

Contents

Director's Report	3	Research	15
Connecting mouths, minds and movement	4	Language Variation and Change	16
NZILBB People	5	Language Acquisition	18
Management team	6	Bilingualism	20
General Staff	6	Language and Ageing	22
NZILBB Research Faculty	8	External Grants	24
Post-Doctoral Fellows	9	Small Research Grants	31
Adjunct Professor	10	Community Engagement	
Scholarship Students	10	UC QuakeBox	34
Associated Postgraduate Students	11	NZILBB Financials	36
University of Bath Placement Student	12	Appendices	37
NZILBB Advisory Board	12		
Te Kāhui Kaihautū - The Māori Reference Group	13		
Domestic Partners	13		
International Partners	14		



Director's Report

Welcome to the 2013 Annual Report of the New Zealand Institute of Language, Brain and Behaviour. 2013 was a vibrant and action-packed year at NZILBB, with many exciting projects underway, and a constant stream of overseas visitors. We said goodbye to some postdocs, and welcomed some new ones.

Work on three new major external grants began in earnest. A Marsden grant, awarded to Donald Derrick, is funding articulatory work on tongue movements in New Zealand English, and how speakers balance their goals of clarity and economy when speaking. A Ministry of Business, Innovation and Employment Grant to Derrick, Hay and O'Beirne is demonstrating how listeners use airflow information to enhance their listening, and is exploring potential commercial implications of this result. And a John Templeton Foundation grant to Pierrehumbert, Hay, Stokes and Bartneck, is using large scale online computer games to collect data on how individuals learn and create new words.

Our continued success with securing external funding meant that our reliance on University of Canterbury internal funds markedly decreased in 2013, and will do so further in 2014. This position of financial health led the University to appoint our Manager – Emma Parnell, and our Technician – Scott Lloyd – to continuing positions. Both Emma and Scott make an enormous contribution to the running and success of NZILBB. We are absolutely delighted to be welcome them to the continuing staff of the University.

I would like to thank all of our research assistants, researchers, students, collaborators and supporters for the role you have played in making 2013 a truly fantastic year. This short report aims to highlight some of the activities that have kept us occupied during 2013.

Jen Hay

New Zealand Institute of Language Brain and Behaviour - *Connecting mouths, minds and movement*

The New Zealand Institute of Language, Brain and Behaviour (NZILBB) is a multi-disciplinary centre dedicated to the study of human language. It was founded in January 2010 as a result of a multi-year, multi-million dollar investment by the University. The researchers come from a wide range of disciplines, forging connections across linguistics, speech production and perception, language acquisition, language disorders, social cognition, memory, brain imaging, cognitive science, bilingual education, and interface technologies.

NZILBB collects audio, visual, articulatory, neural and behavioural data on how individuals speak, listen, interact, and otherwise use language in their day-to-day lives. With this data, we study the foundations of language as an integrated, multimodal, statistical system operating in a social, physical and physiological context. We study the relationship between language and other modes of cognition and behaviour, including memory, gesture, facial expression and gait. We are interested in language development throughout the lifespan, and in how non-language information (social, physical, contextual, visual) affects individuals' speaking and listening behaviours.

Our highly interdisciplinary team is working together toward a truly unified understanding of how language is acquired, produced and understood in its social and physical contexts.

Our People

Our highly interdisciplinary team is working together toward a truly unified understanding of how language is acquired, produced and understood.

Management Team

Professor Jen Hay (Director)

- Department of Linguistics
- Leader of the Language Variation and Change theme

Professor Thomas Klee (Deputy Director)

- Communication Disorders
- Leader of the Language Acquisition Theme

Associate Professor Megan McAuliffe

- Communication Disorders
- Leader of the Language and Ageing Theme

Associate Professor Jeanette King

- Aotahi – School of Māori and Indigenous Studies
- Leader of the Bilingual Theme

Associate Professor Catherine Moran

- Communication Disorders
- Industry Liaison Officer

General Staff

Emma Parnell – NZILBB Manager

Robert Fromont – NZILBB Software Developer

Scott Lloyd – NZILBB Research Technician

Pat LaShell – Statistical Consultant



NZILBB Research Faculty

The Research Faculty are academic members of staff internal to the University of Canterbury, currently spanning four Colleges. NZILBB encourages inter-disciplinary interaction and collaboration between these members of different Departments within UC and also with our international and domestic partners.

Research Faculty from the Department of Communication Disorders

- Tami Howe
- Margaret Maclagan
- Greg O'Beirne
- Mike Robb
- Don Sinex
- Stephanie Stokes
- Ondene Van Dulm

Research Faculty from the Department of Linguistics

- Lynn Clark
- Susan Foster-Cohen
- Beth Hume
- Heidi Quinn
- Kevin Watson

Research Faculty from the Deputy Vice Chancellor's Office

- Lucy Johnston

Research Faculty from the Human Interface Technology Lab

- Christoph Bartneck
- Mark Billinghurst

Research Faculty from the Health Sciences Centre

- Dean Sutherland
- Anne van Bysterveldt

Research Faculty from the Department of Psychology

- John Dalrymple-Alford
- Ewald Neumann

Research Faculty from the School of Literacies and Arts in Education

- John Everatt
- Brigid McNeill

Research Faculty from the School of Humanities

- Jack Copeland
- Dianne Proudfoot

Research Faculty from the Department of Computer Science and Software Engineering

- Andy Cockburn

Research Faculty from the College of Education

- Gail Gillon

Post-Doctoral Fellows



Clayton Beckner

John Templeton Foundation
Post-Doctoral Fellow
Dates of employment:
Jul 2013 – Nov 2015



Donald Derrick

Joint NZILBB and MARCS Institute
Post-Doctoral Fellow
Dates of employment:
Oct 2011 – Oct 2014



William Gavin

Electroencephalography Lab
Post-Doctoral Fellow
Dates of employment:
Oct 2012 - Jul 2014



James Gruber

Gesture
Post-Doctoral Fellow
Dates of employment:
Aug 2012 – Aug 2014



Kota Hattori

Original NZILBB
Post-Doctoral Fellow
Dates of employment:
Oct 2010 - Apr 2013



Viktoria Papp

Original NZILBB
Post-Doctoral Fellow
Dates of employment:
Jul 2011 – Aug 2013



Peter Racz

John Templeton Foundation
Post-Doctoral Fellow
Dates of employment:
Mar 2013 – Nov 2015



Kauyumari Sanchez

Original NZILBB
Post-Doctoral Fellow
Dates of employment:
Jan 2011 - Jul 2013



Catherine Theys

Electroencephalography Lab
Post-Doctoral Fellow
Dates of employment:
Dec 2012 - Jun 2014

Adjunct Professor

Janet Pierrehumbert Northwestern University
PI of the John Templeton Foundation Grant alongside Jen Hay

William Gavin Colorado State University
Advisor to the Electroencephalography Lab



Scholarship Students

Andrew MacFarlane (2010-2014)
Voice and behaviour: automatic priming effects of voice on judgements and responses

- PhD Supervisory Team: Jen Hay, Lucy Johnston and Ewald Neumann
- Full NZILBB PhD Scholarship

Maryam Ghaleh (2010 -2014)
Discourse comprehension abilities in ageing; correlation of working memory with high-level reference resolution.

- PhD Supervisory Team: Megan McAuliffe, Catherine Moran and Ewald Neumann
- Joint NZILBB and Canterbury Medical Research Foundation PhD Scholarship

Associated Postgraduate Students

Sharimila Adaikkalasy (PhD Communication Disorders)
Cross cultural comparison of parent-child interactions and its association with children's language performance.

Juergen Brandstetter (PhD Hit Lab) Title to be advised.
John Templeton Foundation Scholarship

Daniel Buerkle (PhD Linguistics)
The acquisition of sentence alternations.

Amy Collings (PhD College of Education)
Early intervention literacy engagement – literacy intervention for teenage parents and their young children.

Llyween Cooper (PhD Health Sciences)
Royal Society of New Zealand Marsden Scholarship
Communication choices for non-verbal children with Autism.

Romain Fiasson (PhD Linguistics)
Allophonic imitation within and across word positions.

Annalise Fletcher (PhD Communication Disorders)
Sir Don Beaven Doctoral Scholarship
Predictors of treatment outcome in dysarthria.

