RESEARCH REVIEW

CENTRE FOR LANGUAGE STUDIES

RADBOUD UNIVERSITY

CONTENTS

This report was finalized on 12 February 2019

REPORT ON THE RESEARCH REVIEW OF CENTRE FOR LANGUAGE STUDIES OF RADBOUD UNIVERSITY

1. FOREWORD BY COMMITTEE CHAIR

The evaluation committee that authored this report was assembled by QANU (Quality Assurance Netherlands Universities) at the request of the participating universities (including Radboud University), and it included expertise from a broad spectrum of linguistic sub-disciplines, consisting, as it did of Prof. Dr. B. (Balthasar) Bickel, Zurich; Prof. Dr. A. (Ann) Bradlow, Northwestern (Evanston, Illinois); Prof. Dr. S. (Seana) Coulson, University of California at San Diego; Prof. Dr. J. (Jane) Grimshaw, Rutgers (New Jersey); Prof. Dr. A. (Alison) Mackey, Georgetown (Washington, D.C.); Prof. Dr. Ir. J. (John) Nerbonne [chair], em. Groningen and Freiburg, and Prof. Dr. W. (Wendy) Sandler, Haifa (Israel). Beyond their specialist expertise, the members were remarkable and valuable for their broad view of linguistics and their willingness to examine scientific areas well outside their research foci proper and for their energy in considering practical issues of organization, financing and management that often seemed foreign. These topics were also included in the evaluation. The committee also enjoyed its collaboration and I am grateful to all of them for their professional attitudes and pleasant interaction.

Jetje De Groof served as secretary to the committee, and she was essential to the process at all stages, suggesting a division of labour, providing more concrete instructions to committee members on how to follow the Standard Evaluation Protocol (SEP), as well as on how to keep the "Terms of Reference" (ToR) of our particular evaluation in mind, and sitting at my right hand during meetings and keeping notes to ensure that the committee was addressing *all* the crucial points of the SEP and the ToR. She also received the rough drafts of all the various parts of the report, which she edited with me, and I was very grateful not only for her close attention to the report's expected topics, but also for her efficient and clear style of writing. One committee member – confusing the various specialized meanings of the word 'secretary' – objected that she be referred to at all in this way: "She was so much more!". I am grateful for all the very competent work that she invested in this report.

The researchers of the Centre for Language Studies (CLS) at the Radboud University (RU), Nijmegen, were assiduous in providing us with a great deal of information on their work in the six year review period, 2012-2017, not only with respect to matters that are normally catalogued carefully, such as publications and grants, but also with respect to their record in matters that often fall outside academic reporting, such as work on scientific popularization or marks of recognition from outside academia. We received a 21 page report plus 26 appendices, most of them informationally dense. All of this material facilitated the committee in obtaining as complete a picture of the work at CLS as possible. All of this material facilitated the committee in obtaining as complete a picture of the work at CLS as possible. On the occasion of our visit on Oct. 2, 2018 we spoke with over 30 CLS members about their scientific work; their aspirations, and how well they found themselves able to advance professionally at the RU; how well their various research lines dovetailed with the institute's strategic emphases – both scientifically and with respect to extra-scientific interests and applications; and, perhaps most extensively, about their frustrations in seeking to realize serious scientific and applied-science ambitions at the CLS. I am certain that I speak for all committee members when I acknowledge how much we profited from the very cooperative atmosphere we encountered during our visit to CLS.

A chair who is currently an emeritus professor may be forgiven a personal note, even in the foreword to a very official document. Science, I believe, profits a great deal from its younger practitioners. They see correctly that they can contribute and be recognized if they are tenacious enough to continue to insist on their insights, to search for new evidence, and to keep developing new

demonstrations, even while ignoring some criticism. The stereotyped self-opinionated researcher isn't without problems, but lots of advances are due to the tenacity and energy of young researchers working hard to prove that they're right. If indeed we profit a lot from the energy and tenacity of young researchers, then it behoves us as a profession to see that they get a fair chance to prove themselves. We therefore include in the report below a suggestion to pay special attention to younger scholars when developing plans to protect research time.

Our visit was well organized and our reception at RU by prof. Mirjam Ernestus and Christel Theunissen was cordial.

John Nerbonne
Chair of the committee

2. THE REVIEW COMMITTEE AND THE PROCEDURES

2.1. Scope of the review
The review committee has been asked to perform a review of the research in Linguistics at four research institutes (at the universities of Amsterdam, Leiden, Utrecht and Nijmegen), and the Netherlands Graduate School of Linguistics (LOT). This report includes the committee's findings on the Centre for Language Studies (CLS) at Radboud University.

