reforms in social policy.<sup>18</sup> From the phasing out of rural communes and the encouragement of new industrial producers, to the creation of the Special Economic Zones (SEZs) and the gradual lifting of price controls, China has transitioned to a mixed economy, with increasing market-led development and foreign investment. However, due to the temporally defined, measured and

<sup>15</sup> See, eg, Katherine K Xin and Jone L Pearce, ‘Guanxi: Connections as Substitutes for Formal Institutional Support’ (1996) 39 *Academy of Management Journal* 1641; Ingmar Björkman and Sören Kock, ‘Social Relationships and Business Networks: The Case of Western Companies in China’ (1995) 4 *International Business Review* 519.

<sup>16</sup> Mike W Peng and Yadong Luo, ‘Managerial Ties and Firm Performance in a Transition Economy: The Nature of a Micro–Macro Link’ (2000) 43 *Academy of Management Journal* 486.

<sup>17</sup> Hitt et al, above n 7.

<sup>18</sup> John Child and Guido Möllering, ‘Contextual Confidence and Active Trust Development in the Chinese Business Environment’ (2003) 14 *Organization Science* 69.

ongoing nature of the changes, the impact of these changes upon foreign business confidence has been staggered. In particular, the technical barriers to trade are forever changing, especially given the proliferation of regional and bilateral trade agreements over the last ten years.<sup>19</sup> Therefore, any study of Chinese business needs to address the newness of the markets, and view the current environment in historical context.<sup>20</sup>

According to Puffer et al,<sup>21</sup> some of the most critical changes to business were the reforms of the early 1990s, following Den Xiaoping's Southern Tour, including the *Company Law* in 1993, which enabled the privatisation of township and village enterprises (TVEs) and smaller SOEs. In addition, significant regulatory and economic policy changes were seen in the late 1990s and early 2000s, in order to comply with the requirements for China's accession to the World Trade Organisation.<sup>22</sup> However, even with these developments, ambiguity and weaknesses in China's formal institutions remain,<sup>23</sup> especially in the regulatory and political systems, which appear to be amongst the most salient concerns for businesses of all sizes.<sup>24</sup>

First, in terms of regulations, issues exist in both the legislation itself, as well as its interpretation and application. In terms of the content of legislation, there is significant ambiguity in the way in which laws are written, often with guiding 'motherhood' statements that allow for broad interpretation.<sup>25</sup> Furthermore, considered a by-product of hasty law-making, is the overlapping nature of legislation, with central government laws conflicting not only with provincial legislation, but also with other national legislation.<sup>26</sup> In addition, the judiciary is both theoretically and practically non-independent, being constitutionally subservient to the legislature. This means that courts are open to significant

<sup>19</sup> China FTA Network, 'China's Free Trade Agreements' (2015, China FTA Network) <[http://fta.mofcom.gov.cn/english/fta\\_qianshu.shtml](http://fta.mofcom.gov.cn/english/fta_qianshu.shtml)>; Department of Foreign Affairs and Trade, 'China: Country and Trade Information' (2015, Department of Foreign Affairs and Trade) <<http://dfat.gov.au/geo/china/Pages/china.aspx>>.

<sup>20</sup> Weilei Stone Shi et al, 'Domestic Alliance Network to Attract Foreign Partners: Evidence from International Joint Ventures in China' (2014) 45 *Journal of International Business Studies* 338.

<sup>21</sup> Sheila M Puffer, Daniel J McCarthy and Max Boisot, 'Entrepreneurship in Russia and China: The Impact of Formal Institutional Voids' (2010) 34 *Entrepreneurship Theory and Practice* 441.

<sup>22</sup> Michael A Hitt, Haiyang Li and William J Worthington, 'Emerging Markets as Learning Laboratories: Learning Behaviors of Local Firms and Foreign Entrants in Different Institutional Contexts' (2005) 1 *Management and Organization Review* 353.

<sup>23</sup> Gerald Yong Gao et al, 'A 'Strategy Tripod' Perspective on Export Behaviors: Evidence From Domestic and Foreign Firms Based in an Emerging Economy' (2010) 41 *Journal of International Business Studies* 377.

<sup>24</sup> Jane L Menzies and Stuart Orr, 'The Impact of Political Behaviours on Internationalisation: The Case of Australian Companies Internationalising to China' (2010) 3 *Journal of Chinese Economic and Foreign Trade Studies* 24.

<sup>25</sup> Shi, Markoczy and Stan, 'The Continuing Importance of Political Ties in China', above n 4; Longwei Wang, Jeff Hoi Yan Yeung and Min Zhang, 'The Impact of Trust and Contract on Innovation Performance: The Moderating Role of Environmental Uncertainty' (2011) 134 *International Journal of Production Economics* 114.

<sup>26</sup> Shi, Markóczy and Stan, above n 4.

political influence, particularly through their financial dependence on local governments.<sup>27</sup> Although advances can be seen in the enforcement of certain areas of law, such as contracts,<sup>28</sup> other areas remain more difficult, notably intellectual property law.<sup>29</sup>

Second, and furthering this point, is the issue of empowered local governments, in a political, regulatory and commercial sense. Stemming primarily from sub-national institutional disparity,<sup>30</sup> despite market-related policies from the central government-level, China's local governments have a high degree of discretion in how they implement these policies.<sup>31</sup> Furthermore, they also hold significant authority to design local policies, which typically extend from tax concessions through to planning permits and environmental regulations. In addition, local governments have been seen to play a significant role in the allocation of resources and economic opportunities,<sup>32</sup> although this role is diminishing as market mechanisms become better established, and resources can increasingly be accessed through private means.<sup>33</sup> Nevertheless, local SOEs, fostered by local governments, also continue to play strong roles in local markets, and achieve distinct advantages through the utilisation of political support.<sup>34</sup>

Therefore, it can be seen that a significant amount of institutional variability and uncertainty exists in China's business context, which enhances the risk of doing business. This risk can be conceptualised in transaction cost economics ('TCE').<sup>35</sup> TCE conceptualises risk in terms of the costs associated with governing contractual relationships, that is in terms of information seeking in a market, bargaining with potential partners, and enforcing contracts. A weaker formal institutional environment increases these costs; a firm's ability to curtail and

<sup>27</sup> Kevin Zheng Zhou and Dean Xu, 'How Foreign Firms Curtail Local Supplier Opportunism in China: Detailed Contracts, Centralized Control, and Relational Governance' (2012) 43 *Journal of International Business Studies* 677.

<sup>28</sup> Wantao Yu and Ramakrishnan Ramanathan, 'Effects of Business Environment on International Retail Operations: Case Study Evidence from China' (2012) 40 *Journal of Retail & Distribution Management* 218.

<sup>29</sup> James S Ang, Yingmei Cheng and Chaopeng Wu, 'Does Enforcement of Intellectual Property Rights Matter in China? Evidence from Financing and Investment Choices in the High-Tech Industry' (2014) 96 *Review of Economics and Statistics* 332.

<sup>30</sup> Jong-Wook Kwon, 'Does China Have More than One Culture? Exploring Regional Differences of Work Values in China' (2012) 29 *Asia Pacific Journal of Management* 79; Weilei Stone Shi, Sunny Li Sun and Mike W Peng, 'Subnational Institutional Contingencies, Network Positions, and IJV Partner Selection' (2012) 49 *Journal of Management Studies* 1221.

<sup>31</sup> Gao et al, above n 23.

<sup>32</sup> Mara Faccio, 'Politically Connected Firms' (2006) 96 *American Economic Review* 369; Julie Juan Li, Laura Poppo and Kevin Zheng Zhou, 'Do Managerial Ties in China Always Produce Value? Competition, Uncertainty, and Domestic vs. Foreign Firms' (2008) 29 *Strategic Management Journal* 383.

<sup>33</sup> Wubiao Zhou, 'Political Connections and Entrepreneurial Investment: Evidence from China's Transition Economy' (2013) 28 *Journal of Business Venturing* 299.

