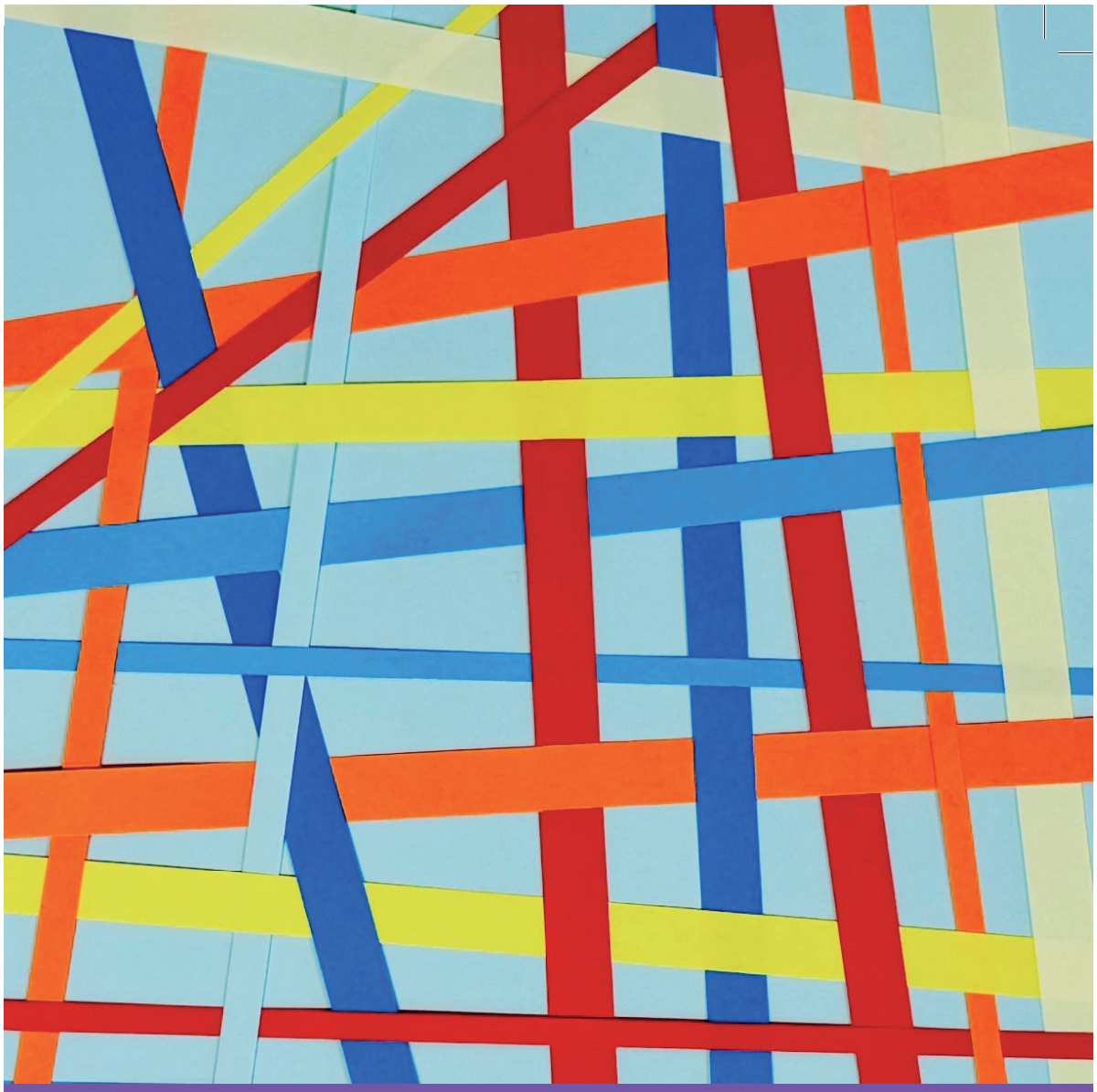


Writings on the Phonetic Sciences

Festschrift in honour of Paul Boersma

Edited by Titia Benders and Kateřina Chládková



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Writings on the Phonetic Sciences

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The public & online available pdf edition

Edited by
Titia Benders and Kateřina Chládková

Linguistics in Amsterdam

University of Amsterdam

2026

For Paul Boersma

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Those contributions are available open-access on the journal website:
https://linguisticsinamsterdam.nl/

Festschrift in honour of Paul Boersma

Personal contributions

Companion volume

The public edition

The 25 years before Paul's nomination

Louis C.W. Pols
former ACLC, University of Amsterdam

The 100 years of existence of the chair of Phonetic Sciences within ACLC at the University of Amsterdam was celebrated on April 2, 2026. I then presented (as the third chairholder after Louise Kaiser and Hendrik Mol) an overview of my period of chairing (1982-2005). The present paper is a kind of reflection of that. In my days I wanted to create a phonetic working environment in which good teaching and high quality international contact and publications were the standard. The theme was interdisciplinarity, both in terms of the diversity of co-workers, as well as in the topics covered. I think we had some success in that respect, as for instance measured in terms of a total of 26 doctoral theses. This work was continued during the reign of my successor Paul Boersma, of course with his own interpretation.

1 Introduction

My own university education was not that of an ordinary phonetician. I got my degree in *Physics* at the Technological University of Delft in 1964. After that, I still had to fulfil my military services, but found a way to combine that with a so-called detachment at the IZF-TNO (Institute for Perception) in Soesterberg. I was an army officer (cornet) moving around on a green military bike and I could make use of the nearby air force officer's mess for food and entertainment, but I spent my working hours at the department of Audiology at that institute. The director Maarten Bouman collected co-workers from various disciplines who worked together in departments, from Audiology and Visuology to Ergonomics. The head of the Audiology Department Reinier Plomp was an excellent teacher, who taught me to do experiments and how to publish scientifically in the proper way (Plomp 1966).

2 Spectral analysis and identification of Dutch vowels in monosyllabic words

As a psycho-acoustician Plomp studied pure tone perception: its pitch, duration and timbre (Plomp 2002). But he wanted to use more complex signals, such as musical tones or vowels. Technical limitations did not permit us to use more

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complex signals like words, or sentences, or pieces of music. We managed to get our first paper published in the Journal of the Acoustical Society of America (Plomp et al. 1967; Pols et al. 1969; Pols et al. 1973), and my enthusiasm for speech was strongly stimulated. This did not make me a phonetician of course, that required self-study and more experience. The first DEC PDP-7 computer, home-made scannable filter banks and the use of machine code, allowed us to use one-third octave spectra as spectral representation. We also considered this a better spectral representation than formant frequencies in terms of analogy with the functionality of the human inner ear.

In 1977 I completed my doctoral thesis in which many of these ideas are worked out (Pols 1977*)*. With funding from ZWO I visited in 1978/1979, together with my family, the United States of America for one year and worked at SCRL in Santa Barbara, CA (Shoup and Wakita) and at Bell Labs in Murray Hill, NJ. (Rabiner and Olive) (Pols & Olive 1983). I became more of a technical phonetician.

3 Laboratory IFA

In 1980 soon after my return to the Netherlands prof. H. Mol of the Phonetics Chair in Amsterdam died and I competed for that position and became appointed in 1982. The laboratory IFA was located in a beautiful 5-stores early 18th century canal house at the Herengracht 338 in the center of Amsterdam. We had our own electronic and mechanical workshop, a large lecture room, listening facilities, computer facilities, a large library, a beautiful back yard and we had control over the front door lock, which was extraordinary for a university building. As the only engineer within the Faculty of Humanities I had to adapt somewhat to my colleague linguists, but I was accepted and I participated, among other things, as a director of the Research Institute IFOTT (later ACLC), as a member/chairman of the Senate (the University Advisory Board), and also as a member of the NWO Board of Humanities (NWO is the Dutch Research Council).

Floor van Beinum and I managed to apply for various kinds of funding and we could appoint PhD students. Some IFA staff members had not yet their PhD and I stimulated them also to achieve that. All of this finally resulted in a total of 26 doctoral theses. Our publication record in international journals improved substantially (Pols 2004, 2005). The freely available software package *praat* was created, and updated all the time, by Paul Boersma (Boersma & Weenink 1995). A worldwide big audience was grateful to him for that.

Around the year 2000 our interdisciplinary research field could be described as:

- speech analysis and perception (segmental and supra segmental) (Pols 1983; Schouten & Pols 1983; van Son & Pols 1999),

- evaluation (of normal and pathological speech and speech technology) (Santen et al. 1998; Pols 1994),
- adding specific (phonetic) knowledge to speech technology systems (Pols et al. 1992; Pols et al. 1996)
- speech development and speech pathology (Pols 2011).

4 ISCA, Conferences, Workshops and Farewell Lecture

As one of the founders in 1988 of the European Speech Communication Association (ESCA) I became its second president after Joseph Mariani. I passed the gavel to Roger Moore at Eurospeech 1997 in Rodos. ESCA organized Eurospeech conferences and workshops (ETRW) (Pols 1989). In 1999 European ESCA became international ISCA and organized Interspeech conferences worldwide, the most recent one Interspeech 2026 was in Rotterdam.

I was also strongly motivated by the SCAMP-81 workshop on '*Acoustic phonetics and speech modeling*' organized by Arthur House in Williamstown, MA., just as by the MIT Symposium '*Invariance and Variability of Speech Processes*' in 1983 (Perkell & Klatt 1986; Pols 1986) on the occasion of the 60th birthday of Ken Stevens.

Floor van Beinum and I were members of the Organizing Committee of the Tenth ICPhS 1983 in Utrecht (*Broecke & Cohen 1983*). This phonetics conference will be remembered by the good atmosphere and by all participants moving up and down the escalators to their next session, on the tones of a Dutch street organ. My last scientific presentation was a keynote address at the 17th ICPhS in Hong Kong in 2011 (Pols 2011).



Figure 1: Part of the staff on the steps in front of Herengracht 338 in Amsterdam

One way to commemorate my co-workers of IFA is by presenting the telephone list from 1983 with their names, plus the one from 2004, see Table 1.

I gave my farewell lecture '*Samenspraak. Acquiring and implementing phonetic knowledge'* (Pols 2005) for a big audience on June 3rd 2005, see Fig. 1. After that, Paul Boersma was appointed as chairholder with partly new scientists and new insights, new students and at new locations.

Table 1: Telephone list of IFA in the years 1983 and 2004

1983	2004
Louis Bonder	Diana Apoussidou
Joop Bossema	Florien van Beinum
Gerard Boxelaar	Ellen Berkman
Jan van Dijk	Renée van Bezooijen
Willemien Eelzak	Paul Boersma
Fred Heidbuurt	Louis ten Bosch
Leo van Herpt	Jan van Dijk
Dirk Jaasma	Frans Hilgers
Emiel Kappner	Dirk Jaasma
M.H. Khoe	Kino Jansonius
Florien Koopmans-van Beinum	Petra Jongmans
Ton van Maanen	Goga Kovacić
Gerrit Meinsma	Kwee Tjoe Jong
M. van Nierop	Lisa Lim
Louis Pols	Cecilia Odé
Joop Skolnik	Louis Pols
Gert Jan van der Steen	Adela Rechziegel
Jeannette van der Stelt	Rob van Son
David Weenink	Jeannette van der Stelt
Ton Wempe	David Weenink
	Ton Wempe

5 Experimental data

Despite my 20 years of retirement, I still feel the need to present some scientific data. I chose one of the tables that I showed at my farewell lecture, see Table 2.

It is about sound and syllable reduction which does not prevent proper understanding in natural speech. The material is taken from the Dutch and Flemish natural speech corpus CGN in various speaking styles (about 1000 hours of speech). Via the exploration software COREX one can search on sequences. Rob van Son helped me with that. We chose the Dutch utterance *'op een gegeven moment'* ('*at some point'*), in SAMPA notation [Op @n x@xev@n mom'Ent] that can be reduced to [Op xem'Ent]. This specific expression occurred ca. 1200 times in the material, of which 474 times in face-to-face conversation between

two or more speakers. It will be clear from the table that all kinds of reductions are quite common, whereas the full sentence was never spoken! This is what natural speech is about and this is one of the reasons why natural speech is often hard to understand, especially for not sufficiently trained speech recognizers. More variable databases and new learning algorithms will probably be the future approach.

Table 2: The actual accounts of the various utterance types in SAMPA notation, the phonemes between brackets are optional. The amounts are both in absolute counts (adding up to 474), and in percentages (adding up to 100). Then the average total duration of each utterance in msec is given, as well as its standard deviation in msec.

Utterance type	**count**	**perc.**	**av. dur. and sd in msec**	
Op @n x@xev@n mom'Ent	0	0		
Op @n (x@)x'ev@n mom'Ent	19	4	947	185
Op (@) x'ev@m'En(t)	210	44.3	548	126
Op (@) xem'En(t)	178	37.6	394	90
Op (@) xev@	11	2,3	362	117
inappropriate segments	56	11.8	-	-
Total	474	100	495	170

6 Towards Paul's nomination

Paul (1959) was not trained as a phonetician either. He studied Physics and Mathematics/Informatics at the University of Nijmegen, his specialization was in Biophysics under the guidance of Peter Johannesma (Neurophysics). His master thesis was in biophysics, a topic about the visualization of higher order properties of stochastic processes with the help of so-called characteristic functionals, applied to experimental data and theoretical models of the hearing system of the brown frog. He had a strong interest in languages and their phonological structure without any linguistic training whatsoever. He also knew various computer languages. He applied for our 4-years PhD candidate project proposal, *A model for the structure of sound systems in natural language* and felt that real challenges and new interests could always be studied once one had a proper basic training. The intended phonological model should be able to interpret the various phonetic/phonological statistical properties of languages, for instance the CV-alternations in speech or the preference for plosives as consonants. Once he was accepted for the project, he started in February 1989 and quickly interpreted the project in his own way, which led him to the development of *Functional Phonology, Formalizing the interactions between articulatory and perceptual drives*, which was the title of his doctoral thesis, that he defended in September

1998. His book (Boersma 1998) was impressive and very thick (493 pages), it received the qualification *cum laude*! A small interesting point is perhaps the fact that utterances from his children are presented as examples in his book (pages 195 and 429). In between he worked with a so-called NWO investment subsidy for the further development of the software package *praat* (Boersma & Weenink 1996).

This was also the time of subsequent leerstoelenplannen (plans for chairs) in the faculty. With my age-retirement forthcoming, the chair of Phonetics was also at steak. Could the faculty afford to hold the chair, given the local and national spread? And if yes, would there be a good candidate? Within Linguistics at UvA, five chairs were foreseen: language acquisition, Germanic languages, theoretical linguistics, phonetic sciences and Romanic languages. Given the qualifications of Paul, he was considered to be an excellent candidate, but it was customary to follow an open procedure nationally and internationally. I was also in favor of that procedure because I was convinced that Paul would come out as the number one. However the faculty chose the direct procedure. So he was nominated, and by the time I gave my farewell lecture in June 2005, Paul was permitted to walk in the customary cortege of professors in their robes and wearing their berets, so the future of Phonetics in Amsterdam was assured – which was, unfortunately, not true for the building at Herengracht 338 itself. It is a strange feeling that my successor is meanwhile almost retired himself!

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Herenigd en gecontinueerd … bespiegelingen bij het emeritaat van Paul Boersma

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Universiteit van Amsterdam

1 De aanloop

Nu ruim 30 jaar geleden, ergens begin jaren 90, kwamen wij (weer) in contact met het Fonetisch Instituut bij de Universiteit van Amsterdam. We wilden toen een onderzoek doen naar de stemkwaliteit van patiënten die bestraald werden voor een klein stembandcarcinoom. De oncologische prognose van deze aandoening was weliswaar zeer goed, 90% overleefde met behoud van het strottenhoofd, en slechts zelden was toch nog een operatie (een totale laryngectomie) nodig. Echter, bij een deel van deze patiënten, die hun larynx behielden, werd de stem nooit meer wat die geweest was. Een oplossing voor deze negatieve bijwerking van de behandeling zou het verminderen van de bestralingsdosis kunnen zijn, uiteraard alleen als dat kon zonder verlies van genezingskans. Daarom zocht onze radiotherapeute, die dit graag wilde onderzoeken, Gertrude Baris, contact met het Fonetisch Instituut. Want zelf hadden wij destijds geen idee hoe we stemkwaliteit konden meten. Zij kreeg toen contact met Florien van Beinum die samen met haar promovendus, Irma Verdonck-de Leeuw, graag aan dit onderzoek wilde meewerken.

Ik kan me overigens niet meer exact herinneren hoe het contact tussen Gertrude en Florien tot stand is gekomen, maar in die tijd was er in elk geval geen regulier contact meer tussen de (universitaire) KNO in Amsterdam en het Fonetisch Instituut. Dat was op zijn zachts gezegd vreemd omdat de KNO-afdeling van de UvA toch een belangrijke rol had gespeeld bij het oprichten van het Fonetisch Instituut, waarover later meer. Wanneer dit contact verbroken is, weet ik niet meer, maar het was er in elk geval nog in de zeventiger jaren tijdens mijn opleidingstijd in het Wilhelmina Gasthuis, waar we regelmatig te horen kregen dan Dr. Waterman naar het Fonetisch Instituut was, als we hem zochten voor een consult.

Mede dankzij het succesvolle promotieonderzoek van Irma, werden het Fonetisch Instituut en de Amsterdamse KNO herenigd. Vervolgens lukte het Louis Pols en mij om voldoende research gelden bij elkaar te sprokkelen om

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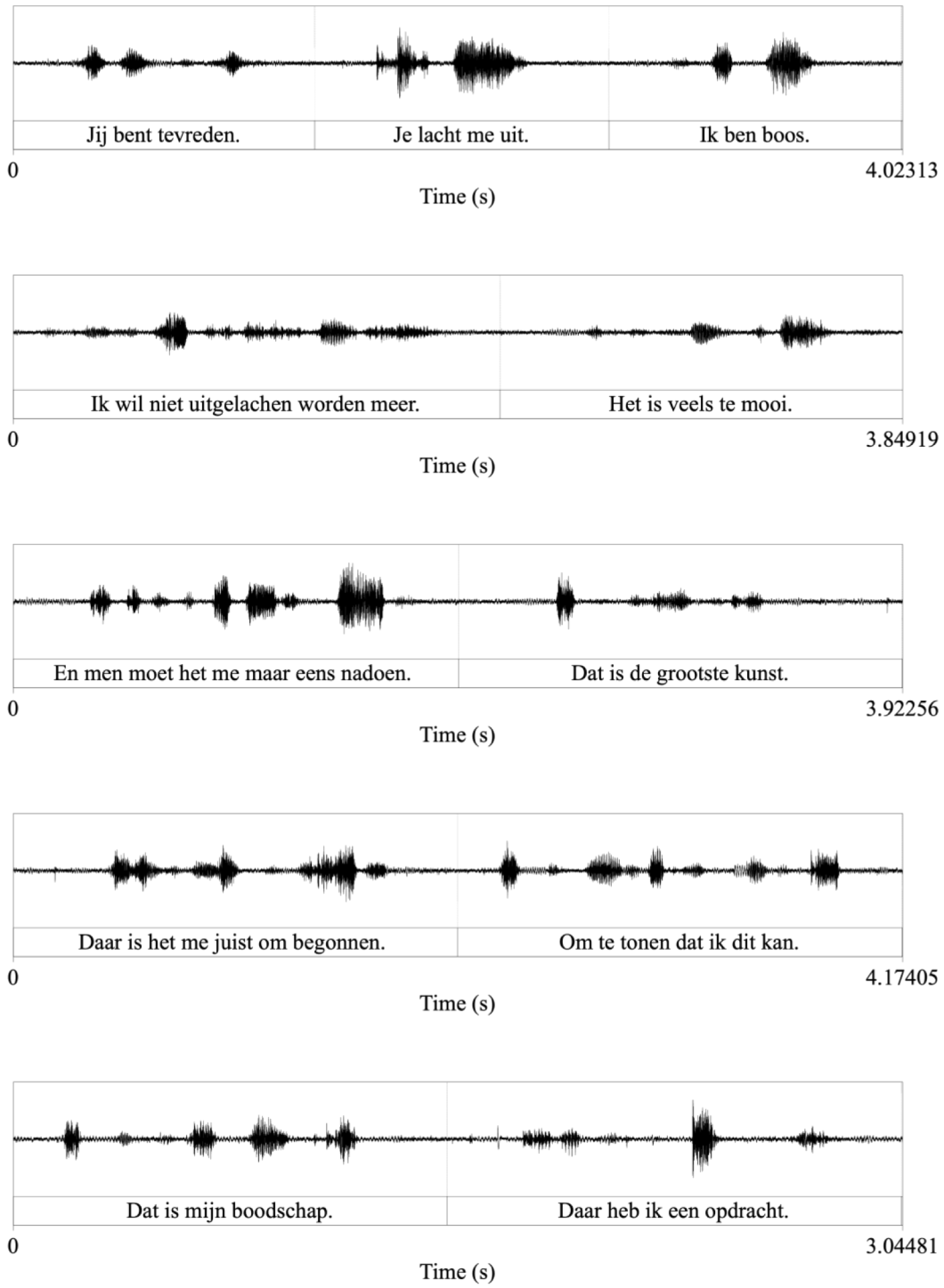
Corina van As, naast een deeltijdbaan als logopediste in het Antoni van Leeuwenhoek, als volgende promovendus aan te stellen. Waarna er nog vele gezamenlijke promovendi zouden volgen.

De researchprojecten van Corina van As brachten ons onderzoek in een stroomversnelling. Het bleek mogelijk om veel meer te meten aan de stem dan we dat voor mogelijk hadden gehouden, niet alleen aan de gewone stem, maar ook aan die van gelaryngectomeerde patiënten. Na de voltooiing van haar proefschrift, lag verdere intensivering van onze samenwerking door mijn benoeming tot hoogleraar in de "oncologie-gerelateerde stem- en spraakstoornissen" in 2003 dan ook voor de hand.

