

UvA-DARE (Digital Academic Repository)

On the origins of human sociality

Akdeniz, A.

Publication date 2023

Link to publication

Citation for published version (APA):

Akdeniz, A. (2023). *On the origins of human sociality*. [Thesis, fully internal, Universiteit van Amsterdam].

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.



On the Origins of Human Sociality

Aslıhan Akdeniz

Universiteit van Amsterdam

On the Origins of Human Sociality

Aslıhan Akdeniz

ISBN: 978 90 361 0557 6

Cover photo: Generated by DALL-E 2

Cover design: Crasborn Graphic Designers bno, Valkenburg a.d. Geul

This book is no. 810 of the Tinbergen Institute Research Series, established through cooperation between Rozenberg Publishers and the Tinbergen Institute. A list of books which already appeared in the series can be found in the back.

On the Origins of Human Sociality

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de Universiteit van Amsterdam op gezag van de Rector Magnificus prof. dr. ir. P.P.C.C. Verbeek ten overstaan van een door het College voor Promoties ingestelde commissie, in het openbaar te verdedigen in de Agnietenkapel op donderdag 9 maart 2023, te 16.00 uur

> door Aslihan Akdeniz geboren te Üsküdar

Promotiecommissie

Promotor:	prof. dr. C.M. van Veelen	Universiteit van Amsterdam
Copromotor:	prof. dr. S. Shalvi	Universiteit van Amsterdam
Overige leden:	prof. dr. A.J.H.C. Schram prof. dr. K.R.L. Janmaat dr. A. Ule prof. dr. S. Suetens dr. S. Mathew prof. dr. C. Efferson	Universiteit van Amsterdam Universiteit van Amsterdam Universiteit van Amsterdam Tilburg University Arizona State University University of Lausanne

Faculteit Economie en Bedrijfskunde

Acknowledgements

'Bummer!' Matthijs would exclaim whenever we got upset over something, and that was one of the things I learned (or maybe, copied, to be more precise) from him over the years we worked together. And now what a bummer it is that we reached the end of our time together as trainer and trainee. The first instance that I reached out to Matthijs was in the second year of my master's. I was extremely enthusiastic to work on evolution in my PhD. So, one day, I knocked on his office door and asked if he had time to talk; he responded "sure, about life?". Now looking back, I realize how indicating this instance was of him as a mentor and a collaborator. Even though talking about science constituted the bulk of our meetings, our conversations were never restricted to research. We talked about many things regarding 'life' over the years of my PhD, and he inspired me to think about things in ways that I wouldn't have imagined without his perspective. I would like to thank you, Matthijs, for everything you have taught me, about being a good scientist and otherwise. I hope to continue having nice lunches at Bloem and discussing all sorts of 'life' matters.

There is one more person whose mentoring was extremely valuable for me. Sarah, even though I was not one of your students, you always guided me and became a role model. My visit at your department in Arizona was among the best experiences of my PhD. The couple of months I spent in the desert had an immense impact on me, scientifically and personally. I am more than grateful to work with you. Our collaboration was not only fun, but it also moved my research in a direction that I was extremely interested in. It moreover enabled me to conduct a study at my alma mater in Istanbul, which had great emotional significance for me. I would like to thank you for all these things.

I was also lucky to have wonderful friends who helped me in various ways throughout the PhD. Some provided feedback on my research, some listened to me complain, some offered mental support, some provided fun to take the weight of other things, and some helped me think about who I want to become as a researcher. Many friends did more than one

of these things. I would like to thank one person specifically, who supported me along all these dimensions –and many more. Thank you, Ayşe Gül, for being a friend, a colleague, and a mentor. I would also like to thank Johan and Konstantinos for their fellowship starting at the Tinbergen Institute and going towards our PhDs at UvA (and hopefully much further). Thank you, Chris, for being a great co-author and a fun office mate. Thank you, Kathi, Andreas, Davide, Sneha, and Margarita, for all the fun conversations and foosball games. There are many more to list, but with the fear of missing anyone out, I would like to thank all my friends and colleagues at CREED for making the past few years enjoyable and bearable. I also greatly appreciate the support I received from the UvA and TI staff, especially from Wilma, Arianne, and Robert, over the years. Thanks to them, the PhD journey was a much less bumpy ride than it would have been otherwise.

Most of all, I would like to thank my parents, Hatice and Nadir, and my partner, Rik, for all their love and support. It's without a doubt that someone's love and support in tough times are more indicative than in good times. And being someone's kid or partner, you happen to go through tough times for sure. They are the ones that see us at our most vulnerable, furious, and desperate –which, I can say, happens regularly during a PhD. Therefore, I really mean it when I say that I would not have made it without them. Thank you, mom and dad, for being there for me since the beginning of my journey in Istanbul and for providing me with every opportunity you can so that I can be happy, healthy, and free. And thank you, Rik, for joining me in the second act of my journey in Amsterdam and for making everything in my life infinitely better from there on, I look forward to spending the upcoming acts together. And finally, I would like to thank the youngest (and furriest) member of our household and definitely the best economist in the house, Pigou.

> Aslı Utrecht, January 2023

Contents

A	cknowledgements	i
1	Introduction	1
2	The cancellation effect at the group level	5
	2.1 Introduction	5
	2.2 Model	6
	2.3 Results	9
	2.4 Relation to other models \ldots	14
	2.5 Discussion and implications for empirical studies	16
	2A Appendix	19
	2A.1 The cancellation effect at the individual level	19
	2A.2 The cancellation effect at the group level \hdots	20
	2A.3 The model	21
	2A.4 Analytical results in the limit of weak selection	29
	2A.5 Relatedness	41
	2A.6 Birth-Death versus Shift	66
	2A.7 Simulations	81
	2A.8 Theoretical results and simulations	85
	2A.9 Analytical solutions, without migration, and for limit cases that are not the	
	limit of weak selection	88
	2A.1Œmpirical implications	93
3	The evolution of honesty by partner choice	99
	3.1 Introduction \ldots	99
	3.2 Experimental design	100
	3.3 Results	103
	3.4 Discussion	112

Bi	Bibliography		261
N	ederl	andse Samenvatting (Summary in Dutch)	259
Ti	ürkçe	e Özet (Summary in Turkish)	257
Sι	ımma	ary	255
	5A.5	Quantal Response Equilibria	248
	5A.4	Link between Rand et al. (2013) and Gale et al. (1995) $\ldots \ldots \ldots \ldots$	246
	5A.3	Infinite population models	240
5A.2 Weak selection		Weak selection	234
	5A.1	Finite population models	229
	5A	Appendix	229
	5.6	Summary, discussion, reflection	226
	5.5	Commitment	
	5.4	Quantal Response Equilibria	
	5.3	Mutation selection equilibria: Gale et al. (1995)	
	5.2	Mutation-selection equilibria: Rand et al. (2013)	
J	EVO 5.1	Introduction	
5	Evo	lution and the ultimatum game: Why do people reject unfair offers?	2101
	4A.2	Commitment in simultaneous move games	181
	4A.1	Replicator dynamics for the ultimatum game	
	4A	Appendix	
	4.6	Conclusion	177
	4.5	Other species	
	4.4	Behaviour in the lab	
	4.3	Ultimatum games, trust games, backward induction and commitment	
	4.2	Models for the evolution of cooperation	-
-	4.1	Introduction	
4	The	evolution of morality and the role of commitment	143
	3A.4	Instructions	137
	3A.3	Robustness checks on regression results	123
	3A.2	Results	120
	3A.1	Methods	116
	ЗA	Appendix	116