<sup>34</sup> Wenfeng Wu, Chongfeng Wu and Oliver M Rui, 'Ownership and the Value of Political Connections: Evidence from China' (2012) 18 *European Financial Management* 695.

<sup>35</sup> Oliver E Williamson, 'Transaction Cost Economics: How it Works; Where it is Headed' (1998) 146 *De Economist* 23.

manage opportunistic behaviour in an exchange partner is limited. For example, formal legal recourse can be lengthy and costly if a supplier fails to meet the terms of a contract. Therefore, alternative mechanisms are needed to govern these relationships.

### III. IMPORTANCE OF RELATIONAL RELIABILITY

In order to minimise these transaction costs associated with doing business in China, a common strategy employed by both domestic and foreign firms, is the development of relational reliability with exchange partners, and other business stakeholders. Originating in the Western academic tradition, the concept of relational reliability in inter-organisational relationships, that is the existence of trust between two exchange partners, allows for the parties within the exchange to hold a collective, long-term orientation and to willingly rely on and be vulnerable to the other organisation.<sup>36</sup> Within the context of relational reliability, trust has been conceptualised at both the inter-organisational and interpersonal levels, with the two being mutually enforcing.<sup>37</sup>

Furthermore, relational reliability is often developed and employed in exchange contexts where there is significant risk of opportunistic behaviour by one party.<sup>38</sup>

Therefore, managers attempt to attenuate potential losses from opportunistic behaviour by relying more heavily on relational reliability,<sup>39</sup> as they know what to expect from the other firm based on prior relationships and interactions,<sup>40</sup> that is, through exchange-specific experiences a partner develops an expectation of the other's behaviour.<sup>41</sup> Once developed, socio-psychological bonds of norms and sentiments, as well as a justified faith in the morality and goodwill of the other party reinforce the reliance on trusting beliefs.<sup>42</sup>

However, in the context of China, relational reliability in business has a distinct role and configuration, based on both ancient and recent histories.<sup>43</sup> In the

<sup>36</sup> D M Rousseau et al, 'Not So Different After All: A Cross-Discipline View of Trust' (1998) 23 *Academy of Management Review* 393.

<sup>37</sup> Akbar Zaheer, Bill McEvily and Vincenzo Perrone, 'Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance' (1998) 9 *Organization Science* 141.

<sup>38</sup> Jeffrey L Bradach and Robert G Eccles, 'Price, Authority, and Trust: From Ideal Types to Plural Forms' (1989) 15 *Annual Review of Sociology* 97.

<sup>39</sup> Janet Bercovitz, Sandy D Jap and Jack A Nickerson, 'The Antecedents and Performance Implications of Cooperative Exchange Norms' (2006) 17 *Organization Science* 724; Laura Poppo and Todd Zenger, 'Do Formal Contracts and Relational Governance Function as Substitutes or Complements?' (2002) 23 *Strategic Management Journal* 707.

<sup>40</sup> Ranjay Gulati, 'Does Familiarity Breed Trust? The Implications of Repeated Ties For Contractual Choice in Alliances' (1995) 38 *Academy of Management Review* 85.

<sup>41</sup> Poppo and Zenger, above n 39.

<sup>42</sup> Bercovitz et al, above n 39.

<sup>43</sup> Mayfair M H Yang, *Gifts, Favors, and Banquets: The Art of Social Relationships in China* (Cornell University Press, 1994); Peng, above n 5.



Anglo-Western tradition, social norms tend to dictate the separation of work and personal affairs.<sup>44</sup> This is predominantly based on the foundational sociological work conducted by Silver,<sup>45</sup> which suggests that the notion of true friendship excludes instrumental benefits. However, in the traditional Chinese cultural context, there is a blurring of the boundary of business and friendship. This has been demonstrated empirically through examination of the configurations of affect and cognition-based trust in personal business networks in China.<sup>46</sup> Explored in the literature through the indigenous concept of guanxi, the development and use of friendships in business tends to be viewed as both appropriate and 'necessary' for business.<sup>47</sup> Although guanxi was first introduced to the management literature as a kind of substitute for formal institutional support,<sup>48</sup> the origins of the concept are argued to be cultural.<sup>49</sup> Therefore, guanxi is seen to operate under a culturally distinct set of rules.<sup>50</sup>

#### IV. DEFINING GUANXI: SEPARATING KITH FROM KIN

The concept of guanxi is victim to a plethora of slightly differentiated and competing definitions,<sup>51</sup> many of which are simplified or adapted to suit particular research purposes. In her seminal work, Yang states that guanxi literally means 'relationships',<sup>52</sup> emphasising their networked nature and their foundation of mutual trust and obligation. Here, guanxi is viewed as personal connections with others, with the view to their instrumental use. This is in line with the majority of the literature, which conceptualises guanxi at the individual level.<sup>53</sup>

Davies refers to guanxi as 'the social interactions with the network place, and its members in the equivalent of an infinitely repeated game with a set of people they don't know'.<sup>54</sup> Therefore, in order to understand how an individual or a firm may access, develop and use guanxi effectively, first the dynamics and structure of guanxi should be unpacked. Although often conflated in the academic literature,

<sup>44</sup> Viviana A Zelizer, *The Purchase of Intimacy* (Princeton University Press, 2005) 7–47.

<sup>45</sup> Allan Silver, 'Friendship in Commercial Society: Eighteenth-Century Social Theory and Modern Sociology' (1990) 95 *American Journal of Sociology* 1474.

<sup>46</sup> Roy YJ Chua, Michael W Morris and Paul Ingram, 'Guanxi vs Networking: Distinctive Configurations of Affect-and Cognition-Based Trust in the networks of Chinese vs American managers' (2009) 40 *Journal of International Business Studies* 490.

<sup>47</sup> Wu, Wu and Rui, above n 34; Eric WK Tsang, 'Can Guanxi Be a Source of Sustained Competitive Advantage for Doing Business in China?' (1998) 12 *Academy of Management Executive* 64.

<sup>48</sup> Katherine K Xin and Jone L Pearce, 'Guanxi: Connections as Substitutes for Formal Institutional Support' (1996) 39 *Academy of Management Journal* 1641.

<sup>49</sup> Yang, above n 43.

<sup>50</sup> Seung Ho Park and Yadong Luo, 'Guanxi and Organizational Dynamics: Organizational Networking in Chinese Firms' (2001) 22 *Strategic Management Journal* 455.

<sup>51</sup> Chao C Chen, Xiao-Ping Chen and Shengsheng Huang, 'Chinese Guanxi: An Integrative Review and New Directions for Future Research' (2013) 9 *Management and Organization Review* 167.

<sup>52</sup> Yang, above n 43.

<sup>53</sup> Chen, Chen and Huang, above n 51.

<sup>54</sup> Howard Davies et al, 'The Benefits of 'Guanxi': The Value of Relationships in Developing the Chinese Market' (2013) 24 *Industrial Marketing Management* 207.

guanxi is dissectible into differing strata, each governed by a set of different, but interrelated, social rules.<sup>55</sup> The strata have been identified by Yang as jia-ren guanxi, shou-ren guanxi and sheng-ren guanxi, and exist in nested concentric circles.<sup>56</sup>

Jia-ren guanxi are the rules of relationships amongst close family members (parents and siblings), and theoretically form the centre of an individual's guanxi network. Within these family relationships, there exists an obligation for elder family members to show benevolence to their juniors and aid them, without the anticipation of direct reciprocity. These relationships are often extended to business, most notably in the Chinese diaspora and Chinese family firms.<sup>57</sup>

However, in shou-ren guanxi the relational rules are different. Shou-ren guanxi is shared among more distant relatives, neighbours, classmates and colleagues. In this circle, individuals are bonded by consanguinity and friendship, and thus are mutually trusted and committed. The rules of mianzi (face) and renqing (human obligation) govern this guanxi context.<sup>58</sup> The concept of mianzi is signified by honour or status in the social hierarchy, whereby giving favours to the weaker members of the hierarchy is considered a demonstration of the power or capability of the individual beyond common peers.<sup>59</sup> Therefore, individuals can give mianzi to others through requesting favours. However, within this strata of guanxi, the extent of favours asked are limited by the perceived need for reciprocity (renqing); by receiving a favour, an individual is indebted, and can be asked a favour in return whenever called upon.<sup>60</sup> Furthermore, failing to do so can severely damage social reputation, including but not limited to, the ostracising of that individual and his network.<sup>61</sup>

Beyond the first two strata exist the sheng-ren guanxi, the acquaintances or strangers. Within this guanxi context, interactions are superficial and temporary, and therefore viewed as utilitarian and transactional. With this in mind, instrumentality and opportunism dominate, with a focus on personal gains and losses, and the influence of mianzi and renqing are not seen.<sup>62</sup> Ultimately, foreigners are seen to be in this category until such a time as they may enter the inner guanxi network, either through marriage and/or adoption, becoming jia-ren guanxi, or through the use of more creative, accessible and dynamic entry strategies

<sup>55</sup> Peng, above n 5, Björkman and Kock, above n 15.