2 Spannende start

En nu kom jij in beeld, Paul, want een spannender start van mijn ordinariaat had ik me niet kunnen wensen. Dat betrof twee zaken. Ten eerste mijn kennismaking met het programma Praat, dat door jou en David Weenink was ontwikkeld en waarmee ook voor mij spraak inzichtelijk werd. Ten tweede de geluidsopnames die er bleken te zijn van de slokdarm/maagspraak van een gelaryngectomeerde patiënt uit 1925, een patiënt die ik al "kende" uit de literatuur. In 1924 en 25 waren er namelijk een aantal publicaties verschenen van de hand van de toenmalige hoogleraar KNO aan de Universiteit van Amsterdam, Hendrik Burger en de toekomstige oprichtster van het Fonetisch Instituut, Louise Kaiser. Zij beschreven in die publicaties de spraak van een 39-jarige gelaryngectomeerde patiënt met zoveel enthousiasme en verbazing dat mij dit in hoge mate intrigeerde.

Hoe groot was dus mijn opwinding dat bleek dat daar opnames op wasrollen van bestonden, die kort voor mijn start bij het Fonetisch Instituut in het Meertens Instituut waren gedigitaliseerd en beschikbaar waren voor onderzoek. Eenmaal met de geweldige hulp van Ton Wempe tussen honderden andere opnames gevonden, kon ik die via Praat beluisteren. Aanvankelijk kon ik er door het ontbreken van context weinig van verstaan. Maar na enige herhalingen en de vondst van de herkenbare gezongen Wilhelmus tekst drong tot mij door wat er gezegd werd en werden de teksten duidelijk, mede door de annotaties in Praat. Figuur 1 laat hier een voorbeeld van zien.



Figuur 1: Tekst uitgesproken (slokdarm/maagspraak) door de 39-jarige gelaryngectomeerde patiënt beschreven door Burger en Kaiser (Burger & Kaiser 1924)[1]

[1] Burger, H., & Kaiser, L. (1925). Speech without a larynx. *Acta Otolaryngol*, *8*, 90–116.

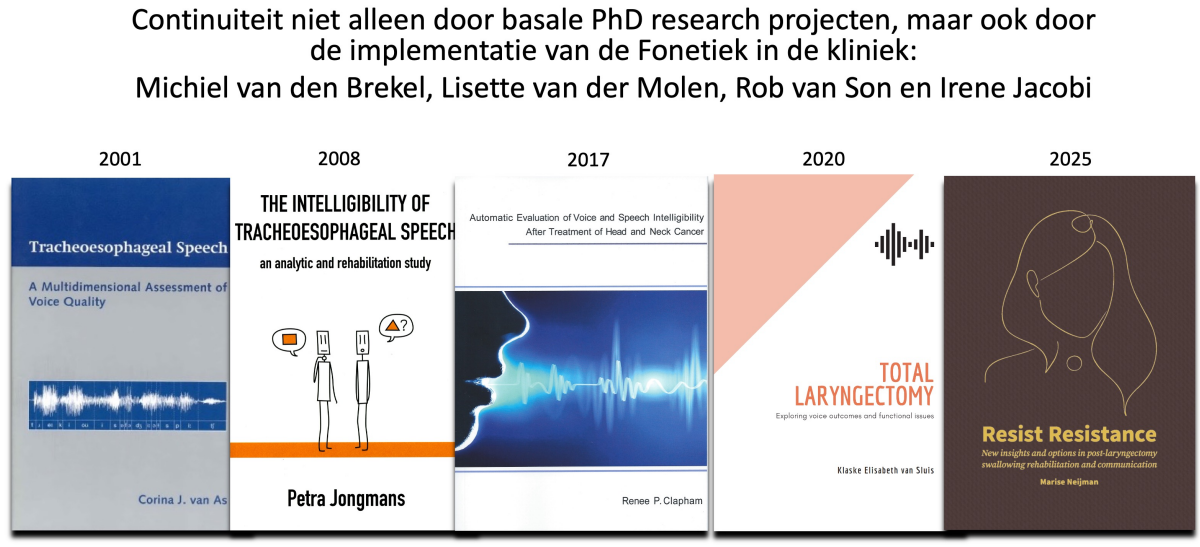
Niet alleen had Louise Kaiser deze stemopnames op wasrollen gemaakt en voor de eeuwigheid vastgelegd, maar ook andere fysiologische aspecten van de spraak van deze gelaryngectomeerde werden door Burger en Kaiser uitvoerig bestudeerd en beschreven. Zeer indruk- en verbazingwekkend en daarmee voor mij niet alleen een spannende start in de Fonetiek, maar ook een bijzondere historische inleiding voor mijn inaugurale rede. (Hilgers 2004)[2]

3 Continuïteit

Voor de continuïteit van onze vruchtbare samenwerking vanuit het Fonetisch Instituut ben vooral jij verantwoordelijk geweest, Paul, want niet zelden verwatert (what's in a name) samenwerking als de twee initiërende krachten, in ons geval Louis en ik, met emeritaat gaan. Maar gelukkig lukt het soms toch om over je graf heen te regeren: Louis door jou als opvolger te krijgen en in mijn geval Michiel van den Brekel.

Nu moet de interesse voor het research veld zelf ook gedeeld worden natuurlijk, en gelukkig deelden Louis en ik die met jullie allebei. Maar dat onze samenwerking na Louis' emeritaat in 2006 en het mijne in 2011 nog steeds zo succesvol is, blijft toch uitzonderlijk. Daar zijn de komst van Rob van Son en Irene Jacobi naar ons instituut en de grote inzet van Lisette van der Molen, waardoor het fonetische onderzoek nauw verweven werd met al onze klinische research, zeker mede debet aan. Van die vruchtbare samenwerking mocht ik recent nog verslag doen tijdens de viering van het 100-jarig bestaan van het Fonetisch Instituut eerder dit jaar in mijn voordracht "Honderd jaar alaryngeale spraak" (zie figuur 2).

[2] Hilgers, F. J. M. (2004). Van verbazing naar vanzelfsprekendheid (From astonishing to predictable speech). In (pp. 1–64). Amsterdam: Vossiuspers UvA



Andere proefschriften met "fonetiek" hoofdstukken:

- Lisette van der Molen. Preventive rehabilitation in patients treated with chemoradiotherapy for advanced head and neck cancer. 2011
- A. Jacqueline Timmermans. Advanced Larynx Cancer; trends and treatment outcomes. 2015
- Sophie Kraaijenga. Dysphagia rehabilitation in head and neck cancer. 2016
- Marije Petersen. Larynx and hypopharynx cancer; educated choices in treatment and rehabilitation. 2019
- Rebecca Karsten. Functional impairment and cues for rehabilitation of head and neck cancer patients. 2021
- Bence Halpern: Making speech technology accessible for pathological speakers. 2022

Figuur 2: Uit: 10 jaar alaryngeale spraak, voordracht ter gelegenheid van het 100-jarig bestaan van het Fonetisch Instituut aan de Universiteit van Amsterdam, opgericht door Louise Kaiser

4 Toekomst

Het emeritaat is geen reden om te stoppen met werken, Paul. Uit eigen ervaring kan ik je melden dat je nog veel vruchtbare research jaren voor de boeg kunt hebben, zeker als je opvolger(s), zoals gezegd, vergelijkbare interesses hebben. Daarom hoop ik dan ook dat na jouw vertrek en dat van Michiel van den Brekel over enkele jaren de vruchtbare samenwerking tussen onze beide instituten behouden blijft. Geen idee hoe dat nu bij het Fonetisch Instituut gesteld is, maar in het Kanker Instituut staat een opvolger in de startblokken.

Paul, het ga je nog heel lang heel goed.

Prof. Frans J.M. Hilgers, MD PhD, Head and Neck Surgeon
Chairman-emeritus Department of Head and Neck Oncology and Surgery
The Netherlands Cancer Institute-Antoni van Leeuwenhoek
Professor-emeritus Institute of Phonetic Sciences (ACLC), University of Amsterdam
Mobile: +31 6 5378 1258
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Companion volume

Communicatie-, spraak- en taalontwikkeling van baby's en peuters. Problemen zo vroeg mogelijk onderkennen

Kino Jansonius-Schultheiss



Beste Paul,

Jij trad in 2005 als hoogleraar op het IFA aan toen ik daar niet meer als wetenschappelijk onderzoeker werkte. In mijn tijd was het IFA een toonaangevend stimulerend instituut voor de wetenschappelijke studie naar baby's spraakontwikkeling, die met en zonder problemen. Die expertise werd internationaal erkend en de publicaties van Florien van Beinum en Jeannette van der Stelt werden veel geciteerd. Hun model om baby's spraak te segmenteren op basis van de ademhalingscyclus, stemaspecten, plaats en wijze van articulatie waren het model om de spraakontwikkeling van baby's met een schisis te onderzoeken (Jansonius-Schultheiss, dissertatie 1999) of die van dove baby's te beschrijven (dissertatie Chris Clement, 2004). De spraakproducties werden vergeleken met die van de baby's zonder deze problemen geboren. Tevoren was Jeannette van der Stelt in 1993 gepromoveerd op de ontwikkeling van de vroege communicatie (Finally a word. A sensori-motor approach of the mother-child-

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infant system in its development towards speech). Het is je bekend want in die tijd was je al op het IFA aan het werk. Jij werd bekend met het computerprogramma Praat waar we veel aan hadden bij fonologisch onderzoek. Het is mij niet bekend in hoeverre je betrokken bleef bij het onderzoeken van de spraakwaarneming van baby's en hun spraakontwikkeling in het kader van de landelijke Baby and Child Research Group. Dat wat aan kennis in die tijd werd opgebouwd en de films die we van de kinderen hebben opgenomen, die gedigitaliseerd zijn, zijn nog steeds van groot belang voor huidig onderzoek.

Graag wil ik je danken voor je toezegging lid te worden van de Adviescommissie van het Radboud TOS Fonds dat in 2021 door mij werd opgericht. Je weet dat ik graag de kinderen met een risico op communicatie en taalproblemen al in de babytijd wil detecteren. Mijn werk als psycholinguïst in het Amsterdam Universitair Medisch Centrum AMC en later bij Kentalis in Eindhoven waar ik het eerste Spraak-Taalambulatorium mocht opzetten, gaf daar aanleiding toe. Op de wetenschappelijke bijeenkomst in het Max Planck Instituut voor Psycholinguïstiek op 27 oktober j.l. werden interessante presentaties gegeven over de steeds nog zo onbekende taalontwikkelingsstoornis TOS die bij 5 tot 7 procent van de kinderen voorkomt. Vroeg diagnosticeren, behandelen, ook communicatief en longitudinaal een kind blijven volgen, blijft van groot belang. De eerste 1000 dagen van een kind zijn bepalend voor zijn welzijn, ook als volwassene. Zelfstandig kunnen functioneren, ook financieel, is maatschappelijk van groot belang (OESO en SER). Van harte hoop ik dat je met jouw kennis van methodologie en statistiek, met je fonetische kennis, ook op het vlak van Baby and Child Research, in de Radboud TOS Fonds adviescommissie blijft, het fonds wilt blijven steunen.

Dank voor het mooie IFA eeuwfeest dat we dit jaar vierden, zo belangrijk om de collega's van toen weer te treffen.

Dr. Kino Jansonius-Schultheiss

klinisch psycho- en neurolinguïst / logopedist, nu gepensioneerd

(A non-public contribution)

Not included
Not in this public edition

The Complete edition – for Paul's eyes only *includes an extra contribution, spanning pages 241–243. This placeholder is included to clarify the break in the page numbering.*

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Leve Praat!

Dr. Karijn Helsloot
Stichting Taal naar Keuze, Amsterdam

Beste Paul,

Het was tussen 1991 en 2001 dat ik met regelmaat en groot plezier het Instituut voor Fonetische Wetenschappen op de Herengracht bezocht. De zinsfonologie, de prosodie had mijn belangstelling, de relaties tussen klemtonen en ritmische patronen enerzijds en woord- en zinsbouw en betekenis anderzijds - een gracht verderop, in het Bungehuis, hoek Singel, Paleisstraat, Spuistraat - 210.

Om deze taalkundige relaties zichtbaar en meetbaar te maken was er Praat - wat een openbaring! Toonhoogte, duur en intensiteit meten en vergelijken gaf de aanvullende munitie om de strijd aan te gaan met het T-model van Noam Chomsky. Binaire en ternaire maten uitgedrukt in lettergrepen, voeten en fonologische frasen zijn minstens zo bepalend voor de fonologische output als de morfologie en syntaxis. Jouw collega's Astrid van Wieringen en Rob van Son hielpen mij de weg te vinden.

Vanaf 1997 verzorgde ik op verzoek van jouw voorganger, hoogleraar Louis Pols, een aantal jaren gastcolleges *Prosodie*. Hoe leuk was het om dat te doen, met studenten uit allerlei studierichtingen. We hadden het over meetbare fonologische kenmerken van ironie, van luchtverkeersleiders met de ruggen naar elkaar in gesprek, van kinderversjes, van sportverslaggevers over radio vs. tv, van krantenkoppen vs. vrije versvormen, etc. En dit werd - als enigszins mogelijk - in Praat verwerkt en geanalyseerd.

En toen in 1999/2000 het projectvoorstel door de Europese Commissie werd gehonoreerd om in het kader van het Europees Jaar van de Talen (2001) een onderwijsproject over meertaligheid te maken, lag voor mij voor de hand dat Fonetiek daarin een plek zou krijgen. Met jou en Ton Wempe hebben we bekeken of het mogelijk zou zijn een automatische vertaalcabine te maken: je praat in het Nederlands en het komt er in het Arabisch uit, met je eigen stemgeluid - Google Translate *avant la lettre*. Het was een stap te ver.

Maar in en door *Taaltrotters* hebben leerlingen van 10-15 jaar kennis kunnen maken met wat fonetische invalshoeken. Kijk maar. Dank je wel, Paul!

Karijn Helsloot

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www.taalnaarkeuze.nl

Festschrift in honour of Paul Boersma–Companion volume
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Hoe maak je klanken?

wat je zegt
ben je zelf
komt uit je mond

11

Met je stembanden Die zitten achter in je keel, in je strottenhoofd. Het zijn spieren die open en dicht gaan. Stembanden lijken op snaren. De korte, dunne snaren van een viool geven een hoog geluid. De lange, dikke snaren van een contrabas geven een laag geluid. Mannen hebben lange, dikke stembanden. Baby's korte en dunne stembanden. Vrouwen zijn net cello's.

In veel talen is het woord voor 'tong' ook het woord voor 'taal'. In het Latijn en het Italiaans is dat *lingua*. In het Engels zie je tong=taal terug in *mothertongue*. In het Nederlands in het woord tongval. En Mercé spreekt Sranantongo.

Met je tong De behendigste acrobaat onder de spieren. Hoog, laag, achter, voor, gekruld, opzij, gepunt, plat, gevloerd, ontspannen.

Met je lippen Daarom zijn er maar zo weinig buikspre-kers. Die oefenen lang om hun lippen niet te bewegen. En als je de lippen van een buikspreker van dichtbij bekijkt...

Wat de buikspreker oefent: alle lipklanken vervangen door klanken meer in de mond. Probeer maar eens: pappa maakt pasta.

Met je tanden Ben je nog aan het wisselen? Of heb je je gebit niet in? Probeer het woord tanden te zeggen, zonder je tanden aan te raken.

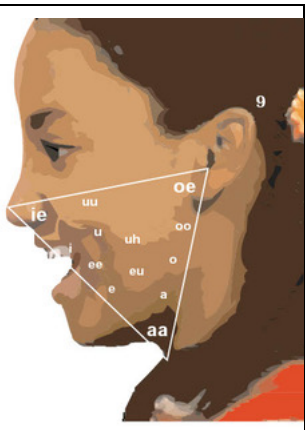
Met je neus Als je verkouden bent, dan kan er geen lucht door je neus naar buiten. Je praat zogenaamd 'nasaal', maar eigenlijk gebruik je je neus dan helemaal niet.

Zonder lucht maak je helemaal geen klank. Buiten adem van het rennen, kun je geen pap meer zeggen.

→ **Zoek spreekwoorden met het woord 'tong' erin, die met praten hebben te maken. In het Nederlands en in een andere taal. Vergelijk de spreekwoorden uit de twee talen met elkaar. Zijn er overeenkomsten?**

Aa ie oe

9



De klinkers **aa, ie, oe** komen in bijna alle talen voor. Deze klinkers maak je in de uithoeken van je mond. Ze verschillen het meest van elkaar.

De **aa** maak je laag in de mond.
De **ie** maak je hoog en voor in de mond.
De **oe** maak je hoog en achter in de mond.

Als je van de ene hoek naar de andere gaat krijg je bekende kreten:
auw! (van aa naar oe)
oei! (van oe naar ie)
ia! of ja! (van ie naar aa)

Het Nederlands heeft veel klinkers. Alle klinkers in de mond hierboven. En ook nog ei/ij, ui en au/ou. Dat is knap lastig als je geen baby meer bent en toch het Nederlands wil leren.

→ **Maak woorden met de klinkers die in de mond getekend staan. Voor elke klinker een woord. Het kunnen Nederlandse woorden zijn, maar ook woorden uit een andere taal.**

Als je je mond helemaal ontspant, dan hoor je de klank die in het midden van de driehoek staat: de uh van als je even niet weet wat je gaat zeggen. Uhhhhhhh.....

22 AhMet

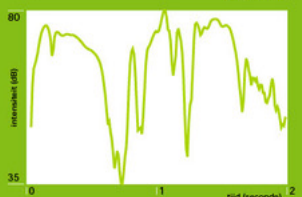
is verantwoordelijk voor de taalmuziek van het lied. Hij zoekt ritmes en melodieën.

Ahmet
Maar eh... Wat moet ik nou?

Duur
Dit is de zin van Ahmet. Elk woord is apart aangegeven. Je kunt zien dat sommige lettergrepen langer duren dan andere.



Volume
Hier zie je de zin van Ahmet in hard-zacht uitgedrukt. Dat wordt gemeten in decibels.



Toonhoogte
Dit is de melodie van Ahmets zin. Die wordt gemeten in Herz.



28 Emoties en stemmingen




enthousiast
verveeld
bang
verontwaardigd
moe
lief
verbaasd
blij
boos
nieuwsgierig
geheimzinnig

Emoties en stemmingen komen in alle landen en culturen voor. En je kunt ze in alle talen uitdrukken. Met woorden, met je gezicht, maar ook met taalmuziek.

Waaraan hoor je dat iemand boos is, als je de woorden niet verstaat? En waaraan dat iemand blij is, of zich dood verveelt? Dit zijn de kenmerken:

Boos	Blij	Verveeld
Hoog uitgesproken	Hoog uitgesproken	Laag uitgesproken
Veel toonafwisseling	Veel toonafwisseling	Weinig toonafwisseling
Heel snel praten	Snel praten	Langzaam praten
Heel hard praten	Hard praten	Zacht praten
Klanken inslikken	Klanken inslikken	Slappe uitspraak

De taalmuziek van blij lijkt dus veel op die van boos. Maar bij blij trek je een lachend gezicht. Je lippen spreiden zich, je wangen gaan omhoog. Dat geeft een ander geluid.

→ **Hoe klinken verontwaardigd, nieuwsgierig en geheimzinnig?**

Ahmet stopt ritme en melodie in de klanken van Mercé:
Spa Doe Dei — Sei **Pa** Doe **Rei**
A **Oeoeeeoe** Ei — **Sja**sja **Sjoe**koe
A Oe **Ei** — Pa **Maaaaa** Doe **Kei**

→ **Stop nu zelf taalmuziek in je koffer. Neem een stukje tekst. En laat zinnen bijvoorbeeld van laag naar hoog gaan, glijdend, of in drie stappen. En wissel opgewonden af met verveeld of geheimzinnig. Geef aan het stukje tekst een rapritme mee. Van de klanken die je bij Mercé hebt verzameld kun je een backgroundkoortje maken: klinken ze hard-zacht of kort-lang?**


JEWELLERY
POPULAR ART

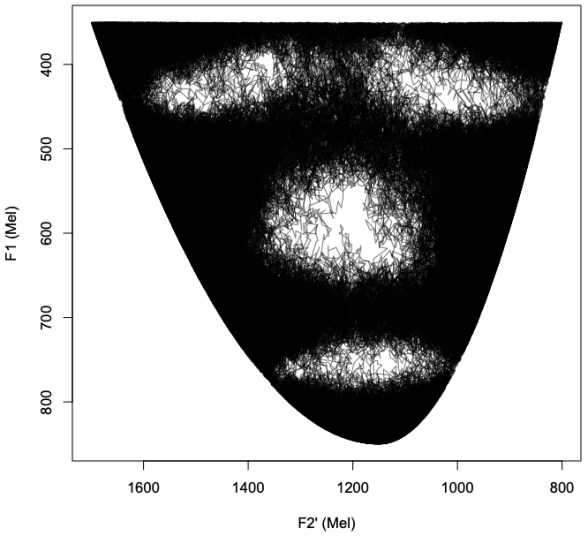
Precies, veelzijdig en degelijk: wat ik geleerd heb van Paul*

Bart de Boer
AI-lab, Vrije Universiteit Brussel

Een vreemde grafiek en een onverwachte email leiden tot een gedachtestroom over het pensioen, de planeet Jupiter, hoe Paul Boersma het onderzoek van de auteur beïnvloed heeft, en een onderzoeksidee over rare klinkers.