Ksenia Gnevshva (PhD Linguistics) Title to be announced.

Penny Harris (Master of Audiology, Communication Disorders)
Does speaker age affect speech perception in noise in older adults?

Matthias Heyne (PhD Linguistics) Title to be announced.

Kate Naitoro (Master of Arts in Linguistics)
A sketch grammar of 'Are'are: the sound system and morpho-syntax.

Jayne Newbury (PhD Communication Disorders)
Royal Society of New Zealand Marsden Scholarship
Early identification of specific language impairment: The role of working memory in language acquisition.

Jacqueline Nokes (PhD Linguistics)
The emergence of sociophonetic variation amongst preschoolers.

Caralyn Purvis (PhD College of Education)
Assessment and intervention for students at-risk of difficulty understanding written text.

Pauliina Saarinen (PhD Linguistics) Title to be advised.

Martina Schaefer (PhD Communication Disorders)
The interaction between speech perception and speech production: Implications for speakers with dysarthria.

Darcy Rose (PhD Linguistics) Title to be announced.

Asifa Sultana (PhD Communication Disorders)
Morphological development of typically and atypically developing Bangla-speaking preschool children.

Keyi Sun (PhD Linguistics)
Language embodiment and language in body movement: testing temporal metaphor across different language speakers.

Leanne Wilson (PhD College of Education)
Creating communities among teachers and Speech Language Therapists: Advancing interprofessional collaboration to improve children's early literacy outcomes.

University of Bath Placement Student

Hannah Shelton October 2013 – June 2014
Language and Social Cognition Theme

NZILBB Advisory Board

- **Board Chair – Professor Anne Cutler** (MARCS Institute, University of Western Sydney)
- **Professor Jonathan Harrington** (Director of the Institute of Phonetics, University of Munich)
- **Dr Stefanie Shattuck Hufnagel** (Principal Research Scientist, Research Laboratory of Electronics, MIT)
- **Professor Jen Hay** (Director, NZILBB)
- **Professor Thomas Klee** (Deputy Director, NZILBB)
- **Deputy Vice Chancellor** (University of Canterbury)
- **Pro-Vice Chancellor** (College of Arts, University of Canterbury)

Te Kāhui Kaihautū - Domestic Partners The Māori Reference Group

- **Professor Angus Macfarlane**, Professor of Māori Research at the University of Canterbury
 - **Christine Brown**, Resource teacher of Māori
 - **Hector Matthews**, Executive Director of Māori and Pacific Health at the Christchurch District Health Board
 - **Alamein Connell**, Teacher and Community Representative
 - **Charisma Rangipunga**, Manager Toitu te Kura at Te Runanga o Ngai Tahu
 - **Terina Tahau**, Principal at Te Kura Whakapūmau it e reo Tūturu ki Waitaha
 - **Associate Professor Jeanette King**, Aotahi-School of Māori and Indigenous Studies and Bilingual Theme Leader at NZILBB
- **The Champion Centre**
 - **New Zealand Brain Research Institute**
 - **Te Kura Whakapūmau i te Reo Tūturu ki Waitaha**
 - Linguistics and Applied Language Studies, **Victoria University of Wellington**
 - **Professor Angus Macfarlane**, Professor of Māori Research at the University of Canterbury

International Partners

Australia

- MARCS Institute, **University of Western Sydney**

USA

- Callier Center for Communication Disorders, **UT Dallas**
- Carolina Conversation Collection, **Medical University of South Carolina**
- Neurolinguistic-Neurocognitive Research Center, **Florida State University**
- Motor Speech Disorders Laboratory, **Arizona State University**
- Northwestern Institute on Complex Systems: Language, Music and Communication, **Northwestern University**
- The Sociolinguistics Laboratory, University of Hawai'i at Manoa
- Spoken Syntax Laboratory, **Stanford University**

Germany

- Institute of Phonetics and Speech Processing, **Ludwig-Maximilians University of Munich**

United Kingdom

- Department of Languages and Linguistic Science, **University of York**
- Centre for Research in Linguistics and Language Sciences, **University of Newcastle upon Tyne**

Canada

- Interdisciplinary Speech Research Laboratory, **University of British Columbia**

Research

Research at NZILBB is focused around four research themes. Each theme has a leader who is represented on the Management Team and a cohort of researchers. In this section we highlight a couple of projects that are currently underway in each theme.



THEME

Language Variation and Change

Theme Leader : Jen Hay

One focus of the Language Variation and Change theme is the creation and analysis of large audio and visual corpora. During 2013, work continued on the Origins of New Zealand English (ONZE) corpus – a large corpus containing annotated recordings capturing the entire history of New Zealand English.

A particular recent focus has been the effect of topic of conversation on pronunciation. Projects have investigated the degree to which talk about Australia affects their vowel productions (Sanchez, Hay, Nilson) and whether talk about events in the distant past lead to use of older pronunciations (Foulkes, Hay, Walker). Because the corpus is carefully aligned and annotated, work is also underway automatically extracting vowel measurement from the sound file, and examining how sound changes progressed over the history of New Zealand English (Hay, Pierrehumbert, Walker, LaShell).

Thanks to the efforts of Kevin Watson and Lynn Clark, NZILBB now also hosts the OLIVE corpus (Origins of Liverpool English). Much work has been invested in preparing this large and important corpus for analysis, and phonetic analysis of variation in a number of key sound changes is now underway. During 2013 we also concentrated on the transcription and release of many of the UC QuakeBox stories of Christchurch earthquake stories.

All of this corpus work uses the LaBB-CAT software (Language, Brain and Behaviour: Corpus Analysis Tool), developed by Robert Fromont. Robert continues to develop the software to meet our evolving needs, and also supports labs around the world who are using it for their own corpus research.

In parallel with the corpus work, many experimental programs continue to explore themes relating to Language Variation and Change. For example, a number of projects have been examining aspects to do with linguistic imitation and accommodation (Fiasson, Racz, Beckner, Peek, Watson, Sanchez – across a range of different projects). The funding of the Wordovators project has seen the experimental pool of participants widen, with considerable use now being made of online workers at Amazon Mechanical Turk, who are playing our online computer games, cunningly designed to provide data about linguistic learning and biases.



THEME

Language Acquisition

Theme Leader: Thomas Klee

Representative current projects from the Language Acquisition theme:

The Enhancing Communication Intervention project

Dr Dean Sutherland is collaborating on a project supported by the Marsden Fund of the Royal Society of New Zealand. The Enhancing Communication Intervention project is investigating if the use of tablet technology such as iPads® can support children with Autism Spectrum Disorder who do not speak. To date the project has found that children can be taught to use tablets with speech-generating software to request access to items and activities. Throughout the study, 70% of children have demonstrated a strong preference for tablets compared to other forms of communication (i.e., manual signing and picture exchange systems). The study is now examining if children can learn more advanced communication skills (i.e., commenting) more quickly using their preferred communication mode and if the use of speech-generating devices stimulate the appearance of spoken language. Further research is being developed to determine if children can generalise newly acquired communication skills using tablets to other contexts (e.g., classroom to playground) and people (e.g., teachers and peers).

The emergence of socially-structured phonetic variation in pre-school children's speech

PhD student Jacqui Nokes is investigating the emergence of socially-structured phonetic variation in pre-school children's speech. Speech samples from 58 New Zealand children aged 3-5 have been recorded and transcribed, and structured into a speech database called *Childrenz*, using the NZILBB's custom *Labcat* software. The resource also includes detailed background data and speech samples from the children's parents. Acoustic and phonetic analysis so far has shown that children's productions of gender-typed /t/ variants are predicted by children's preferences for sex-stereotypical toys (e.g. dolls versus cars); this finding will be presented at LabPhon 2014 Japan. The research is shedding light on social motivations for learning nuanced phonetic variation. Further study will contribute to our understanding of children's use of speech patterns to project identity, and their ability to refine their phonetic inventory to include conventional social variation.



THEME

Bilingualism

Theme Leader: Jeanette King

In 2013, the bilingualism theme continued its primary focus on English/Māori bilingualism.