<sup>56</sup> Yang, above n 43.

<sup>57</sup> Alan Smart and Jinn-Yuh Hsu, 'The Chinese Diaspora, Foreign Investment and Economic Development in China' (2004) 3 *Review of International Affairs* 544.

<sup>58</sup> Chenting Su and James E Littlefield, 'Entering Guanxi: a Business Ethical Dilemma in Mainland China?' (2001) 33 *Journal of Business Ethics* 199.

<sup>59</sup> Kwang-kuo Hwang, 'Face and Favor: The Chinese Power Game' (1987) 92 *American Journal of Sociology* 944.

<sup>60</sup> Ying Fan, 'Questioning Guanxi: Definition, Classification and Implications' (2002) 11 *International Business Review* 543.

<sup>61</sup> Yang, above n 43.

<sup>62</sup> Su and Littlefield, above n 58.

into the shou-ren guanxi. Therefore, with the option of marriage aside, in the context of foreign business in China, focus should be placed on understanding the nature, utility and norms governing shou-ren guanxi.<sup>63</sup> Furthermore, the context of shou-ren guanxi is the most discussed in the guanxi literature.<sup>64</sup> Nevertheless, it is still important to be aware that the rules governing familial relationships and stranger relationships differ from the context of shou-ren guanxi, which is the focus of further discussion.

## V. DIFFERENTIATING GUANXI FROM TRADITIONAL NETWORK THEORY

As described above in terms of relational reliability, to differing extents inter-firm and interpersonal networks play an important role in business in every national context, including western countries.<sup>65</sup> However, guanxi is generally considered unique in comparison to a Western view of networking in that it is more personal, reciprocal and long-term oriented.

Firstly, guanxi is primarily analysed solely at the interpersonal level. Although the use of guanxi has been seen to achieve group and firm-level objectives and tangibly help and hinder business objectives (as is discussed below), the development and exercise of guanxi is between individuals. This distinction was made in the early guanxi literature. Notably, Alston addresses guanxi as networks of relationships between employees,<sup>66</sup> highlighting that they need to be re-established by new personnel when employees move from one organisation.<sup>67</sup> Although some attempt to theorise inter-organisational guanxi has been made,<sup>68</sup> this is a dramatic departure from the general understanding of the literature.<sup>69</sup> Furthermore, application of theories from organisational behavioural research in the context of entrepreneurship have blurred the lines of traditional network theory,<sup>70</sup> however in the context of this paper, guanxi differs from traditional network theory via the level of analysis.

Secondly, at the core of guanxi is the exchange of personal favours.<sup>71</sup> Often described in terms of reciprocity, if an individual provides certain assistance

<sup>63</sup> Hongxin Zhao and Chin-Chun Hsu, 'Social Ties and Foreign Market Entry: An Empirical Enquiry' (2007) 47 *Management International Review* 815.

<sup>64</sup> Chen, Chen and Huang, above n 51.

<sup>65</sup> Peng and Luo, above n 16.

<sup>66</sup> Jon P Alston, 'Wa, Guanxi, and Inhwa: Managerial Principles in Japan, China, and Korea' (1989) 32 *Business Horizons* 26.

<sup>67</sup> Ibid.

<sup>68</sup> Baiyun Gong, 'Individual and Collective Interorganizational Guanxi: The Dynamics of Guanxi and Knowledge Sharing' (2011) 5 *Frontiers of Business Research in China* 473.

<sup>69</sup> Alston, above n 66; Davies et al, above n 54; Yi Zhang and Zigang Zhang, 'Guanxi and Organizational Dynamics in China: A Link Between Individual and Organizational Levels' (2006) 67 *Journal of Business Ethics* 375.

<sup>70</sup> Eric Gedajlovic et al, 'Social Capital and Entrepreneurship: A Schema and Research Agenda' (2013) 37 *Entrepreneurship Theory and Practice* 455.

<sup>71</sup> Yang, above n 43; Fei Song, C Bram Cadsby and Yunyun Bi, 'Trust, Reciprocity, and Guanxi in China: An Experimental Investigation' (2012) 8 *Management and Organization Review* 397.

or help to another, then it is expected that repayment will be made in the future, not necessarily in the same terms or of exactly equal value, however, perceived value is of utmost importance in considering whether or not repayment is sufficient.<sup>72</sup> Further to this, relationships are limited by an individual's ability or inability to return the favour; if an individual believes repayment cannot be made, the favour will not be granted.<sup>73</sup> This dynamic is differed from the formal exchanges emphasised in traditional network theory, whereby firm relationships are primarily impersonal.<sup>74</sup>

Finally, *guanxi* is focussed on a long-term orientation, which is a departure from networks observed in traditional network theory. Lee et al takes the assumption that parties involved in both *guanxi* and western networks have a desire to preserve their relationships and maintain a future-orientation,<sup>75</sup> however, there is a greater acceptance of immediate uncertainty in *guanxi* networks by participating parties. Generally, *guanxi* is created for future gains and long-term transactions rather than a single exchange. Further to this, individuals might not even have a particular purpose for the cultivation of *guanxi*, but hold an expectation that benefits may be obtained in the future.<sup>76</sup>

## VI. DEVELOPING GUANXI

With this analysis and understanding in mind, what is of strategic concern to business is the way in which to enter and 'win' the *guanxi* game.<sup>77</sup> This is the process of *la guanxi*, which has been interpreted as 'entering' or 'developing' *guanxi*. In addressing this, the salient concerns are who should be the individuals concerned, when and where should it be conducted, and, in particular, how should *guanxi* development be approached. However, before this analysis is presented, it should be noted that some scholars, primarily from the cross-cultural and sociological disciplines, fervently disagree with the concept of overtly strategised *guanxi*.<sup>78</sup> These scholars argue that it is a falsification of a unique cultural practice, and cannot be dissected in the form of a process.<sup>79</sup> However, primarily for the benefit of the culturally Western business community such an approach has been

---

<sup>72</sup> Tsang, above n 47.

<sup>73</sup> Stephen S Standifird and R Scott Marshall, 'The Transaction Cost Advantage of Guanxi-Based Business Practices' (2000) 35 *Journal of World Business* 21; Davies et al, above n 54.

<sup>74</sup> Peng, above n 5.

<sup>75</sup> Dong-Jin Lee, Jae H Pae and Y H Wong, 'A Model of Close Business Relationships in China (Guanxi)' (2001) 35 *European Journal of Marketing* 51.

<sup>76</sup> Yang, above n 43.

<sup>77</sup> John E Dixon and David Newmann, *Entering the Chinese Market: The Risks and Discounted Rewards* (Greenwood Publishing Group, 1998); Hwang, above n 59.

<sup>78</sup> Yusheng Peng, 'Kinship Networks and Entrepreneurs in China's Transitional Economy' (2004) 109 *American Journal of Sociology* 1045; Yang, above n 43.