1 Pauls invloed

Toen ik de email over het Festschrift voor Paul van Titia en Kateřina kreeg, zat ik te staren naar een grafiekje (figuur 1) dat net uit mijn computermodel gerold was. Over de wetenschappelijke betekenis straks meer, maar in eerste instantie lijkt het op een beetje een treurig, nadenkend gezicht. Wat probeerde mijn computer me te vertellen? De email over Paul z'n emeritaat leidde tot een mogelijk antwoord: een pensioen is natuurlijk iets om te vieren, maar tegelijkertijd is het ook een moment om na te denken en, net als elke *rite de passage*, wellicht een moment van rouw. De wereld van de fonetiek zal immers nooit meer hetzelfde zijn als Paul geen hoogleraar meer is aan het instituut voor fonetische wetenschappen van de



Figuur 1: Traject van een miljoen stappen voor één klinker van een Markov Chain Monte Carlo simulatie van Liljencrants en Lindblom's (1972) energiefunctie voor een vijf-klinkersysteem. $\sigma = 10$, en $T = 10^{-5}$.

* Dank aan Titia Benders en Kateřina Chládková voor het initiatief van dit Festschrift en voor al mijn oud-collega's van het ACLC voor de fantastische tijd die ik daar gehad heb.

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universiteit van Amsterdam. Zolang ik mij bezig heb gehouden met fonetiek, was Paul een soort natuurkracht. Of misschien eerder zoals de planeet Jupiter in het zonnestelsel: je zal er niet noodzakelijkerwijs naartoe gaan, maar je traject en dat van alles in je omgeving wordt er weldegelijk door beïnvloed.

Mijn traject heeft natuurlijk wèl dat van Paul gekruist. Van 2007 tot 2012 heb ik mijn VIDI-project bij hem gedaan en van ruwweg 2012 tot 2017 heb ik nog af en toe les gegeven in Amsterdam en had ik een bureautje in het kantoor voor gastonderzoekers. Het begon allemaal met een bezoek aan het instituut voor fonetische wetenschappen dat toen nog aan de Herengracht zat. Ik wilde Paul vragen of hij erin geïnteresseerd zou zijn dat ik een project bij hem kwam doen, en tot mijn verbazing zag ik een krantenknipsel van een interview met mij op het prikbord hangen. Kennelijk wel. Paul zei ook: "We moeten samen papers schrijven." Dàt is er uiteindelijk niet van gekomen, maar ik heb in Amsterdam wel mijn eerste promovenda (Tessa Verhoef) begeleid van wie ik zelf het project bedacht had (met Paul als officiële promotor, uiteraard). Ik heb er heel leuk onderzoek gedaan en er een fantastische tijd gehad, mede dankzij de inspirerende groep mensen die Paul verzameld had: Cecilia, David, Diana, Jan-Willem, Karin, Kateřina, Marcel, Margarita, Nivja, Paola, Rob, Sophie, Tamás, Tessa, Titia, Wieneke, Wolfgang, Dirk Jan en Ton, en natuurlijk ook dankzij een hele hoop andere promovendi, postdocs en proffen die wel bij taalkunde, maar niet bij de fonetische wetenschappen werkten.

Toch heeft Paul grote invloed gehad op mijn wetenschappelijke manier van werken. Paul heeft mij geïnspireerd met zijn focus op detail en *precisie*, ik herinner me een geval waarin hij me vertelde over de manier waarop statistische berekeningen werden gedaan in Praat. Andere programmeurs waren tevreden met een precisie van rond de $1{:}10^{16}$. Maar hij zei dat als je de berekeningen op de juiste manier uitvoerde je wel tot $1{:}10^{100}$ kon komen, en zo had hij het dus gedaan. Daar is elke programmeur stiekem jaloers op. Paul is natuurlijk ook iemand die buitengewoon *veelzijdig* onderzoek kan doen, in de zin dat hij niet in z'n comfort zone blijft. Is het nodig om EEG te leren, of een *eye tracking* installatie te maken? Dan doet Paul dat, zoals gebeurde in de periode dat ik in Amsterdam zat. Is het nodig om een apparaat te bouwen? Dan gebeurt dat, en zo werden er voor mij bijvoorbeeld prehistorische spraakkanalen in elkaar geknutseld van plastic buizen (bedankt Dirk Jan!). Wil je iets raars doen, zoals bijvoorbeeld met trekfluiten de evolutie van spraak onderzoeken (Verhoef et al. 2014) dan kon dat. Tenslotte is Paul niet tevreden tot iets helemaal *degelijk* is. Dat is misschien ook de reden dat het artikel waar we samen aan werkten, nooit helemaal af kwam: het kon altijd beter. Dat neemt niet weg het meest geciteerde artikel (>1000 keer) waar mijn naam op staat, rechtstreeks gebaseerd is op het werk van Paul: *Introducing Parselmouth: a Python interface to Praat* (Jadoul et al. 2018).

2 Een idee?

Wat staat er tenslotte in de grafiek in figuur 1? Dit toont het traject van één klinker uit een vijf-klinkersysteem als je een random walk doet door de ruimte van zulke klinkersystemen waarbij de kans om op een bepaald punt te komen afhangt van een Boltzmann-verdeling die bepaald wordt door een energie-functie die door Liljencrants en Lindblom (1972) bedacht is om te kunnen voorspellen hoe vaak je bepaalde klinkersystemen in menselijke talen vindt. In minder technische termen: het plaatje is zwart op plekken van de klinkerruimte waar je verwacht vaak klinkers aan te treffen in de klinkersystemen van de talen van de wereld, en wit op de plekken waar je bijna nooit klinkers verwacht aan te treffen.

Nu wordt dit soort onderzoek meestal gedaan om vaak voorkomende klinkers en klinkersystemen te verklaren, maar dit plaatje lijkt erop te wijzen dat er ook klinkers kunnen zijn die *niet* vaak voorkomen. Dat de schwa niet vaak voorkomt in vijf-klinkersystemen is natuurlijk geen verrassing, maar er lijken ook andere "rare" klinkers te zijn die vermeden worden: het is niet simpel zo dat hoe verder van de rand van de klinkerruimte een klinker zit, hoe minder vaak die voorkomt. De vraag is: is dit een artefact van mijn model, of zijn er in de talen van de wereld echt klinkers die vermeden worden? Misschien een idee voor Paul, mocht hij zich vervelen in zijn emeritaat, en wie weet een onderwerp voor de paper die we eindelijk samen kunnen schrijven?

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(A non-public contribution)

Not included
Not in this public edition

The Complete edition – for Paul's eyes only *includes an extra contribution, spanning pages 250–251. This placeholder is included to clarify the break in the page numbering.*

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De bestudering van Paul Boersma vanuit het statistisch leerperspectief: een gevalsstudie

Judith Rispens
ACLC, University of Amsterdam

Mensen zijn uitgerust met het cognitieve vermogen om patronen te herkennen in de binnenkomende input vanuit hun omgeving (statistisch leren). In deze studie wordt verslag gedaan van de gedragspatronen van de casus Boersma die impliciet en statistisch zijn geleerd tijdens de begeleiding van drie promovendi door zijn mede-begeleider. Vier gedragspatronen zijn aan de oppervlakte gekomen: Boersma is een perfectionist, een zeer integer wetenschapper, werkt niet volgens de 'negen tot vijf' mentaliteit en zijn dress code volgt het patroon van 'non-academisch comfortabel'. Geconcludeerd kan worden dat Boersma een zeer prettig persoon is om mee te werken waar veel van geleerd is.

1 Introductie

Statistisch leren kan worden beschreven als het onbewuste en impliciete vermogen van mensen en jonge kinderen om patronen, regelmatigheden en structuren te ontdekken in de informatie of prikkels die ze binnenkrijgen. Dit gebeurt vaak zonder dat je je er bewust van bent dat je aan het leren bent. Vaak wordt de rol van statistisch leren bestudeerd binnen de taalontwikkeling, het vermogen om te lezen en schrijven en visuele patronen te herkennen en te genereren.

Paul heeft binnen dit perspectief op cognitief leren een drietal promovendi begeleid, samen met de onderhavige auteur, waarin de bijdrage van statistisch leren op de taalontwikkeling bij kinderen met een taalstoornis (Dr. Imme Lammertink en Dr. Iris Broedelet) en bij kinderen met ontwikkelingsdyslexie (Dr. Merel van Witteloostuijn) is onderzocht. In de drie proefschriften wordt verslag gedaan van experimenten en meta-analyses die zijn uitgevoerd om de rol van statistisch leren te onderzoeken. In de drie proefschriften wordt laten zien dat statistisch leren bij kan dragen aan taalontwikkeling en de ontwikkeling van geletterdheid, maar dat de effecten klein zijn, en dat er ook vaak geen evidentie gevonden is voor een verschil van het statistisch leervermogen tussen kinderen met en zonder taal- en leesproblemen.

Festschrift in honour of Paul Boersma–Companion volume
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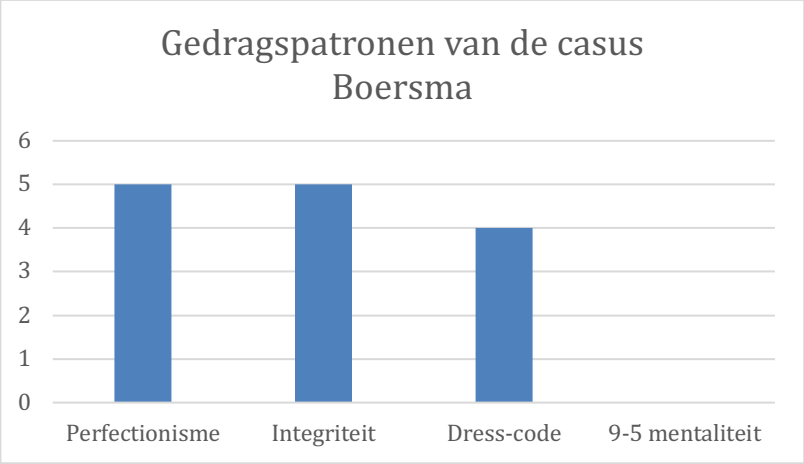
Het traject waarin een proefschrift geschreven wordt, is intensief en behalve een ontwikkeling van de promovendus is er ook een dynamiek tussen de begeleiders van promovendi. De onderzoeksvraag in onderhavig stuk is dan ook of en wat er statistisch geleerd is over Paul Boersma als begeleider en collega door zijn mede-begeleider (de onderhavige auteur). Welke patronen van Boersma zijn impliciet geleerd gedurende deze tijd en welke zijn ook gegeneraliseerd bij de onderhavige auteur?

2 Methode

De data komt van een n=1 studie waarbij de onderhavige auteur observaties heeft gemaakt over gedragspatronen van Boersma voor en na de begeleidingstrajecten waarbij de perceptie over Boersma voorafgaand aan de begeleiding is vergeleken met de perceptie over de gedragspatronen van Boersma na de begeleidingstrajecten. Aangezien het niet de opzet was van de mede-begeleider om over het gedrag van Boersma te leren en omdat de mede-begeleider dit ook niet expliciet heeft besproken met Boersma, kunnen we stellen dat als er een patroon herkend is, dit impliciet en op basis van statistisch leren is gedaan. Gedragspatronen zijn gecategoriseerd met betrekking op de universitaire werkomgeving: perfectionisme, integriteit, dresscode, en 9-5 mentaliteit zijn gescoord op een schaal van 1-5 waarbij 1 betekent dat er geen sprake is van een patroon en 5 dat er een zeer duidelijk gedragspatroon is dat impliciet / statistisch geleerd is door de auteur.

3 Resultaten

In Figuur 1 worden de resultaten voor wat betreft de gedragscategorieën gepresenteerd. Het kan geconcludeerd worden op basis van deze beschrijvende statistiek dat de auteur als mede-begeleider duidelijke patronen heeft geleerd over het gedrag van Paul Boersma.



Figuur 1: Gedragspatronen van Boersma die statistisch zijn geleerd

Perfectionisme: Boersma scoort een 5 op perfectionisme. Observaties die tezamen tot het patroon 'Boersma is een perfectionist' hebben geleid, omvatten: (1) het vinden van 100+ taal- en tikfouten in de laatste versie van een proefschrift en deze genummerd aanleveren in een apart pdf bestand; (2) het narekenen, het nog eens narekenen en het nog eens narekenen van berekeningen die automatisch zijn gemaakt binnen een niet zelf door Boersma geschreven software pakket, en (3) het schrijven van talloze e-mails om een misverstand recht te zetten en pas daarmee op te houden als het misverstand is opgeklaard.

Integriteit: Boersma scoort een 5 op (wetenschappelijke) integriteit. Dit patroon is gevormd op basis van gebeurtenissen als (1) het geven van een statistiekcursus waarbij er 10 geboden zijn opgesteld zodat studenten op integere wijze met statistische analyses om leren gaan; (2) zorg dragen voor correcte verwijzingen naar referenties en transparantie voor wat betreft intellectueel eigenaarschap; (3) zich uitspreken over en hard maken voor integriteit; transparantie en sociale veiligheid binnen de afdeling en het onderzoeksinstituut.

Dress code: Ook op de derde indicator van een gedragspatroon zien we een duidelijk patroon. Boersma heeft een voorkeur voor kleding die comfortabel is en hij conformeert zich niet graag. Zo 'teamst' hij in een peignoir als het ochtend is en loopt hij graag op sandalen en met een korte broek in de zomer, ook als bij op een congres is. De TU Delft heeft dit patroon nog niet geïnternaliseerd.

Negen tot vijf mentaliteit: Als laatste is er een duidelijk effect te zien voor wat betreft Boersma als *'negen tot vijf'* collega: dat is hij niet. Observaties die ten grondslag liggen voor de herkenning van dit patroon: (1) veelvuldig e-mailen rondom middernacht tot ongeveer vier uur in de ochtend, (2) het eten van tosti's met sambal rond middernacht zodat hij energie heeft voor zijn nachtwerk, (3) het veelvuldig draaien van overuren door cursussen te geven terwijl zijn OOTV al

meer dan vol zit en (4) het meeschrijven aan een aanvraag voor een onderzoek dat na zijn pensionering zal beginnen.

4 Conclusie

Paul: ik heb met heel veel plezier met je samengewerkt de afgelopen 19 jaar. Ik heb ontzettend veel van je geleerd. Met name hoe je als wetenschapper verantwoordelijk bent voor de integriteit van alle facetten van het wetenschappelijke onderzoek, maar ook voor het werken op een integere manier binnen een wetenschappelijke omgeving. Ik wens je een hele goede pensionering toe waarin we hopelijk nog met elkaar kunnen optrekken.

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(A non-public contribution)

Not included
Not in this public edition

The Complete edition – for Paul's eyes only *includes an extra contribution, spanning pages 256–258. This placeholder is included to clarify the break in the page numbering.*

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Hoe Paul Boersma mij inspireerde tot de studie van typologie en de historische fonologie

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1 Inleiding

In de jaren 70 en 80 hadden aan de UvA de linguïsten en de fonetici weinig contact met elkaar. Er waren twee afzonderlijke instituten, één voor algemene taalwetenschap (ATW) en één voor fonetische wetenschappen. Ik studeerde in de tweede helft van de jaren zeventig tijd ATW met fonetiek als bijvak. Dat bijvak bestond uit een reeks afzonderlijke colleges. Eén sessie daarvan werd gegeven door de toenmalige hoogleraar, de voorlaatste voorganger van Paul. Van hem kregen wij bijvakkers, onder wie meerdere ATW-studenten, te horen dat het vak fonologie, waarin ik mij later zou verdiepen, gebaseerd was op onzin. Deze hoogleraar gaf ons zijn interpretatie van het ontstaan van het begrip foneem, dat aan de grondslag staat aan de moderne fonologie. Het foneem was volgens deze geleerde, die overigens was afgestudeerd in de elektrotechniek en was gepromoveerd op de theorie van de wisselstroombel, een foutief begrip dat zou zijn ontstaan doordat men te veel naar het alfabetische schrift had gekeken. Met deze wetenschappelijke conclusie moest ik het dus maar doen. Gelukkig kwamen er in die collegereeks ook andere, veel interessantere, onderwerpen aan bod, maar de afstand tussen het Instituut voor Fonetische Wetenschappen en ATW bij de UvA bleef in mijn waarneming groot.

De directe voorganger van Paul als hoogleraar, Louis Pols, stond gelukkig veel meer open voor andere (sub)disciplines dan die van hemzelf. Ik heb hem nooit neerbuigend over de taalkunde horen spreken.

En toen was daar, in 1998, opeens het proefschrift van Paul, tot stand gekomen met als promotor Louis Pols. Met ver- en bewondering nam ik kennis van dit proefschrift, dat liet zien dat er wel degelijk een brug kon worden geslagen tussen de fonetiek en de moderne fonologie.

De titel van het proefschrift, *Functional Phonology*, en het logo van het inmiddels verdwenen IFOTT dat op het boek prijkt, deden mij afvragen welke betekenis van het multifunctionele woord ‘functioneel’ hier nu van toepassing was. Ging het om het primaat van pragmatische functies, zoals in Simon Diks Functionele Grammatica? Dat kon onmogelijk het geval zijn, aangezien de dissertatie niet de syntaxis als onderwerp had. Het bleek te gaan om de interactie

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tussen voortbrenging, met minimalisatie van articulatorische moeite, en waarneming, met minimalisatie van perceptieve verwarring**.** Hierbij werd er uitvoerig gebruikt gemaakt van de Optimaliteitstheorie, waarin conflicten tussen tegenstrijdige tendensen kunnen worden beslecht, maar die afkomstig is uit een geheel ander theoretisch kader dan de Functionele Grammatica.

Parallel met Pauls proefschrift ontstond in de jaren negentig de *Laboratory Phonology*, die ook de grenzen tussen de experimentele fonetiek en fonologie doorbrak.

Een andere dichotomie in die tijd was die tussen synchrone en diachrone fonologie. Ook deze barrière werd door Paul geslecht: zijn proefschrift bevat een hoofdstuk (nr. 17) over klankverandering.

In diezelfde tijd begon ik mij steeds meer voor de historische taalkunde te interesseren. Over dit onderwerp heb ik herhaaldelijk met Paul gesproken, bijv. over de geschiedenis van het Germaans. Later heeft hij eens voor mij commentaar op een artikel gegeven (later gepubliceerd als Noske 2026), waarin een parallelle ontwikkeling van het pad Laatlatijn > Oudfrans en het Hoogduits werd beschreven. Daarin komt de typologie voor van de syllabe- en woordtalen zoals ontwikkeld door Auer (1993, 1994, 2001). Over deze typologie wil ik hier nu wat schrijven, omdat zij, naar ik denk, van belang is voor Pauls bidirectionele fonologie.

In de volgende sectie geef ik een summier overzicht van die bewuste typologie. Tevens geef ik een kleine analyse van verschillen tussen het Standaardnederlands van België (hierna: BN) en dat van Nederland (hierna: NN), gezien vanuit het perspectief van de hierboven genoemde typologie.

2 De theorie van de syllabe- en woordtalen en een verschil tussen de Nederlandse standaardtalen van België en Nederland.

De klassieke typologische dichotomie van *syllable-timed-* tegenover *stress-timed-*talen is door verscheidene onderzoeken (Roach 1982; Wenk & Wioland 1982; Fant, Kruckenberg & Nord 1991) onderuit gehaald. In plaats daarvan stelt Auer (1993, 1994, 2001) een *graduele* typologie voor van syllabe-talen (waarbij de syllabe de meest belangrijke prosodische eenheid is) en woord-talen (waarbij het prosodische woord de meest belangrijke prosodische eenheid is).

Hieronder staat een schema van verschillen tussen een prototypische syllabetaal en een prototypische woordtaal (zie tabel 1). Zoals kan worden opgemaakt uit de tabel, speelt de morfologie in een prototypische woordtaal een grote rol, terwijl dat niet het geval is in een syllabetaal.

Tabel 1: prototypische eigenschappen van syllabe- versus woordtalen

nr.	**criterium**	**syllabetalen** syllabe als prosodische basiseenheid (variabele voetlengte)	**woordtalen** fonologische woord als prosodische basiseenheid (variabele syllabelengte)
1	syllabestructuur	CV-syllabes (zelden gesloten syllabes); alle syllabes even lang	variabele syllabes van verschillende complexiteit, afhankelijk van de plaats van de klemtoon; vaak verschillen tussen woordmediale en perifere syllabes.
2	syllabegrenzen	duidelijke, constante syllabegrenzen	vage, variabele syllabegrenzen, afhankelijk van de spreeksnelheid
3	sonoriteitshiërarchie	de sonoriteitshiërarchie wordt geëerbiedigd, dwz. maximaal sonoriteitsonderscheid tussen C en V	de sonoriteitshiërarchie wordt minder geëerbiedigd, bijv. door het stemhebbend worden van intervocale medeklinkers, woordinterne assimilaties
4	geminaten	zijn mogelijk	geminaatreductie, behalve woordintern waar morfologisch relevant, bijv. in samengestelde woorden zoals Du. *Schfffahrt* ([f:})
5	klemtooneffecten	geen/weinig verschillen in structuur tussen beklemtoonde en onbeklemtoonde syllabes	beklemtoonde syllabes zijn zwaar, onbeklemtoonde syllabes zijn licht
6	klemtoontoekenning	meestal syllabegebaseerd; soms geen vaste klemtoon	klemtoontoekenning (vaak complex) is morfologisch / lexicaal / semantisch bepaald
7	tonaliteit	kan aanwezig zijn, ook op onbeklemtoonde syllabes	indien aanwezig (wat zelden het geval is) alleen op beklemtoonde syllabes

Het BN heeft meer het karakter van een syllabetaal dan het NN, dat iets meer het karakter van een woordtaal heeft. Dit komt tot uiting in verschillen van (i) het in het BN niet respecteren van morfologische grenzen bij syllabificatie (waarover hieronder meer), (ii) verschillen in de mogelijkheden van klinkerreductie, (iii) de diftongering van lange middenklinkers in het NN, maar niet in het BN; (iv) verschijnselen van apocope in het NN maar niet in het BN; (v) truncatie van finale obstruenten in functiewoorden in het BN; (vi) uitgebreidere clitisatie in het BN dan in het NN.