In accordance with the Standard Evaluation Protocol 2015 – 2021 (SEP) for research reviews in the Netherlands, the committee was asked to assess, both in quantitative and qualitative terms, the quality, the relevance to society and the viability of the scientific research at CLS as well as the strategic targets and the extent to which the unit is equipped to achieve these targets. Furthermore, a qualitative review of the PhD programme, research integrity and diversity was part of the committee's assignment.

2.2. Composition of the committee
The composition of the committee was as follows:
- Prof. Dr. Ir. J. (John) Nerbonne [chair]
- Prof. Dr. B. (Balthasar) Bickel
- Prof. Dr. N. (Ann) Bradlow
- Prof. Dr. S. (Seana) Coulson
- Prof. Dr. J. (Jane) Grimshaw
- Prof. Dr. A. (Alison) Mackey
- Prof. Dr. W. (Wendy) Sandler

The committee was supported by Dr. Jetje de Groof, who acted as secretary on behalf of QANU.

2.3. Independence
All members of the committee signed a statement of independence to guarantee an unbiased and independent assessment of the quality of Centre for Language Studies at Radboud University. Personal or professional relationships between committee members and the research unit under review were reported and discussed at the start of the site visit amongst committee members. The committee concluded that no specific risk in terms of bias or undue influence existed and that all members were sufficiently independent.

2.4. Data provided to the committee
The committee received the self-evaluation report from the units under review, including all the information required by the SEP.

The committee also received the following documents:
- the Terms of Reference;
- the SEP 2015-2021;
- lists of publications, consisting of five key publications per research unit.

The panel also received a list of ways in which the Dutch academic system differs from others, especially the American. The committee discussed these prior to the site visit in order to avoid misunderstandings.

2.5. Procedures followed by the committee
The committee proceeded according to the SEP. Prior to the first meeting, all committee members independently formulated a preliminary assessment of the units under review based on the written information that was provided prior to the site visit.

The final review is based on both the documentation provided by the institute and the information gathered during the interviews with management and representatives of the research unit during the site visit. The site visits of all institutes mentioned in 2.1. all took place in one week (30 September-5 October 2018). The site visit of CLS took place on 2 October 2018 in Nijmegen (see the schedule in Appendix 2).

Preceding the interviews, the committee was briefed by QANU about research reviews according to the SEP. It also discussed the preliminary assessments and decided upon a number of comments and questions. The committee also agreed upon procedural matters and aspects of the review. After the interviews the committee discussed its findings and comments in order to allow the chair to present the preliminary findings and to provide the secretary with argumentation to draft a first version of the review report.

The draft report by committee and secretary was presented to the CLS for factual corrections and comments. In close consultation with the chair and other committee members, the comments were reviewed to draft the final report. The final report was presented to the Board of the University and to the management of the research unit.

The committee used the criteria and categories of the Standard Evaluation Protocol 2015-2021 (SEP). For more information see Appendix 1.

3. LINGUISTICS: GENERAL THEMES AND FINDINGS AT THE NATIONAL LEVEL

Before turning to the Centre for Language Studies and the evaluation of its research, the committee wishes to make some general remarks based not only on all four research institutes that were visited and evaluated but also on the national research school LOT. This subsection appears in all of the evaluation reports of the institutes that were part of this review.

Dutch linguistics has a sterling reputation internationally. The work is respected and cited, its senior researchers are sought after for important international appointments, and its graduate students can compete throughout the world. We are very impressed by the state of the discipline of linguistics in the Netherlands. We note that high quality sign language research is being conducted at three of the institutes we visited and this widespread recognition of the relevance of this field in the Netherlands is noteworthy.

Against the background of this genuine respect, we note some aspects of the context within which linguistic research is conducted in the Netherlands which may depress its excellent quality over the long term. We discuss only general issues in this section since we attend to the individual institutions in the separate institute sections.

