



Universiteit
Leiden
The Netherlands

The adoption of sound change : synchronic and diachronic processing of regional variation in Dutch

Voeten, C.C.

Citation

Voeten, C. C. (2020, October 13). *The adoption of sound change : synchronic and diachronic processing of regional variation in Dutch*. LOT dissertation series. LOT, Amsterdam. Retrieved from <https://hdl.handle.net/1887/137723>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/137723>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/137723> holds various files of this Leiden University dissertation.

Author: Voeten, C.C.

Title: The adoption of sound change : synchronic and diachronic processing of regional variation in Dutch

Issue Date: 2020-10-13

The adoption of sound change
Synchronic and diachronic processing of
regional variation in Dutch

Published by
LOT
Kloveniersburgwal 48
1012 CX Amsterdam
The Netherlands

phone: +31 20 525 2461

e-mail: lot@uva.nl
<http://www.lotschool.nl>

Cover illustration: edited version of an unknown painting of the Stratense Molen in Oirschot, probably by Piet Teunissen (1890–1958).

ISBN: 978-94-6093-364-6
NUR: 616

Copyright © 2020 Cesko Cis Voeten. All rights reserved.

The adoption of sound change
Synchronic and diachronic processing of
regional variation in Dutch

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof. mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
te verdedigen op dinsdag 13 oktober 2020
klokke 13.45 uur

door

Cesko Cis Voeten

geboren op 14 december 1992
te Nijmegen

Promotores: prof. dr. C.C. Levelt
 prof. dr. Y. Chen
Promotiecommissie: dr. K. Chládková
 (Karelsuniversiteit Praag)
 prof. dr. J. Grijzenhout
 dr. W.F.L. Heeren
 prof. dr. H. Van de Velde
 (Fryske Akademy & Universiteit Utrecht)

The research reported here was supported by the Netherlands Organization for Scientific Research under project number 63W-15-15.

Contents

Acknowledgments	ix
1 Introduction	1
1.1 The Polder shift: an on-going vowel shift in Dutch	3
1.2 Theories about the lifecycle of sound change	6
1.2.1 Misperception as a source of sound change	6
1.2.2 Speaker-induced sound change and the role of the representation	8
1.2.3 Exemplar Theory	9
1.2.4 Which comes first: perception or production?	11
1.2.5 Types of change	12
1.2.6 Summary	13
1.3 The psycholinguistics of variation in perception	15
1.3.1 Perceptual learning as the antagonist of misperception	15
1.3.2 Methodological innovations for psycholinguists	17
1.4 This dissertation	22
2 Regional variation in on-going sound change: the case of the Dutch diphthongs	25
2.1 Introduction	26
2.2 Method	28
2.2.1 Data and measurements	28
2.2.2 Data analysis	31
2.3 Results	33
2.3.1 Change 1: diphthongization of /e:,ø:,o:/	37
2.3.2 Change 2: lowering of /ei,œy,ɔu/	40
2.3.3 Change 3: blocking of diphthongization before /l/	42
2.3.4 Change 4: vocalization and retracting effect of coda /l/	44

2.4	Discussion	47
2.5	Conclusion	51
3	How long is “a long term” for sound change? The effect of duration of immersion on the adoption of on-going sound change	53
3.1	Introduction	54
3.1.1	Investigating the adoption of on-going sound change . .	54
3.1.2	Sound change as second-dialect acquisition	55
3.1.3	The present study	57
3.2	Experiment 1: rhyme decision	58
3.2.1	Method	60
3.2.2	Results	66
3.2.3	Discussion	71
3.3	Experiment 2: word production	74
3.3.1	Method	75
3.3.2	Results	80
3.3.3	Discussion	86
3.4	General discussion and conclusion	87
4	Individual differences in the adoption of sound change	91
4.1	Introduction	92
4.1.1	The adoption of sound change	92
4.1.2	Perception, production, and the individual	93
4.1.3	Phonological change vs. phonetic change	95
4.1.4	The present study	96
4.2	Experiment 1: production	100
4.2.1	Method	100
4.2.2	Results	105
4.2.3	Discussion	110
4.3	Experiment 2: rhyme decision	111
4.3.1	Method	111
4.3.2	Results	115
4.3.3	Discussion	120
4.4	Link between production and perception	121
4.4.1	Method	121
4.4.2	Results	122
4.4.3	Discussion	125
4.5	General discussion	126
4.6	Conclusion	127

5	Noticing the change: misrepresentation, not misperception, of allo- phonic variants in sound change	131
5.1	Introduction	132
5.2	Method	137
5.2.1	Participants	137
5.2.2	Stimuli	137
5.2.3	Procedure	139
5.2.4	Data analysis	140
5.3	Results	141
5.4	Discussion	145
5.5	Conclusion	148
6	ERP responses to regional accent reflect two distinct processes of per- ceptual compensation	151
6.1	Introduction	152
6.2	Accent processing	154
6.3	Materials and method	157
6.3.1	Participants	157
6.3.2	Stimuli	159
6.3.3	Procedure and data acquisition	164
6.4	Results	166
6.4.1	Reaction times	166
6.4.2	ERP results	167
6.4.3	Topographical distribution	173
6.5	Discussion	176
6.6	Conclusion	178
7	Conclusion	181
7.1	The Polder shift and its adoption	181
7.2	From compensation to adoption	183
7.3	Salience	186
7.4	Methodology	187
7.5	Conclusions	190
A	Prime–target list for Experiment 1 from Chapter 3	193
B	Word list for Experiment 2 from Chapter 3	197
C	Word list for Experiment 1 from Chapter 4	201
D	Full BLUPs for Experiment 1 from Chapter 4	205
E	Prime–target list for Experiment 2 from Chapter 4	207