Tuhinga Māhorahora – children’s writing in Māori

This new project is a collaboration with a local Māori immersion primary school. Teachers anonymize and photograph children’s writing in Māori which we tag and enter into a database. Once tagging protocols are finalized, we will be able to use the LaBB-CaT corpus analysis tool to provide directed feedback to teachers about the written language of the children in their classrooms. The database will also provide valuable synchronic and longitudinal language production and acquisition data for Māori language in immersion environments, information which, up until now, has not been available. This will be extremely valuable for developing curricula and teaching resources.

Researchers: Jeanette King, Christine Brown and Mary Boyce

Moving and Speaking

This project is based on a collection of audio-visual recordings of six bilingual (Māori/English) and six monolingual (English) speakers. The project is designed to elicit information about potential differences in gesture (both hand, face and body movement) between speakers of different ethnicities and between the Māori and English speech of the bilingual speakers. Analysis this year has focussed on three aspects notable for their use amongst the Māori speakers: flat handed movements depicting path, and the use of eyebrows and head movements.

Researchers: James Gruber, Lucy Johnston, Jeanette King and Jen Hay



THEME

Language and Ageing

Theme Leader: Megan McAuliffe

The language and ageing theme focusses on changes to speech and language behaviour that are associated with the ageing process.

Two example projects from 2013 are described below.

Changes to speech production in ageing

PhD student Annalise Fletcher is utilising the resources of the Language & Ageing Corpus of NZILBB to investigate changes in speech production in ageing and neurological disease. Annalise's research has thus far investigated whether measures of vowel duration and formant frequency change as a function of age. Early findings indicate that older listeners appear to make duration-based compensatory adjustments to their vowel articulation in order to maintain precise articulation with age. These findings will be presented at the American Speech-Language-Hearing Association Annual Convention in late 2015.

Cognitive-perceptual approaches to speech treatment

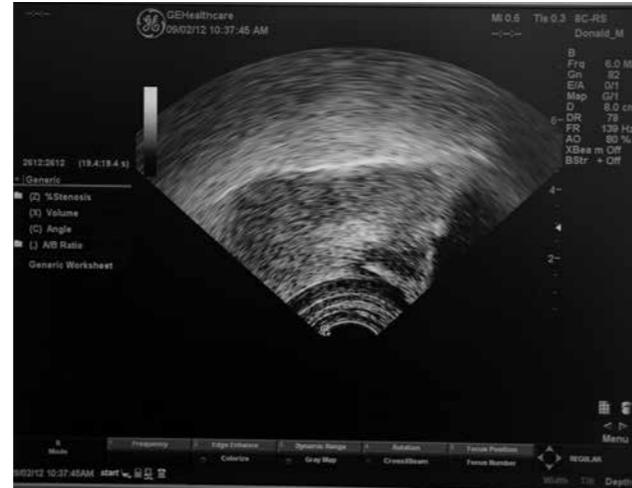
There is still much to be learned regarding how listeners process dysarthric speech, specifically whether various behavioural treatments enhance or negatively affect processing. This study, a collaboration between the NZILBB (McAuliffe, Kerr, LaShell) and NZBRI (Anderson), investigated how increased vocal loudness and reduced speech rate affected listeners' cognitive-perceptual processing of dysarthric speech associated with Parkinson's disease. It found that both techniques facilitated listener processing, but the mechanisms by which these gains were made differed. The findings highlight the insights that may be gained from a cognitive-perceptual approach and are to appear in the Journal of Speech, Language & Hearing Research.

External Grants

External funding is integral to the survival of NZILBB and to progress with our core research. To date NZILBB has been awarded over \$4.3 million from a wider pool of \$8 million.

In late 2013 it was announced that the Institute had been awarded over \$840,000 from the Royal Society of New Zealand Marsden fund for two grants starting in 2014. It was also communicated that \$40,675 was awarded from the Lottery Grants Board and College of Arts CAPEX for an upgrade to the EEG Lab's BioSemi system to be purchased in 2014.

The Institute's upcoming grant submissions in 2014 include MBIE Phase Two, Royal Society of New Zealand Marsden, National Institutes of Health (USA) and the Health Research Council.



Saving energy vs making yourself understood during speech production

- Funding Agency: Royal Society of New Zealand - Marsden Fund
- March 2013 – February 2016 \$300,000NZD

Project Leader

- Donald Derrick (NZILBB)

Research Assistants

- Romain Fiasson

Speakers sometimes move their tongues in completely different directions for different repetitions of exactly the same phrase. The cause of this variability is examined by comparing speech energy efficiency vs. producing clear speech. The first experiment records audio and tongue motion of New Zealand English (NZE) speakers induced to speak at progressively faster speeds, and the second uses the audio recordings to test whether easier to produce sequences are harder to understand. This is the first articulatory phonetics study of New Zealand English, and will radically change speech research by expanding on speech ecology, leading to better speech recognition systems.

In 2013 the project team have run a number of experiment participants and have demonstrated that: during slower speech, speakers adopt different tongue-movement strategies than for faster speech - for half of the speakers those changes involve clearly categorical shifts in tongue motion strategies. For all speakers, as they speak faster they have both shorter ranges of motion and fewer changes in tongue motion direction. Through the addition extra data collection for American English speakers, it is shown that the above effects of speed are mediated by forthcoming speech goals. That is, speakers show subtle but significant evidence of speech planning in tongue motion trajectories during speech.

The project team now has a clear method for simulating these tongue motions at the speech rates from the collected data to demonstrate whether changes in tongue motion under different speech conditions can be modelled as minimisation of energy usage, this will be completed by the end of 2014. Further experiments will include speech perception and eye tracking tests to identify whether the planned behaviours in speech production influence speech perception.

Early Factors in Childhood Communication Disorders

- Funding Agency: Royal Society of New Zealand - Marsden Fund
- June 2011 to January 2015 (extension); \$730,000NZD

Project Leaders:

- Thomas Klee (NZILBB and Communication Disorders)
- Stephanie Stokes (NZILBB and Communication Disorders)
- Catherine Moran (NZILBB and Communication Disorders)

Research Assistants

- Anjali George
- Jayne Moyle
- Christine Shalders
- Asifa Sultana



The ability to communicate is one of the most basic human traits. Successful communication involves learning to understand and produce an abstract, complex linguistic code and provides the foundation for social interaction, learning and personal well-being. Up to 12% of children experience speech and language difficulties by the time they enter school with 7% having specific language difficulties not due to hearing loss, developmental learning difficulties or other known aetiologies. Adolescents and adults who continue to have problems with language face reduced educational attainment, employment opportunities and social interactions, and have an increased risk of psychiatric and anxiety disorders and substance abuse.

Early identification of children with communication difficulties that are not transient is the key to getting children the help they need before negative consequences take hold. Typically, children suspected of having communication problems surface only when someone in their environment notices that something is amiss and registers their concern with a professional. Attempts to screen young children for early signs of language disorder have had mixed results. While screening is reasonably accurate in predicting a child's current developmental status, success in predicting longer-term outcomes is either modest or unknown. Moreover, research on the natural history of children with early language delay indicates that while most late talkers appear to catch-up by school age, as many as one-third fail to do so. Predicting which ones do and which ones don't has so far proved elusive, partly due to the variable path of development in the case of individual children and partly due to the factors that have been examined to date.



Episodic Word Memory

- Funding Agency: Rutherford Discovery Fellowship
- November 2011 to October 2016; \$1,000,000NZD

Project Leader

- Jen Hay (NZILBB and Linguistics Department)

Research Assistants

- Andrew MacFarlane
- Morgana Mountfort-Davies

- Jacqueline Nokes
- Kauyumari Sanchez

Individuals know many hundreds of thousands of words. Recent results indicate that what we know about each word is shaped in a dynamic ongoing way with our own experience with that word. Hay's research programme explores this episodic word memory – asking what the range of environments (social, physical and contextual) in which we encounter a word does to the way we hear, use and pronounce that word.

Communication Intervention for Children with Autism

- Funding Agency: Royal Society of New Zealand - Marsden Fund
- June 2011 to January 2015 (extension); \$885,000NZD

Project Leaders

- Dean Sutherland (NZILBB and Health Sciences)
- Jeff Sigafoos (Victoria University of Wellington)

Research Assistants

- Emma McKenzie
- Martina Schaefer

Approximately 25% of children with autism and other developmental disabilities fail to develop sufficient speech to meet their communication needs. These children are candidates for the use of Augmentative and Alternative Communication (AAC). There are three major types of AAC systems that have been taught to children with autism and other developmental disabilities. These are: (1) Manual Signs; (2) Picture Exchange; and (3) Speech-Generating Devices such as iPads. The aim of this project is to compare these three systems to see which one is learnt the quickest and which one is most preferred by children. To achieve this aim, we will teach the participating children to use all three of these communication systems. As the child is learning each system, we will also set up assessments that will let us know which one of three systems the child prefers to use. The results of this project will lead to a greater understanding of the impact of children's preferred communication methods on communication development.