Ik zal me hier concentreren op het eerste verschijnsel, het niet respecteren van morfeemgrenzen bij syllabificatie in het BN. Voor de overige verschillen zie Noske (2022). Bekijk nu de volgende verschillen tussen het NN en het BN (ω = fonologisch woord):

(1) a. *uiteindelijk* /œyt+ɛɪndə+lək/
uit /œyt/, *einde* /ɛɪndə/, *–lijk* /lək/
prosodische structuur: {uit}$_{\omega}${eindelijk}$_{\omega}$
NN: [ˌœyt.ˈʔɛɪn.də.lək] BN: [ˌœy.ˈtɛɪn.də.lək]

b. *oneens* /ɔn+eːns/ {on}$_{\omega}${eens}
on– /ɔn/ *eens* /eːns/
NN: [ˌɔn.ˈʔeːns] BN: [ˌɔ.ˈneːns]

c. *bergachtig* /bɛrɣɑxtəx/ {berg}$_{\omega}${achtig}$_{\omega}$
berg /bɛrɣ/, *–achtig* /ɑxtəx/
NN: [ˈbɛrx.ˌʔɑx.təx] (met verstemlozing van de /ɣ/→[x] in /bɛrɣ/)
BN: [ˈbɛr.ˌɣɑx.təx]

We zien dat in het BN de grenzen van het fonologisch woord niet samenvallen met de syllabegrenzen. Dit komt nog eens extra tot uiting doordat in de BN vorm in (1c) de onderliggende stemhebbende fricatief /ɣ/, die zich aan het einde van een fonologisch woord bevindt, geen verstemlozing heeft ondergaan, wat we zouden verwachten indien dit segment zich aan het einde van een syllabe zou bevinden. We stellen nu vast dat in het NN het fonologisch woord het domein vormt voor de syllabificatie, maar dat dat niet het geval is in het BN. Het proces van syllabificatie levert in het BN een meer regelmatige syllabestructuur op, met meer open lettergrepen. Volgens criterium 1 in tabel 1 bevindt het BN zich dus meer in de richting van een syllabetaal op het syllabetaal-woordtaalcontinuüm.

Het hierboven beschreven verschil tussen het BN en het NN kan nu als volgt worden geïnterpreteerd. In het BN is het belang van de voortbrenging (minimalisatie van articulatorische moeite) groter dan dat van de waarneming (minimalisatie van perceptieve verwarring). In het NN daarentegen worden d.m.v. de syllabificatie de morfeemgrenzen gemarkeerd, met als gevolg voor de luisteraar grotere morfologische transparantie en daardoor een gemakkelijkere waarneming.

Dit feitencomplex laat zien dat taalvarianten kunnen verschillen in de mate waarin de voortbrenging dan wel de waarneming een belangrijkere rol speelt. Bij relatieve syllabetalen is het de voortbrenging, bij relatieve woordtalen de waarneming. In dit geval kan het verschil tussen het BN en het NN worden verantwoord door een verschil in de relatieve volgorde van de OT-beperkingen *Onset* en *Alignment* (zie Noske 2005). Het laat zien dat varianten van eenzelfde taal op dit punt verschillend kunnen zijn georganiseerd en dat in beide richtingen taalverandering kan optreden. Een mooi voorbeeld daarvan is de typologische cyclus zoals die in het Scandinavisch heeft plaatsgevonden (Braunmüller 2014).

Het Biphon-model deed mij denken aan het spanningsveld tussen productie en perceptie dat werd opgemerkt door Von der Gabelentz (1891: 256), die spreekt

van een *Bequemlichheitstriebe* en een *Deutlichkeitstriebe* (‘Triebe’ geheel volgens het psychologische gedachtengoed van het einde van de 19e eeuw).

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4 Dankzegging

Paul, ik ben je dankbaar voor de leuke en interessante gesprekken die ik met je heb gehad. Zoals hierboven aangegeven heb je mij op veel punten geïnspireerd. Ik hoop dat ons contact zich zal voortzetten.

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How we got much closer to understanding Franconian tonal accent

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While Paul Boersma's many contributions to phonological and phonetic theory are widely recognized, his work on Franconian tonal accent is arguably less well known outside the specialist literature. This paper highlights Boersma's sustained engagement with the synchrony and diachrony of the Franconian tone-accent contrast, focusing in particular on his influential chapter 'The history of the Franconian tone contrast' (Boersma 2018). I discuss the scientific significance of this work and some of the circumstances surrounding its publication. The paper argues that Boersma's work on the genesis and typology of Franconian tonal accent constitutes a particularly comprehensive and insightful account of the phenomenon to date and has substantially advanced our understanding of prosodic change in Germanic languages and beyond.

1 Introduction

It seems fair to say that Optimality Theory would not be where it is today, that our knowledge of the emergence of phonological categories would not be where it is today, and that our broad understanding of the interface between phonetics and phonology would not be where it is today without the contributions of Paul Boersma and his wonderful co-authors. However, Paul's well-established major achievements in these areas are not going to be the focus of this short piece: instead, I would like to emphasize an area where Paul's contributions are arguably somewhat less well-known, namely the synchrony and diachrony of Franconian tonal accent, spoken in certain varieties in present-day Belgium, Germany, and the Netherlands. It is quite possibly the most data-oriented work Paul has produced, and a topic that has been close to his heart for a long time.

Essentially, we are talking about an opposition between two classes of words, often called Accent 1 versus Accent 2, which primarily differ on the basis of their tonal melodies, interacting with a variety of other prosodic and pragmatic factors. Already the very basics of the Franconian data can be considered complex, and we can easily add a non-trivial amount of cross-dialectal distributional and realizational variation to that base complexity. Of course, I am

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aware that the definition of complexity can be a tricky subject (everyone seems to think that they work on particularly complex data). For that reason, I am going to back my common-sense assessment up with a characterization based on the so-called *Botmian Scale of Complexity*, which can be traced back to the Dutch phonologist Bert Botma. According to Botma (2013, p.c.), "every time I see a talk on Franconian, I think to myself after 5 minutes that I could really use a beer," which should suffice as an operational definition of complexity in Franconian.[3]

2 The history of the genesis paper

It will not come as a surprise to anyone who knows Paul that such complexity has never held him back; if anything, he embraces it. Over a period of around two decades, he has continuously worked to further our understanding of the principles underlying the tone-accent contrast. A lasting testament to his achievements is Boersma (2018), a paper called "The history of the Franconian tone contrast." In the paper, Paul presents an account of how the accentual opposition originated and changed over time, including the first principled analysis of a distributional split between two main dialect areas. Clocking in at a mere 70 pages (27 to 97) and occupying only a quarter of an edited volume with nine contributions, one might wonder how the author succeeds at treating such an intricate phenomenon on so few pages, particularly given the standards Paul has established for himself regarding precise and comprehensive argumentation.

One of the reasons that the chapter ultimately became so short is that, much to his own dismay, Paul was all but forced to shorten it, a restriction imposed by his ruthless co-editors and the guidelines of the publisher. On his professional website, Paul states that the published version covers "*many* details" of his scenario (emphasis mine), where the use of the word 'many' invites the reader to read between the lines. Interestingly, Boersma himself appears to believe that the piece became even shorter than it actually is, given that his own website incorrectly cites the chapter as having only 40 instead of 70 pages; this is shown in Figure 1.

[3] Botma (2026, p.c.) has pointed out to me that reporting a scale on the basis of only a single calibration point is of limited empirical value, a shortcoming that I plan to address in future research.



Figure 1: Incorrect citation of Boersma (2018), taken from the author's professional website: https://www.fon.hum.uva.nl/paul/ (accessed July 30, 2026). Arrow added by me for purposes of illustration; the original colors are red, green, and pink, a color scheme that brings a welcome sense of joy to the often somewhat grey world of academic rigor.

3 Advancing our understanding of Franconian tonal accent

After having established some of the history of the accent chapter, let me also briefly mention some of its most evident scientific contributions. I think that, first and foremost, we have to name the diachronic trajectory of vowel lengthening in open (and closed) syllables here, which Boersma treats in considerable detail. Section 4.3 alone furthers our understanding of how ongoing phonetic vowel lengthening of short vowels in open syllables can ultimately facilitate the emergence of a tonal opposition between originally short and originally long vowels. After almost 150 years of scholarly discussion on the subject, Boersma's paper is arguably the first to provide a phonetically and phonologically explicit account of vowel lengthening in Franconian, its f0 correlates and the reinterpretation of short vowels as long in the phonology. These considerations not only lead to substantial advances in our understanding of the accent genesis, but the chapter also informs us about the mechanisms of lengthening more generally.

In addition, this work addresses a lot of other well-known processes in the history of the Germanic languages and how they affected Franconian tone-accent dialects, ranging from the respective roles of apocope and consonant voicing in sound change to considerations on the representation of syllable structure and metrical stress (such as vowel and consonant moraicity, as well as moraic accentuation). Taken together, the paper is so illuminating that even the most informed reader can forgive Boersma for entertaining the possibility that the contrast between Accent 1 and Accent 2 might be insightfully represented with lexical tone (at least at some stages of the opposition). In a way, it is comforting to know that even the best of us can sometimes make mistakes (see, e.g., Köhnlein 2011, 2016; Hermans 2012; Kehrein 2018; van Oostendorp 2018; and Köhnlein & Cameron 2024 for a rectification of such hiccups in the existing literature).

4 Conclusion

In summary, Paul Boersma's work on Franconian is another example of the kind of highest-quality work that has helped him gain the exceptional status he rightfully holds in our field. It remains to be hoped that some of his well-deserved

free time in retirement will be devoted to providing further contributions on Franconian tonal accent and its importance for understanding both the history of the Germanic languages and mechanisms of sound change more generally. It's obvious that we all can still learn a lot from Paul, and that most certainly includes myself. Thank you for the many discussions we have had over the years on tonal accent, both while you were one of my advisors and afterwards. I will always be grateful for your support throughout my career.

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Measuring time in Praat*

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Temporal measurement is fundamental to phonetic analysis, yet the relationship between measured duration and experienced time remains insufficiently characterised. Praat offers considerable flexibility in representing frequency, while consistently expressing time in seconds. We examine this asymmetry in relation to temporal compression and expansion experienced during Praat usage. We propose extending Praat's functionality to include a researcher time scale, with options for deadline-proximity compensation, attention-drift correction and the resynthesis of time reserves depleted by "just one more token".

1 Introduction

Listing 1.
```
stopwatch
```

As is well known to the scientific community, Praat offers considerable flexibility in the measurement and representation of speech. In the frequency domain (e.g. Weenink, 2023), researchers can choose between a linear scale in hertz and several non-linear alternatives. Pitch contours, for example, can be displayed in semitones, mel or ERB. Spectro-temporal representations include conventional spectrograms as well as cochleagrams, which model auditory excitation on a Bark scale. Spectral detail can be inspected in a Fourier spectrum or smoothed using linear prediction (LPC) or cepstral methods. Numerous analysis and display settings allow these representations to be adapted to the properties of the signal and the research question. The researcher is therefore granted considerable freedom in deciding how the signal should be represented.

* Thank you, Paul. We are grateful to you for all that you have done for phonetics and phonology in this world. We are also grateful that you have taken care so well of our student Katka and helped her become the confident scientist, and mentor to us, that she is now.

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Listing 2.

```
t = stopwatch
```

In stark contrast, as Praat Manual puts it, "Praat always requires times to be expressed in seconds" (Boersma, 2011). True, a non-linear transformation can be applied to durations measured in seconds. This may help address skewed distributions of measured values, as well as reflect the logarithmic nature of human perception. Also, the DurationTier can be replaced in a Manipulation object. However, neither of these operations does anything to address the non-linearities of researcher time.

Listing 3.

```
myTimeReserve = t - t
```

2 Researcher time non-linearities

We propose that Praat functionality should be extended to accommodate well-attested temporal distortion phenomena affecting Praat users. Table 1 provides examples of time shrinking, while Table 2 of time stretching. Improved time-scale flexibility would allow Praat to tame the temporal researcher degrees of freedom.

Table 1: Examples of researcher-time shrinking phenomena.

Phenomenon	**Time effect**
Endlessly following the 'Links to this page' in Praat Manual	$t_1 - t_0 > t_{\text{expected}}$
Clicking on all the possible action commands in the dynamic menus of the Praat Object window with different kinds of objects selected	'Goodness, is that the time already?'
Writing a Wordle game implemented as a Praat Demo window script (see Figure 1)	$f(t) = t \cdot e^{-t}$

Table 2: Examples of researcher-time stretching phenomena.

Phenomenon	**Time effect**
Manual speech-sound boundary TextGrid annotation	'Still 8792 files to go…'
Manual TOBI TextGrid annotation	'Where does the f***ing star go?'
Checking the tracked Pitch path for errors	$\Delta t = 0$

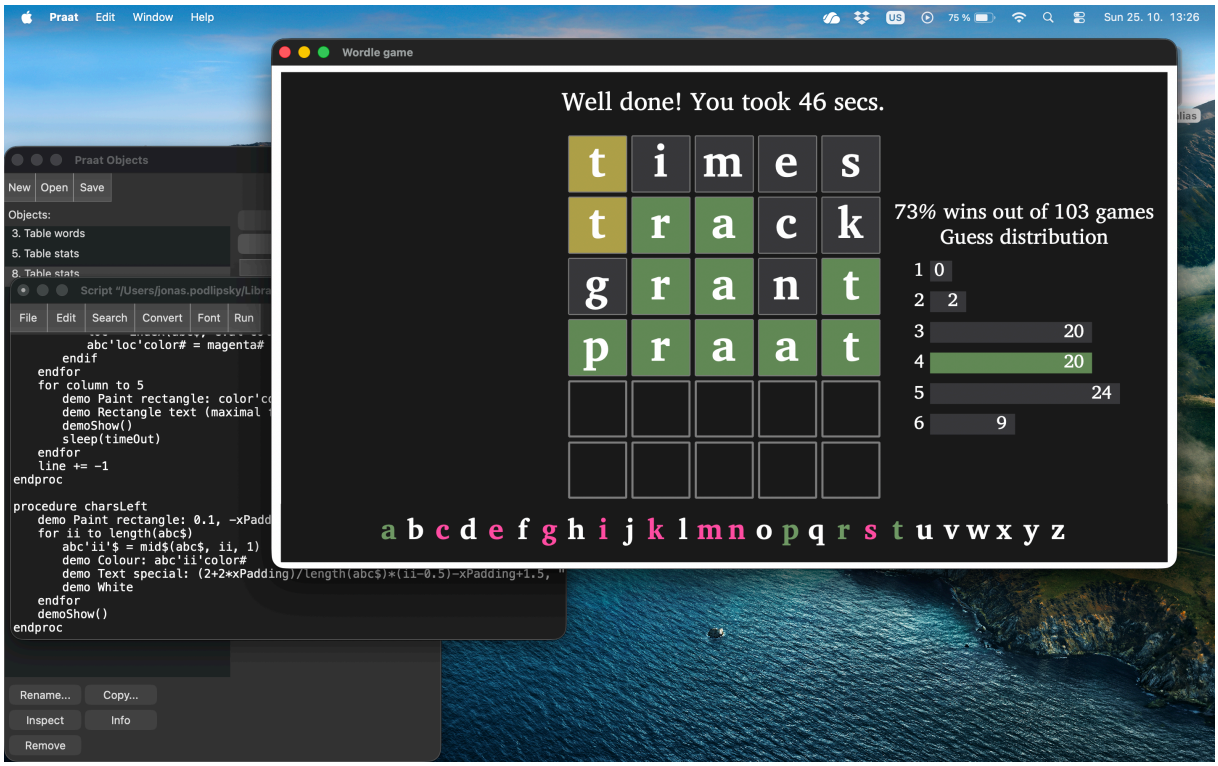


Figure 1: Wordle game implemented as a Praat Demo window script.

3 Conclusion

In conclusion, Praat version 7.1 ought to accommodate the temporal experience of the researcher with the same flexibility it affords other dimensions of speech analysis. We recommend introducing a researcher time scale, with appropriate corrections for deadline-proximity compensation, attention-drift effects and time-reserve resynthesis. Until then, the duration of "just one more token" must remain `--undefined--`.

Listing 4.

```
while t > myTimeReserve
     sleep(t)
endwhile
```

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PS. Don’t contact us. We don’t have time to respond.

The long and short of *Rentner*: A phonetic and Optimality-Theoretic note on academic retirement*

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The Low German noun Rentner 'retiree', documented as /ɾɛntnɐ/, poses a problem of temporal interpretation: how can a word promising so much free time and relaxation contain a short vowel? Rather than inserting a vowel or changing its phonological quantity, this note considers anticipatory nasalisation of /ɛ/ before /n/: velum lowering may begin during the vowel, producing an acoustically continuous transition into the nasal. An extended, pleasantly relaxed vowel-like impression is proposed as a perceptual hypothesis, not a measured increase in vowel duration. A synthetic spectrogram illustrates the segmental sequence without masquerading as speaker data. An illustrative phonetic OT tableau privileges faithful quantity and early nasal overlap; a second, more ceremonial tableau preserves MAX(CURIOSITY) while demoting MAX(MEETINGS) beneath uninterrupted leisure. A further, expressly imaginary dialect map places the centre of current Rentner activity near Amsterdam, where the extension of an academic career into retirement is particularly topical. The sample contains no newly recorded tokens, the map contains no observed frequencies, and the acoustic sample remains n = 0; the admiration for and gratitude towards Paul Boersma is considerably better attested.

1 Introduction

Most phonological representations are free to change gradually, but the lexeme *Rentner* has a curiously abrupt referential boundary: one day its future referent is still a professor, the next day he is an emeritus professor. This is not a final devoicing process. It is, if anything, a promotion of optionality. The question pursued here is how much of that welcome extra time is reflected in the vowel of *Rentner*.

*I thank Paul Boersma for his generous support with experimental phonetics and statistical analyses during my doctoral research. Any untested hypotheses in the present contribution are entirely mine.

© Maike Prehn

I have a particular reason to ask it. My doctoral dissertation on vowel quantity and the fortis–lenis distinction in North Low Saxon was defended at the University of Amsterdam on 31 January 2012 (Prehn 2012). Paul was my supervisor, and his support with experimental phonetic investigations and statistical analysis was indispensable. The best way I can think of thanking him is to subject an appropriate Low German word to a familiar combination of careful transcription, vowel timing, constraint interaction and, where evidence is absent, explicit restraint.

The descriptive component is deliberately narrow. The noun itself is attested in Low German lexicography; a concentration of its current use in Noord-Holland, however, is not. The second claim will therefore be treated as an affectionate, falsifiable geographical fiction rather than as a result of dialect fieldwork.

2 A noun with an occupational paradox

Plattmakers lists *Rentner* as a Low German masculine noun and gives /ɾɛntnɐ/ as its pronunciation. The dictionary offers the paraphrase *een, de Rent kriggt* ‘someone who receives a pension’. This makes *Rentner* more than a German-looking orthographic curiosity; it is lexicographically recorded in Low German. A Westmünsterland dictionary provides the same lexical item, though that dialect area should not be confused with the North Low Saxon dialects investigated in my dissertation (Plattmakers n.d.; NEON n.d.).

(1a) *Siet ik Rentner bün, heff ik mehr Tiet för miene Hobbys.*
‘Since I am retired, I have more time for my hobbies.’
(Plattmakers n.d.)

(1b) *Et is nümms so druck as ne Rentner.*
‘Nobody is as busy as a retiree.’
(NEON n.d., Westmünsterland)

Examples (1a–b) offer a pleasingly contradictory semantics: retirement increases available time, yet apparently also the opportunities to be busy. The phrase ‘more time’ need not imply a phonologically longer vowel. It may instead invite a less sharply bounded auditory event, with the short vowel flowing gently into the following nasal. The retired speaker can, in other words, take his time without adding a mora. This suggestion concerns the phonetic implementation of *Rentner*, not a newly documented dialectal sound change; the following tableaux use Optimality Theory to keep these claims apart.

3 Segmental phonetics and the length of leisure

The dictionary transcription /ɾɛntnɐ/ permits the provisional syllabification [ˈɾɛnt.nɐ], with stress on the first syllable: a rhotic, the short open-mid front unrounded vowel [ɛ], and a coronal [n.t.n] sequence, followed by reduced [ɐ]. A plausible finer transcription is [ˈɾɛ̃nt.nɐ], where the tilde abbreviates nasality developing towards the end of [ɛ], rather than a categorically nasal phoneme throughout its duration. The articulatory source is anticipatory lowering of the velum for the first /n/. This gesture can overlap with the final part of the vowel, adding nasal resonance and acoustic damping before the nasal closure begins (Beddor 2009; Pouplier et al. 2024). The proposed timing is not a recording or an established pronunciation norm for this particular Low German word.

Table 1: Attested transcription and analytically possible variants of *Rentner*. Only the lexicographic form is directly documented; all narrow transcriptions, rhotic variants and nasality timings are hypotheses.

Form	Evidence status	Phonetic interpretation
/ɾɛntnɐ/	Dictionary	Broad dictionary transcription; stress not specified.
[ˈɾɛnt.nɐ]	Predicted	Short lax [ɛ]; no anticipatory nasalisation marked.
[ˈɾɛ̃nt.nɐ]	Contextual	Final vowel portion nasalised before /n/; no new mora.
[ˈrɛ̃nt.nɐ]	Rhotic variant	Alveolar trill; timing of nasality untested.
[ˈʁɛ̃nt.nɐ]	Rhotic variant	Uvular rhotic under German influence; untested.

The North Low Saxon system analysed in Prehn (2012) distinguishes phonetic short, long and overlong durations without requiring three underlying vowel quantities: vowel quality, moraic structure and the fortis–lenis organisation of codas jointly matter. The lax nucleus [ɛ] in *Rentner* does not thereby turn into phonological /ɛː/. Crucially, vowel nasalisation and vowel quantity describe different dimensions. Coarticulatory nasality may blur the auditory boundary between vowel and nasal: listeners could attribute some of the ensuing voiced, resonant interval to a vowel-like continuation, even when the physically defined oral-vowel interval is not lengthened. Perceptual parsing of anticipatory nasal cues is attested elsewhere (Fowler & Brown 2000), but this particular impression in *Rentner* remains to be tested.