<sup>79</sup> Peng, above n 78.

highlighted in the literature.<sup>80</sup>

Firstly, for foreign firms, the individuals conducting guanxi, on both sides of the transaction are of importance; identifying the right guanxi partner is of strategic significance. Guanxi can be divided into ties with managers and members of other businesses, such as suppliers, buyers and competitors,<sup>81</sup> and ties with government officials, both local and national.<sup>82</sup> Both types of guanxi are interrelated and salient in terms of business success, as is discussed below. Of equal importance is identification of the correct individual from the firm to initiate and develop each relationship, as guanxi exists primarily on the individual basis.<sup>83</sup> Qualitative research informs businesses of the risks of operating through one individual, as any guanxi benefits can be lost with their departure or dismissal.<sup>84</sup> Hedging strategies are suggested, with one individual entering and developing the initial relationship, but with introductions given to colleagues.

Secondly, the timeliness of guanxi and the locations for relationship building should be strategically considered. The long-term orientation of guanxi means that no relationship can be entered too soon; although allocation of resources to guanxi-development should be considered, the longer the relationship and the greater number of shared experiences, the stronger the guanxi bond.<sup>85</sup> Further to this, trust is essential to the development of the relationship, and must exist before favours can be exchanged.<sup>86</sup> With this in mind, a distinction between proactive and reactive relationship building is made by Luo, who highlights the importance of building trusting relationships not overtly for utilisation.<sup>87</sup> In addition to this, the location of guanxi building is important, as context plays a large role in developing trust in the relationship.<sup>88</sup> Activities both internal and external to the firm are often required, not just in the formality of meetings, but also in social contexts.

Thirdly, the method through which guanxi should be developed is naturally of particular importance, but is unfortunately hardly discussed in the literature. However, Su and Littlefield highlight four broad strategies: taking the lead in commitments, always offering help, showing empathy in times of hardship, and

<sup>80</sup> Su and Littlefield, above n 58; Vivian C Sheer and Ling Chen, 'Successful Sino-Western Business Negotiation: Participants' Accounts of National and Professional Cultures' (2003) 40 *Journal of Business Communication* 50; Tsang, above n 47.

<sup>81</sup> Paola Dubini and Howard Aldrich, 'Personal and Extended Networks are Central to the Entrepreneurial Process' (1991) 6 *Journal of Business Venturing* 305; Peng and Luo, above n 16.

<sup>82</sup> Yadong Luo and Min Chen, 'Does Guanxi Influence Organizational Performance?' (1997) 14 *Asia Pacific Journal of Management* 1; Peng and Luo, above n 16.

<sup>83</sup> Tsang, above n 47.

<sup>84</sup> Björkman and Kock, above n 15.

<sup>85</sup> Luo and Chen, above n 82.

<sup>86</sup> Chua, Morris and Ingram, above n 46.

<sup>87</sup> Yadong Luo, 'Guanxi and Performance of Foreign-Invested Enterprises in China: An Empirical Inquiry' (1997) 37 *Management International Review* 51.

<sup>88</sup> Tsang, above n 47.

making liberal use of intermediaries.<sup>89</sup> The emphasis on proactivity and offers of favour in particular are maintained in more recent literature.<sup>90</sup> Furthermore, although *guanxi* is built between two individuals, favours are more often than not intangible, and involve further trust building with other parties through introductions to further *guanxi*.<sup>91</sup> Viewed through the theory of structural holes in Western literature,<sup>92</sup> *guanxi* can be used to enter other networks. In part due to the blurring of affective and cognition-based trust, the use of intermediaries in this manner does more than bridge networks, it provides a vote of confidence in a third party.<sup>93</sup> Therefore, through the use of any existing relationships, a *guanxi* network can be nurtured.

## VII. USING GUANXI: A CORPORATE RESOURCE

As can be seen, although developed on a personal level, *guanxi* is utilised as a tool for business. From a resource-based view of the firm,<sup>94</sup> competitive advantage lies primarily in the bundle of resources under a firm's control. Using this perspective, *guanxi* has been analysed paradoxically as both a resource, akin to social capital, but also a mechanism through which to acquire resources.<sup>95</sup> A well-developed *guanxi* network fulfils the criteria of a valuable, rare and inimitable resource that can be leveraged over competitors.<sup>96</sup> In terms of defining *guanxi* as a resource, several scholars have noted the difference between *guanxi* formed with members of other businesses, and *guanxi* formed with bureaucrats and political insiders.<sup>97</sup> Although the methods by which these connections are made follow the same rules, understanding the rules of reciprocity with political insiders presents moral hazards, as described below.

In terms of the uses of *guanxi*, Davies et al identify three salient uses: as a source of information, as a source of resources and to smooth transactions.<sup>98</sup> For example, *guanxi* are seen to be called upon for such uses as access to market and competitor information,<sup>99</sup> access to distribution channels,<sup>100</sup> and as a way

<sup>89</sup> Su and Littlefield, above n 58.

<sup>90</sup> Song, Cadsby and Bi, above n 71.

<sup>91</sup> Hongzhi Gao, John G Knight and David Ballantyne, 'Guanxi as a Gateway in Chinese-Western Business Relationships' (2012) 27 *The Journal of Business and Industrial Marketing* 456.

<sup>92</sup> Ronald S Burt, *Structural Holes: The Social Structure of Competition* (Harvard University Press, 1992).

<sup>93</sup> John Child and Guido Möllering, 'Contextual Confidence and Active Trust Development in the Chinese Business Environment' (2003) 14 *Organization Science* 69.

<sup>94</sup> Birger Wernerfelt, 'The Resource Based View of the Firm: Ten Years After' (1995) 16 *Strategic Management Journal* 171.

<sup>95</sup> Wu, Wu and Rui, above n 34.

<sup>96</sup> Zhang and Zhang, above n 69.

<sup>97</sup> Shi, Markóczy and Stan, above n 4; Tsang, above n 47.

<sup>98</sup> Davies et al, above n 54.

<sup>99</sup> Flora F Gu, Kineta Hung and David K Tse, 'When Does Guanxi Matter? Issues of Capitalization and its Dark Sides' (2008) 72 *Journal of Marketing* 12.

<sup>100</sup> Björkman and Kock, above n 15.

of informally mediating conflicts.<sup>101</sup> Furthermore, intertwined with these uses, good guanxi can also be used to as a tool for increasing the perceived legitimacy of a firm.<sup>102</sup> However, the uses of guanxi are varied and multifaceted, therefore creativity in their use can also be considered a core competency for a firm.<sup>103</sup>

## VIII. LIMITS OF GUANXI

In light of the literature that espouses the merits and essential benefits of guanxi in Chinese business, more recently the limitations and inefficiencies have been highlighted; guanxi network development and maintenance comes with a range of risks. Much like Donald Rumsfeld's understanding of 'unknown unknowns', whereby individuals or even nations are limited by their ability to perceive risks, the relevant literature documents the pitfalls of politicised guanxi. Disregarding external factors, the limitations inherent to the use of guanxi can be roughly summarised by three risks.

Firstly, the issue of personal indebtedness of executives can cause significant liabilities for a firm. In entering a guanxi network, which as described above is governed primarily by the concept of reciprocity,<sup>104</sup> relationships that are used to achieve a goal come at the price of a need for repayment. This can place firms in difficult situations, unable to factor-in the potential costs and liabilities. Furthermore, an inability to view the entirety of a guanxi network leads to unforeseen channels of influence and competing agendas.<sup>105</sup> Therefore, the influence of obligations from distant network members can impact on the firm. An inability to correctly navigate these relationships is fatal, and therefore the process is seen to be time-consuming for domestic firms, and even more so for foreign firms,<sup>106</sup> providing an intangible form of liability.

Secondly, there is a perpetual risk of network collapse. Uzzi theorises a kind of domino effect, which can be seen in tightly knit networks,<sup>107</sup> whereby the failure of one firm directly impacts on the others within the network. In the case of guanxi, exposure to risk is heightened as long-term relationships dampen agility in adaptive strategy, and intensity of the social dimension of the relationship causes firms to be tied together through failure.<sup>108</sup>

<sup>101</sup> Guijin Zhuang, Youmin Xi and Alex SL Tsang, 'Power, Conflict, and Cooperation: The Impact of Guanxi in Chinese Marketing Channels' (2010) 39 *Industrial Marketing Management* 137.