The fundamental reliance on student numbers in funding university study programmes means that distribution of staff tends to follow the decisions of students entering the university. In other words, since universities are motivated to staff programmes that are popular among students, and since staffing decisions inevitably influence not only what is taught but also what is researched, the reliance on student numbers as an indicator of required academic staffing has an impact on research. Entering students are unaware of the frontiers of research, so they will tend to choose subjects based on their experience in secondary schools. Subjects not taught in secondary schools, such as linguistics, are at a distinct disadvantage in this sort of system. While all institutes insisted that once openings in the staff have been approved (due to the needs of instruction), hiring committees *always* seek excellent researchers, it is still rare that a research institute can initiate a hiring procedure based on the need to strengthen specific research areas or the opportunity to take advantage of new developments. Research institutes in other countries enjoy more autonomy. We note that the new NWO requirement that *Vidi* proposals be accompanied by a guarantee of employment (or participation in a tenure track programme) is likely to increase the influence of instructional needs on research recruitment.

Three of the four institutes we visited noted heavy instructional demands as a weakness or a threat in their SWOT self-analyses, and concerns about this were spontaneously expressed at every institute the committee visited. Whenever we asked about factors limiting research productivity, the first one mentioned was always the amount of instruction. One researcher sent a copy of the academic calendar at her institute that ran continuously from early Sept. until late in July, with the exception of two weeks off at Christmas. Sabbaticals are rare at all universities and not regular as they are elsewhere (e.g., in Germany or the US). Several people complained of being in the classroom more than ten hours/week, some even more, and many people (N.B. not those in management, however) said that they did not understand how teaching responsibilities were determined. Without attaching great importance to the anecdotal reports, our impression is that Dutch researchers may be at a disadvantage in comparison to researchers internationally in being required to devote a large part of their time to instruction and in having little chance to devote concentrated periods to research. We would therefore suggest that research institute directors take this very general dissatisfaction seriously. First, they could decide to be proactive in explicitly accepting the task of protecting the research time of institute members, and second, it is advisable for all faculty members to be aware of how instructional demands on individuals are determined.

The committee also learned of the consequences of the so-called 'Flexwet' for early career researchers, such as postdocs, who are limited to a small number of non-permanent positions before their contracts must become permanent. Various researchers informed us that the usual decisions in such cases do not result in permanent contracts, but rather discontinuation of the researchers' contracts. In the case of postdocs 3-5 years after the PhD, discontinuation could threaten their careers. The apparent motivation is to force the universities to make a decision about the permanent employment of a researcher earlier rather than later, but in the case of postdocs 3-5 years after their PhDs, there has already been a clear commitment on the part of the postdoc to a career involving research. Forbidding permanent contracts for such individuals is harsh on them and may depress research quality.

While university researchers could once aim to pursue long-term research lines, this has become less attractive as the universities rely more and more on NWO and other funding agencies for financing PhD candidates and postdocs. This change, which was triggered by a deliberate policy shift toward competitive procedures for a larger share of research monies, was justified originally as a way to channel more research energy to the best scientists, but it has also had the perhaps unintended effect of making a lot of research more project driven and less compatible with longer-term strategies. This impacts the better institutes and programmes more than others, and it indirectly influences hiring practices, collaborations, and the training of young researchers. The committee suggests that research institutes and university administrators monitor this development lest the tendencies we already see be aggravated.

Finally, the committee was initially apprehensive when it learned about the increasing importance attached to the societal relevance of research. Concerns were expressed about theoretical work being crowded out, about the danger of commercial influence, and about how successful societal outreach was likely to be. However, during the course of our evaluation visits, we encountered a number of projects and research lines with clearly applied goals where the scientific content was eminent and where those conducting the research were enthusiastic about the applied, societally relevant aspects of the work. We also reviewed a large number of projects dedicated to public outreach, usually popularizations of research, which the scientists involved were excited about, and which we, too, are positive about. We understand that public understanding and appreciation of scientific research contribute in important ways to its support, and to attracting good students. We therefore voice our remaining apprehension even more cautiously, noting only that not all scientific work lends itself to short-term application or to popularization efforts. The demand for societal relevance should therefore not be aimed at each project, but strategically, at the institute as a whole.

4. DESCRIPTION OF THE CENTRE FOR LANGUAGE STUDIES

Through the preparatory documents and the site visit, the committee received a clear view of the governance, mission, strategy and management of the Centre for Language Studies (CLS). The section below, which provides a description of CLS, is based on the information provided in the self-evaluation report. The assessment of CLS by the committee follows in section 5 of this report.

4.1. Organisational context and governance
CLS (23 FTE scientific staff in 2017) is part of the Faculty of Arts and one of the university's Centres of Excellence The CLS director is appointed by the Dean. CLS shares the responsibility for the faculty's research, staffing, budgets and PhD education with the faculty's other research institute (Historical, Literacy, and Cultural Studies (HLCS)). It has an international advisory board.