You came TO DIE?! Perceptual adaptation to regional accents as a new lens on the puzzle of spoken word recognition

- Funding Agency: Australian Research Council
- January 2012 to December 2014; \$501,000AUD

Project Leaders:

- Cathi Best (University of Western Sydney)
- Jen Hay (NZILBB and Linguistics Department)
- Jason Shaw (University of Western Sydney)
- Paul Foulkes (University of York)
- Bronwen Evans (University College London)
- Gerry Docherty (Griffith University)

Research Assistant

- Michael Peek

Investigating Australian, New Zealand and UK listeners adaptation to each other's accents will reveal how we achieve stable word recognition via flexible adjustment to pronunciation differences. Results will inform word recognition theory and illuminate why unfamiliar accents are difficult for language learners and automatic speech recognisers.

Aero-Tactile Speech Perception Enhancement

- Funding Agency: Ministry of Business Innovation and Employment (Science and Innovation Group)
- October 2012 - September 2014; \$481,170NZD

Project Leaders:

- Donald Derrick (NZILBB)
- Jen Hay (NZILBB and Linguistics Department)
- Greg O'Berine (NZILBB and Communication Disorders)
- Scott Lloyd (NZILBB)

Post-Doctoral Fellow

- Tom DeRybel (2014)

The ability to communicate successfully is vitally important. Often successful communication relies on devices such as hearing aids, emergency radios, smartphones and headphones.

This project aims to optimize the efficacy of such devices by researching the potential of airflow as a carrier of supplementary speech information. Recent scientific advances have revealed listeners don't just listen with their ears, they also listen with their skin. The puffs of air from speech landing on our skin can help us understand what we are hearing. This project will expand upon this research to examine the degree to which variable air-flow (as opposed to simple air-puffs) will also enhance speech perception. We will conduct a series of experiments aimed at helping us understand the full range of ways and circumstances in which air-flow can enhance speech perception. This includes researching the enhancement phenomenon in realistic listening scenarios, including in normal



and noisy conditions, and with normal hearing and hard-of-hearing populations. The existing research shows that listeners incorporate air-puff information automatically and without any effort. Its use could therefore significantly aid communication, without distracting the listener from the message, or taking attention away from visual tasks. Improving audio clarity enhances user experiences, allows users to lower volume and so protect their hearing, and in the case of emergency radios, saves lives. This project will conduct the foundational research necessary to investigate the full potential of air-flow information for enhancing communication across different circumstances and in different listeners. The research will lay a firm foundation from which to concretely explore the integration of air-puff information into existing audio technologies.

Creativity and Cooperation in the Dynamics of the Lexicon: from Lexis to Logos

- Funding Agency: John Templeton Foundation, USA
- December 2012 - November 2015; 2.7 million USD

Principle Investigators:

- Janet Pierrehumbert (Northwestern)
- Jen Hay (NZILBB and Linguistics Department)
- Stephanie Stokes (NZILBB and Communication Disorders)
- Christoph Bartneck (NZILBB and HitLab)

Post-Doctoral Fellows

- Peter Racz
- Clay Beckner
- Doctoral Student
- Juergen Brandstetter

Research Assistants

- Ksenia Gnevesheva
- Elizabeth Youard

The Wordovators project aims to understand how children, teens and adults create new words. They want to understand why some new words are taken up by people while others fade. The Wordovators project has the goal of discovering the fundamental mechanisms that support the complexity of the lexicon in human languages. It combines mathematical modeling with large-scale experiments in the form of computer word games. Hosted on the web, the games will recruit players from all over the world. Single-player games will explore cognitive factors in the creation and processing of novel words. Multiplayer games using a futuristic space-exploration scenario will investigate the interaction of cognitive and social factors in the development of shared vocabularies.



Small Research Grants

Each year NZILBB offers funding to Theme Group members to assist in building research ideas with the aim of submitting an external grant proposal.

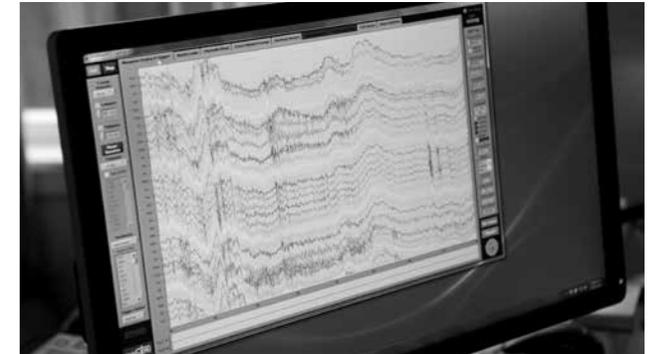
Highlighted below are three small research grants that NZILBB funded in 2013.

Relating neurophysiological measures of auditory sensory processing to language development in 4 year-olds

Project Leaders: William Gavin (NZILBB) and Stephanie Stokes (NZILBB & Communication Disorders)

The project was originally conceived as an event related potential (ERP) study of children to examine the neurophysiological correlates of auditory sensory memory, as a follow-up to our 2011 study. As planning for the work unfolded, it became clear that the more important study was one that did not measure simple auditory memory but rather measured the neural response to a more complex signal, that of word categories that varied as a function of lexical characteristics. Consequently, the current study was a proof of concept study with 48 adults, before investigating the question in children, and in preparation for a National Institute of Health (USA) grant submission in 2014.

Phase I of the study was the construction of stimuli, the creation of a software programme to generate the experiment, and the training of researchers in electroencephalography (EEG) techniques by William Gavin.



Phase II involved conducting a pilot study with 10 adults which were conducted in waves, with successive modifications to the methods/stimuli until we were certain that the design was appropriate.

Phase III of the study involved further testing. Subsequently, 38 adults participated in the study proper. Three participant results were subsequently not included in the analysis, one due to tester error, one due to a subsequent revelation of a diagnosed condition, and third to participant illness during testing.

EEG recordings were collected with a 32 channel BioSemi ActiveTwo System with two additional electrodes serving as reference (one attached to each earlobe), four electrodes to monitor vertical and horizontal eye movements, and two electrodes to measure electromyography (EMG) activity during response. The participant was shown 60 pictures twice in random order, with practice trials using 20 pictures for each condition, prior to testing.

Once the paediatric data collection and analysis have been completed an NIH grant will be submitted and a journal article submitted. The preliminary results from the adult study will form the basis of a Marsden grant application in 2014 (Stokes, Gavin, Klee) and a journal article is being worked on currently.

Development of a protocol for measuring the Neurophysiological correlates of overt speech production

Project Leader: Catherine Theys (NZILBB)

Associate Investigators: Megan McAuliffe (NZILBB & Communication Disorders) and William Gavin (NZILBB)

The study aimed to develop an ERP protocol to capture the fast-changing neural processes at work during overt speech production. Electrophysiological measurements during overt speech production have long been avoided as potential artefacts caused by muscle activity may lead to a bad signal-to-noise ratio in the measurements. The protocol developed and tested in the framework of this grant was based on the recent emerging literature on overt speech production during ERP measurements and the removal of muscle artefacts from the EEG signal.

Based on experiences during the test sessions and the results of the preliminary analyses, a number of changes were made to the protocol originally suggested:

- The larynx EMG data were unreliable and were not used after the pilot test sessions.
- Further changes to the placement of the EMG sensors – and analysis of the EMG data – have been made in collaboration with Associate Professor Stepp (Boston University).
- A voice key was added to the experiment setup to mark the beginning of speech production in the EEG signal.
- The participant's verbal responses were recorded to allow retrospective analyses based on their responses.

Phase I of the study involved 20 subjects tested on the 'immediate overt picture naming' and 'delayed overt picture naming' tasks. These subjects were re-tested one week after the first test session to allow assessment of test-retest reliability of the results.