This is a rather appealing retirement strategy. Instead of increasing the number of morae or inserting another segment, the vowel eases into [n] through an overlapping nasal gesture; one could hear a less abrupt, more ‘relaxed’ transition. The metaphor must not be mistaken for a claim that nasalisation necessarily lengthens perceived vowels, reduces muscular effort or creates contrastive nasal vowels in Low German. A genuine experiment would compare

speaking-rate-controlled tokens, segmental durations and listener judgements while manipulating nasal-coupling timing. Paul would, I suspect, ask for the recordings before accepting the boxplot.

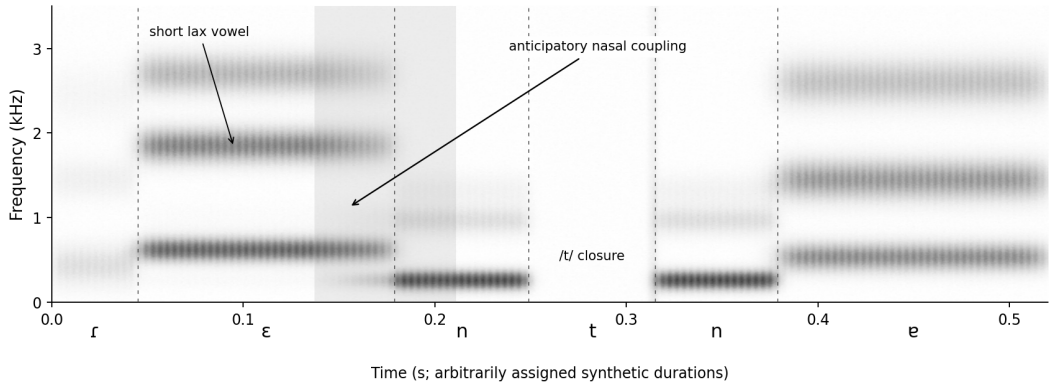


Figure 1: Synthetic, spectrogram-style time–frequency illustration of [ɾ ɛ n t n ɐ]. The shaded interval schematises anticipatory nasal coupling across the end of the short [ɛ] and into [n]; it is not a measured nasalisation interval, speech recording, duration estimate or Praat output for a Low German speaker.

4 The optimal retirement candidate

Two OT evaluations should be distinguished. The first is a deliberately simplified model of phonetic implementation, comparing candidates for /ɾɛntnɐ/ rather than proposing a new phonological nasal-vowel contrast. MAX-C preserves input consonants; *LONG-LAX excludes a long lax vowel; *LATE-NAS penalises a nasal gesture that begins only at the onset of /n/ and rewards anticipatory overlap; and *Ṽ disfavors a nasalised vowel. The illustrative ranking MAX-C, *LONG-LAX, *LATE-NAS ≫ *Ṽ favours contextual nasality without adding a mora. Converting gradient gestural timing into binary violations is a pedagogical simplification, not an empirically learned Low German ranking (cf. McCarthy 2004; Pouplier et al. 2024). The aim is a smooth transition, not a longer phonological vowel.

Tableau 1: Phonetic-implementation OT tableau for /ɾɛntnɐ/. The arrow identifies the winner; * denotes a violation and ! a fatal violation. Ranking: MAX-C, *LONG-LAX, *LATE-NAS ≫ *Ṽ.

/ɾɛntnɐ/	MAX-C	*LONG-LAX	*LATE-NAS	*Ṽ
☞ a. [ˈɾɛ̃nt.nɐ]	—	—	—	*
b. [ˈɾɛnt.nɐ]	—	—	*!	—
c. [ˈɾɛ̃ːnt.nɐ]	—	*!	—	*
d. [ˈɾɛ̃n.nɐ]	*!	—	—	*

Candidate (a) wins because [ɛ] remains short while its final portion shares nasality with /n/: relaxed auditory continuity is achieved by gestural overlap, not insertion or a new lexical quantity. The non-nasalised candidate loses on *LATE-NAS, whereas true lengthening and deletion incur higher-ranked violations. A Gradual Learning Algorithm could explore such rankings with independently recorded tokens and perceptual evidence (Boersma & Hayes 2001). For the present tribute, n = 0, so neither the auditory effect nor the proposed constraint hierarchy is claimed as an experimental finding.

The second evaluation concerns no phoneme at all, only the institutional calendar. MAX(CURIOSITY) is faithfulness to the input professor's appetite for questions, experiments and unexpected insights; it does not demand continued employment. MAX(MEETINGS), by contrast, preserves recurring meetings from his former university timetable and incurs a violation for each one deleted. The markedness constraint *DUTY-MEET penalises meetings that remain compulsory, while CONTIGUOUS-LEISURE penalises fragmented self-determined time. The festive ranking MAX(CURIOSITY) ≫ *DUTY-MEET, CONTIGUOUS-LEISURE ≫ MAX(MEETINGS) preserves inquiry but allows all inherited committee slots to disappear. Optional conversations with colleagues are, of course, outside the scope of *DUTY-MEET: coffee is not a committee.

Tableau 2: A strictly metaphorical OT tableau for optimal academic retirement. LEISURE-BLOCKS abbreviates CONTIGUOUS-LEISURE. Two inherited obligatory meetings are assumed; * marks a violation and ! a fatal one. No diary was consulted.

Input: curiosity + two meetings	**MAX (CURIOSITY)**	***DUTY-MEET**	**LEISURE BLOCKS**	**MAX (MEETINGS)**
☞ a. Curious; free afternoons	—	—	—	**
b. Curious; two committees	—	**!	*	—
c. Relaxed, but incurious	*!	—	—	**
d. Curious; every hour booked	—	—	*!	**

Candidate (a) is thus the highest-ranked state: intellectual curiosity survives, two compulsory meetings do not, and free time finally comes in stretches long enough to notice. Candidate (b) mistakes a full calendar for a full life; candidate (c) discards the very curiosity worth keeping; and candidate (d) recreates the

administrative grid voluntarily. The inevitable irony is that Paul can still fill every day with excellent questions—only now, no secretary has to schedule them.

5 A dialect map without a dialect survey

It is sometimes alleged, with an unusual degree of local confidence, that *Rentner* is now particularly widespread around Amsterdam. The difficulty is that Noord-Holland is a Dutch province, not a North Low Saxon dialect region. REDE/regionalsprache.de provides resources for genuine dialect geography, but it supplies no evidence for the particular Amsterdam hotspot invoked here. The map in Figure 2 therefore shows a thought experiment: an honorary centre of use at the University of Amsterdam, fading into invented isoglosses rather than into geographically sampled frequencies.



Figure 2: A deliberately hypothetical *Rentner* map for Noord-Holland. Amsterdam is a real geographic anchor; dashed "isoglosses" indicate no observed tokens, measured intensities or present-day dialect boundaries. The outline is hand-drawn and schematic; city positions are approximate.

The putative concentration can be explained without postulating any sound change or lexical migration. One highly productive professor is acquiring a new occupational designation. As he does so, the institutional probability of the word being spoken in Amsterdam may rise considerably—particularly at a Festschrift celebration. This is a prediction about discourse context, not a measurement of regional Low German usage. Any proper test would require defined sampling sites, independent speakers and at least one token. The latter requirement is regrettably non-negotiable.

6 Conclusion: the best possible output

The phonological result is conservative, and the proposed auditory result is pleasantly indulgent. *Rentner* keeps its short lax [ɛ], but anticipatory nasalisation could let vowel-like resonance continue smoothly into [n], creating a possibly longer-sounding, less abrupt transition without adding phonological quantity. That percept requires testing; its suitability as a metaphor for retirement does not. In the retirement grammar, MAX(CURIOSITY) stays undominated while MAX(MEETINGS) is freely violated: one can remain scientifically alert without dividing every afternoon into forty-five-minute slots. Examples (1a) and (1b) can coexist, provided that being busy becomes a choice.

Dear Paul, thank you for the guidance, the patience and the intellectual generosity with which you supported my experimental phonetic work and statistical analyses. You helped me to distinguish an interesting acoustic pattern from a convincing argument—and to keep asking questions. I wish you an extraordinarily fulfilling new chapter, abundant time for the things you most enjoy, and the freedom to let curiosity outrank every deadline. May your vowels be as long as you wish, your meetings mercifully short, and your *pensioen* happily (un)restful. Van harte gefeliciteerd met je emeritaat!

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Maike Prehn

University of Amsterdam (PhD 2012)

Bespiegeling

Karin Wanrooij
Kinderhart Kamishibai

Elf jaar heb ik rondgelopen op de Universiteit van Amsterdam en maakte Paul mee als docent, promotor en onderzoeker. Hier voor de verandering geen wetenschappelijke bijdrage, maar een 'bespiegeling'.

1 Paul als docent

2005. Het eerste college van Paul, aan de Herengracht. We luisteren naar een opname van een negenjarige die – om te doen alsof ze arts is – moeiteloos haar stem verandert. Diverse akoestische kenmerken veranderen mee; wij luisteraars blijven haar moeiteloos verstaan. Allerlei variaties in de spraakstroom die eenvoudig gemaakt en begrepen worden; hoe doen wij mensen dit?

Misschien was dit voorbeeld wel de eerste aanzet voor mijn belangstelling voor fonetiek en fonologie. Het is tekenend dat ik het onthouden heb. Mijn bagage was toentertijd de ooit in Leiden geleerde generatieve benadering van klanksystematiek. In de jaren daarna openden Paul en andere docenten mijn ogen voor een functionele benadering, die dingen op hun plaats deed vallen. Opeens was het logisch: die klanksystemen van de talen van de wereld én de veranderingen die daar vanuit de taal zelf en door invloed van buitenaf in doordringen.

Paul is een goede docent, die je begrip bijbrengt door je dingen te laten doen. Ik denk aan het staren naar golfvormen: nutteloos als je niet weet waar je naar moet kijken. Dat vergeet je dan vervolgens niet meer. Of het meten van formantwaardes van je eigen klinkers: rijen met verschillende meetwaardes die toch klinken als dezelfde klinker. En hé, er zit toch een patroon in!

2 … als promotor

In 2009 begonnen we aan Paul's Vici-project *Emergent categories and connections*, een boeiend project dat precies aanhaakt bij wat mij – nog steeds – fascineert: hoe geven wij betekenis aan spraak en andere signalen in de wereld die ons omgeeft?

Festschrift in honour of Paul Boersma–Companion volume
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Paul is een goede begeleider, die de ruimte geeft om een eigen pad te bewandelen en op zijn tijd een richting aanwijst om daarbij niet te verdwalen. Door die ruimte kon ik beginnen aan EEG-onderzoek, dat toen nog niet gedaan werd bij Taalwetenschap in Amsterdam. Via een introductie van Titia van Zuijen mocht ik naar Helsinki om met Minna Huotilainen in het lab van Risto Näätänen de techniek te leren begrijpen en toepassen, onder meer bij baby's. Bij terugkomst maakten we ons eerste EEG-lab, waar alle technische details moesten kloppen om betrouwbare metingen te kunnen doen. Wat was het leuk en spannend om dit met Paul en Dirk Jan Vet tot stand te brengen. Naast het lab zelf maakten we achter in de gang een mooi 'washok', waar we de haartjes van de baby konden wassen en de elektrodes schoon konden maken. Daar heb ik ook aardig wat uurtjes doorgebracht.

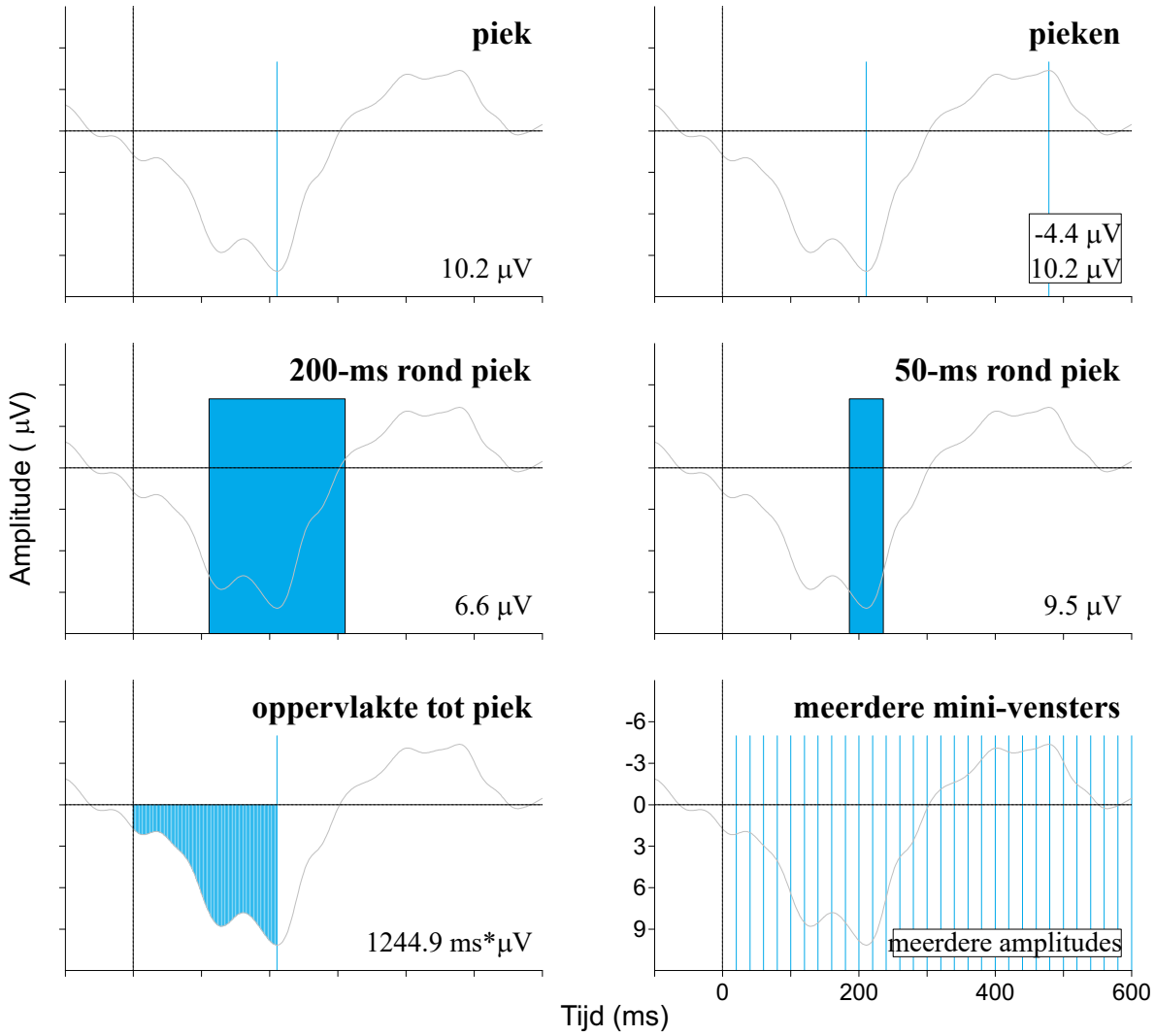
Het was spannend toen de eerste baby's kwamen en we daadwerkelijk zelf gingen meten. Opeens liepen er moeders – en soms vaders, of zelfs enthousiaste opa's en oma's met videocamera – door de gangen van het Bungehuis.

Ten slotte moesten de verkregen data geanalyseerd worden en daar gingen we natuurlijk Praat voor gebruiken, want een golf is een golf! (En Praat is geen loodzwaar programma. En je hebt volledig controle over de analyses en de plaatjes. En Praat is gratis. Enz. Enz.) Het was heel leerzaam om samen met Paul Praat ook voor EEG-signalen geschikt te maken.

3 … als onderzoeker

Misschien is Paul wel de beste fonoloog ter wereld. Binnen de fonologie is hij van vele markten thuis, zijn onderzoek is alom bekend en van Praat, dat hij samen met David Weenink gemaakt heeft en onderhoudt, profiteren duizenden over de hele wereld. 'Modelleren', 'verantwoord onderzoek'', 'gedegen statistiek', het zijn termen waar ook anderen Paul in zullen herkennen.

'Verantwoord onderzoek', het lijkt iets vanzelfsprekends voor alle wetenschappers, maar zo eenvoudig is het niet. Omdat ons verzocht is om in dit *Festschrift* 'een soort wetenschappelijk plaatje' toe te voegen, hierbij een voorbeeld van (vaak onbedoeld) 'onverantwoord onderzoek' ten aanzien van EEG. Veel keuzes in de totstandkoming en analyse van een hersensignaal kunnen de resultaten beïnvloeden. Idealiter sluiten onderzoekers daarbij aan bij voorgaande literatuur en nemen ze alle beslissingen vóór de analyse. Bij Paul leerden we dit zo rigoureus mogelijk te doen. Ook bij het meten van een amplitude bepaal je dus van tevoren hoe je dat gaat doen. De figuur laat zien wat er gebeurt als je in plaats daarvan uitgaat van de observatie. Alle manieren van meten komen voor in de literatuur, ook in onderzoek met eenzelfde doel (hier literatuur die poogt markers van dyslexie te vinden bij jonge kinderen).



Figuur: Zes onwenselijke manieren om een amplitude van een hersensignaal te meten, alle uitgaande van de geobserveerde pieken: meet waar de piek (1) of pieken (2) zich bevinden; neem rond de geobserveerde piek het gemiddelde in een tijdsvenster met een zelfgekozen lengte, bijvoorbeeld 200 ms (3) of 50 ms (4); meet de oppervlakte van het signaal tot aan de geobserveerde piek (5); of deel het hele signaal op in meerdere mini-vensters met een zelfgekozen lengte en test voor elk venster of het signaal groter is dan nul (in een zelfgekozen aantal opeenvolgende vensters) (6). Elke manier geeft een andere uitkomst. Plaatjes gemaakt in Praat (Boersma, Weenink & Shchupak 1992-2026)

4 Inspiratie voor het pensioen: sprong buiten de fonologie

Speculaties zijn niet in de geest van Paul, maar passen wel bij deze ‘bespiegeling’. Daarom en ook als inspiratie, om over na te denken tijdens het pensioen, ga ik ter afsluiting toch wat speculeren.

Eerst terug naar categorisatie, een belangrijk thema in Paul's onderzoek. Mijn onderzoek bij Paul ging vooral over de vorming van spraakklankcategorieën. Maar categorisatie strekt zich natuurlijk uit naar andere niveaus binnen de fonologie (zie het BiPhon-model) en daarbuiten. Van dat laatste geef ik een voorbeeld op een gebied dat mij als Japanologe ook na aan het hart ligt: ik maak een associatieve sprong naar interculturele communicatie. Japan heeft in vergelijking met Nederland een groepscultuur, en Nederland meer een individualistische cultuur. De talen reflecteren dit. Wij verwachten bijvoorbeeld persoonlijke voornaamwoorden ("ik", "jij"); het Japans laat die meestal weg. Maar het Japans verwacht wel andere informatie, die weer vaak in Nederlandse zinnen ontbreekt of summier is, zoals elementen die relaties tussen personen weergeven. Die categorieën zijn gespecificeerder dan bij ons.

Neem een zin zoals deze: "Ik zal het jullie laten zien."
Hieronder staan vijf van vele mogelijke vertalingen (geïnspireerd op Nozaka 2024).

(1) 見せ-よう
mise-you
laten zien-INTENTIONAL

(2) 見せ-て　あげ-よう
mise-te　age-you
laten zien-GERUND　geven-INTENTIONAL

(3) 見-て　もら-おう
mi-te　mora-ou
zien-GERUND　ontvangen-INTENTIONAL

(4) 見-て　もらい-ましょう
mi-te　morai-mashou
zien-GERUND　ontvangen-FORMAL INTENTIONAL

(5) 見-て　いただき-ましょう
mi-te　itadaki-mashou
zien-GERUND　ontvangen HUMBLE-FORMAL INTENTIONAL

De meest kale vertaling van deze opties is zin 1: *miseyou*. Maar dit klinkt vrij bot. Zin 2 *misete ageyou* geeft beter weer dat de spreker ("ik") iets voor de luisteraar ("jullie") doet. Onze positie is ongeveer gelijk. De "ik" zet zichzelf echter op de voorgrond. Beter bij de Japanse cultuur passend zou vertaling 3 kunnen zijn: *mite moraou*. Hier staat de luisteraar (hier: "jullie") op de voorgrond. Formeler zoals zin 4 is misschien nog beter: *mite moraimashou*, en helemaal als de "ik" zichzelf als spreker lager dan de luisteraar ("jullie") plaatst: *mite itadakimashou*.

Voegt de "ik" overigens toch een persoonlijk voornaamwoord voor zichzelf toe, dan moet hij/zij ook een keuze maken, die informatie geeft over de relatie ten opzichte van de personen en dingen om hem/haar heen. Wordt het *watashi*, *wataskushi*, *atashi*, *boku*, *ore* of nog iets anders?

De voorbeelden laten zien dat het Japans meer dan het Nederlands specificatie vereist van relaties tussen mensen. Je zou kunnen zeggen dat het Japans dus meer categorieën heeft op continua die relaties weergeven (zoals positie ten opzichte van de ander, mate van formaliteit en mate van beleefdheid). Het Nederlands vereist daarentegen meer specificatie van mensen en dingen zelf (denk naast persoonlijke voornaamwoorden ook aan bijvoorbeeld enkel- en meervoud). De taal is daarmee een reflectie van de cultuur en andersom.

Ik wens Paul veel plezier in het komende pensioen. Geraniums zullen er niet aan te pas komen. Maar misschien komt er nog eens wat meer tijd en geeft deze sprong daarvoor wat *food for thought*.