In 2017 it was decided to organize all researchers in a single research programme that studies four research areas: 1) language systems and language variation; 2) language processing and cognition; 3) discourse and communication; and 4) first and second language acquisition. Before that, CLS was organized in two research programmes: Language in Mind, and Language in Society. Researchers currently work in 16 flexible research groups, each including at least one professor or UHD. Most staff contribute to more than one research area. CLS researchers discuss their research regularly with members of their research groups. At bi-weekly Lab lunches CLS researchers present their research to the whole group; at the monthly CLS Colloquia research groups take turns to present their research.

4.2. Mission and strategy
CLS aims to achieve a deeper understanding of the nature of language and the way it functions by explicitly connecting and integrating research on the cognitive and social processes underlying language systems, language processing, language use, and language acquisition. CLS' strategy is to conduct empirical research on language, from single sounds to discourse in multiple modalities, including speech, text, gestures, signs, and images. It highly values diversity in research techniques. CLS has a long history of investment in the collection of extensive data sets and in developing innovative automated techniques for analysing text, audio, and video; it aims to disseminate its results to a broad public and to use its knowledge to support language users. The Centre aspires to be recognized worldwide as an outstanding research institute.

4.3. Funding, talent management and support
In 2017, a third of CLS research time was funded by the Faculty, about half by funding from scientific organizations (NWO, ERC), and the remainder by contract funding. Table C (Appendix 3 in this report) shows that compartments of research time funded by stream 1 has decreased over the reporting period, while research time funded by stream 2 is on the rise. The Faculty of Arts allocates additional funding to strengthen CLS research, e.g. for small grants. The University Board grants additional funding for the Humanities Lab (see below).

30% of UD's and 40% of UHDs' and professors' contracted time is assigned to research. The output of CLS' researchers is monitored in annual interviews and by means of tri-annual formal evaluation based on performance indicators.

CLS researchers are supported in different ways. First, they have free access to CLS' lab facilities and its support staff. Second, funding is available for CLS activities, including financial compensation for participants in experiments, for student assistants, and for the organisation of scientific and public events. Third, annual grants allow UDs to spend some weeks away from daily commitments and find renewed inspiration for their research. Fourth, the Research Funding and Management Support (RFMS) Office helps researchers with grant application, while the Public Relations Office helps to create media attention for their work. Finally, CLS allots two four-year grants for PhD students annually.

5. ASSESSMENT OF THE CENTRE FOR LANGUAGE STUDIES

In this section, the committee evaluates, both quantitatively and qualitatively, the performance of CLS on the three criteria of research quality, relevance to society and viability. In addition, the committee gives its qualitative evaluation of the PhD programme, research integrity, and diversity at CLS, as stipulated in the Terms of Reference (see 2.1.). An overview of the committee's recommendations is provided in section 6 of this report.

5.1. Research quality

The committee was highly appreciative of the breadth, depth, and coherence of research at CLS. The purview of each of the sixteen research groups fits naturally into one of the four general areas listed above (see 4.1.). Researchers can move between groups, and there is a good deal of interaction among them. Within this framework, we discern a thread that binds the scientific mission and contributions of the institute: the relationship between the physical instantiation of language and its cognitive and neural underpinnings. This emphasis can be seen in the institute's achievements in phonetics, child phonology, speech perception and processing, language and brain, as well as by the prominence in the institute of the two groups investigating sign language and gesture. Fruitful interaction with the Max Planck Institute for Psycholinguistics and with the Donders Institute for Brain, Cognition, and Behaviour has been instrumental in creating a coherent and compelling research profile. Overall, the committee is of the opinion that the CLS has developed an ambitious research strategy producing excellent research in all of their judiciously selected focus areas.

The institute reports 726 refereed journal articles over the six years covered by this review (2012-2017), equalling 2.8 journal publications per year per member of research staff FTE.[1] Of these publications, ~70% appeared in high impact journals. In addition, CLS produced over 300 book chapters, about half of these with highly rated international publishers (see Table B, Appendix 3 in this report). Of the 300 conference proceedings publications 102, or a third, are in proceedings of six high Google impact technology conferences. These publications are exerting an important influence through citations. Sixteen of the journal articles, book chapters, and conference proceedings published by tenured staff during the evaluation period were cited in minimally 100 scientific works, 28 in minimally 50, and 292 in minimally 10 other publications. Also, 22 special issues of journals were edited by researchers of CLS. Finally, the institute has produced 86 PhDs over the reporting period, an average of 3.7 PhDs per FTE scientific staff over the review period.[2]

CLS researchers publish in many international journals, including journals with impact factors in the highest quartile for Language and Linguistics, Communication, and related fields such as Acoustics & Ultrasonics, Cognitive Neuroscience, Psychology, and Studies in Second Language Acquisition. They also contribute to books, reflecting and strengthening their reputation in the field. Conference proceedings are also an important and prestigious outlet for scientific results, especially for technological work, and CLS researchers publish in Google-based high impact technological conference proceedings (ACL, SEMEVAL, COLING, EACL, ICASSP, and Interspeech).