Phase II involved further consultation with Associate Professor Stepp to overcome issues with the EMG measurements and adjustment of data acquisition and analysis protocol.

Phase III consisted of collaboration with Professor De Vos (University of Oldenburg) regarding the different possibilities for extracting muscle artefacts from the EEG data. We are currently exploring the effects of different methods of analysis.

The new protocol for testing overt speech production offers numerous possibilities for investigating the neural correlates underlying normal and disordered overt speech production. The study funded with this grant provided a basis for the following grants which, if successful, will be funded in either 2014 or 2015.

- University of Canterbury CAPEX funding for extension of BioSemi system to 64 sensors.
- Lottery Health Research equipment grant for the extension of the BioSemi system to 64 sensors.
- Royal Society of New Zealand Marsden Fund.
- Health Research Council.

Three journal submissions and three conference submissions are also planned for 2014.

Children with Down syndrome telling a personal story: Does listener familiarity matter?

Project Leader: Anne van Bysterveldt

Associate Investigator: Marleen Westerveld

This feasibility project investigates the personal narrative skills of ten school-age children with Down syndrome with three conversational partners: a parent, a teacher aide, and an unfamiliar adult. Although children with Down syndrome largely attend mainstream schools and receive the New Zealand curriculum mandated for all children, previous studies have identified the difficulties these children have in participating in this type of communicative situation that is relevant to the curriculum (e.g., van Bysterveldt, Westerveld, Gillon, & Foster-Cohen, 2012). The current pilot project builds on these findings by investigating if children's spoken language is influenced by the familiarity of the conversational partner. This information is important in helping to identify ways in which we can support children with Down syndrome in using their language in everyday situations to more successfully access the curriculum.

Participant recruitment began in July 2013. Three mechanisms for recruitment were utilised: families were approached on two occasions via invitation through the Canterbury Branch of the New Zealand Down Syndrome Association membership mailing list, through the Champion Centre alumni mailing list, and via direct personal approaches from the principal investigator.

It was anticipated that the participant recruitment and data collection stages would be completed by December 2013, however the project experienced considerable delays, and an additional six months was required to complete these two stages. Many families and schools declined to participate during school term four, therefore data collection was completed for only 5 of the participant families and schools during 2013. Much of the delay was due to families and school staff experiencing upheaval during earthquake repairs, restructuring and associated stress. Additionally, as schools and school staff could only be approached once families had indicated their intention to participate, the process of gaining consent took longer than was anticipated.

The five children who participated in 2013 attended mainstream schools within the wider Canterbury region and were in years 1 to 8. All sessions were video- and audio-taped. The study utilised a multifactorial design (3 x 2) with each participant relating personal narratives with each of three conversational partners and under two conditions. Additionally free play conversation samples were gathered with the participants and their three conversational partners.

In 2014 data collection and analysis of a further five children will be undertaken, this will be the basis for two conference submissions and one journal article at this stage.

Community Engagement

UC QuakeBox

2013 saw the UC QuakeBox project move further into the public eye, as the NZILBB launched its collection of QuakeBox stories on the UC CEISMIC Digital Archive website. The collection forms part of the UC QuakeStudies component of CEISMIC and currently contains 335 earthquake stories that are freely and publicly available for viewing.

As Academic researchers who register with CEISMIC are able to gain a higher level of access to the QuakeBox corpus. Complementing each story's comprehensive transcript, which is available in PDF format to all visitors to the online collection, registration also allows researchers to download high-quality versions of QuakeBox video and audio files.

Those academics who wish to conduct in-depth analysis of QuakeBox material may now also contact the NZILBB to apply for access to Quake Studies on LaBB-CAT: the NZILBB's purpose-

built corpus analysis software. A user-friendly tool for creating and researching an online database, the browser-based LaBB-CAT interface allows comprehensive and detailed examination of the extensive QuakeBox archive at the touch of a button. Researchers across a wide range of disciplines appreciate the array of facilities it offers, including e.g. keyword searches performed across the entire database (more than 80 hours of recorded speech) within minutes.

In addition to the 335 freely-accessible stories from consenting participants, the QuakeBox transcription team has completed its work on the remainder of the corpus, with hundreds more "research-only" stories available for study through LaBB-CAT. Interest in the QuakeBox corpus has been much in evidence among researchers from UC and other institutions. Already a number of studies across a variety of fields (e.g., linguistics, architecture, education, disaster management, etc.) have analysed data from the QuakeBox.

Development of the QuakeBox corpus is ongoing, as the NZILBB seeks to expand and enhance both the accessibility and features of the database. The project continues to gain attention as researchers throughout New Zealand, and beyond, recognise the unique research opportunities that the QuakeBox archive presents.

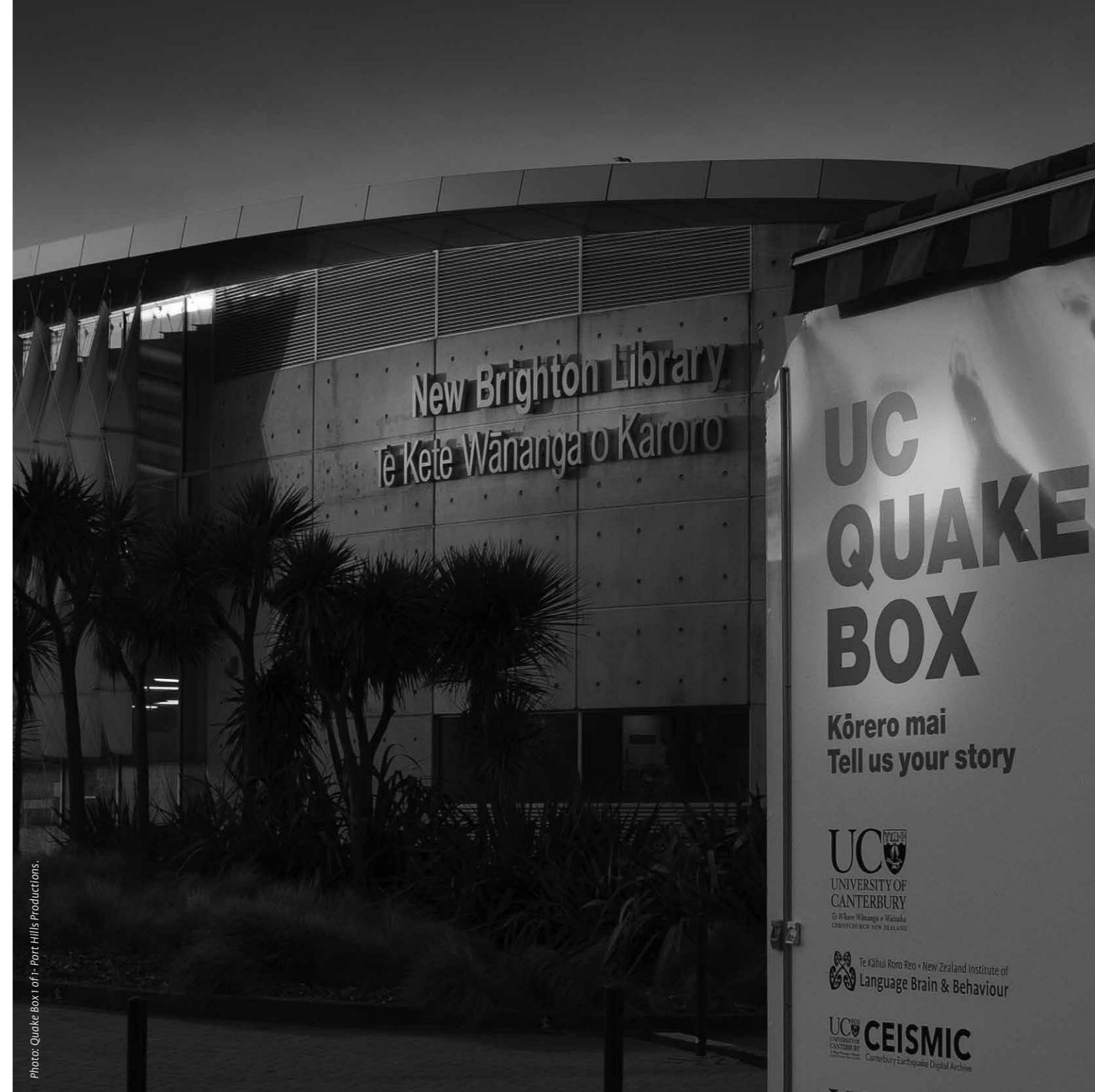
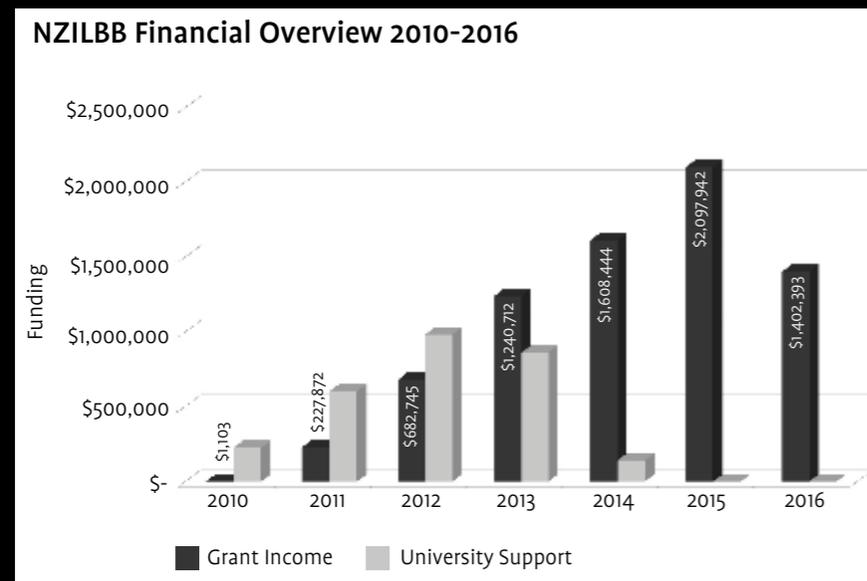