<sup>102</sup> Luo and Chen, above n 82.

<sup>103</sup> Li, Poppo and Zhou, above n 32.

<sup>104</sup> Fan, above n 60.

<sup>105</sup> Shi, Markóczy and Stan, above n 4.

<sup>106</sup> Tsang, above n 47.

<sup>107</sup> Brian Uzzi, 'Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness' (1998) 42 *Administrative Science Quarterly* 35.

<sup>108</sup> Gu, Hung and Tse, above n 99.

Thirdly, the literature highlights the issue of collective blindness,<sup>109</sup> whereby ingrained practices and norms amongst a tightly knit network reduces the members' ability to accurately perceive environmental changes and potential hazards. This has been empirically proven in the case of guanxi,<sup>110</sup> whereby there is lost perception of market forces and technological turbulence, which leads to firms who rely on guanxi performing poorly under these conditions.

Further to these risks, inherent to the guanxi network is the added dimension of institutionalised corruption in the Chinese political landscape. Corrupt business practices are a risk in developing and transition economies in general,<sup>111</sup> however in the context of China there is specified concern in regards to the role of guanxi, which from the outset of analysis in the western academic literature has often been equated with corruption and bribery.<sup>112</sup> Su and Littlefield were the first to provide a model that demarcated between the culturally bound practice of guanxi and rent-seeking guanxi, or corruption.<sup>113</sup> They, however, only broadly discuss the differences, and subsequent authors have bemoaned a continued lack of clarity in the issue.<sup>114</sup> It is a quagmire of thorny ethical hazards, littered with subjective viewpoints. However, a notable recent work of Zhan contends that although guanxi is interrelated with corruption, participants in guanxi are not compelled to corruption;<sup>115</sup> rather it is merely an operating mechanism that masks and facilitates corruption. Therefore, in order to avoid ensnaring business dealings in overtly or covertly corrupt practices, Su et al recommends strategic, firm-level management of guanxi,<sup>116</sup> via an adapted model of stakeholder salience, with the addition of guanxi audits.<sup>117</sup> This ensures healthy relationships are maintained and can be managed, whereas unhealthy or corrupt connections can be avoided or excluded from the network. With these strategies in place, the gains from such long-term, purposeful management of guanxi are seen to be far greater than involvement in rent-seeking guanxi exchanges.<sup>118</sup>

<sup>109</sup> Barry Wellman, 'Structural Analysis: From Method and Metaphor to Theory and Substance' in Barry Wellman and Stephen D Berkowitz, *Social Structures: A Network Approach* (Cambridge University Press, 1988) 19–61.

<sup>110</sup> Gu, Hung and Tse, above n 99.

<sup>111</sup> Yadong Luo, 'The Changing Chinese Culture and Business Behavior: The Perspective of Intertwinement Between Guanxi and Corruption' (2008) 17 *International Business Review* 188.

<sup>112</sup> Larry R Smeltzer and Marianne M Jennings, 'Why an International Code of Business Ethics Would be Good for Business' (1998) 17 *Journal of Business Ethics* 57; Shujie Yao, 'Economic Growth, Income Inequality and Poverty in China Under Economic Reform' (1999) 35 *Journal of Development Studies* 104.

<sup>113</sup> Su and Littlefield, above n 58.

<sup>114</sup> Luo, above n 111; Dennis B Hwang et al, 'Guanxi and Business Ethics in Confucian Society Today: An Empirical Case Study in Taiwan' (2009) 89 *Journal of Business Ethics* 235.

<sup>115</sup> Jing Vivian Zhan, 'Filling the Gap of Formal Institutions: the Effects of Guanxi Network on Corruption in Reform-Era China' (2012) 58 *China, Crime, Law and Social Change* 93.

<sup>116</sup> Chenting Su, Ronald K Mitchell and M Joseph Sirgy, 'Enabling Guanxi Management in China: A Hierarchical Stakeholder Model of Effective Guanxi' (2007) 71 *Journal of Business Ethics* 301.

<sup>117</sup> Tsang, above n 47.

<sup>118</sup> Luo, above n 111.



## IX. LIMITS OF GUANXI SPECIFICALLY FOR FOREIGN FIRMS

Although guanxi has been identified as an integral part of business strategy for domestic firms in the Chinese market, foreign firms operating in China have been seen to be limited in their use of guanxi. The theory of liability of foreignness is applied appropriately in this context, as the use of guanxi can be seen as a common absorption strategy for foreign firms, but may be often imperfectly replicated.<sup>119</sup> However, foreign firms are seen to be hampered in their development of guanxi, and receive differing returns. In regards to this, three key impediments have been identified in the literature.

Firstly, as cultural differences between a firm's country of origin and host country increase, firm performance has been seen to decrease due to conflicts in implementing strategic decisions.<sup>120</sup> Specifically in the case of guanxi, the management of relationships is so culturally defined that foreign managers are necessarily hampered, even with significant international experience.<sup>121</sup> In addition, social penetration theory<sup>122</sup> posits that relational strength occurs through gradual self-disclosure. Using the guanxi model of concentric social circles as described above,<sup>123</sup> foreigners will therefore find it more difficult to penetrate the networks due to cultural barriers and a lack of understanding in disclosure.<sup>124</sup> Furthermore, highlighting the influence of shared culture and existing ties on market entry into China is the proliferation of overseas Chinese businesses that invested in the mainland.<sup>125</sup> Although there is a plethora of moderating factors affecting the success of market entry into China, a firm's local cultural and linguistic experience is significant,<sup>126</sup> and guanxi is seen to both figuratively and literally mediate the relationship.<sup>127</sup>

Secondly, a cornerstone in modern guanxi relationships is the leverage and use of political ties. As described above, uncertainty in formal institutions leads firms to seek out ties, which can be leveraged to counterbalance this uncertainty. However, the main political driver for the development of China's modern

<sup>119</sup> Srilata Zaheer, 'Overcoming the Liability of Foreignness' (1995) 38 *Academy of Management Journal* 341; Tsang, above n 47.

<sup>120</sup> Laszlo Tihanyi, David A Griffith and Craig J Russell, 'The Effect of Cultural Distance on Entry Mode Choice, International Diversification, and MNE Performance: A Meta-Analysis' (2005) 36 *Journal of International Business Studies* 270.

<sup>121</sup> Hitt, Li and Worthington, above n 22.

<sup>122</sup> Irwin Altman and Dalmas A Taylor, *Social Penetration: the Development of Interpersonal Relationships* (Holt, Rinehart & Winston, 1973).

<sup>123</sup> Yang, above n 43.

<sup>124</sup> Vivian C Sheer and Ling Chen, 'Successful Sino-Western Business Negotiation: Participants' Accounts of National and Professional Cultures' (2003) 40 *Journal of Business Communication* 50.

<sup>125</sup> Smart and Hsu, above n 57.

<sup>126</sup> Debanjan Mitra and Peter N Golder, 'Whose Culture Matters? Near-Market Knowledge and its Impact on Foreign Market Entry Timing' (2002) 39 *Journal of Marketing Research* 350; Wang, Hoi and Zhang above n 25.