Results in publications are directly relevant for theories of linguistics, cognition, and communication, as well as for addressing societal issues. This is illustrated by the institute's key publications (Table E in the self-study). For example, the paper on 'Language contact outcomes as the result of bilingual optimalization strategies' provides a basis for interpreting different strategies of speakers in language contact situations and outcomes that is informed by and unifies decades of research. It is a theoretical paper written by a world expert on language contact that could also serve as a foundation for more applied approaches to bilingualism and multilingualism in the current era of globalization. The paper on 'Type of iconicity matters in vocabulary development of signing children', uses data from deaf

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[1] The committee included scientific staff and postdocs in the research staff totals, but not PhD candidates (see table A, Appendix 3).

[2] For the calculation of PhDs per FTE we only took into account scientific staff, not post-docs (see table A, Appendix 3).

children acquiring sign language to reveal an important role for motor behaviour in language acquisition. Both of these papers reflect the success of intensive interdisciplinary research programmes at CLS. The research group leaders contribute heavily to this research success, and several researchers have produced an especially high number of prestigious refereed journal publications. H-indices (April 23, 2018) for CLS researchers range from 2-15 for Postdocs, from 2-21 for UDs, from 3-33 for UHDs, and from 13-42 for professors.

In addition, CLS is continuing its tradition of developing tools and corpora for general scientific use. CLS has produced about thirty publicly available databases and corpora which it still provides access to (www.ru.nl/cls/our-research/research-output/corpora) – on topics ranging from lexica, Dutch creoles, social media messages, syntactically annotated Dutch prose (two large corpora), child-directed speech, accented speech, orthographically transcribed casual conversation, one set of experimental data involving lexical decision and another on speech about temperature and odors, and diachronic collections of speech from radio programmes. The databases on sign language are among the few available world-wide. Databases of experimental data facilitate the replication of studies and also the re-use of data for other purposes. The corpora have a wide variety of uses, including the collection of frequencies of words and constructions and the training of natural language processing software. The collection of software provided is also substantial and varied. Most of the software is offered in the form of web applications or web services, which can be remotely integrated into larger processes. It is clearly being used, e.g. in the large NederLab project. We add only that more systematic reports on actual use of these products for peers would be insightful. The range of uses is too diverse to do this in a uniform way, which means different metrics would need to be used to gauge the products' use and impact over time.

Recognition for CLS researchers is illustrated by memberships in prestigious academies. CLS researchers also serve as editors and on editorial boards of leading journals and book series in Linguistics (App. 12 and 14 of the self-study). As noted above, CLS researchers edited 22 special issues of journals, which not only strengthens visibility but also impacts the areas of research that CLS considers important, which in turn contributes to the institute's national and international influence. The institute organized 200 national and international conferences during the review period, which is clearly a noteworthy number.

CLS has been highly successful in the acquisition of external research funding. For research at CLS, CLS has received over €27 million, including 1 KNAW AMMODO awards, 1 ERC starting grant, 4 NWO VICI grants, 4 NWO VIDI grants, 8 NWO VENI grants, 43 other NWO grants including those from CLARIN-NL/CLARIAH, 1 Marie Curie ITN as coordinator, and 2 as partner. They co-directed several inter-institutional projects, including the ITNs, one NWO gravitation project, and one project funded by the Swedish *Riksbankens Jubileumsfond*, involving a total of €45 million. Given CLS's strength in the acquisition of external funding, its researchers might be in a position to share their experience and strategy with others. It would be useful to know not only how they have been so successful, but also e.g., how they have dealt with the tension in including project-based work in long-standing research lines.