F Full results of Experiment 2 from Chapter 4 **211**

Bibliography 215

Samenvatting in het Nederlands 235

Curriculum vitae 239

Acknowledgments

While you write a PhD dissertation by yourself, you're never writing it alone. This dissertation and the research carried out as part of it would not have been possible, had it not been for the support, advice, and friendship of many people in and out of LUCL. This starts with Haike Jacobs and Roeland van Hout, who supervised my education as a linguist before this PhD, and with whom I wrote the NWO "PhDs in the Humanities" research proposal that funded my PhD position. It is in part thanks to Haike's and Roeland's curiosity after I had written my BA thesis with them that this book (or PDF¹) is in front of you now. I owe them—as well as Janine Berns and James McQueen, who also contributed significantly to the development of the proposal—a debt of gratitude. I also thank Marc van Oostendorp for his acting as the project's principal applicant in Leiden. And, of course, I am immensely grateful to my wonderful promoters, Claartje Levelt and 陈轶亚 (Yiya Chen). They probed me with continuous constructive criticism (although sometimes in vain—we still don't agree on the boundary between phonetics and phonology!), helped me give direction to my research, encouraged me to develop my research profile in an ever more quantitative direction, and at times provided emotional support when the going got tough. Thank you for everything.

Within LUCL, I was fortunate enough to be surrounded by many intelligent people. My fellow PhD-student phoneticians: 史濛辉 (Menghui Shi), 杨青 (Qing Yang), 刘敏 (Min Liu), 毕一飞 (Yifei Bi), 王曼 (Man Wang), 李倩 (Qian Li), 邹婷 (Ting Zou), Daan van de Velde, Laura Smorenburg, Meike de Boer.

¹In case you were expecting a probability density function rather than a portable document file, congratulations! You and I think alike. Here is the PDF for the scaled- t distribution, which in my experience is much more commonplace than the normal distribution:

$$\frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu\pi\sigma^2}\Gamma\left(\frac{\nu}{2}\right)}\left(1+\frac{(x-\mu)^2}{\nu\sigma^2}\right)^{-\frac{\nu+1}{2}}$$

I have benefited greatly from your intellectual challenges and counsel. Saskia Lensink, my fellow quantitative linguist, helped me become a better statistician and gave me the idea for the analysis in Chapter 2. My fellow psycholinguists: Bobby “Bobski” Ruijgrok and Olga “Olgie” Kepinska were exceptionally brainy influences on my research, and were also the first users of my R package *permutest*, together with Elly “Elly” Dutton. Thank you for sharing the labs with me, and of course thanks to Jos Pacilly for his work as lab technician (and for not switching the PCs from Windows 7 to Windows 10 in the middle of my longitudinal experiments!). My fellow phonologists: Xander Vertegea, Rasmus Puggaard, 胡瀚 (Han Hu), and 郑婷婷 (Tingting Zheng—face it, you’re a phonologist now!). I have consulted each of you more than once when I was stuck with a hard-to-explain point of data, and all you asked in return was some statistical advice. Without your thoughts and suggestions and those by Sarah von Grebmer zu Wolfsturn, the explanation of the data in Chapter 5 would not have been as coherent. The speakers who lent their voices for my experiments: Aliza Glasbergen-Plas (Chapters 3, 4, and 6), Lisette Jager (Chapter 5), and Daan van de Velde (instructions in Chapters 3 and 6). Thank you for your contributions. 程航 (Hang Cheng), Rasmus Puggaard, and 吴疆 (Jiang Wu): thank you for your variegated advice (i.e. for tolerating my silly questions) concerning such vital issues as hyphenation and the placement of arrows and tildes inside or outside of phonetic brackets. Μαρίνα Τερκουράφι (Marina Terkourafi), you have freely provided valuable mentorship to me at a few key points along my academic career; I am deeply grateful for that. Finally, thanks to Laura Smorenburg, Meike de Boer, Sanne Ditewig, and Willemijn Heeren for including me in their reading group, even though some of the forensic stuff went a bit over my head sometimes!

Outside of LUCL, I would not have been able to do without the expertise of at least Hans Van de Velde, Silke Hamann, and Klaas Seinhorst. Hans, thank you for your continuous encouragement and feedback the many times we met at conferences, and for the role you have had multiple times in the development of my academic career (including landing me a campus visit at Michigan State University). Silke and Klaas, thank you for the reading group on sound change, and for more than a few pleasant visits to the UvA. Our intellectual exchanges helped me on my way during an uncertain time in my PhD. I am also indebted to Harald Baayen, whom I visited in Tübingen to discuss the analyses in Chapter 2, and to Rob Hartsuiker and Wouter Broos, who helped me get set up in Ghent for the experiment in Chapter 4. And thanks to too many people to name for their helpful advice or challenging discussions at conferences or elsewhere. Finally, of course, thanks to my parents, my grandmother and late grandfather, my brothers Kaz and Victor (especially Kaz for patiently walking me through some math), and our dog Floortje. Your love and support are invaluable.