The Centre for Language Studies (CLS) carries out top-level research in linguistics, psycholinguistics, language and speech technology, as well as communication in a stimulating academic environment. There is a strong focus on innovation and an interdisciplinary approach.
Research at CLS takes place in two programmes:

- Researchers working within the Language in Mind programme consider language to be a window into the cognitive functioning of the brain. They aim to explain how the architecture of the language system interacts with human language processing skills. Using data from native and foreign language acquisition, from language production and comprehension, as well as from spoken and signed languages, they develop and test comprehensive theories about language processing on the one hand and the structure of the language system on the other, employing a wide variety of research methods.

- Researchers working within the Language in Society programme see language as a social tool that is essential for society, studying it in its historical, cultural and social context. They focus on language contact, sociolinguistic variation, and the interactional foundations of language. In addition, they study various aspects of functional communication, including language use in the classroom and other multilingual contexts, language and speech technology designed to improve text production and communication with the disabled, as well as persuasive communication.

Each programme consists of eight smaller groups led by principal investigators. These thematically coherent groups create platforms for discussing research plans and results, facilitating communication between and among junior and senior researchers, and helping to support academic integrity. Researchers also regularly meet other groups at monthly CLS colloquia and lab lunches, as well as at meetings where themes that transcend groups are discussed.

Research facilities

CLS research is largely empirical, using large databases, as well as experimental and computational methods and techniques. As a result, facilities such as experimental laboratories with appropriate equipment, powerful computers and sophisticated software – as well as enriched written, spoken, and multimodal (sign) language databases – play an essential role. The Executive Board has established Linguistics as a key focal area of research for the university. Thanks to a structural investment in CLS research by the Board, there is a state-of-the-art language laboratory, including a web experimentation site, instruments for eye tracking and electroencephalography and for measuring conscious language behaviour, facilities for making observations with video recordings, and a high-end computing cluster with large storage facilities. Moreover, there is a technical group, which supports researchers when they are creating computer programmes, implementing experiments, and conducting statistical analyses.

Collaboration

Widespread international collaboration among CLS researchers has contributed to the growing success of international recruitment in recent years: 29 percent of lecturers have come from abroad to work in Nijmegen, as have 44 percent of PhD students.

CLS is engaged in long-standing collaboration with the Max Planck Institute for Psycholinguistics (MPI) and with the Donders Institute for Brain, Cognition and Behaviour. Together with MPI and the Donders Institute, CLS participates as a partner in the International Max Planck Research School. CLS researchers also collaborate with colleagues at the Donders Institute and the MPI in the Baby Research Centre as well as with partners in the national Language in Interaction Consortium.

Examples of formal (international) collaboration in 2016:

- Collaboration in HealthNar, a programme established to strengthen and consolidate the emerging field of...
narrative communication in healthcare, with the University of Antwerp (Belgium), the University of New South Wales, Sydney (Australia), Universität Linz (Austria), Universität Augsburg (Germany), Edith Cowan University, Perth (Australia) and Bowling Green State University, Ohio (USA). The aim is to build a multidisciplinary research exchange network dedicated to using narratives in relation to health, by bringing together renowned international scholars working on health psychology, media psychology, health communication, the arts and interactive communication. HealthNar was founded by the International Research Staff Exchange Scheme (IRSES).

- Collaboration with the University of Arizona (USA), University of Alberta (Canada), University of Victoria (Canada) and the University of Canterbury (New Zealand) in the project ‘Speech reduction across languages and dialects’, which is funded by the National Science Foundation (USA).

- Collaboration with Aarhus University (Denmark), the University of Antwerp (Belgium), Vienna University of Economics and Business (Austria), Copenhagen Business School (Denmark), Aalto University (Finland) in ‘Linguists for Business Research Initiatives’ (LIBRI), an international network of linguists collaborating to advance cross-disciplinary aspects of research on the role of language and communication in business and organisational settings.

- Collaboration in COMMIT/, a public-private ICT research community that brings together scientific research, non-profit organisations and companies in ICT projects within the nine most important economic sectors in the Netherlands in order to research and develop pioneering products and services. Within COMMIT/ more than 110 partners, including universities, technology institutes and more than eighty large and small businesses, work together in fifteen public-private projects that play an important role at an international level. COMMIT/ contributes to strengthening the Dutch ‘top’ sectors and helps to maintain the competitive edge of the Netherlands as a knowledge economy.

