

# Aphasia Research Newsletter

Issue 2: December 2015



ARC CENTRE OF EXCELLENCE IN  
COGNITION AND ITS DISORDERS

## Another year has passed, and it has been a busy one for the Macquarie Aphasia team!

Thank you to all the people with and without aphasia who have participated in our research this year!

Our mission is to better understand the impairments of people with aphasia and to enable more effective treatments.

We do this not only by investigating whether treatments work, but also by trying to understand how and why they work – much harder questions!

In order to move towards answers we need to understand how language works. So some of our research has been trying to work this out. For example, how is it that when we see more than one cat we can say 'cats', and more than one 'child' we can say children? This is one of the questions that our team has been pondering.

However, theories of how language work aren't enough to help us improve treatment. We also need to understand what happens when the system 'breaks' – as it does in aphasia. So another strand of our work looks at this.

We have been to conferences world-wide to speak about our findings and learn what other people are doing, and we have given talks and workshops in Australia.

2016 looks to be an exciting one with some projects nearing completion and others just starting.

We have tried to give you a taste of what we are up to and hope you enjoy reading about our work!



**Professor Lyndsey Nickels**  
Aphasia Research Group Leader



## Greetings from our active and growing research programme!

### New this year...

#### Primary Progressive Aphasia and Related Disorders Clinic

*Cathleen Taylor, Karen Croot & Lyndsey Nickels*



*Cathleen Taylor*



*Karen Croot*

Primary progressive aphasia (PPA) is a type of dementia that selectively impairs language abilities. It has a profound effect on a person's ability to communicate, which in turn affects relationships, social networks and the ability to participate in

everyday activities. An estimated 6 000 to 15 000 Australians in their late fifties or older have PPA, with an approximately fourfold increase expected by 2050.

A review of speech pathology services for people with PPA across NSW was published in an international peer review journal in 2009 and identified PPA as an emerging area of clinical speech pathology practice.

Cathy, Karen and Lyndsey have been successful in getting the need for a specialist clinic for PPA and related disorders recognised at War Memorial Hospital in Sydney: a new tertiary referral clinic for PPA and related disorders has been established there.

The clinic, which is affiliated with the CCD at Macquarie University, will provide comprehensive speech pathology services, medical and psychological services and will be involved in high quality research with an overarching goal to improve the lives of people with PPA and related disorders and their families.

*Cathleen Taylor is a Speech Pathologist based at the War Memorial Hospital who has been collaborating in research with Karen Croot and Lyndsey Nickels in the treatment of PPA. She has just enrolled in a PhD at Macquarie to further investigate how to obtain the best communication outcomes for people with PPA.*

# Research Highlights from 2015



## Improving conversations for people with aphasia

*Scott Barnes*

Conversation might seem routine and uninteresting as a topic of study, but is a vitally important part of a person's home and working lives. People who have aphasia can experience significant difficulty holding a conversation. This is because aphasia limits what people can say, and increases the likelihood of communication breakdown. It can also affect how others speak with people who have aphasia. So, making sure that people with aphasia can communicate effectively in conversation is a vital part of aphasia rehabilitation.

Dr Scott Barnes recently completed a study examining the best ways to improve conversation for people with aphasia. In this study, people with aphasia and their spouses took part in an 8-week therapy program conducted by a speech pathologist.

The outcomes of the study were positive, with all couples making effective changes to their conversations. After the therapy, the couples had more success with managing communication problems, and not letting aphasia interrupt their conversations. However, some people with aphasia continued to have difficulty solving communication problems. Future studies will examine the best ways to teach communication strategies to people with aphasia.

For more information on conversation therapy, visit: [ucl.ac.uk/betterconversations/aphasia](http://ucl.ac.uk/betterconversations/aphasia)