<sup>127</sup> Ron Berger et al, 'Can Guanxi be Created in Sino-Western Relationships? An Assessment of Western Firms Trading with China Using the GRX Scale' (2015) 47 *Industrial Marketing Management* 166.

business regulations is arguably the desire for globally competitive Chinese firms.<sup>128</sup> Therefore, policies that have opened the market to foreign businesses have also been seen to heighten operational interference, a transition from ‘overt control to covert intervention’.<sup>129</sup> This means that foreign firms may encounter adversarial or challenging relationships in the government, which means the highly valuable political ties are better utilised by domestic firms than foreign firms.<sup>130</sup>

Finally, and most fundamentally, firms from countries with Anglo-Western traditions of government and highly developed formal institutions that encourage free markets find it challenging to combine tie-utilisation strategies — referring to the use of personal connections based on interpersonal trust and market-based strategies.<sup>131</sup> Guanxi can often be in conflict with entrenched, efficiency-based systems and thus either ineffectively or marginally utilised.<sup>132</sup>

Although domestic firms may have an advantage, successful management and use of guanxi can still be achieved by foreign firms.<sup>133</sup> Furthermore, recent empirical evidence suggests that use of guanxi in business has a positive influence on foreign firms,<sup>134</sup> and can, in fact, complement market-oriented perspectives if used in different ways.<sup>135</sup> Li and Zhou argue, that market orientation can enhance firm performance by providing differentiation and cost advantages,<sup>136</sup> but that managerial ties may improve performance through an institutional advantage. However, work by Li et al suggests there are contingencies on foreign firm’s use of guanxi, in that its influence on performance is curvilinear for foreign firms but not for domestic firms, which enjoy seemingly unlimited benefits from tie-utilisation.<sup>137</sup>

## X. THE CONTINUING INFLUENCE OF GUANXI?

Despite evidence that guanxi is essential to business operations in China, including for foreign firms, the role of guanxi has been posited to weaken as the perceived

<sup>128</sup> Peter Nolan, *China and the Global Economy: National champions, Industrial Policy and the Big Business Revolution* (Palgrave Macmillan, 2001).

<sup>129</sup> Y. Luo, ‘Shifts of Chinese Government Policies on Inbound Foreign Direct Investment’ in Robert Grosse, *International Business and Government Relations in the 21st Century* (Cambridge University Press, 2005) 295.

<sup>130</sup> Li, Poppo and Zhou, above n 32.

<sup>131</sup> Peng, above n 5.

<sup>132</sup> Julie Juan Li, ‘The Formation of Managerial Networks of Foreign Organizations in China: The Effects of Strategic Orientations’ (2005) 22 *Asia Pacific Journal of Management* 423.

<sup>133</sup> Tsang, above n 47.

<sup>134</sup> Li, above n 132.

<sup>135</sup> Julie Juan Li and Kevin Zheng Zhou, ‘How Foreign Firms Achieve Competitive Advantage in the Chinese Emerging Economy: Managerial Ties and Market Orientation’ (2010) 63 *Journal of Business Research* 856.

<sup>136</sup> Ibid.

<sup>137</sup> Li, Poppo and Zhou, above n 32.

strength of formal institutions increases.<sup>138</sup> However, there is debate as to whether guanxi is used simply as a mechanism in response to inefficient and unreliable regulatory systems, or if it is in fact a culturally ingrained business practice with longevity.<sup>139</sup> This debate is also divided between the use of political and business ties.

In relation to the use of political ties, Peng argues that as transition economies advance towards more market-based competition, the cost of maintaining these ties will eventually exceed the benefits.<sup>140</sup> The government's role will transform from controller to facilitator.<sup>141</sup> However, Kennedy's inductive research suggests that the role of political ties is in fact increasing as reform continues, as businesses wish to play a role in shaping reform.<sup>142</sup> Nevertheless, the meta analysis of guanxi research conducted by Luo et al suggests that over time the magnitude of the relationship between political ties and firm performance has decreased over time.<sup>143</sup>

In relation to business ties, the research is less divided; most scholars agree on the continuing importance of managerial ties in China.<sup>144</sup> Original scholars noted the importance of guanxi in everyday life in China, and have identified the practice as a culturally ingrained, as opposed to defined by the modern institutional context.<sup>145</sup> However, culture is dynamic, and can be shaped by political and economic forces,<sup>146</sup> which leads some scholars to believe that, like other relationship-dependant business cultures in history, market turbulence and competition will eventually lead to a preference for short-term transactions.<sup>147</sup> Although this may be the case, it is clear that until political and social reform is achieved, and issues such as social inequality, regionalism and a lack of legal and political transparency have been addressed, guanxi and interpersonal trust will continue to play a large role in defining business success in China.

<sup>138</sup> Victor Nee, 'A Theory of Market Transition: From Redistribution to Markets in State Socialism' (1989) 54 *American Sociological Review* 663; Douglas Guthrie, 'The Declining Significance of Guanxi in China's Economic Transition' (1998) 154 *China Quarterly* 154; Shi, Sun and Peng, above n 30.

<sup>139</sup> Chen, Chen and Huang, above n 51.

<sup>140</sup> Peng, above n 5.

<sup>141</sup> Haiyang Li and Yan Zhang, 'The Role of Managers' Political Networking and Functional Experience in New Venture Performance: Evidence from China's Transition Economy' (2007) 28 *Strategic Management Journal* 791; Shi, Sun and Peng, above n 30.

<sup>142</sup> Scott Kennedy, 'China's Porous Protectionism: The Changing Political Economy of Trade Policy' (2005) 120 *Political Science Quarterly* 407.

<sup>143</sup> Yadong Luo, Ying Huang and Stephanie Lu Wang, 'Guanxi and Organizational Performance: A Meta Analysis' (2012) 8 *Management and Organization Review* 139.

<sup>144</sup> Luo, above n 129.

<sup>145</sup> Yang, above n 43; Tsang, above n 47.

<sup>146</sup> Shi, Markóczy and Stan, above n 4.

<sup>147</sup> Ron Berger and Ram Herstein, 'The Limits of Guanxi From the Perspective of the Israeli Diamond Industry' (2012) 5 *Journal of Chinese Economic and Foreign Trade Studies* 29.

## XI. CONCLUSION

The analysis of the relevant literature in this essay has shown that the role and use of guanxi is highly influential on business success in China, for both foreign and domestic firms. Although intensified by the weak formal institutional environment, guanxi has deep cultural and historical roots, and therefore constitutes more than a strategy to overcome formal uncertainties, but is likely to be an enduring facet of the Chinese business environment. Furthermore, although development of guanxi is a significant challenge for foreign businesses, and there are hazards inherent to the reliance on networks, their strategic use is seen to be positively associated with firm performance. However, foreign firms should be wary of the use of political connections, primarily due to their association with corruption, and the often-conflicting agendas of political actors.

### **Acknowledgements**

Thank you to Associate Professor Pierre van der Eng, for his patience and faith in the topic of this paper, and his generous advice and guidance. Also, to Dr Vesna Sedoglavich for her encouragement and support.