CLS is an outstanding, world-leading center of research in linguistics. CLS' research profile is coherent and compelling, and the center has an excellent track record in *all* the dimensions that constitute 'research quality'. CLS enjoys excellent, reflective leadership, which the faculty and the university are proud to support explicitly (see, too, remarks on viability below). It attracts top researchers that are leaders in their fields, consistently producing world-class research in each of the institute's chosen focus areas. CLS researchers are unusually productive, with many publications in the very best journals in linguistics and related fields. The results presented in these publications have influenced on the body of knowledge in the field and its course of research, particularly in psycholinguistics, sociolinguistics, communications, speech perception, sign language, contact linguistics, neurolinguistics and theoretical and computational modeling. CLS' research excellence is also visible in the volume of tools and corpora for general scientific use it has produced, the impact and relevance of which cannot be overestimated. Recognition of CLS researchers is illustrated by their numerous

memberships in prestigious academies. Finally, CLS has been extremely, but also deservedly successful in the acquisition of external research funding

5.2. Relevance to society

CLS researchers are active in a wide range of societally relevant activities. CLS demonstrates its societal relevance in disseminating its research findings in over 600 articles that target professional audiences and the general public (App. 16 of the self-study). A large number of articles present scientific results to educated laypeople, while others target language professionals, including teachers, media specialists, and professionals in medicine, government and all types of businesses (see Table B, Appendix 3 of this report). Further, CLS contributed to over 50 course books (App. 17 of the self study report) on topics ranging from German language, syntax and phonetics, to discourse analysis and business discourse, contributing to education in language and communication (CLS course books are used in China, Romania, Turkey, among other countries). They also produced 15 external reports for language and education policy-makers, contributing in an advisory capacity (App. 18 of the self study report).

CLS is also engaged in a number of outreach activities, making its work known to a broader public. From 2015 to 2017, CLS was an official scientific partner of the Drongo Language Festival, raising public awareness and interest in language by offering science demonstrations, debates, cultural performances and crash courses in various languages. In that period, over 7500 visitors attended. CLS researchers also initiated Kletskoppen, a science festival on child language, in collaboration with MPI and BSI, attended by over 800 people. Activities include experiments, demonstrations, and interactive lectures about how children learn to communicate. Child language researchers from Radboud University and the Max Planck Institute for Psycholinguistics lead activities that introduce children and their families to current research and practice including first words, reading, multilingualism, gesture, and sign languages.

Collaborations and partnerships with societal partners resulted in databases and automatic tools that provide access to language archives for various parties, including the deaf community, heritage organizations and public health authorities. The Dutch Sign Language Database is used by the sign language interpreters' education programme of the Utrecht University of Applied Sciences. The Dutch Institute for War, Holocaust, and Genocide Studies uses CLS-produced software to support search in its large archives, and the Dutch National Police use CLS software to detect tweets with serious threats. For the Dutch National Institute for Public Health and the Environment, CLS produced tools that monitor online sentiments on national vaccination programmes, online information on potentially contaminated food supplements, and patient empowerment in online support communities.

A good deal of the work noted in the last paragraph is accomplished within a dedicated section of CLS, the Centre for Language and Speech Technology (CLST), which focuses on the development of language technology (LT) in close collaboration with extra-academic partners. This work (12 FTE in 2017 according to the CLST annual report) is normally funded externally. The committee notes that the large volume of contract funding of the CLST shows that societal partners find CLS' work relevant. For the company Revisely two CLS web services were developed for automatically detecting spelling errors. A dedicated version of an automatic speech recognizer worked on in Nijmegen was built for the company Dedicon for integration into their Daisy reader app. A new CLS-related startup, NovoLanguage produces software for language training.

CLS's work is recognized by its societal partners as is evidenced by the frequent requests its researchers receive to serve on the advisory boards of its societal partners (§3, Societal recognition) as well as the invitations to collaboration on topics of common interest.

In conclusion, the CLS makes an outstanding contribution to society, as is evidenced by its contribution to a wide range of high-quality research products for societal target groups, the demonstrable use of these products by these target groups, and the marks of recognition by societal

groups. As with use of research products by peers, more systematic reports on actual use and impact of the institute's societally relevant activities would be useful.

5.3. Viability
All of the above indicators, including the organization and functioning of the research groups and programmes, reflect the committee's perspective that CLS has excellent leadership and management. Indeed CLS is privileged in enjoying leadership from one of the world's leading figures in her field, who moreover, has reflected seriously and sympathetically on the needs and prospects of all of CLS's research lines, 'from single sounds to discourse in multiple modalities, including speech, text, gestures, signs, and images'. Unusually for linguistics research institutes, the CLS has initiated successful hiring procedures, a fact which bolsters confidence in their viability, and which testifies to the confidence that the faculty and university have in CLS. The committee highly values that the CLS management has mechanisms to allot some research time differentially, and that it is actively and effectively involved in all hiring processes, including those initiated for instructional purposes. It is also excellent that a small number of PhD projects are funded by the CLS, shielding it from the vagaries of grant funding.