5 Referenties

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Sitting it out: An optimality-theoretic account of a joint doctorate

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This short contribution documents a single, well-attested instance of what I will call supervisory persistence. The data come from one seven-signature partnership agreement for a joint doctorate between the University of Amsterdam and Heinrich Heine University Düsseldorf, and from one afternoon in an administrative office in Amsterdam. I show that the observed outcome cannot be derived under the constraint ranking usually found in university administration, but follows straightforwardly once the supervisor's own ranking is adopted.

1 Introduction

In 2013 I started a joint doctorate between the University of Amsterdam (UvA) and Heinrich Heine University Düsseldorf (HHU), with Paul (and Silke of course) as my supervisor on the Amsterdam side. In principle, a joint doctorate is an elegant construction: one thesis, two universities, two national titles. In practice, it is first and foremost a document. Mine was a partnership agreement 'governing the joint supervision and awarding of a Joint Doctorate degree', and it had to be signed by both supervisors, both deans, the Rector Magnificus of the UvA, the President of HHU, and me (Figure 1).

For a long time, the agreement did not get signed. It was never rejected; it was never negotiated; it simply did not move forward. It lay in an office in Amsterdam, on the desk of an administrator, who shall remain nameless here, underneath other things that also needed doing. And I was, in fact, somewhat illegally registered for the same PhD at two different Universities for two years.

2 The data

Two years of e-mails form me yielded null results. Paul's intervention did not take the form of an email. He went to the office, took time out of his busy day and sat down next to the administrator's desk, and waited. The administrator, half indignant and half joking, asked whether Paul really intended to sit there until the work was done. The exchange, as far as it can be reconstructed, is given in (1).

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(1) a. Je gaat hier toch niet zitten tot ik klaar ben?
2SG go-2SG here PRT NEG sit until 1SG done be-1SG
'Surely you are not going to sit here until I am done?'

b. Ja.
yes
'Yes.'

Paul smiled, and did not leave until my documents were finished.

The written record (Table 1) captures only the final stretch of the procedure. The more than two years between the start of the project and the first signature, including the afternoon in question, left no trace on the form. The Rector's date line, finally, was never filled in, which makes the Rector Magnificus the only signatory who appears to have signed outside of time altogether. Despite this time paradox, I still managed to graduate (a while later).

Table 1: Signatures on the partnership agreement, ordered by date. Dates are given as written on the form; days are counted from the onset of the PhD (01 September 2013).

Signatory	**Role**	**Date**	**Days**
P. Boersma	Supervisor, UvA	24-11-2015	814
F. van Vree	Dean of Humanities, UvA	24-11-2015	814
J. Pfeifer	Doctoral candidate	24-11-2015	814
P. Indefrey	Supervisor, HHU	11.1.16	862
U. Rosar	Dean of Arts and Humanities, HHU	12-01-2016	863
A. Steinbeck	President, HHU	1-2-16	883
D. van den Boom	Rector Magnificus, UvA	—	n/a

3 Analysis

The outcome in (1b) is unexpected. I propose that the situation is governed by the three constraints in (2), in the tradition of Optimality Theory (Prince & Smolensky 2004).

(2) a. STAY: Do not leave until the candidate's file is done.
b. POLITE: Do not occupy a colleague's office uninvited.
c. DEFER: Do not do today what can be done next week.

In the grammar that normally governs administrative offices, DEFER is undominated, and the most harmonic course of action for a visiting professor is to leave and send a reminder. Paul's grammar ranks STAY above both other constraints. As Tableau 1 shows, this ranking selects candidate (c), at the cost of

one violation each of POLITE and DEFER, which Paul was evidently prepared to pay.

Remarkably, the administrator adopted this ranking within a single afternoon. That is a good deal faster than any learner trained with the Gradual Learning Algorithm (Boersma & Hayes 2001), and suggests that the presence of a smiling professor in the room is a learning cue that has so far been overlooked in the literature.

Tableau 1: Tableau for the afternoon in question. Input: /joint-doctorate file, pending/.

/file, pending/	STAY	POLITE	DEFER
a. leave; send another reminder	*!		
b. leave; escalate to the dean	*!	*	
c. ☞ sit down, smile, and wait		*	*

4 Conclusion

The analysis in Section 3 accounts for one afternoon. It does not account for what that afternoon meant to me. Many of the things I learned from Paul ended up in my thesis. This one did not, so it goes here. It is a lesson in persistence: when a process will not move, one neither gives up nor loses one's temper. One finds a chair, sits down, and waits, with enough good humour to turn a confrontation into a story that both sides can laugh about afterwards. The afternoon described above is a case in point: no complaint, no raised voice, just a chair, a smile, and a great deal of patience, delivered with the fine, dry sense of humour that everyone who has worked with Paul will recognize.

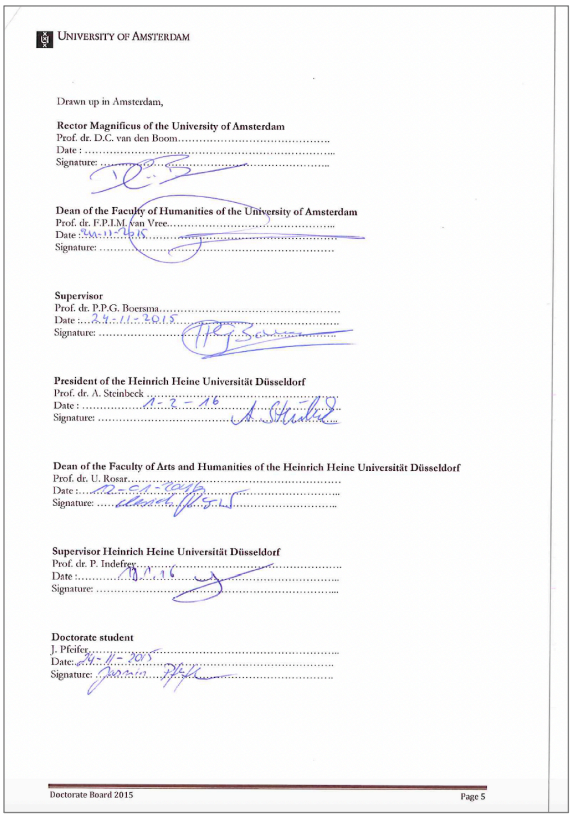
Just as importantly, Paul showed me what research ethics and integrity look like in daily practice: being honest about one's data, careful in one's claims, and open about what one does not know. These are the lessons I now try my best to pass on to my own students. In the terms of Section 3, Paul's grammar ranks INTEGRITY above everything else, with STAY not far below. It is a ranking well worth acquiring, by whatever learning algorithm.

Paul's students acquire these rankings the way learners acquire any good grammar: from positive evidence. He never handed us a list of rules for how to behave as researchers or as colleagues. He simply produced the correct output, day after day, until our rankings converged. He holds himself to the highest standards, stands by his students, and treats every one of them with the same fairness and kindness. I am quite sure he would have taken that chair for any of us. And although he seems to know the answer to almost any question, including some that one had not yet thought of asking, DON'T-CONDESCEND appears to

be undominated in his grammar. No question was too small to ask him, and asking it never made one feel small.

I now try to pass this grammar on to my own students. Given the Gradual Learning Algorithm, convergence may take some time, but I have the advantage of excellent training data. And should one of my students' files ever get stuck, I know what to do: find a chair, sit down, wait and smile.

Thank you, Paul, for all of this, and for sitting it out.


UNIVERSITY OF AMSTERDAM

Drawn up in Amsterdam,

Rector Magnificus of the University of Amsterdam
Prof. dr. D.C. van den Boom
Date :
Signature:

Dean of the Faculty of Humanities of the University of Amsterdam
Prof. dr. F.P.I.M. van Vree
Date 24-11-2015
Signature:

Supervisor
Prof. dr. P.P.G. Boersma
Date : 24-11-2015
Signature:

President of the Heinrich Heine Universität Düsseldorf
Prof. dr. A. Steinbeck
Date : 9-2-16
Signature:

Dean of the Faculty of Arts and Humanities of the Heinrich Heine Universität Düsseldorf
Prof. dr. U. Rosar
Date :
Signature:

Supervisor Heinrich Heine Universität Düsseldorf
Prof. dr. P. Indefrey
Date :
Signature:

Doctorate student
J. Pfeifer
Date: 24-11-2015
Signature:

Doctorate Board 2015 Page 5

Figure 1: The signature page of the partnership agreement (UvA Doctorate Board 2015). Seven signature lines, two countries, one undated Rector.

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that looks good! One detail: A small corpus study of supervision by email

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This contribution looks at 107 emails Paul Boersma sent me between 2022 and 2026. After removing automatic messages, I was left with 88 emails. I counted some recurring features and then read the emails again to see what they say about the way Paul supervises. His emails are usually short, but they are never careless. They tend to point to one specific issue, suggest a possible way forward, and make the problem feel shared rather than simply handed back to me. The numbers are useful, but the emails also show something harder to count: Paul pays attention both to the work and to the person doing it.

Subject: Re: supervision

hi Paul,

for this Festschrift contribution, I exported your emails.

This is perhaps not a very normal research corpus, but it turned out to be a useful one. My Outlook folder contained 107 messages from you about papers, figures, code, teaching, meetings, datasets, conferences, grades, and several problems that had looked much simpler before we started discussing them.

After removing automatic calendar responses and one automated notification, I was left with 88 actual emails. I removed the old correspondence quoted underneath each message and looked only at what you had written.

The emails give a fairly clear picture of the way you write. More importantly, they also give a picture of the way you supervise.

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1 Method

The dataset consisted of 107 emails sent by Paul Boersma between 2022 and 2026 (Boersma 2022-2026). After removing automatic calendar responses and one automated notification, 88 messages remained. I also removed the quoted text from earlier emails.

I did two things with the remaining messages. First, I counted some features that appeared regularly, including questions, parentheses with suggestions, lists, suggestions, collaborative forms such as *we* and *our*, and the sign-off *best wishes, Paul*. Second, I read the emails more closely and looked at how Paul gives feedback, how he shows uncertainty, and how he makes the work feel shared. No confidential student or research information is included here.

2 Results

Figure 1 shows how often several selected features appeared in Paul's emails.

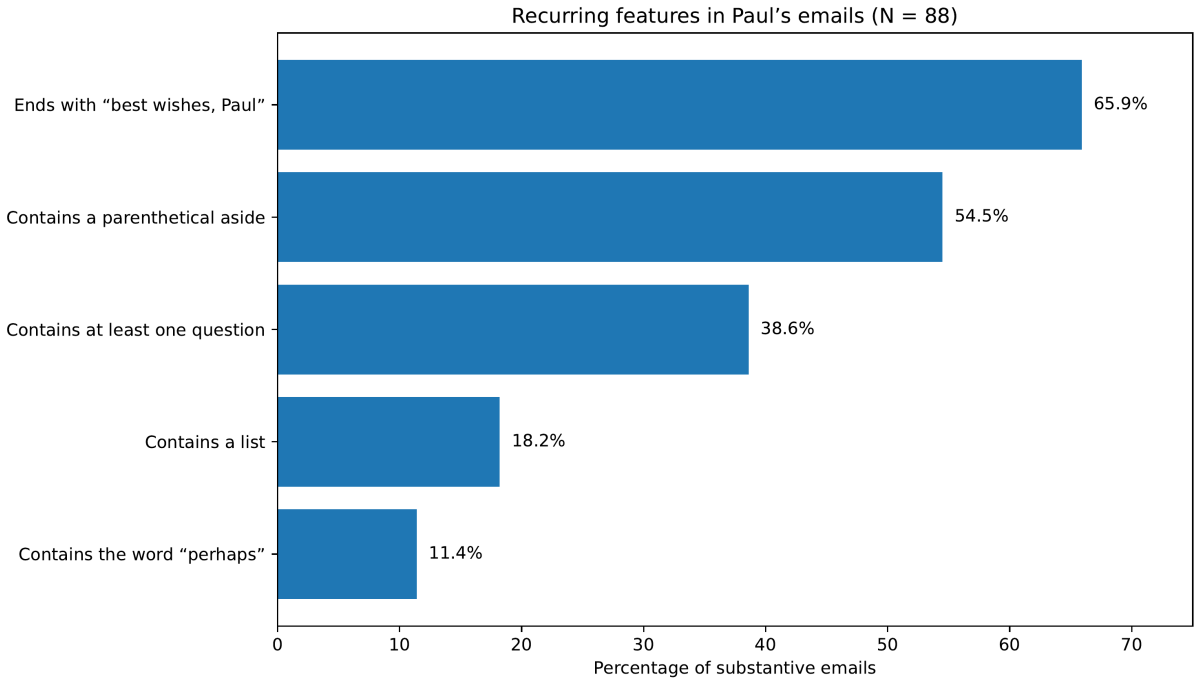


Figure 1: Frequency of selected recurring features in Paul's substantive emails (N = 88).

The most common feature was the sign-off *best wishes, Paul*, which appeared in almost two thirds of the messages. More than half contained a parenthesis, and more than a third contained at least one question.

These features often appeared together. A typical email could begin informally, point to one specific issue, suggest a possible solution, include a

parenthesis with another important detail, and end with *best wishes, Paul*. Somehow, it could still be only a few lines long.

Table 1 shows the structure I kept seeing.

Table 1: The anatomy of a typical Paul email.

Stage	Typical form	What it does
Greeting	*hi Golshid,*	Gets straight to the point
Initial response	*that looks good!*	Makes clear that the work is going in the right direction
Transition	*One detail:*	Points to the thing that now needs attention
Main comment	A question, distinction, or wording problem	Shows what is not yet clear
Suggestion	*Perhaps ...*	Gives a possible next step without taking over the work
Closing	*best wishes, Paul*	Ends when the message has done what it needed to do

2.1 "One detail:"

One of the shortest emails in the corpus begins:

> hi Golshid,
>
> that looks good!
>
> One detail:

I know this sequence very well.

The positive part is real. Paul is saying that the general direction works. But there is also always the detail. Sometimes it really is a small detail. Sometimes it is one word in an abstract that turns out to change the whole claim.

The comment might be about the difference between a region and an accent, or about whether a model output can really be called a linguistic distance. These comments made me realise that wording is not separate from the analysis. If the term is not right, the idea behind it may also not be clear enough.

The questions in his emails work in the same way. They are usually short, but they make me stop and check whether the argument still holds from the research question to the method, and from the results to the conclusion. In my own work, that often means asking what a regional label really represents, which

speakers are hidden inside an average, and whether a better word error rate actually supports the interpretation I want to give it.

What I like about "One detail:" is that it makes the revision feel possible. The whole paper is not suddenly wrong. There is one thing to look at, and I know where to start.

2.2 Working in the first-person plural

One of the things I liked most in the emails was how often Paul used *we*, *our*, and *let's*. Some form of this collaborative *we* appeared in almost half of the messages.

This was especially clear in technical discussions. A problem was not simply something I had done wrong and now had to fix alone. Paul wrote about "our original version", told me what he had checked himself, explained what he would try next, and sometimes ended with something like "now we have enough for tomorrow."

That small pronoun matters. Paul never took the work away from me, but he also did not stand outside it as someone waiting to judge the final result. He asked questions, tried things, and helped think through the next step.

The work remained mine, but understanding the problem often became something we did together.

2.3 Care as action

Another pattern was harder to count because it was not just a word or a punctuation mark.

When Paul asked whether someone was doing well, the question was often followed by something practical. He would suggest postponing something, changing a plan, taking over part of a task, or making the situation more manageable.

I have seen a lot of academic concern that stays at the level of a kind sentence. The sentence is there, but the expectations do not change. With Paul, care often came with an action.

The tone was still very Paul: no dramatic speech, no long explanation. Usually there was a question, an offer, or a practical solution. But it made a real difference.

2.4 "Perhaps ..."

Paul often uses words such as *I think*, *perhaps*, *probably*, and *could*. I like this because it makes clear when he is sure about something and when he is offering an idea.

He is also very open when he does not understand something or when he is not sure. He writes what he has tried, what did not work, and sometimes that an

earlier version was right after all. This makes the emails feel less like a final judgement and more like someone thinking through the problem with me.

The word *perhaps* is especially common. It sounds tentative, but what comes after it is usually very useful: a better word, a smaller claim, another analysis, or the next thing to try.

It gives me direction without taking over the work.

3 What the corpus cannot count

Still, the most important things in these emails are not in Figure 1.

The figure can count questions, parentheses, and sign-offs. It cannot count what it means to receive a message asking how your family is doing when a war has started in your country.

When the war started in Iran, Paul kept checking in with me. He asked whether my family was safe and how I was doing. It never felt like a polite sentence added before going back to work. I felt that he really wanted to know.

For me, this mattered a lot. Paul was born far away from Iran and had not personally experienced what it means to come from a country that can suddenly feel cut off from the rest of the world. Still, he never treated it as something distant or abstract. He asked about my family, and he kept asking.

He could not change what was happening, but he made sure I did not feel invisible in it.

There is also one memory that cannot appear in an email corpus because it happened over the phone.

On the day of my PhD interview, I was sitting at Two Chefs with some friends and having a beer. I was waiting to hear the result, but I do not think I had really allowed myself to believe that I would get the position.

Then my phone rang. It was Paul.

He told me that I had got the PhD.

For a moment, I could not process what he was saying. I remember the noise in the restaurant, my friends sitting around me, and Paul's voice on the other side of the call. His voice was so warm and calm. He understood that this was not just some administrative update. It was news that was going to change my life.

I was so happy that I could barely believe it.

That phone call was the beginning of my PhD. It also says something important about Paul. Whether he is commenting on one word in a paper, asking about my family, or calling to give me life-changing news, there is always care behind the directness.

No frequency count can really show that.

4 Limitations and further research

This study is limited to written communication. It therefore misses Paul's tone of voice, timing, facial expressions, and clothing choices.

The last point clearly needs more research. Paul's socks vary a lot in colour and pattern, but they are often carefully matched with another part of his outfit. A larger and more systematic dataset would be needed to find out whether these colour combinations change with the season, the type of meeting, or the seriousness of the phrase "One detail:".

5 Conclusion

Paul, thank you for reading carefully, asking the questions that make the work better, and trusting me to work out what comes after "One detail:".

More than that, thank you for having my back beyond the research, remembering the person behind the work, and making the beginning of my PhD feel so warm.

best wishes,
Golshid

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Paul in Praat: A statistical style checker

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This paper presents a Praat-based statistical style checker developed from Paul's recurring comments on statistical reporting. The script was tested on a section of my dissertation that had not yet been reviewed by Paul and successfully identified several formatting and precision issues. The tool provides a small way of preserving some of "Paul's rules" in Praat for future use.

1 Introduction

To honour Paul, I made a Praat script for automatic statistical writing-style checking. Over the last four years, Paul has carried out many strict checks on the statistical writing in our publications and in my dissertation. He has very specific requirements when it comes to statistical reporting and formatting. So, I went through his feedback over the years and summarised it into a few commands (or, perhaps more appropriately, "Paul's rules").

In this way, if anyone wants Paul to do some editing in the future, they can simply run the script in Praat. It checks things such as p-values, t-values, odds ratios, significant digits, confidence intervals, and several other details that Paul would probably notice immediately.

You can find the script on my GitHub: https://github.com/RRRCAI/Paul_Statistical_Style_Checker.git. I also included the original script as an appendix.

2 Method

To test the script, I selected a short passage from my dissertation that had not yet been checked by Paul.

3 Result

The script identified six potential issues in the test passage: four automatic formatting issues and two items requiring review. Two instances of **"odd ratio"** were detected and flagged for correction to **"odds ratio"**. Two *p*-values were also

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flagged for inappropriate precision. For example, one contained only one significant digit ($p = 0.0001$). In addition, the script identified two cases in which the point estimate and confidence interval were reported at inconsistent levels of precision.

Overall, the result suggests that the script is capable of reproducing at least some of Paul's recurring statistical comments. I have already tested it on my dissertation, and unsurprisingly, "Paul" still found quite a few things to correct.