**Research results**

Kobie van Krieken studied the coverage of criminal events in newspapers. These often consist of narratives that combine characteristics of journalistic discourse with elements of literary fiction. The function of these stories is not so much to inform readers about what happened, but to create an immersive reading experience. Journalists see this form of journalism as a way of competing with online news media. They make strategic use of language in various ways to describe criminal events – within the boundaries of non-fiction – from the perspective of eyewitnesses. Quotes play a crucial role in this genre: they serve to dramatise the story, but also to emphasise its truthfulness. Reading a crime news narrative is not free of consequences: unlike traditional news articles, news narratives cause readers to virtually experience the crimes that are described from close up.

For adults who become severely hearing-impaired later in life there may be subtle changes in the way they articulate sounds, depending on the duration of hearing loss. Xaver Koch and Esther Janse, in collaboration with the division Hearing & Implants of Radboud university medical center, investigated the production of vowels and of /s/-like sounds in words like ‘Sue’ and ‘shoe’ in hearing-impaired adults who were candidates for cochlear implantation. Speech recordings of hearing-impaired patients and age-matched hearing controls were made at several time points: just before the patients got the implant, and immediately after, as well as three months after the cochlear implant had been activated. Even though sound contrasts in patients were diminished relative to normal-hearing controls prior to cochlear implantation, the sound contrasts improved immediately once patients’ hearing was restored. However, the longer the period someone had spent as hearing-impaired, the more difficult it was to restore the sound contrasts. These results thus confirm the importance of auditory input for the adult speech production system.

Dr Sharon Unsworth (Associate Professor) has been awarded a Vidi grant for ‘The priming mind of the bilingual child: Simultaneous acquisition, simultaneous activation’. Young children can easily learn two languages at the same time, but to what extent do they keep these two languages separate? The overall goal of this project is to investigate how two languages interact in the mind of the young child.
Linda van Meel studied the Dutch of Turkish-Dutch and Moroccan-Dutch young people, who use sounds, words, and constructions that rarely occur in the speech of ‘native’ Dutch speakers, such as the ‘sharp’ pronunciation of the /z/, which originates from Moroccan languages. Constructions which ‘native’ Dutch speakers hardly make (‘errors’) can also be found in adults learning Dutch as a foreign language. Turkish-Dutch and Moroccan-Dutch youngsters are often judged on their use of non-Dutch words and sounds. However, ‘native’ Dutch people are usually unaware that their compatriots also have typical regional Dutch accents and exhibit the same deviations from the standard language as ‘native’ Dutch speakers. They also adjust their speech to their conversation partner: their Dutch is closer to the standard language when they speak with a ‘native’ Dutch conversation partner and has more of an ethnolectal accent when they speak with someone from their own background.

A computer analysis of the texts of more than 400 Dutch versions of Little Red Riding Hood dating from the 18th century up to the present provides new insights into the evolution of this fairy tale. Folgert Karsdorp and Antal van den Bosch found an explanation for the way in which a network of stories arises and grows, how you can discover relationships and why certain versions prevail. A text already used by many authors will be used more often by others, as will a text with more appeal because of strange or striking elements or a famous author, an effect that diminishes with time. All the versions refer back to two original ones: the German version by the Brothers Grimm and the French version by Charles Perrault. The German version is primarily a story for children, with the underlying message that you should always listen to your parents. The French version is just as moralistic, but was intended more for the young women at the Court of Versailles in the 17th century (to warn them of sweet-talking, two-legged wolves). This is a rougher version, hinting at rape, and it lacks a happy ending.

**KEY PUBLICATIONS**


**Dissertations** 14

**Scientific** 286

**Professional publications** 72
Ambonese Malay is a language that uses neither stress nor pitch to give meaning to words. This was discovered in research done by Raechel Maskikit-Essed and Carlos Gussenhoven. That there is a language without word prosody, as it is called in linguistics, had never previously been established. Until now, all known languages were thought to give significance to words by using stress (e.g. Dutch and Spanish), or pitch (e.g. Igbo and Chinese) or both (e.g. Norwegian, Swedish and Limburgish). Ambonese Malay is spoken by about 250,000 people on Ambon and the nearby Maluku Islands.

Societal impact
Disseminating knowledge to the general public, raising awareness of the essential role of language and communication in society and developing ‘products’ based on research all play an important role at CLS. Researchers at the Centre bring together externally funded projects that involve language and speech technology in the Centre for Language and Speech Technology (CLST). Through CLST, CLS collaborates with many societal and commercial partners.