Photo: Quake Box 1 of 1 - Port Hills Productions.

NZILBB Financials

NZILBB will be self-funded by 2015. All of the Post-Doctoral Fellows employed will be paid by external research grants. The support staff salaries are all covered by overheads. This is a very exciting phase for NZILBB as we have been striving for financial self-sufficiency since we were originally set up in 2010.



Appendices

Visitors in 2013

- Cathi Best (MARCS Auditory Laboratory, University of Western Sydney)
- Joan Bresnan (Stanford University)
- Anne Cutler (University of Western Sydney)
- Gerry Docherty (Newcastle University)
- Susan Duncan (University of Chicago)
- Bronwen Evans (University College London)
- Paul Foulkes (University of York)
- Vince Hughes (University of York)
- Susan Duncan (McNeill Gesture Lab)
- Ghada Khattab (Newcastle University)
- Janet Pierrehumbert (Northwestern)
- Alex Schumacher (Northwestern)
- Jason Shaw (MARCS Auditory Laboratory, University of Western Sydney)
- Anita Szakay (University of British Columbia)

Seminars presented

Speaker and affiliation	Seminar Title	Date
Anita Szakay (University of British Columbia)	<i>The time-course of processing sociophonetic information: Insights from cross-dialect priming.</i>	24.01.13
Cathi Best (MARCS, University of Western Sydney)	<i>"World War of Words: Visual world eye-tracking results in L1 and L2 English listeners' recognition of words spoken in familiar and unfamiliar regional English accents.</i>	31.01.13
Vince Hughes (University of York)	<i>The Bayesian approach to forensic voice comparison: applications and limitations.</i>	07.02.13
Catherine Theys (NZILBB & KU Leuven)	<i>Unravelling the enigma of neurogenic stuttering: prevalence, behavioural characteristics and brain correlates.</i>	14.02.13
Janos Nemeth (University of Canterbury)	<i>Iterated Learning, Relevance Theory and Innate Grammar.</i>	21.02.13
Anna Siyanova (Victoria University of Wellington)	<i>Activating gender stereotypes: A life-span perspective.</i>	07.03.13
Susan Duncan (University of Chicago)	<i>Co-production of gesture and speech in natural discourse: some implications for theories of language production.</i>	11.03.13
Richard Kayne (New York University)	<i>Comparative syntax.</i>	14.03.13
Anne Cutler (MARCS, University of Western Sydney)	<i>Segmentation is where it all begins.</i>	21.03.13
Paul Foulkes (University of York) and Jen Hay (NZILBB & Linguistics)	<i>The evolution of medial /t/ over real and remembered time.</i>	28.03.13
Ghada Khattab (Newcastle University)	<i>Early word shapes in Lebanese Arabic: challenging universal tendencies in the acquisition of syllable structure.</i>	04.04.13
Brigid McNeill (University of Canterbury)	<i>A longitudinal examination of inconsistent speech production errors in children with severe speech disorder.</i>	11.04.13
Victor Friedman (University of Chicago)	<i>Linguistic endangerment and revival in the Balkans.</i>	23.04.13
Tim Connell (University of Canterbury)	<i>Matéq: A Land Dayak Language of West Kalimantan, Indonesia.</i>	02.05.13

Speaker and affiliation	Seminar Title	Date
Andrew Carstairs-McCarthy (University of Canterbury)	<i>Latvian nouns and language evolution.</i>	09.05.13
Andrew MacFarlane (NZILBB)	<i>Voices, attitudes and behaviours: a whistle-stop tour.</i>	16.05.13
Mark Sagar (University of Auckland)	<i>Neurobehavioural Animation.</i>	23.05.13
Kouros Saberi (University of Canterbury)	<i>Routine politeness formulae in Persian: A socio-lexical analysis of greetings, leave-taking, apologizing, thanking and requesting.</i>	30.05.13
Jen Hay (NZILBB & Linguistics)	<i>Word memory and regular sound change.</i>	13.06.13
Scott Seyfarth (University of California, San Diego)	<i>Word informativity affects acoustic duration.</i>	08.08.13
Lynn Clark & Kevin Watson (NZILBB & Linguistics)	<i>The transmission and diffusion of /t/-debuccalisation.</i>	22.08.13
Rachel McKee (Victoria University of Wellington)	<i>Is Maori identity linguistically indexed in New Zealand Sign Language?</i>	29.08.13
Amir Sadeghi (University of Canterbury)	<i>Language, orthography and text comprehension: Investigations into Persian monolingual and English-Persian bilingual speakers.</i>	05.09.13
Greg O'Beirne (NZILBB & Communication Disorders)	<i>Speech, noise, and the Matrix: Tests of hearing and auditory processing at UC.</i>	12.09.13
Clay Beckner (NZILBB)	<i>Quantitative determinants of prefabs: Experimental studies of multiword units in the lexicon.</i>	26.09.13
Chigusa Kurumada, Meredith Brown and Michael K. Tanenhaus (University of Rochester)	<i>A probabilistic approach to intonational interpretation: It LOOKS like speech adaptation.</i>	05.12.13
Alex Schumacher (Northwestern)	<i>Learning of Grammatical Number in an Artificial Language.</i>	06.12.13
Suzanne Purdy (University of Auckland)	<i>Hearing and auditory processing in school aged children.</i>	12.12.13

Small Research Grants awarded in 2013

Name	Title	Amount
James Gruber (NZILBB)	<i>Does gesturing help you or your listener?</i>	\$4,000
William Gavin (NZILBB) & Stephanie Stokes (NZILBB & Communication Disorders)	<i>Relating neurophysiological measures of auditory sensory processing to language development in 4 year olds.</i>	\$2,500
Margaret Maclagan (NZILBB & Communication Disorders)	<i>Combating dementia – questions, answers and stories.</i>	\$5,000
Brigid McNeill (NZILBB & School of Literacies & Arts in Education)	<i>The role of teacher knowledge and instruction in the metalinguistic development of monolingual and language minority learners.</i>	\$3,100
Kauyumari Sanchez (NZILBB)	<i>Speech Production is affected by sub-lexical exemplars and also socially relevant information.</i>	\$5,000
Catherine Theys (NZILBB)	<i>Development of a protocol for measuring the neurophysiological correlates of overt speech production.</i>	\$2,200
Anne van Bysterveldt (NZILBB & Health Sciences)	<i>Children with Down syndrome telling a personal story: Does listener familiarity matter?</i>	\$5,000
Ondene van Dulm (NZILBB & Communication Disorders)	<i>Investigating school-age language across NZ school deciles.</i>	\$2,000

International Travel Grants 2013

Name	Conference	Location
William Gavin	Brain Computer Interface	Pacific Grove, USA
James Gruber	Southeast Asian Linguistics Society	Bangkok, Thailand
Brigid McNeill	International Workshop on reading and developmental dyslexia.	San Sebastian, Spain
Catherine Theys	Collaborative research at University of Boston	Boston, USA

NZILBB Publications

AUTHORED BOOK

- Gick, B., Wilson, I. and Derrick, D. (2013) *Articulatory Phonetics*. Massachusetts: Wiley-Blackwell. 272pp.