The calibre of researchers leading the research groups, the new hires during the review period, and the amounts of grant money that CLS brings in all augur well for viability in the foreseeable future. Researchers also have access to excellent, world class laboratory infrastructure, and this is supported financially by the university, which is unusual and very welcome. Overall, the governance and leadership, the calibre of the researchers and their output, grant record, and infrastructure create a positive and viable research environment at CLS.

The management expressed an interest in developing the field of multi-modal language development. This direction makes good sense for CLS in that it exploits strong capabilities already at the institute: sign language, gesture studies, and language acquisition. The committee sees this idea as a good example of wise management and strong leadership and vision.

In conclusion, the committee finds the institute's mission and strategy viable (see also section 5.1.). The institute's excellent leadership, the calibre of its researchers, its excellent facilities, and its excellent track record in attracting grants support the committee in its assessment that the CLS is excellently equipped to achieve its strategic targets.

5.4. PhD programme
The number of CLS PhD candidates has remained stable over the evaluation period, averaging about 40 FTE, which constitutes about half of CLS' research capacity. Radboud's SWOT analysis recognizes the PhD programme's graduation rate as one of its weaknesses. This is evident in reviewing Table 3, Appendix D in this report, which indicates that only 56% of students have graduated since 2009. As befitting such an excellent programme, measures have already been put into place to improve time to graduation. All PhD candidates are members of the Graduate School of Humanities (GSH). GSH uses a progress monitoring system, with a fixed timeline in the first 14 months of the PhD and yearly assessment interviews afterwards. Further improvements in the monitoring system are expected in the near future.

All PhD students have at least two supervisors, at least one of them is affiliated to CLS. Clearly this will lead to carefully vetted and high quality dissertations. Students' oral reports to the committee revealed them to be very happy with the quality of supervision, availability of their supervisors, and the amount of mentoring and guidance they receive.

Students, and the self-study report, explained they are required to take 840 hours of courses (the equivalent of six months full-time). The content of courses is dictated in part by the graduate school. Courses on research integrity and data management are part of these 840 hours. Over 60% of PhD students participate in both the GSH and in the International Max Planck Research School for Language Sciences (IMPRS), which contains 6.5 ECTS of obligatory courses. Students can additionally

also follow master's courses, PhD courses organized within the university, workshops with alumni, or courses at one of the two relevant national research schools, LOT and SIKS. During the site visit, students reported welcoming the new ethics and data management focus in their required courses, and the committee commends Radboud for being leaders ahead of these important trends in the field, and for being proactive by offering these courses. Students felt satisfied with courses that are offered, eg at LOT – particularly in terms of the diversity of courses. They are not overwhelmed by the choice and welcomed the flexibility of the system. The GSH moreover offers community-building events that were highly praised. Of particular mention were the alumni/career events organized by the respective graduate school. Importantly, students reported feeling they have enough funding for traveling and conferences they want to attend, and did not voice concerns about two tiered systems.

A strength mentioned by the students is that they are part of the group of their promoter. This aids their sense of community, and ensures that all students are involved and active. Having said that, the committee was impressed by how the students reported they took advantage of the multiple opportunities to them in their groups, and inside and outside their building. They reflected a healthy, vibrant and successful PhD programme. The committee were impressed by the range and depth of PhD student projects (some showcased during the lab tour) and particularly that there is one fully funded deaf PhD student.

The self-study report indicates that the majority of graduates remain in academia, which is why the committee recommends thinking about whether giving the students more training, and/or experience, in high-quality instruction would be helpful to them, so that they become leaders in the job market.

Overall, the committee found Radboud's PhD programme to be outstanding. From the self study report and our site visit, it is clear that this is a healthy, vibrant and successful PhD programme which is appropriately a top priority for students and administrators.

5.5. Research integrity
The self-evaluation report explains how Radboud University has a Committee for Scientific Integrity, which, among other things, develops ethics procedures and addresses issues of academic integrity. CLS also has initiated a programme with the ambition to set high and formal standards for research ethics. Scientific integrity is systematically discussed at CLS meetings. GSH PhD candidates mandatorily complete a Scientific Integrity course and, from September 2018 onwards, their dissertations will be automatically checked for plagiarism. CLS has spearheaded the founding of the Ethics Assessment Committee for the Humanities (EACH) locally and nationally. The panel concludes that the research integrity policy at CLS is up to standard.