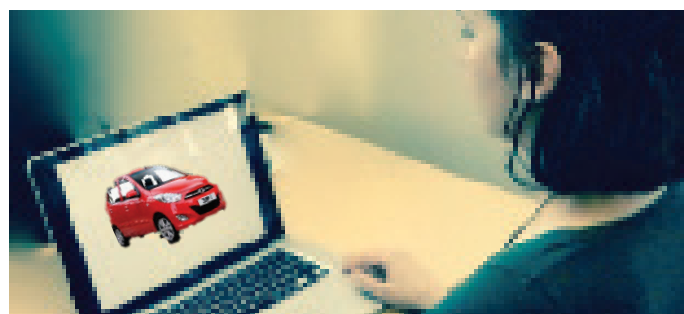
## Nonlinear Spelling

*Teresa Schubert & Lyndsey Nickels*

We have recently been investigating the phenomenon of "nonlinear spelling", which is the tendency of some individuals with dysgraphia (spelling difficulty) to write the letters of words in a nonlinear temporal order. The spatial ordering of the letters is maintained: Letters in the later positions of the words are written towards the right side of the response, though they

might be written before letters in earlier positions. For example, the word NOSE might be written by beginning with the S in the middle of the line and then adding the N, O and E in their appropriate positions.

The decoupling of the temporal and spatial aspects of spelling in these instances can contribute to our knowledge of the cognitive spelling system. So far we have studied responses from one individual, but we hope to find others who write this way. Anecdotal reports from other researchers around the world suggest that this phenomenon, though unusual, may not be rare.



## Does repeating 'bus' or 'drive' help in the naming of 'car'?

*Oksana Lyalka*

'I know the word but I cannot say it', 'I've lost the word I wanted to say' - these are common complaints of people with aphasia. To understand why it happens and to develop more effective treatment for people with aphasia, we need to understand better what factors affect spoken word retrieval. PhD student Oksana Lyalka started working on this problem in Newcastle (UK) and now as part of her program she continues this research with us.

She has been conducting 3 experiments with people with aphasia who have word finding difficulties. In these experiments, she looks at how repeating words affects the ability to name a picture later. Each of the experiments includes two tasks: 1) naming set of pictures and 2) repeating word in a presence of a picture.

So far, her results have shown that the best way to cope with word finding difficulties is to say that word again and again. However, interestingly, saying another word that is similar in meaning (e.g. bus) to the word you are trying to say (e.g. car) makes it *harder* to say the word you want.

**We would like to thank to all the people with aphasia who participated in these experiments so far. This research is ongoing and we would like to invite more people with aphasia to take part in it.**

## Word learning in aphasia

*Lyndsey Nickels, Shiree Heath & Nora Fieder*

It's not just children that need to learn new words, we all do, throughout our lifespan – this may be a new fictional character (Dumbledore) or a new superfood (quinoa) or word related to our use of technology (selfie).

People with aphasia also need to be able to talk about new people, foods, and trends. Surprisingly there has been relatively little work examining word learning in aphasia – this was the aim of this project.

We looked at two kinds of learning in people with aphasia and older adults without aphasia: First, how well could they learn to correctly pair new shapes? We found that even older adults without aphasia had a great deal of difficulty with this task, but critically, many people with aphasia performed no worse than the older adults.

We then examined a second learning task – learning names of new dogs, plants and musical instruments. Once again healthy older adults showed a huge range in their abilities, with some learning hardly any of the new words. People with aphasia all found this task very hard, although some performed as well as the poorer healthy older adults.

Interestingly, there was no relationship between the ability to learn new shapes and the ability to learn new words for either healthy older adults or for people

with aphasia, indicating that the two kinds of learning must be underpinned by different mechanisms.

Our next step is to see whether the people with aphasia's learning ability relates to how easy it is for them to relearn words they used to know – does learning ability predict their response to treatment?

## Investigating Bilingual Aphasia

*Polly Barr*

Some words sound the same but have different meanings - like cricket the insect and cricket the game. This year, we conducted research with monolingual speakers and Welsh-English bilinguals to discover if these words also share a representation in the brain. We were able to conclude that that our brains do store both meanings of the word 'cricket' together.

Using this information we designed a spelling treatment study for a bilingual man with aphasia. We found that treating the spelling of one homophone (e.g. cricket the game) also improved spelling of its partner (e.g. cricket the insect). Interestingly, therapy also generalised to words that shared letters with the treated words. For example, when we treated 'path' the spelling of 'bath' also improved.

This suggests that perhaps the improvement in the untreated words is due to shared letters with the treated words and not due to shared whole-word representations.

# Celebrations...Comings...Goings

## PhD Completions - Congratulations to Dr Trudy Krajenbrink, Dr Vishnu Nair & Dr Anastasiya Romanova!

Trudy is still at Macquarie University as part of the Aphasia Research Group. She is continuing her work on spelling problems and their treatment, begun in her PhD, and looking at these problems in people with PPA.