BOOK CHAPTER

- Clark, L. and Trousdale, G. (2013) Using participant observation and social network analysis. In M. Krug and J. Schluter (Ed.), *Research Methods in Language Variation and Change*: 36-52. Cambridge: Cambridge University Press.
- Everatt, J., Reid, G. and Elbeheri, G. (2013) Assessment approaches for multilingual learners with dyslexia. In D. Martin (Ed.), *Researching Dyslexia in Multilingual Settings: Diverse Perspectives*: 18-35. Bristol, UK: Multilingual Matters.
- Everatt, J., Sadeghi, A., Grech, L., Elshikh, M., Abdel-Sabour, S., Al-Menaye, N., McNeill, B. and Elbeheri, G. (2013) Assessment of literacy difficulties in second language and bilingual learners. In G. Spanoudis and D. Tsagari (Ed.), *Assessing L2 Students with Learning and Other Disabilities (Linguistics)*: 27-43. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Hume, E. and Mailhot, F. (2013) The role of entropy and surprisal in phonologization and language change. In A.C.L. Yu (Ed.), *Origins of sound change: Approaches to phonologization*: 29-47. Oxford: Oxford University Press.
- Justice, L.M., Gillon, G.T., McNeill, B.C. and Scheule, C.M. (2013) Phonological awareness: Description, assessment, and intervention. In J.E. Bernthal, N.W. Bankson and P. Flipsen (Ed.), *Articulation and Phonological Disorders: Speech Sound Disorders in Children* (7th ed.): 355-382. Boston: Pearson.
- Kerswill, P. and Watson, K. (2013) Phonological considerations in sociophonetics. In J. Holmes and K. Hazen (Ed.), *Research methods in sociolinguistics: A practical guide*: 136-148. London: Wiley-Blackwell.
- Klee, T. and Law, J. (2013) Appraising screening and diagnostic studies of communication impairments. In R.W. Schlosser, J.S. Sigafos, J. Law, T. Klee and A.M. Raymer (Ed.), *Evidence-based practice in speech-language pathology*: 1-41. New York: Psychology Press.

- Maclagan, M., Harlow, R., King, J., Keegan, P. and Watson, C.I. (2013) The role of women in Māori sound change. In Y. Elhindi and T. McGarry (Ed.), *Gender-linked variation across languages*: 5-21. Champaign: Common Ground Publishing LLC.
- McNeill, B.C. (2013) Developmental verbal dyspraxia. In L. Cummings (Ed.), *Cambridge Handbook of Communication Disorders*: 49-60. Cambridge: Cambridge University Press
- van Bysterveldt, A., Foster-Cohen, S. and Gillon, G.T. (2013) Engaging Families in Promoting Emerging Literacy for Children with Down Syndrome. In H. Kreider, M. Caspe, and D.B. Hiatt-Michael (Ed.), *Promising Practices for Engaging Families in Literacy*: 29-41. Charlotte, NC: Information Age Publishing.

EDITED BOOK

- Maguire, W., Clark, L. and Watson, K. (Ed.) (2013) *English language and linguistics 17(2) Special issue: Phonological mergers in English*. Cambridge: Cambridge University Press. 161pp.

JOURNAL ARTICLE

- Borrie, S.A., McAuliffe, M.J., Liss, J.M., O'Beirne, G.A. and Anderson, T. (2013) The role of linguistic and indexical information in the improved recognition of dysarthric speech. *Journal of the Acoustical Society of America* 133(1): 474-482.
- Brown, K., Davidson, B., Worrall, L.E. and Howe, T. (2013) "Making a good time": The role of friendship in living successfully with aphasia. *International Journal of Speech-Language Pathology* 15(2): 165-175.
- Brown, K., Worrall, L., Davidson, B. and Howe, T. (2013) Reflection on the benefits and limitations of participant-generated photography as an adjunct to qualitative interviews with participants with aphasia. *Aphasiology* 27(10): 1214-1231.
- Couper, L., Sutherland, D. and van Bysterveldt, A. (2013) Children with Autism Spectrum Disorder in the Mainstream Playground. *Kairararanga* 14(1): 25-31.
- Culicover, P. and Hume, E. (2013) Teaching about how language works to diverse populations. *Language and Linguistics Compass* 7(10): 523-533.

- Grawburg, M., Howe, T., Worrall, L. and Scarinci, N. (2013) A qualitative investigation into third-party functioning and third-party disability in aphasia: Positive and negative experiences of family members of people with aphasia. *Aphasiology* 27(7): 828-848.
- Grawburg, M., Howe, T., Worrall, L. and Scarinci, N. (2013) Third-party disability in family members of people with aphasia: a systematic review. *Disability and Rehabilitation* 35(16): 1324-1341.
- Hay, J., Drager, K. and Thomas, B. (2013) Using nonsense words to investigate vowel merger. *English language and linguistics* 17(2): 241-269.
- Honeybone, P. and Watson, K. (2013) Saliency and the sociolinguistics of Scouse spelling: Exploring the phonology of the contemporary humorous localised dialect literature of Liverpool. *English World-Wide* 34(3): 305-340.
- Maguire, W., Clark, L. and Watson, K. (2013) Introduction: what are mergers and can they be reversed? *English language and linguistics* 17(2): 229-239.
- Malinen, S. and Johnston, L. (2013) Workplace ageism: Discovering hidden bias. *Experimental Aging Research* (39): 445-465.
- McAuliffe, M.J., Gibson, E.M.R., Kerr, S.E., Anderson, T. and LaShell, P.J. (2013) Vocabulary influences older and younger listeners' processing of dysarthric speech. *Journal of the Acoustical Society of America* 134(2): 1358-1368.
- McNeill, B.C. and Everatt, J. (2013) Meta-linguistic predictors of word-level literacy skills in monolingual and language minority learners. *Speech, Language and Hearing* 16(2): 92-98.
- McNeill, B.C. and Gillon, G.T. (2013) Expressive morphosyntactic development in three children with childhood apraxia of speech. *Speech, Language and Hearing* 16(1): 9-17.
- McNeill, B.C., Westerveld, M., van Bysterveldt, A., Boyd, L. and Gillon, G.T. (2013) Early name writing and invented spelling development. *New Zealand Journal of Educational Studies* 48(1): 50-65.
- Moyle, J., Stokes, S.F. and Klee, T. (2013) Early language delay and specific language impairment. *Journal of developmental disabilities research reviews* 17(2): 160-169.

- Rickard, N.A., Heidtke, U.J. and O'Beirne, G.A. (2013) Assessment of auditory processing disorder in children using an adaptive filtered speech test. *International Journal of Audiology* 52(10): 687-697.
- Robb, M.P., Lynn, W.L. and O'Beirne, G.A. (2013) An exploration of dichotic listening among adults who stutter. *Clinical Linguistics & Phonetics* 27(9): 681-693.
- Stokes, S.F., Moran, C. and George, A. (2013) Nonword repetition and vocabulary use in toddlers. *Topics in Language Disorders* 33(3): 224-237.
- Theys, C., De Nil, L., Thijs, V., van Wieringen, A. and Sunaert, S. (2013) A crucial role for the cortico-striato-cortical loop in the pathogenesis of stroke-related neurogenic stuttering. *Human brain mapping* 34(9): 2103-2112.
- To, C.K.S., Stokes, S.F., Man, Y. and T'sou, B. (2013) An analysis of noun definition in Cantonese. *Language and Speech* 56(1): 105-124.
- Walsh, L., Hay, J., Bent, D., Grant, L., King, J., Millar, P., Papp, V. and Watson, K. (2013) The UC QuakeBox Project: Creation of a community-focused research archive. *New Zealand English Journal* 27: 20-32.
- Watson, K. (2013) Language myths and New Zealand English in the news. *New Zealand English Journal* 27: 1-6.
- Watson, K. and Clark, L. (2013) How salient is the NURSE-SQUARE merger? *English language and linguistics* 17(2): 297-323.
- Watson, K., van Eyndhoven, S., Filatova, A. and Harrison, A. (2013) Lexical variation in New Zealand English: an online apparent time study. *New Zealand English Journal* 27: 33-45.
- Westerveld, M. and Moran, C. (2013) Spoken expository discourse of children and adolescents: Retelling versus generation. *Clinical Linguistics & Phonetics* 27(9): 720-734.
- Worrall, L., Howe, T., O'Callaghan, A., Hill, A.J., Rose, M., Wallace, S., Rose, T., Brown, K., Power, E., O'Halloran, R. and Rohde, A. (2013) The World Report on Disability as a blueprint for international, national, and local aphasia services. *International Journal of Speech Language Pathology* 15(1): 106-112.