The website DoofGewoon.nl (lit. ‘Deaf normal’) was created to inform parents of deaf children about what else there is in the lives of deaf children and deaf adults apart from their hearing loss. The site, which presents information about deaf culture, multilingualism and sign language, contains contributions by parents and deaf people. Being deaf turns out to be rather normal. Onno Crasborn was one of the initiators of this site, which was created by sign language researchers from CLS, the University of Amsterdam, as well as FODOK, Dovenschap and NDJ, which are Dutch organisations for the deaf.

Over the last decade there has been a marked increase in the use of English as the medium of instruction in higher education throughout the world, with a growing number of educational institutions offering English-taught programmes to cater to the growth in international students. In many countries, this presents challenges for teachers whose native language is not English. Berna Hendriks, Frank van Meurs and Nanette Hogervorst investigated the effect of lecturers’ degree of accent on Dutch students’ attitudes towards them and students’ perceptions of their clarity and comprehensibility. As expected, the students found instructors with a moderate accent less comprehensible than those with a slight accent and native instructors. Unexpectedly however, slightly accented instructors were evaluated as more capable and more likeable than native English instructors or native Dutch instructors teaching in Dutch. Students seem to appreciate lecturers who are making an effort more than anything else.

Based on the words you use on Twitter, a computer can tell what kind of person you are. Florian Kunneman and Wessel Stoop demonstrate this on the website ‘You Are What You Tweet’. In order to do so, they recorded for a large number of tweets whether they had been written by males or females, young or old, but also if they are for example aggressive or sarcastic. They then subjected the results to machine learning algorithms, computer programmes that can automatically learn patterns from large amounts of data. The site shows to a wider audience what the possibilities of language interpretation are nowadays, what techniques language technologists use, and what the computer can tell us about us and our language. It also shows that the technology used is not yet perfect: the computer occasionally gets it wrong.

Future research
Sharon Unsworth has been awarded a Vidi grant for ‘The priming mind of the bilingual child: Simultaneous acquisition, simultaneous activation’. Young children can easily learn two languages at the same time, but to
what extent do they keep their two languages separate? The overall goal of this project is to investigate how two languages interact in the mind of the young child. More specifically, it will investigate cross-linguistic influence at the lexical and syntactic levels, in language comprehension as well as language production.

Esther Janse and Mirjam Ernestus are partners in the Horizon2020 European Training Network ‘Enriched communication across the lifespan’ (ENRICH). Reduced ability to listen or speak creates a significant barrier to social inclusion throughout people’s lives. Hearing aids and speech synthesis can help address this, but their use requires greater listener effort. The fundamental objective of ENRICH is to modify or augment speech with additional information to make it easier to process. The consortium consists of eight beneficiaries and seven partners from academia, industry and clinical practice in nine countries. A comprehensive training programme will equip fellows with the necessary cross-disciplinary knowledge and research techniques as well as with experience of entrepreneurship and technology transfer in order to translate research findings into meaningful products and services that will facilitate spoken language communication in the decades ahead.

Kazuki Sekine was awarded a Marie Curie Individual Fellowship for ‘Neural bases of multimodal integration in children’. Under the supervision of Asli Özyürek, he will conduct brain imaging studies to provide direct measures of the cognitive process underlying the comprehension of co-occurring multimodal semantic information from speech and gesture. His aim is to examine the neurocognitive processing of semantic information from gesture and speech in children and adults. A practical spin-off of this research will be providing information to caregivers and teachers about how to use gestures to foster children’s language acquisition.

Many scientific breakthroughs depend on the availability of advanced research facilities. Such facilities tend to be expensive and take a long time to build. The Royal Netherlands Academy of Arts and Sciences asked researchers to describe ‘dream’ facilities that they believe could produce scientific breakthroughs within a decade or more. The Academy Agenda for Large-scale Research Facilities is the outcome of that process. One of 13 items placed on this agenda is the Advanced Video Analysis Tool (ADVANT), a shared facility in which multimodal interaction data can be played, stored, transcribed and annotated. It can be used to answer a wide variety of research questions in the humanities and social sciences. Detailed levels of transcription and annotation can be delivered as video (image) and audio (sound), both automatically and manually. All data (raw, transcribed and annotated) can be searched as video and audio, including multi-level searches. ADVANT is being developed by CLS researchers Antal van den Bosch and Wyke Stommel, in collaboration with colleagues from Groningen University, Utrecht University and NIVEL, the national institute for health services research in the Netherlands.