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Appendix: Paul's Statistical Style Checker (Praat Script)

```
fileName$ = chooseReadFile$: "Choose manuscript text file"
if fileName$ = ""
   exitScript: "No file selected."
endif

lines$# = readLinesFromFile$# (fileName$)
numberOfLines = size (lines$#)

nAuto = 0
nReview = 0

writeInfoLine: "Paul's Statistical Style Checker"
appendInfoLine: "File: ", fileName$
appendInfoLine: "Lines checked: ", numberOfLines
appendInfoLine: "------------------------------------------------------------"

for i from 1 to numberOfLines
   line$ = lines$# [i]

   if index_regex (line$, "(?i)<odd[ \t]+ratios?>") <> 0
      nAuto = nAuto + 1
      appendInfoLine: "[AUTO] Line ", i, " | ODDS RATIO"
      appendInfoLine: "  Found:      ", line$
      appendInfoLine: "  Suggestion: use 'odds ratio' / 'odds ratios', not 'odd
ratio'."
      appendInfoLine: ""
   endif

   if index_regex (line$, "(?i)<p>[ \t]*[<≤][ \t]*0?\.?[0-9]+") <> 0
      nAuto = nAuto + 1
      appendInfoLine: "[AUTO] Line ", i, " | ACTUAL P-VALUE"
      appendInfoLine: "  Found:      ", line$
      appendInfoLine: "  Suggestion: report the actual p-value instead of 'p < ...'
and give it to two significant digits."
      appendInfoLine: ""
   endif

   if index_regex (line$, "(?i)<p>[ \t]*=[ \t]*0\.0*[1-9](?=[^0-9]|$)") <> 0
      nAuto = nAuto + 1
```

```
    appendInfoLine: "[AUTO] Line ", i, " | P-VALUE PRECISION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Suggestion: p-values should have two significant digits
(e.g. p = 0.0010, not p = 0.001)."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)<p>[ \t]*=[ \t]*0\.0*[1-9][0-9]{2,}(?=[^0-9]|$)")
<> 0
    nAuto = nAuto + 1
    appendInfoLine: "[AUTO] Line ", i, " | P-VALUE PRECISION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Suggestion: round the p-value to two significant digits."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)(^|[^0-9.])[1-9][ \t]*(\.|·|×|x)[ \t]*10\^[+-]?[0-9]+")
<> 0
    nReview = nReview + 1
    appendInfoLine: "[REVIEW] Line ", i, " | SCIENTIFIC NOTATION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Check:      use two significant digits in the mantissa
(e.g. 1.0 × 10^-6 rather than 1 × 10^-6)."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)(^|[^0-9.])[1-9]\.[0-
9]{2,}[ \t]*(\.|·|×|x)[ \t]*10\^[+-]?[0-9]+") <> 0
    nReview = nReview + 1
    appendInfoLine: "[REVIEW] Line ", i, " | SCIENTIFIC NOTATION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Check:      round the mantissa to two significant digits."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)[0-9]+(\.[0-9]+)?[eE][+-]?[0-9]+") <> 0
    nReview = nReview + 1
    appendInfoLine: "[REVIEW] Line ", i, " | SCIENTIFIC NOTATION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Check:      convert/check scientific notation and retain
two significant digits."
```

```
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)<t>([ \t]*\([^)]*\))?[ \t]*=[ \t]*[0-9]+(\.[0-
9]+)?(?=[^0-9]|$)") <> 0
    nAuto = nAuto + 1
    appendInfoLine: "[AUTO] Line ", i, " | T-VALUE SIGN"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Suggestion: t-values are signed quantities; prepend
positive values with '+'."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)<t>([ \t]*\([^)]*\))?[ \t]*=[ \t]*[+-]?[0-9]+(\.[0-
9]{1,2})?(?=[^0-9.]|$)") <> 0
    nAuto = nAuto + 1
    appendInfoLine: "[AUTO] Line ", i, " | T-VALUE PRECISION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Suggestion: write t-values with exactly three digits after
the decimal point (±x.xxx)."
    appendInfoLine: ""
  endif

  if index_regex (line$, "(?i)<t>([ \t]*\([^)]*\))?[ \t]*=[ \t]*[+-]?[0-9]+\.[0-
9]{4,}(?=[^0-9]|$)") <> 0
    nAuto = nAuto + 1
    appendInfoLine: "[AUTO] Line ", i, " | T-VALUE PRECISION"
    appendInfoLine: "  Found:      ", line$
    appendInfoLine: "  Suggestion: round t-values to exactly three digits after
the decimal point (±x.xxx)."
    appendInfoLine: ""
  endif

  precisionProblem = 0

  if index_regex (line$, "(?i)<CI>[ \t]*(from[ \t]+|=[ \t]*)?[\[\(]?[ \t]*[+-]?[0-
9]+\.[0-9](?=[^0-9]|$)") <> 0
    precisionProblem = 1
  endif
```

```
   if index_regex (line$, "(?i)<CI>[ \t]*(from[ \t]+|=[ \t]*)?[\[\(]?[ \t]*[+-]?[0-
9]+\.[0-9]{3,}(?=[^0-9]|$)") <> 0
      precisionProblem = 1
   endif

   if index_regex (line$, "(?i)<CI>.{0,60}(to|,)[ \t]*[+-]?[0-9]+\.[0-9](?=[^0-
9]|$)") <> 0
      precisionProblem = 1
   endif

   if index_regex (line$, "(?i)<CI>.{0,60}(to|,)[ \t]*[+-]?[0-9]+\.[0-
9]{3,}(?=[^0-9]|$)") <> 0
      precisionProblem = 1
   endif

   if index_regex (line$,
"(?i)(<estimate>|<ratio>|<coefficient>|<beta>|<OR>|<b>)[ \t]*=[ \t]*[+-]?[0-
9]+\.[0-9](?=[^0-9]|$)") <> 0
      precisionProblem = 1
   endif

   if index_regex (line$,
"(?i)(<estimate>|<ratio>|<coefficient>|<beta>|<OR>|<b>)[ \t]*=[ \t]*[+-]?[0-
9]+\.[0-9]{3,}(?=[^0-9]|$)") <> 0
      precisionProblem = 1
   endif

   if precisionProblem = 1
      nReview = nReview + 1
      appendInfoLine: "[REVIEW] Line ", i, " | ESTIMATE & CI PRECISION"
      appendInfoLine: "  Found:      ", line$
      appendInfoLine: "  Check:      report the point estimate and CI at the same
precision, usually two decimal places."
      appendInfoLine: ""
   endif

   if index_regex (line$, "(?i)<from[ \t]+zero>") <> 0
      nReview = nReview + 1
      appendInfoLine: "[REVIEW] Line ", i, " | 'FROM ZERO'"
      appendInfoLine: "  Found:      ", line$
```

```
        appendInfoLine: "  Check:      omit 'from zero' unless the contrast genuinely
needs to be stated."
        appendInfoLine: ""
    endif

endfor

appendInfoLine: "------------------------------------------------------------"
appendInfoLine: "Automatic-format flags: ", nAuto
appendInfoLine: "Context-dependent review flags: ", nReview
appendInfoLine: "Total flags: ", nAuto + nReview

if nAuto + nReview = 0
    appendInfoLine: "No Paul-style issues found. He might still find one."
endif
```

Side effects of being a great scientist

Zuzana Oceláková
Universitye

This article points out minor unexpected side effects of professor Paul Boersma's brilliant career. It illustrates that no matter how strongly someone's name is linked to a specific field of science, the impact this person has on other people's lives might be wildly unrelated to it. The text is highly personal and has no academic value whatsoever.

1 Name

Soon after I abandoned my studies of Czech language and literature for my new passion, phonetics, the inconspicuous process of carving your name, "Paul Boersma", into my brain slowly began. It was impossible to avoid, and for quite some time, the name felt, in its importance, just as distant as the name of Dostoevsky or Wittgenstein. Paul Boersma may as well have lived in a different century than me.

Luckily, I remembered that you are not a myth or a long-dead genius when I was choosing the destination for my Erasmus exchange. I remember the feeling I had when I was approaching P.C. Hoofthuis for the first time, knowing I would meet you there. The importance of the name remained; but the distance was shrinking with every step. And then, just like that, the name turned into a living human being, warm-eyed and, miraculously, kind enough to open a course for a single student.

2 Taste of academia

What followed were few months of me being a highly motivated and diligent university student. The only few months of that, to be clear. The climate of UvA, the attention you were willing to dedicate to me in my "private course", and the challenge that your lectures on statistics brought to my brain (hopelessly wired for the humanities), got me into a state of mental concentration I haven't experienced before – or after. For those few months, I truly belonged at the university, thanks to your inspiring persona.

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This could have been a beginning of my academic career. For a short time, I wished it was. But by giving me a taste of proper academic enthusiasm and rigour (even if just in the small scale allowed by a one-semester course), you also allowed me to realize that I do not have enough of them for long-term academic work. And in case this realization wasn't clear enough, my subsequent cooperation with Katka (that you made possible and that I will always remember with gratitude) emphasised that point very clearly. As weird as it may sound, I am deeply grateful for crossing paths with a great mind such as yours, without which I might have overlooked the fact that my own mind is not meant to shine in the same constellation.

3 Side effects

Is that it? Was my stay in Amsterdam just the beginning of the end of my academic path? That by itself would still be valuable enough, but – no. The truth is that what I experienced in Amsterdam, especially towards the end of the semester when the sun and my need for social contact lured me outside of my dorm, has shaped my current life in such a profound way that I can hardly find an aspect of it that wouldn't be affected (the one I *can* find is, funnily enough, my work life).

In Amsterdam, I saw Blues dancing for the first time – and gained a passion that has become a strong part of my identity. In Amsterdam, I met a community of people who changed my views on human relationships profoundly, affecting my marriage and re-shaping my whole close social network. Simply put: Amsterdam was the first domino tile in a long sequence of events that made me the person who I am now (a somewhat eccentric and deeply happy person) – and without you, this first tile would never have been pushed.

I know that Praat was not meant to be used for editing a story that I read out loud as a birthday present for one of my beloved, but I think that this event illustrates nicely the meandering, unpredictable ways in which one accomplished, dedicated scientist might influence the life of one curious student. And I feel amazement when I imagine of all the students whose paths crossed with yours over the years in a similar way as mine did; the ones you know nothing about anymore because they did not follow the academic path, but whose lives would be entirely different if your name didn't have a special place in their minds at some point. And one detail[4] from our interactions makes me think that you can enjoy this thought, too.

Zuzana Oceláková, zuz.pro@seznam.cz

[4] On the first page of the copy of Functional Phonology you gave me, you wished me "good luck either within or outside academia". Almost as if you knew.

Short visits, long effects: On Czech vowels, academic mentorship, and LEGO flowers*

Natalia Nudga
Charles University, Prague

This paper investigates the long-term effects of academic mentorship on the intellectual and personal development of a young researcher. The study draws on a two-month research visit to Amsterdam, during which the author collaborated with the Professor of Phonetic Sciences Paul Boersma on neural network models of Czech vowel acquisition, with particular attention to the representation of vowel length. While the immediate outcomes included scientific discussions, and computational experiments, longitudinal observations suggest that the effects of this collaboration extended beyond the academic domain. In particular, an informal dinner at the professor's home, during which the author encountered LEGO flowers, appears to have preceded the development of a lasting enthusiasm for LEGO. Although the available evidence does not permit strong causal conclusions, the findings suggest that academic mentorship can have effects that are both scientifically meaningful and unexpectedly personal. Crucially, while the original research investigated vowel length, the present study suggests that an equally interesting question concerns the length of a mentor's influence.

1 Introduction

One of the fundamental questions in language acquisition research is how early experiences shape later development. While considerable attention has been

* I would like to thank Professor Paul Boersma for giving me the opportunity to spend two months working with him in Amsterdam, and for sharing his knowledge and experience. I am particularly grateful for the kindness and generosity with which he welcomed me. Coming to a new place as a young researcher can be a little intimidating, but he made my stay both intellectually rewarding and personally memorable. I would also like to thank him inviting me into his home and for the lovely dinner we shared. I still remember the LEGO flowers I saw there. At the time, I simply thought they were a wonderful idea. A few years later, I have become quite a LEGO enthusiast myself, and I cannot help but smile when I think about where I first encountered them.

Thank you for the science, the hospitality, and the inspiration, both expected and unexpected. I wish you a wonderful retirement, full of happiness, curiosity, new discoveries, and plenty of time for all the things you enjoy.

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devoted to the acquisition of speech sounds, substantially less is known about the acquisition of research interests, academic habits, and an enthusiasm for colourful plastic bricks. The present paper aims to address this gap through a longitudinal case study of a young researcher who spent two months in Amsterdam under the supervision of Professor Paul Boersma.

The collaboration had an interesting academic history. The author's PhD supervisor Kateřina Chládková had herself once been a PhD student of Paul Boersma, suggesting a form of intergenerational transmission of scientific knowledge, curiosity, and enthusiasm for understanding language. The present author thus represents, in a sense, a second generation of academic influence. The original objective of the research visit was to investigate the acquisition of Czech vowels using neural networks. A particular challenge was to incorporate vowel length, an important distinction in the Czech vowel system, into the computational models. However, as the present paper will demonstrate, the learning processes initiated during the visit were not limited to the models being trained.

2 Methods

2.1 Participants

The study involved a young PhD researcher Natalia Nudga and an experienced professor Paul Boersma with a long history of scientific contributions and academic mentorship. The professor was characterised by considerable scientific knowledge, intellectual curiosity, kindness, a willingness to share his time and expertise with younger researchers, and a particular fondness for the colour purple. The author, meanwhile, arrived in Amsterdam with an interest in computational modelling and language acquisition, but with no documented indication of an impending LEGO obsession.

2.2 Procedure

The researcher spent approximately two months in Amsterdam, working with Professor Paul Boersma on neural network models of Czech vowel acquisition. The scientific objective was to explore how the models could account for the acquisition of Czech vowels, particularly the distinction between short and long vowels.

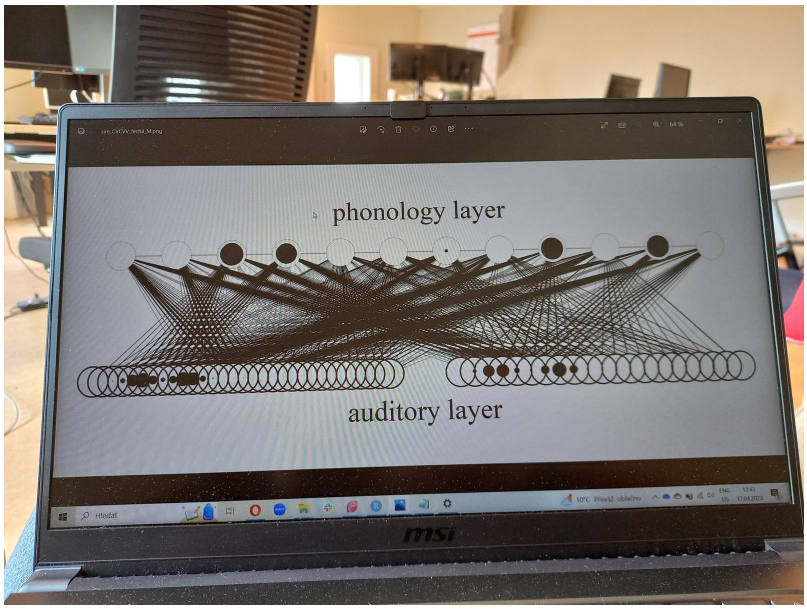


Figure 1: Natalia's efforts with neural networks.

The research activities involved discussions, computational modelling, and attempts to understand how a learning system might acquire distinctions that are important for human speech perception.

In addition to the formal research activities, the visit included a number of informal interactions. Of particular importance was an invitation to the professor's home, where the researcher was warmly welcomed by the professor. The host prepared dinner, and the participants spent a very pleasant evening together. During the visit, the researcher noticed flowers constructed from LEGO. At the time, this observation was not considered relevant to the research objectives and was therefore not included in the original experimental design. In retrospect, this may have been a methodological oversight.

2.3 Longitudinal follow-up

Several years after the Amsterdam visit, the researcher developed a substantial interest in LEGO, eventually becoming a self-described LEGO enthusiast. Although the precise developmental trajectory was not systematically documented, the researcher retains a clear memory of the LEGO flowers observed during the visit. The temporal relationship between these events raises the possibility of a delayed learning effect, although alternative explanations cannot be excluded.



Figure 2: The LEGO flowers in question.

3 Results

Three principal findings emerged from the study.

3.1 Scientific outcomes

The collaboration contributed to the author's understanding of computational approaches to language acquisition and provided valuable opportunities for discussion, learning, and experiencing how research ideas develop through collaboration.

3.2 The role of the learning environment

The research visit demonstrated that a productive academic environment is not defined solely by the quality of scientific discussions.The kindness and hospitality of the professor contributed to an atmosphere in which the visiting researcher felt welcome and appreciated. Although these factors are rarely included as variables in computational models of learning, the present case suggests that they may play an important role in the development of young researchers.

As an additional finding, the author has developed a lasting fondness for Amsterdam, resulting in intentions to revisit the city regularly and a non-zero probability of eventual relocation.

3.3 Unexpected generalisation effects

Perhaps the most surprising result concerns the emergence of a lasting interest in LEGO. The original research focused on how neural networks might acquire Czech vowel distinctions from linguistic input. However, the researcher appears to have acquired an entirely different interest from a rather unexpected source. The mechanism underlying this development remains unclear. Nevertheless, the findings suggest that learning may occur even when the learner is unaware that learning is taking place.



Figure 3: Natalia's view during her time at the University of Amsterdam.

4 Discussion

The findings raise an important question: What do we actually learn from the people who mentor us? Scientific knowledge is perhaps the most obvious answer. We learn theories, methods, ways of asking questions, and ways of approaching problems. We learn how to think critically, how to deal with unexpected results, and how to remain curious when an experiment does not behave as anticipated. But some of the most lasting lessons may be less explicit. We learn what it means

to be generous with one's time. We learn that serious scientific work can coexist with warmth, humour, and kindness. We learn that making a young researcher feel welcome in an unfamiliar city can matter just as much as a productive research meeting. And sometimes, apparently, we learn to appreciate LEGO.

One of the central challenges of our research in Amsterdam was to understand how a neural network might acquire the distinction between short and long vowels in Czech. Looking back, however, I realise that we were also observing another kind of length distinction: the difference between experiences that last only a short time and those whose influence persists for years.

My stay in Amsterdam lasted only two months. Its effects, however, have turned out to be remarkably long. This observation also highlights a limitation of conventional approaches to evaluating academic impact. Publications, citations, and conference presentations provide useful measures of scientific productivity, but they do not capture everything that matters.

Of course, the present study has several limitations. The sample size is one, no control group was included, and the long-term observations rely entirely on autobiographical memory. Nevertheless, the evidence is sufficient to support at least one conclusion: some encounters leave a lasting impression, even when we do not immediately realise it.

5 Conclusion

The present study provides anecdotal but compelling evidence that the effects of academic mentorship can persist long after a research visit has ended. Although the original collaboration focused on modelling the acquisition of Czech vowels, its most enduring outcomes cannot be expressed solely in terms of model performance or scientific publications. Some of them are found in the memories of a young researcher who was made to feel welcome, encouraged, and valued. Others may now be sitting on a shelf, carefully assembled from hundreds of tiny plastic bricks.

Ultimately, the findings suggest that the most meaningful contributions of an academic career are not always those that can be measured. Sometimes, they are the ideas we pass on, the people we encourage, and the small moments of kindness that stay with others for years.

Declaration of competing interests: The author declares a growing personal investment in LEGO bricks.
Data availability statement: The memories described in this study remain available in the author's long-term memory and are expected to be retained indefinitely.

Natalia Nudga

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(A non-public contribution)

Not included
Not in this public edition

The Complete edition – for Paul's eyes only *includes an extra contribution, spanning pages 311–314. This placeholder is included to clarify the break in the page numbering.*

© Not included

The many facets of Paul: Some ramblings*

Margreet van Koert
ACLC, University of Amsterdam

This is a short personal reflection on Paul as a manager, a software developer, and a teacher. Some anecdotal evidence for Paul's preciseness is given. It is shown that Praat is a multipurpose software programme: students with highly varied interests may make use of it. Finally, one of his statistics courses is reviewed. It is demonstrated that it invited curiosity rather than rote learning. In addition, its main points carried well beyond the exam. As a result of careful instructions being left, the author hopes to inspire the new cohort of students in the BA Linguistics to a similar degree.

1 Introduction

It must have been an ACLC introduction afternoon for new PhDs (van Koert 2011) where we were formally introduced, although I cannot seem to remember when (or whether) we were. This may not make sense to some readers but it does to me – and, hopefully, it also does to you – because I was working in a different field (syntax, child language acquisition) to you (phonetics, phonology), plus we were working in different buildings (me: PCH; you: BH). Admittedly, the first substantial memory I have of you is somewhat tainted by annoyance, but regrettably this was due to some youthful arrogance on my part. For one of my PhD studies I had two create two versions of the parental information brochure: a Dutch one and an English one. You were one of the members of the Ethics Committee. Part of the feedback I received was about the order of information: I had switched the order of two of the sentences in the English version compared to the Dutch version. At the time I thought you were fussy, it was only months (perhaps years) later that I could appreciate your meticulousness.

Your attention to detail truly stood out to me during staff meetings. During the 2010s we had many a heated discussion about whether or not moving to English as the language of instruction for the then BA Taalwetenschap. You were always very well prepared and you knew exactly which rules or regulations we

* I would like to thank Titia Benders for encouraging me to write down my memories of Paul. I would also like to thank Rob van Son, for letting me copy the output of the Acoustic Voice Quality Index from his 2026 seminar slides.

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should take into account during these conversations. It was here that my esteem for you in your management function grew. As I become more settled into my position of lecturer, I try to take you as an example, in the sense that it is important to at least have read the relevant readings but preferably to understand and know them.

2 Praat

My linguistic background does not allow me to say anything sensible about Praat (Boersma et al. 2026); therefore, this section does not contain any speech analyses, only descriptions of experiences with Praat as a concept, not so much as a software tool. Although I took *Phonology* and *Phonetics* during my BA English Language & Culture at the RuG, to my knowledge we never worked with Praat. So, when I arrived at the UvA, I had no idea who you were and how famous you were. It was only through my fellow PhD students that I came to have a high regard for you and your work. Yet, it was not only through colleagues, but it was also through linguists at conferences abroad who would ask: "You're at UvA? Where Paul Boersma is?" To which I would reply in the affirmative and then the standard follow-up from them would be: "Praat is such an amazing programme!" So, my esteem for Praat is mainly by proxy.

Since 2023 I co-teach *Language and Speech Disorders* (rebranded this year to *Introduction to Clinical Linguistics*). There is one week in which we always invite guest lecturers from the Netherlands Cancer Institute (NKI). One of our guests is Rob van Son who gives students some hands-on experience with speech data from patients who have undergone partial or total laryngectomy. The first year I taught that course, I participated actively in Rob's seminar and that was my very first introduction to Praat. We analysed different speech and voice parameters. For example, we compared the pre-operation vowel triangle size to a post-operation one in a patient with a tongue tumour. In addition, we fed a speech recording into Praat, which outputted a voice report; in turn, this report served as a basis for a (demo) measure for the Acoustic Voice Quality Index (AVQI) (Maryn et al. 2010). Figure 1 shows the AVQI for laryngeal speech, i.e., normal speech. To me these guest seminars are valuable, because students interested in our language structure and variation courses (phonetics, phonology) can work with their favourite software programme to generate output for applied uses. Vice versa, students interested in our language acquisition and processing courses (clinical linguistics, second language acquisition) can see how these measures can inform speech language therapists and policy makers. I hope you realise the extent to which Praat is used; it goes well beyond phonetics and phonology.