CONFERENCE PRESENTATION

- Clark, L. and Watson, K. (2013) The transmission and diffusion of /t/ debuccalisation. Sheffield, UK: UK Language Variation and Change (UKLVC), 2-4 September 2013.
- Collings, A., McNeill, B.C. and van Bysterveldt, A. (2013) *The Effectiveness of an Intervention Focused on Engaging Teenage Parents With Literacy*. Chicago, IL, USA: American Speech-Language-Hearing Association (ASHA) Annual Convention, 14-16 Nov 2013.
- Couper, L., Sutherland, D. and van Bysterveldt, A. (2013) *Inclusion Begins in the School Playground for Three Boys with Autism Spectrum Disorders*. Dunedin, New Zealand: New Zealand Association for Research in Education (NZARE) Conference and Annual Meeting, 26-28 Nov 2013.
- Everatt, J., Sadeghi, A., Grech, L., AlMeneya, N., ElShiekh, M., Mahmoud, S., McNeill, B.C. and Elbeheri, G. (2013) *Assessment of literacy learning difficulties among second language and bilingual learners*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
- Fiasson, R. and Hay, J. (2013) Imitation effects within and across word positions: a cross-linguistic study. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
- Ghaleh, M., McAuliffe, M.J., Moran, C., Neumann, E. and LaShell, P.J. (2013) Effects of age and working memory on the comprehension of anaphora. Chicago, USA: American Speech-Language-Hearing Association (ASHA) Annual Convention, 14-16 November 2013.
- Gillon, G.T. and McNeill, B.C. (2013) *Best Practice in Phonological Awareness Intervention for Children With Speech Sound Disorder*. Chicago, IL, USA: American Speech-Language-Hearing Association (ASHA) Annual Convention, 14-16 Nov 2013.
- Gruber, J., Johnston, L., Hay, J. and King, J. (2013) A Māori gestural repertoire. Christchurch, New Zealand: Linguistics Society of New Zealand 20th biennial conference, 20-22 November 2013.
- Gruber, J., King, J., Hay, J. and Johnston, L. (2013) Gesturing with an accent? The influence of speaker and interlocutor ethnicity on the implementation of co-speech gesture. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
- Hay, J. and Walker, A. (2013) Skewed experience with words affects lexical access patterns. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
- King, J., Watson, C., Keegan, P., Maclagan, M. and Harlow, R. (2013) Monophthongs vs diphthongs in Māori: why is the influence different? Sheffield, UK: UK Language Variation and Change conference 9 (UKLVC9), 2-4 September 2013.
- Klee, T., Stokes, S.F., Reese, E., Jørgensen, R.N. and Bleses, D. (2013) The KidsWords Project: The early language development of children in New Zealand. Chicago, IL, USA: American Speech-Language-Hearing Association (ASHA) Annual Convention, 14-16 Nov 2013.
- McAuliffe, M.J., Gibson, E.M.R., Kerr, S.E., Anderson, T. and LaShell, P.J. (2013) Vocabulary influences younger and older listeners processing of dysarthric speech. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
- McNeill, B.C., Gillon, G.T. and Dodd, B. (2013) *Factors influencing the longer term effectiveness of phonological awareness intervention for children with apraxia of speech*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
- Rotherham, A., Howe, T. and Tillard, G. (2013) *The benefits of groups for people with aphasia: "We just thought this was Christmas."* Hamilton, New Zealand: New Zealand Speech Language Therapists' Professional Development Workshop, 23-24 May 2013.
- Sadeghi, A., Everatt, J. and McNeill, B.C. (2013) *Predictors of biliteracy levels in refugee community populations in Australasia*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.

- Sadeghi, A., McNeill, B.C. and Everatt, J. (2013) *Influence of L1 background on early English literacy learning*. Provo, UT, USA: 32nd Second Language Research Forum (SLRF), 31 Oct-2 Nov 2013.
 - Szakay, A., Babel, M. and King, J. (2013) Processing and mental representation of innovative phonetic variables. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
 - Watson, C.I., King, J., Keegan, P., MacLagan, M. and Harlow, R. (2013) Nursing our Dresses and Geese – the raising fronting of nurse in NZE. Christchurch, New Zealand: Linguistics Society of New Zealand 20th biennial conference, 20-22 November 2013.
 - van Bysterveldt, A., Gillon, G. and Foster-Cohen, S. (2013) *Phonological awareness interventions for children with Down syndrome*. Hong Kong: Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
 - Vanderauwera, J., Vandermosten, M., Theys, C., Sunaert, S., Wouters, J. and Ghesquiere, P. (2013) *Development of the reading network in children at risk for dyslexia*. Munich, Germany: Biennial EARLI Conference on Research on Learning and Instruction, 2013.
 - Vanderauwera, J., Vandermosten, M., Theys, C., Sunaert, S., Wouters, J. and Ghesquiere, P. (2013) *Development of the reading network in children with high risk of dyslexia: results of the first wave of a longitudinal study*. San Sebastian, Spain: International workshop on Reading and Developmental Dyslexia, 2013.
- CONFERENCE POSTER**
- Carroll, J., Gillon, G.T., McNeill, B.C. and Schaughency, E. (2013) *The effects of a professional development model to enhance early childhood teachers' storybook reading*. San Sebastian, Spain: IWORDD: International Workshop On Reading and Developmental Dyslexia, 30-31 May 2013.
 - Clark, L. and Watson, K. (2013) Comparing individual speaker constraints with the speech community: /t/ debuccalisation in English. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
 - Fitzgerald, K., Hay, J. and Papp, V. (2013) *Word Segmentation Strategies in Pakeha and Maori English*. Christchurch, New Zealand: Linguistics Society of New Zealand 20th biennial conference, 20-22 November 2013.
 - Peek, M. and Watson, K. (2013) Personality and non-linguistic perceptual sensitivity predict phonetic convergence. Christchurch, New Zealand: Variation and Language Processing 2, 16-18 January 2013.
 - Hall, K. and Hume, E. (2013) *Perceptual confusability of French vowels*. Montreal, Canada: 21st International Congress on Acoustics (ICA 2013), 2-7 Jun 2013. In Proceedings of Meetings on Acoustics 19(i) 060113.
 - McNeill, B.C. and Gillon, G. (2013) *Predictors of reading development in children with inconsistent speech disorder*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
 - McNeill, B., Wolter, J. and Gillon, G. (2013) *Phonological, morphological, and orthographic factors in spelling of children with inconsistent speech disorder*. San Sebastian, Spain: IWORDD: International Workshop On Reading and Developmental Dyslexia, 30-31 May 2013.
 - Purvis, C., Sutherland, D. and McNeill, B.C. (2013) *Reading and language comprehension of students identified with behavioural difficulties*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
 - Shamsuzzaman, M., Everatt, J., Wong, A., ElShiekh, M., McNeill, B.C., Greenwood, J. and Sadeghi, A. (2013) *Influences of language background, language competence and cross-language interactions on second language writing skills*. Hong Kong: 20th Annual Meeting of the Society for the Scientific Study of Reading (SSSR), 10-13 Jul 2013.
 - Wilson, L., McNeill, B.C. and Gillon, G.T. (2013) *Interprofessional Understandings Between Speech-Language Pathology and Education University Students*. Chicago, IL, USA: American Speech-Language-Hearing Association (ASHA) Annual Convention, 14-16 Nov 2013.