Vishnu is now lecturing in the School of Health Sciences, Department of Speech Pathology at Flinders University in Adelaide. He is also maintaining his links with the team and hopes to start a project on treatment for bilingual people with aphasia soon.

Anastasiya is now in Germany but continuing to work with the team on projects looking at different word classes in aphasia (e.g. adjectives, nouns). Since leaving Australia, she has married and is expecting her first child.

## New Masters of Speech & Language Pathology

Congratulations to Chelsea Button, Samantha Maunder, Kate Perry, and Dayle Sweikert, who all recently completed projects on aphasia

through the Master of Speech and Language Pathology program.

Their projects examined conversation therapy, conversation repair, art therapy for aphasia, and communication on hospital wards. Each is now a qualified speech pathologist and can directly contribute to clinical services for people with aphasia.

## Greetings and farewells

We congratulate Britta Biedermann, who has accepted a permanent lecturing position at Curtin University in Western Australia. We are sad to say goodbye to her but she has promised to continue working with us and come and visit often! The team is also sad to lose Shiree Heath, who is still with the CCD but has moved into research Administration.

In 2015, we welcomed Teresa Schubert and Ana Murtiera to the team. Teresa is a postdoctoral research fellow looking at aphasia and reading. Ana Murteira is a Speech and Language Pathologist from Portugal whose research will analyse the interaction between observing gestures of actions and the ability to name those actions.



Trudy Krajenbrink (L) and Anastasiya Romanova (R)

Vishnu Nair

Samantha Maunder and Kate Perry

Britta Biedermann

Ana Murtiera



## Coming up in 2016

### Aphasia Rehabilitation Clinical Trial

#### Lyndsey Nickels

Currently, four national clinical trials in aphasia rehabilitation are underway across Australia:

Aphasia **LIFT**, **VERSE**, **ASK** and **COMPARE**

These trials will work together to improve the lives of people with aphasia by looking at the effectiveness of different types of aphasia therapy.

Professor Lyndsey Nickels is involved in the **COMPARE** trial, with groups due to run at the Macquarie clinic starting sometime in the second quarter of 2016.

**COMPARE** is a research study that compares the outcomes of two different intensive treatments for people with aphasia: multi-modal aphasia therapy and constraint induced aphasia therapy. The study will enable us to see whether these treatments result in better outcomes compared to the usual care aphasia treatments. The study will help identify which individuals respond best to each kind of treatment and whether this varies depending on how severe their aphasia is and/or what types of problems they have.

**Please do get in touch if you are interested in being involved in this trial later in the year.**



### Two sides of the same coin: Event processing in stroke aphasia

#### Inga Hameister

You are sitting in a restaurant and watch the waiter at the neighbouring table. He is pouring wine into the lady's glass. Or is he emptying the wine bottle? A single event can be perceived and described in many different ways. A speaker has to decide within milliseconds which aspects are important and which are irrelevant.

To describe a scene, such as the one in the restaurant, we need to transform our general thinking about what's happening into spoken language. This is especially difficult for some individuals with language impairments. As an example, some people with aphasia tend to list everything they see, when they are asked to describe a depicted scene. It seems like they have difficulties to focus on the main parts of the event. However, it remains unclear why exactly such a "hyper-naming" behaviour

occurs.

Inga's PhD project is investigating the processes underlying these event processing difficulties. This will help us to develop highly specific treatments for this kind of language impairment.

### Spelling difficulties in aphasia

#### Trudy Krajenbrink

This year, Trudy completed her PhD with a focus on spelling problems in aphasia. In 2016, she will continue this area of research with a project investigating spelling difficulties and treatment opportunities for people with progressive aphasia. This research will help us understand what type of writing difficulties people with progressive aphasia have, and the study will explore how we can improve communicative support for this population.



## Do you want to help?

Are you interested in helping us learn more about aphasia and develop effective treatments?

We are currently looking for:

- **Older adults without aphasia for us to compare with people with aphasia**
- **Anyone with aphasia who would like to help us out - we are particularly interested in:**

**Non-linear spellers** (see Teresa Schubert's piece on page 2)

**People who show 'hyper naming'**

**Anyone with word retrieval problems**

If you or someone you know might be interested in helping our research by participating in a study, please contact us:

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