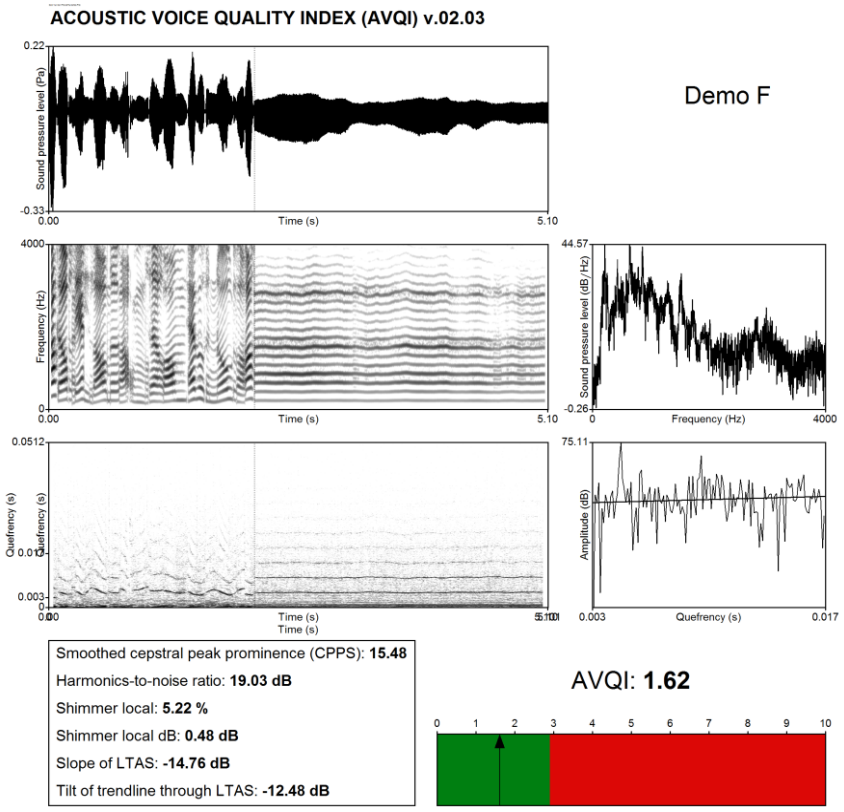


Figure 1: The Acoustic Voice Quality Index (AVQI) of a speaker with laryngeal speech. The top graph shows the sound pressure levels for continuous speech and for a sustained vowel. The second and third graph show a spectrogram and a long-term average spectrum (LTAS). The fourth and fifth graph show a cepstrogram and cepstrum. Finally, the text box and the figure at the bottom show the acoustic components of the speech and the AVQI score (cut-off is 2.91).

3 Statistics in Linguistics

After my postdoc ended, I wanted to remain connected to the UvA, or, rather, to my colleagues in PCH. At the same time, I sought ways to expand my knowledge of statistics, especially my skills in R. As I had heard so many raving reviews of your MA course *Statistics in Linguistics*, I enrolled. I remember being very nervous for our first class, since I was under the impression that you had put all kinds of trick questions in the first assignment. This was obviously not the case. During the seminar you discussed some examples of answers and you called me out as well (very rightly so): "Why did you say that your data might be categorical?" The honest answer is because I panicked. You could not have known that I had fallen into a rabbit hole of overthinking. It turned out to be a good lesson for me, because I had learned to take your questions as they are.

Words cannot convey how impressed I was with how knowledgeable you were (are), how well you knew (know) your stuff, how quickly you could (can) do run calculations in your head, how well you could explain the materials. I had not seen that kind of versatility in my previous statistics lecturers, or perhaps I had been too immature to recognise that during my MA. In those previous courses my interest in statistics had definitely sparked, but it was only in your course that I finally had the feeling I was beginning to understand the basics. Every week I connected new analyses to existing knowledge and I began to feel that I understood the formulas. Looking back, I doubt whether that last part really was the case. However, your step-wise explanation of how to interpret the R output was a game-changer for me. I still go back to my homework assignments whenever students ask me to explain their output.

It was not just in my role as a student that I was pleased with this course. I had always liked teaching but was still struggling with certain aspects. *Statistics in Linguistics* implicitly taught me how to structure a course and how to create a crystal clear syllabus (which I think is still my greatest challenge). It also showed me that reliable and valid multiple choice questions do exist (I did not think this was possible). That distractors can be real distractors and not just easily struck out options. Lastly, you were always yourself whilst teaching, whereas I sometimes felt that I was doing some kind of theatre performance at the lectern. I cannot deny that I still feel that way sometimes, but nowadays I remain truer to myself. I think this allows me to be a better teacher than I was before. When I started the *Statistics in Linguistics* course, I could not have imagined that I would learn so much more than just statistics.

4 Conclusion

Although our interactions have been few and brief, you have made a bigger impression on me than I think you realise. I would like to thank you for motivating me to be a better prepared participant in meetings, but mostly for inspiring me to become a better teacher. I will be teaching *Research Methods & Statistics* for the first time this year and I am just as nervous as I was when I took my seat in that first seminar in 2020. Fortunately, you left detailed instructions. Hopefully, I can do the course justice.

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Learning statistics from Paul: Random-effects structure in linear regression models

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In this short article I aim to demonstrate the importance of including the main effects and interactions under investigation in the random-effects structure of linear mixed-effects regression models. An example is given using data from a previous study that I conducted under Paul's supervision during my Master's studies. In principle, when a main effect or interaction involves predictors that vary across repeated observations within participants or items, the corresponding random slope should be included for that grouping factor (i.e., participants or items), in the model when making inferences about that effect. Omitting such random slopes can underestimate uncertainty and increase the risk of a "bogus" significant effect, namely identifying an effect that is not adequately supported by the data.

1 Introduction

In the spring of 2022, Paul taught the Master's course *Statistics in Linguistics and Communication* together with Titia, serving as the course coordinator for the last time. I was lucky enough to be part of that cohort. The course material, developed by Paul, combined basic R programming with statistical knowledge. It started with linear relationships in real life. As I can still clearly remember, in the .rmd file Paul used as an example in class, he showed the (approximately) linear relationship between a child's age and shoe size. From there, we moved on to linear regression and then to linear mixed-effects regression. After some initial struggle with interpreting interactions properly, we learnt odds ratios and used them as a key concept for understanding generalized linear regression (or strictly speaking, only the logistic regression in our case), and subsequently generalized linear mixed-effects regression.

The course content was rich and the course itself was intense. It impressed me with its clear structure and Paul's rigorous yet approachable way of explaining statistical concepts. More importantly, it sparked my interest in statistics and helped me conquer my fear for doing complex maths (at least to some extent). When later I was doing research projects for my research master's studies, and

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even now during my PhD in Nijmegen, I have continued to benefit greatly from what I have learnt in this course. Even today, when I communicate with Paul about some collaborative work, he still frequently refers back to the principles, or *commandments*, that he taught us in that course.

One point that he has always been emphasizing is the value of using contrast coding for categorical variables instead of treatment coding when this makes the model estimates more meaningful. Indeed, treatment coding can usually only represent a part of the dataset, as the coefficients are conditional on the chosen reference levels, especially when interpreting interactions. Such coding can be appropriate when the research question specifically concerns such comparisons with a reference group, but it is important to understand exactly what the resulting coefficients represent. In my current group, a postdoc fellow once received reviews urging him to distinguish between simple effects (based on treatment coding) from main effects (based on contrast coding). This example showcases the importance of understanding what model coefficients actually mean rather than simply reporting them.

Another point in the commandments that Paul frequently emphasizes is that, when main effects or interactions vary within participants or items and are to be reported for statistical inference, the corresponding random slopes should be represented in the random-effects structure. Otherwise the resulting *p*-value can be inaccurate and overestimate the evidence for an effect that may be "bogus", in Paul's terminology. In other words, omitting relevant random slopes can increase the risk of a false-positive conclusion. In the next section, I illustrate this issue with data from a study I conducted during my master's studies under Paul's supervision.

2 Materials and results

The dataset comes from a study on Shanghai Chinese, which is mainly spoken in the urban area of Shanghai city, China. Because of Mandarin Chinese influence, the sound system in Shanghai Chinese has undergone rapid change in the past few decades. We therefore examined the acoustic realization of its vowels and tones among the young generation born after the year 1995. The anonymized dataset can be found at: https://www.fon.hum.uva.nl/archive/2023/2023-MA-JasonYe/.

In Shanghai Chinese, there are two sets of vowels, one compatible with closed syllables and the other compatible with open syllables. There are also two tone registers. The high-register tones are compatible with phonologically voiceless onsets, and the low-register tones are compatible with phonologically voiced onsets.

We examined the duration of all 15 monophthongs in the vowel inventory of Shanghai Chinese, including syllable (closed, coded as –0.5 vs. open, 0.5),

gender of speakers (male, coded as –0.5 vs. female, 0.5) and register (high, coded as 0.5 vs. low, –0.5) as well as all their possible interactions as predictors. A simplified model only included by-participant random slopes and intercepts for syllable and register, while a full model additionally included random intercepts for the interaction between syllable and register.

Both models showed main effects of syllable and register as well as their two-way interaction. However, as shown in Table 1, the coefficients differed in the two model. The largest difference was the degrees of freedom of the two-way interaction. Including a by-participant random slope for this interaction drastically shrinks the degrees of freedom. As a result, the distribution became flatter in the full model, yielding a smaller *t*-value. Although the *t*-value drop was from 6.769 to 5.645, its effect on the resulting *p*-value was magnificent: the *p*-value went from the scale of 10^{-11} to the scale of 10^{-6}, approximately consistent with a square-root scaling in order of magnitude. When this random interaction was included, the other effects were also adjusted, although they were less influenced than the interaction itself.

Table 1: Main effects and interactions between syllable and register in the simplified and full models.

Model	**Fixed effect**	**Estimate**	**Std. error**	***df***	***t***	***p***
Simplified (syllable + register)	syllable	202.754	10.638	21.144	19.060	8.49×10^{-15}
	gender	21.171	13.503	21.044	1.568	.1318
	register	–20.666	5.624	22.365	–3.675	.0013
	syllable:register	36.574	5.403	1171.625	6.769	2.05×10^{-11}
Full (syllable * register)	syllable	202.891	10.676	21.125	19.004	9.17×10^{-15}
	gender	21.079	13.527	21.036	1.558	.134090
	register	–20.678	5.231	21.424	–3.953	.000705
	syllable:register	36.354	6.440	32.683	5.645	2.84×10^{-6}

In our case, the interaction remained significant in the full model. However, if the effect or the interaction itself had yielded a *p*-value close to the conventional .05 threshold, it could have been a different story. An effect or interaction that appeared significant in the simplified model might no longer have reached significance once the appropriate random slope was included. In that case, the result from the simplified model could be considered "bogus," or a false positive, because the evidence for the effect would not be sufficiently strong under the more appropriate model.

3 Conclusion

In this short article, I used a mini dataset to illustrate the importance of including the effect or interaction under investigation in the random-effects structure, one of the *commandments* that Paul frequently emphasizes. As demonstrated here, omitting the corresponding random slope may substantially reduce the resulting *p*-value and therefore overstate the strength of evidence for the effect. For an extremely small *p*-value, as in the example above, this difference may not change the substantive conclusion. However, for borderline cases in which a simplified model yields a *p*-value close to the conventional .05 threshold, accounting for between-participant variability in the effect or interaction may change the inferential conclusion altogether. Thus, omitting relevant random slopes can lead to overly confident evidence for effects, which may be "*bogus*" and not sufficiently supported once this variability is taken into account.

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The teachings of Paul

Marijn van 't Veer
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Enjoy phonetics and all will be well.

1 Introduction

"Your class was the best one I've had so far" says the student. It's fall 2018, and I'm in line for a dreary coffee from a nondescript coffee dispenser during the break of a Phonetics seminar. It's the second time I'm teaching that course, and I feel slightly less lost than the first time. In fact, in 2017 I was at UvA for that same course only, and this was one of the students I taught back then. Now, she's in her second year, older and wiser. Thinking back to my first round of UvA Phonetics teaching, I thought it went so poorly, I was genuinely surprised they even considered my application the year after. But now, waiting in line for a coffee that's not really worth waiting for, the student's words jolt me out of my daydreaming. "Best so far", she says. "You made us work hard, but in the end, everything clicked". Of course it wasn't my class, she was complementing. It was Paul's.

It took me a while to figure out what she meant. It took me a while even, to figure out how brilliant the phonetics course at UvA is. The student's compliment, while nice to hear, was not referring to my abilities at all. So when I relate this story, I do so without undue pride or false modesty; the story is about how Paul designed a course that is about as good as it gets. Even a lost soul like myself was able to teach it with every student passing! While no reader, nor any contributor, of this volume needs any convincing how impactful Paul's research is, I thought it fitting that his didactics do not fly under the radar.

2 A Course in Phonetics

Being a Leiden graduate myself, I've never been a student in any of Paul's classes, but having taught many a course he designed, I think I have some degree of authority to speak from. Take that Phonetics course, for example. In the current program design, it sits in de second block of the first year. Students come in, often

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fresh from high school, and their first *real* course in Linguistics (after the introduction course) is Phonetics. It's six weeks of hard labor, three two-hour classes per week, and a ton of homework. The mistake I made that first time I taught the course was to treat it as any other typical course. It really isn't; each homework assignment is an *invitation* for the students to reflect on their own language behavior, their own knowledge of language, and to build on what they already know and have, to acquire new knowledge. In the best possible way, the course is even playful!

Take, for example, the assignment where students are asked to extract formant values from a waveform. I've heard more senior colleagues characterize it as "criminally difficult", and goodness knows I struggled demonstrating it in class. As soon as you let go of the pressure of *having to get it right* (this applies to both lecturer and student), it becomes an interesting puzzle, builds a very clear and solid understanding of sound and how it is represented visually, and naturally it is an amazing party trick. If ever there was a phonetics match between Linguistics undergraduates from different universities, I would have no hesitations to bet on our own students. I truly believe they receive the best Phonetics education in any undergraduate program in Europe, at least!

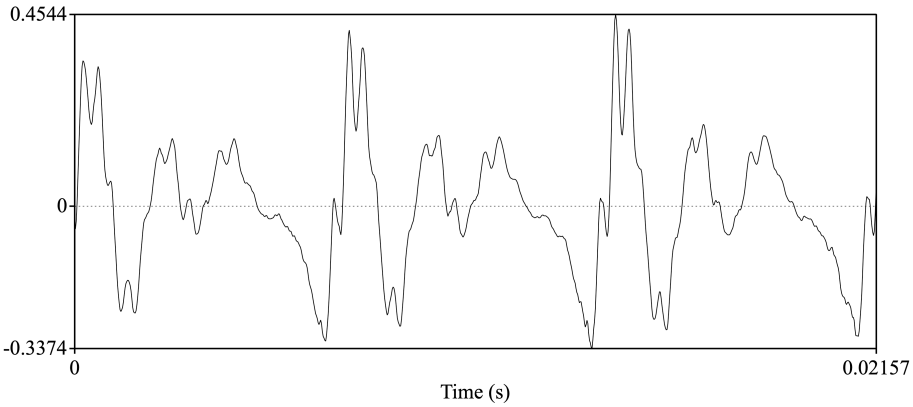


Figure 1: Hypothetical example from a Phonetics homework assignment. Students are asked to mark and (roughly) measure F0, F1 and F2. Finally, they are asked to identify which vowel is represented here. Ironically, they often get the first steps right but somehow forget to answer the last one.

There is a course book, of course, but I am convinced that students who approach their homework with an open mind, and who allow themselves to *enjoy* the assignments, can pass without hours of memorizing. That book, too, is selected by Paul on highly critical grounds (Ladefoged and Disner, 2012). It fits the course very well, because it is not one of those textbooks that tell the student the core points of a chapter in a bullet list, or comes with a sprinkle of "info-boxes" and "diagnostic questions". It's not a book for lazy people, because it does not

constantly tell you what you have just learned. You have to remind yourself, and in doing so, you learn better and deeper.

Just like a Paul-course always has more to it than at first meets the eye, the exams Paul designs are made to stimulate. Students who memorize and expect to pass by means of a strategy of regurgitation might pass, but those who are not afraid to think for themselves usually do better. Exams usually have little Easter eggs, which I will not illustrate here, for obvious reasons. No student misses any points for not getting these, but those who do are awarded bonus points. Once, I heard an older student telling a group of first years, who were nervous about the upcoming exam, that they should simply "think outside the box". This was true and good advice, both figuratively and literally.

3 Conclusion

In a way, that first year course in Phonetics is a microcosm of Paul's didactics: it is full of serious levity. If you force your way through it, it will be difficult, but only because it is akin to fitting a square peg into a round hole (and again, this goes for teachers and students alike!). The key is to approach it openly, without a preconceived notion of what is right and what is wrong, and to enjoy the ride. When you do, it will teach you so much more than you can realize in the moment. And there's the beauty: it doesn't just train students to become good phoneticians. More than that, it trains them to be good scientists! And just like that student at the coffee machine, they often aren't even aware of their growth during the course until much later.

Teaching Phonetics in the UvA undergraduate program in Linguistics is enormously rewarding, even if it is also quite intense. A couple of years ago, I passed the baton to Titia, and while I do not miss the crazy hours, I do miss the almost visible light bulbs flashing on in the student's minds. Paul's teaching obligations may be over, but his influence on the program will remain for a long time to come. And that is a very, very good thing.

4 References

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(A non-public contribution)

Not included
Not in this public edition

The Complete edition – for Paul's eyes only *includes an extra contribution, spanning pages 327–349. This placeholder is included to clarify the break in the page numbering.*

© PhD advisees and other apPreciatiors

What is the pitch of a personal note?

Marloes Roosingh
Formerly of the ACLC, University of Amsterdam

1 Figures



Figure 1: *Approximation of the cover of the printed version of the inaugural lecture* Buigzame geluiden (Boersma 2007) *(2026)*, gel pen on University of Amsterdam envelope.

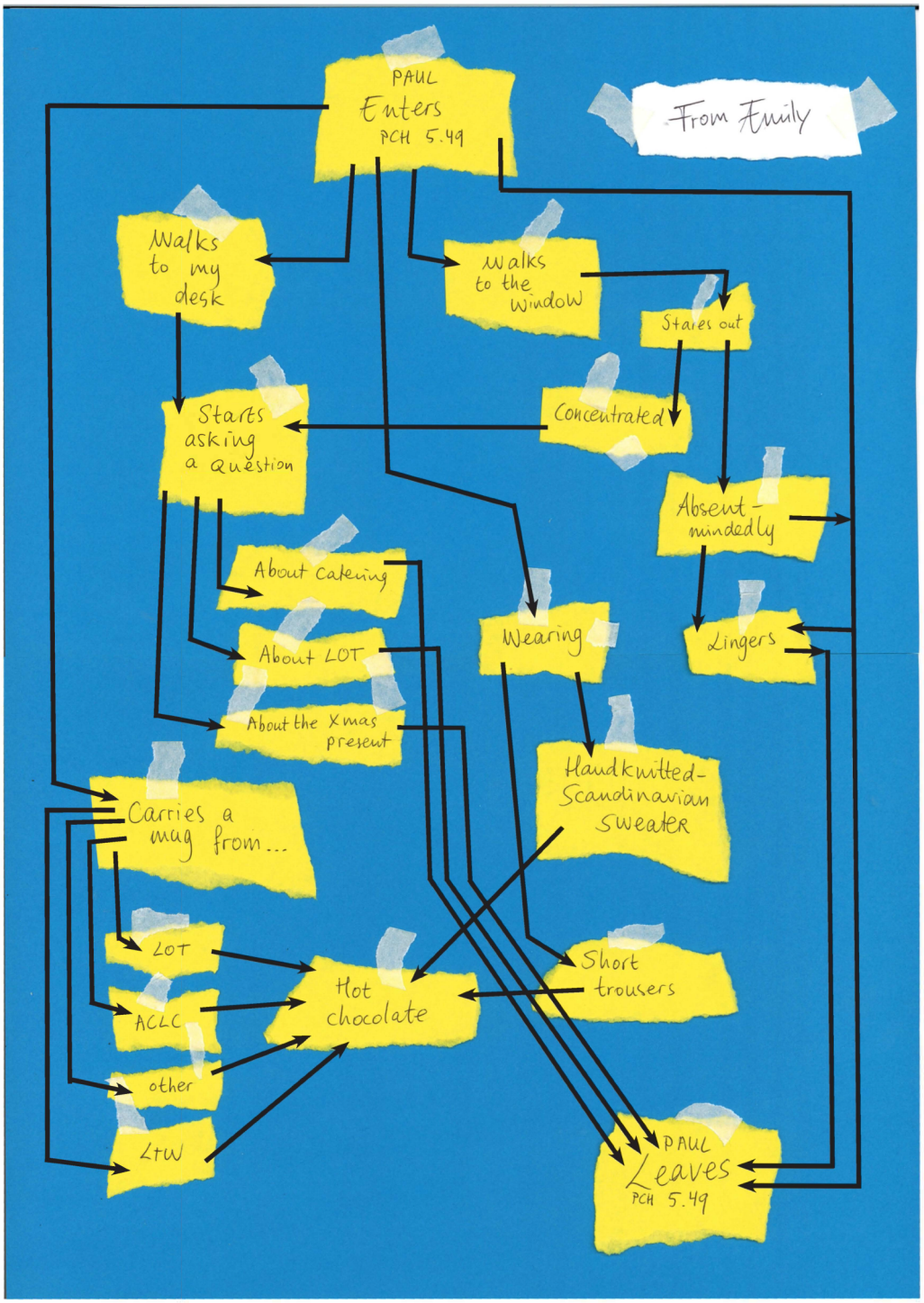
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Paul enters/leaves PCH 5.49

Emily de Klerk
Secretariaat Taal- en Literatuurwetenschap, Universiteit van Amsterdam



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