## References

- Alston, Jon P, 'Wa, Guanxi, and Inhwa: Managerial Principles in Japan, China, and Korea' (1989) 32 *Business Horizons* 26
- Altman, Irwin and Dalmas A Taylor, *Social Penetration: the Development of Interpersonal Relationships* (Holt, Rinehart and Winston, 1973)
- Ang, James S, Yingmei Cheng and Chaopeng Wu, 'Does Enforcement of Intellectual Property Rights Matter in China? Evidence from Financing and Investment Choices in the High-Tech Industry' (2014) 96 *Review of Economics and Statistics* 332
- Bercovitz, Janet, Sandy D Jap and Jack A Nickerson, 'The Antecedents and Performance Implications of Cooperative Exchange Norms' (2006) 17 *Organization Science* 724
- Berger, Ron and Ram Herstein, 'The Limits of Guanxi From the Perspective of the Israeli Diamond Industry' (2012) 5 *Journal of Chinese Economic and Foreign Trade Studies* 29
- Berger, Ron, Ram Hersteinb, Avi Silbigerc and Bradley R Barnes, 'Can Guanxi be Created in Sino-Western Relationships? An Assessment of Western Firms Trading with China Using the GRX Scale' (2015) 47 *Industrial Marketing Management* 166
- Björkman, Ingmar and Sören Kock, 'Social Relationships and Business Networks: The Case of Western Companies in China' (1995) 4 *International Business Review* 519
- Bradach, Jeffrey L and Robert G Eccles, 'Price, Authority, and Trust: From Ideal Types to Plural Forms' (1989) 15 *Annual Review of Sociology* 97
- Burt, Ronald S, *Structural Holes: The Social Structure of Competition* (Harvard University Press, 1992)
- Chen, Chao C, Xiao-Ping Chen and Shengsheng Huang, 'Chinese Guanxi: An Integrative Review and New Directions for Future Research' (2013) 9 *Management and Organization Review* 167
- Child, John and Guido Möllering, 'Contextual Confidence and Active Trust Development in the Chinese Business Environment' (2003) 14 *Organization Science* 69
- Chua, Roy YJ, Michael W Morris and Paul Ingram, 'Guanxi vs Networking: Distinctive Configurations of Affect-and Cognition-Based Trust in the networks of Chinese vs American managers' (2009) 40 *Journal of International Business Studies* 490
- Danis, Wade M, Dan S Chiaburu and Marjorie A Lyles, 'The Impact of Managerial Networking Intensity and Market-Based Strategies on Firm Growth During Institutional Upheaval: A Study of Small and Medium Sized Enterprises in a Transition Economy' (2010) 41 *Journal of International Business Studies* 287
- Davies, Howard, Thomas K P Leungb, Sherriff T K Luk and Yiu-hing Wong, 'The Benefits of 'Guanxi': The Value of Relationships in Developing the Chinese Market' (2013) 24 *Industrial Marketing Management* 207
- Department of Foreign Affairs and Trade, 'China: Country and Trade Information' (2015, Department of Foreign Affairs and Trade) <<http://dfat.gov.au/geo/china/Pages/china.aspx>>
- Dixon, John E and David Newmann, *Entering the Chinese Market: The Risks and Discounted Rewards* (Greenwood Publishing Group, 1998)

- Drew, Antony and Anton Kriz, 'Institutional Reform and the Changing Face of Guanxi' (2014) 9 *International Journal of Business and Information* 187
- Dubini, Paola and Howard Aldrich, 'Personal and Extended Networks are Central to the Entrepreneurial Process' (1991) 6 *Journal of Business Venturing* 305
- Faccio, Mara, 'Politically Connected Firms' (2006) 96 *American Economic Review* 369
- Fan, Ying, 'Questioning Guanxi: Definition, Classification and Implications' (2002) 11 *International Business Review* 543
- Gao, Gerald Yong, Janet Y Murray, Masaaki Kotabe and Jiangyong Lu, 'A "Strategy Tripod" Perspective on Export Behaviors: Evidence From Domestic and Foreign Firms Based in an Emerging Economy' (2010) 41 *Journal of International Business Studies* 377
- Gao, Hongzhi, John G Knight and David Ballantyne, 'Guanxi as a Gateway in Chinese-Western Business Relationships' (2012) 27 *The Journal of Business and Industrial Marketing* 456
- Gedajlovic, Eric, Benson Honig, Curt B Moore, G Tyge Payne and Mike Wright, 'Social Capital and Entrepreneurship: A Schema and Research Agenda' (2013) 37 *Entrepreneurship Theory and Practice* 455
- Gong, Baiyun, 'Individual and Collective Interorganizational Guanxi: The Dynamics of Guanxi and Knowledge Sharing' (2011) 5 *Frontiers of Business Research in China* 473
- Gu, Flora F, Kineta Hung and David K Tse, 'When Does Guanxi Matter? Issues of Capitalization and its Dark Sides' (2008) 72 *Journal of Marketing* 12
- Gulati, Ranjay, 'Does Familiarity Breed Trust? The Implications of Repeated Ties For Contractual Choice in Alliances' (1995) 38 *Academy of Management Review* 85
- Guthrie, Douglas, 'The Declining Significance of Guanxi in China's Economic Transition' (1998) 154 *China Quarterly* 154
- Hitt, Michael A and Kai Xu, 'The Transformation of China: Effects of the Institutional Environment on Business Actions' (Report, 2015, Long Range Planning)
- Hitt, Michael A, David Ahlstrom, M Tina Dacin, Edward Levitas and Lilia Svobodina, 'The Institutional Effects on Strategic Alliance Partner Selection in Transition Economies: China vs Russia' (2004) 15 *Organization Science* 173
- Hitt, Michael A, Haiyang Li and William J Worthington, 'Emerging Markets as Learning Laboratories: Learning Behaviors of Local Firms and Foreign Entrants in Different Institutional Contexts' (2005) 1 *Management and Organization Review* 353
- Holmes, Michael R, Toyah Miller, Michael A Hitt and M Paz Salmador, 'The Interrelationships Among Informal Institutions, Formal Institutions, and Inward Foreign Direct Investment' (2013) 39 *Journal of Management* 531
- Hwang, Dennis B, Patricia L Golemon, Yan Chen, Teng-Shih Wang and Wen-Shai Hung, 'Guanxi and Business Ethics in Confucian Society Today: An Empirical Case Study in Taiwan' (2009) 89 *Journal of Business Ethics* 235
- Hwang, Kwang Kuo, 'Face and Favour: The Chinese Power Game' (1987) 92 *American Journal of Sociology* 944

International Monetary Fund, 'Current GDP based on PPP' (February 2014, International Monetary Fund)

Kennedy, Scott, 'China's Porous Protectionism: The Changing Political Economy of Trade Policy' (2005) 120 *Political Science Quarterly* 407

Kwon, Jong-Wook, 'Does China Have More than One Culture? Exploring Regional Differences of Work Values in China' (2012) 29 *Asia Pacific Journal of Management* 79

Lee, Dong-Jin, Jae H Pae and Y H Wong, 'A Model of Close Business Relationships in China (Guanxi)' (2001) 35 *European Journal of Marketing* 51

Li, Haiyang and Yan Zhang, 'The Role of Managers' Political Networking and Functional Experience in New Venture Performance: Evidence from China's Transition Economy' (2007) 28 *Strategic Management Journal* 791

Li, Julie Juan and Kevin Zheng Zhou, 'How Foreign Firms Achieve Competitive Advantage in the Chinese Emerging Economy: Managerial Ties and Market Orientation' (2010) 63 *Journal of Business Research* 856

Li, Julie Juan, Laura Poppo and Kevin Zheng Zhou, 'Do Managerial Ties in China Always Produce Value? Competition, Uncertainty, and Domestic vs Foreign Firms' (2008) 29 *Strategic Management Journal* 383

Li, Julie Juan, 'The Formation of Managerial Networks of Foreign Organizations in China: The Effects of Strategic Orientations' (2005) 22 *Asia Pacific Journal of Management* 423

Luo, Y, 'Shifts of Chinese Government Policies on Inbound Foreign Direct Investment' in Robert Grosse, *International Business and Government Relations in the 21st Century* (Cambridge University Press, 2005)

Luo, Yadong and Min Chen, 'Does Guanxi Influence Organizational Performance?' (1997) 14 *Asia Pacific Journal of Management* 1

Luo, Yadong, Ying Huang and Stephanie Lu Wang, 'Guanxi and Organizational Performance: A Meta Analysis' (2012) 8 *Management and Organization Review* 139

Luo, Yadong, 'Guanxi and Performance of Foreign-Invested Enterprises in China: An Empirical Inquiry' (1997) 37 *Management International Review* 51

Luo, Yadong, 'The Changing Chinese Culture and Business Behavior: The Perspective of Intertwinement Between Guanxi and Corruption' (2008) 17 *International Business Review* 188

Menzies, Jane L and Stuart Orr, 'The Impact of Political Behaviours on Internationalisation: The Case of Australian Companies Internationalising to China' (2010) 3 *Journal of Chinese Economic and Foreign Trade Studies* 24

Mitra, Debanjan and Peter N Golder, 'Whose Culture Matters? Near-Market Knowledge and its Impact on Foreign Market Entry Timing' (2002) 39 *Journal of Marketing Research* 350

Nee, Victor, 'A Theory of Market Transition: From Redistribution to Markets in State Socialism' (1989) 54 *American Sociological Review* 663

Nolan, Peter, *China and the Global Economy: National champions, Industrial Policy and the Big Business Revolution* (Palgrave Macmillan, 2001)

North, Douglass C, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990)

Park, Seung Ho and Yadong Luo, 'Guanxi and Organizational Dynamics: Organizational Networking in Chinese Firms' (2001) 22 *Strategic Management Journal* 455

Peng, Mike W and Yadong Luo, 'Managerial Ties and Firm Performance in a Transition Economy: The Nature of a Micro-Macro Link' (2000) 43 *Academy of Management Journal* 486

Peng, Mike W, 'Institutional Transitions and Strategic Choices' (2003) 28 *Academy of Management Review* 275

Peng, Yusheng, 'Kinship Networks and Entrepreneurs in China's Transitional Economy' (2004) 109 *American Journal of Sociology* 1045

Poppo, Laura and Todd Zenger, 'Do Formal Contracts and Relational Governance Function as Substitutes or Complements?' (2002) 23 *Strategic Management Journal* 707

Puffer, Sheila M, Daniel J McCarthy and Max Boisot, 'Entrepreneurship in Russia and China: The Impact of Formal Institutional Voids' (2010) 34 *Entrepreneurship Theory and Practice* 441

Rogers, Kristina, 'Profit or Lose: Balancing the Growth-Profit Paradox for Global Consumer Products Companies and Retailers in Asia's Emerging Markets' (24 October 2013, Ernst & Young)

Rousseau, D M, Sim B Sitkin, Ronald S Burt and Colin Camerer, 'Not So Different After All: A Cross-Discipline View of Trust' (1998) 23 *Academy of Management Review* 393

Scott, William R, 'Institutional Theory: Contributing to a Theoretical Research Program' in Ken G Smith and Michael A Hitt, *Great Minds in Management: The Process of Theory Development* (Oxford University Press, 2005)

Scott, William R, *Institutions and Organizations* (Thousand Oak, 1995)

Sheer, Vivian C and Ling Chen, 'Successful Sino-Western Business Negotiation: Participants' Accounts of National and Professional Cultures' (2003) 40 *Journal of Business Communication* 50

Shi, Weilei Stone, Livia Markóczy and Ciprian V Stan, 'The Continuing Importance of Political Ties in China' (2014) 28 *Academy of Management Perspectives* 57

Shi, Weilei Stone, Sunny Li Sun and Mike W Peng, 'Subnational Institutional Contingencies, Network Positions, and IJV Partner Selection' (2012) 49 *Journal of Management Studies* 1221

Shi, Weilei Stone, Sunny Li Sun, Brian C Pinkham and Mike W Peng, 'Domestic Alliance Network to Attract Foreign Partners: Evidence from International Joint Ventures in China' (2014) 45 *Journal of International Business Studies* 338

Silver, Allan, 'Friendship in Commercial Society: Eighteenth-Century Social Theory and Modern Sociology' (1990) 95 *American Journal of Sociology* 1474

Smart, Alan and Jinn-Yuh Hsu, 'The Chinese Diaspora, Foreign Investment and Economic Development in China' (2004) 3 *Review of International Affairs* 544



- Smeltzer, Larry R and Marianne M Jennings, 'Why an International Code of Business Ethics Would be Good for Business' (1998) 17 *Journal of Business Ethics* 57
- Song, Fei, C Bram Cadsby and Yunnyun Bi, 'Trust, Reciprocity, and Guanxi in China: An Experimental Investigation' (2012) 8 *Management and Organization Review* 397
- Standifird, Stephen S and R Scott Marshall, 'The Transaction Cost Advantage of Guanxi-Based Business Practices' (2000) 35 *Journal of World Business* 21
- Su, Chenting and James E Littlefield, 'Entering Guanxi: a Business Ethical Dilemma in Mainland China?' (2001) 33 *Journal of Business Ethics* 199
- Su, Chenting, Ronald K Mitchell and M Joseph Sirgy, 'Enabling Guanxi Management in China: A Hierarchical Stakeholder Model of Effective Guanxi' (2007) 71 *Journal of Business Ethics* 301
- Tihanyi, Laszlo, David A Griffith and Craig J Russell, 'The Effect of Cultural Distance on Entry Mode Choice, International Diversification, and MNE Performance: A Meta-Analysis' (2005) 36 *Journal of International Business Studies* 270
- Tsang, Eric WK, 'Can Guanxi Be a Source of Sustained Competitive Advantage for Doing Business in China?' (1998) 12 *Academy of Management Executive* 64
- Uzzi, Brian, 'Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness' (1998) 42 *Administrative Science Quarterly* 35
- Vanhonacker, Wilfried R, 'Guanxi Networks in China' (2004) 31 *China Business Review* 48
- Wang, Longwei, Jeff Hoi Yan Yeung and Min Zhang, 'The Impact of Trust and Contract on Innovation Performance: The Moderating Role of Environmental Uncertainty' (2011) 134 *International Journal of Production Economics* 114
- Wellman, Barry, 'Structural Analysis: From Method and Metaphor to Theory and Substance' in Barry Wellman and Stephen D Berkowitz, *Social Structures: A Network Approach* (Cambridge University Press, 1988)]
- Wernerfelt, Birger, 'The Resource Based View of the Firm: Ten Years After' (1995) 16 *Strategic Management Journal* 171
- Williamson, Oliver E, 'Transaction Cost Economics: How it Works, Where It Is Headed' (1998) 146 *De Economist* 23
- Wilson, Dominic and Roopa Purushothaman, 'Dreaming with BRICs: the Path to 2050' (Report, Goldman Sachs, 1 October 2003)
- Wu, Wenfeng, Chongfeng Wu and Oliver M Rui, 'Ownership and the Value of Political Connections: Evidence from China' (2012) 18 *European Financial Management* 695
- Xin, Katherine K and Jone L Pearce, 'Guanxi: Connections as Substitutes for Formal Institutional Support' (1996) 39 *Academy of Management Journal* 1641
- Yang, Mayfair M H, *Gifts, Favors, and Banquets: The Art of Social Relationships in China* (Cornell, 2005)
- Yao, Shujie, 'Economic Growth, Income Inequality and Poverty in China Under Economic Reform' (1999) 35 *Journal of Development Studies* 104

Yu, Wantao and Ramakrishnan Ramanathan, 'Effects of Business Environment on International Retail Operations: Case Study Evidence from China' (2012) 40 *Journal of Retail & Distribution Management* 218

Zaheer, Akbar, Bill McEvily and Vincenzo Perrone, 'Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance' (1998) 9 *Organization Science* 141

Srilata Zaheer, 'Overcoming the Liability of Foreignness' (1995) 38 *Academy of Management Journal* 341

Zelizer, Viviana A, *The Purchase of Intimacy* (Princeton University Press, 2005)

Zhan, Jing Vivian, 'Filling the Gap of Formal Institutions: the Effects of Guanxi Network on Corruption in Reform-Era China' (2012) 58 *China, Crime, Law and Social Change* 93

Zhang, Yi and Zigang Zhang, 'Guanxi and Organizational Dynamics in China: A Link Between Individual and Organizational Levels' (2006) 67 *Journal of Business Ethics* 375

Zhao, Hongxin and Chin-Chun Hsu, 'Social Ties and Foreign Market Entry: An Empirical Enquiry' (2007) 47 *Management International Review* 815

Zheng, Kevin Zhou and Dean Xu, 'How Foreign Firms Curtail Local Supplier Opportunism in China: Detailed Contracts, Centralized Control, and Relational Governance' (2012) 43 *Journal of International Business Studies* 677

Zhou, Wubiao, 'Political Connections and Entrepreneurial Investment: Evidence from China's Transition Economy' (2013) 28 *Journal of Business Venturing* 299

Zhuang, Guijin, Youmin Xi and Alex SL Tsang, 'Power, Conflict, and Cooperation: The Impact of Guanxi in Chinese Marketing Channels' (2010) 39 *Industrial Marketing Management* 137