The panel is impressed with Research Data Management (RDM) policy at CLS and recognizes that CLS has been a leader in data management. All data are stored for reasons of scientific integrity (verification and replication) for at least ten years following project completion. In 2017, a data steward was appointed by the Faculty to further shape, implement, and monitor the faculty's RDM policy as well as help researchers to write their RDM plans and develop RDM skills. From September 2018 onwards, new GSH PhD candidates will complete a mandatory RDM course. The committee was pleased to hear that it is university policy to publish research in open access venues as much as possible and that Radboud University helps trying to find the funding to achieve this. The committee welcomes that instruments are part of CLS' open access plan.

5.6. Diversity
CLS' goal is to ensure that its department's staff and researchers reflect the diversity and complexity of the international language research field and of Dutch society.

The committee distinguishes between gender balance and cultural diversity. Regarding gender balance, given equality in the number of women in the population and their success in PhD studies,

the goal is presumably to be at least 50%. CLS reports to currently have a gender balance above the average of Dutch universities, with twelve female and nine male professors.

Regarding cultural diversity at CLS, this is desirable in terms of broadening the perspective of research on human language generally, as well as incorporating outstanding researchers from other countries and reflecting the makeup of Dutch society and the students. In these senses, diversity is highly desirable but hard to quantify. CLS employs permanent members of staff from nine European countries, Turkey, and the United States, while its postdocs contingent is more diverse, although it is not clear how many permanent researchers are non-European. As for its PhD students 56% are from Dutch origins, 23% other European, and 21% Non-European.

Regarding age diversity, CLS staff has a broad age-range with an average of 49.9 (staff) / 54.1 (professors) years, and 10 UDs and UHDs aged under 41.

The committee was happy to note the addition of two deaf part-time research assistants, and strongly supportive of the addition of a deaf PhD student to CLS. This kind of diversity offers equal access and makes a contribution to society as well as to research.

5.7. Conclusion
The committee was highly impressed by the quality of research at of CLS, by its dynamic nature, by its contributions and relevance for society, and by its viability for the coming period. CLS is a research institute of world-leading calibre.

5.8. Overview of the quantitative assessment of the research unit
After having assessed the research quality, relevance to society and viability, and comparing that to the developments and standard in the field of linguistics, the committee comes to the following quantitative assessments:

Research quality: 1   excellent
Relevance to society: 1   excellent
Viability: 1   excellent

6. RECOMMENDATIONS FOR THE CENTRE FOR LANGUAGE STUDIES

The committee strongly support the management, structure, and achievements of CLS at Radboud. Nevertheless, it has the following recommendations for CLS:

- Continue to enhance and protect the research time of all staff members, but in particular that of junior staff members.

- Pursue the ambition to develop the field of multi-modal language development.

- Develop an explicit and systematic policy on the relation between externally financed, project-driven work, research expertise in core disciplines, and the strategic goals of the institute. We realize that institutes world-wide struggle with this, but CLS's excellence may put them in a position to keep a step ahead.

- Track whether and how products intended for use by peers or by the general public are used and how popular they are. The range of uses is too diverse to do this in a uniform way, which means different metrics would need to be developed and used to gauge the products' use and impact over time.

- Closely monitor the time to degree of PhD students and further improve the monitoring system of PhD students, as planned.

- Track PhD candidates' career trajectory for a longer time and more systematically after they have finished their PhD.

- Continue to strive for a diverse faculty of excellent quality.

APPENDICES

APPENDIX 1: THE SEP CRITERIA AND CATEGORIES

There are three criteria that have to be assessed:
- Research quality:
    - Level of excellence in the international field;
    - Quality and Scientific relevance of research;
    - Contribution to body of scientific knowledge;
    - Academic reputation;
    - Scale of the unit's research results (scientific publications, instruments and infrastructure developed and other contributions).

- Relevance to society:
    - quality, scale and relevance of contributions targeting specific economic, social or cultural target groups;
    - advisory reports for policy;
    - contributions to public debates.

The point is to assess contributions in areas that the research unit has itself designated as target areas.

- Viability:
    - the strategy that the research unit intends to pursue in the years ahead and the extent to which it is capable of meeting its targets in research and society during this period;
    - the governance and leadership skills of the research unit's management.

Category	Meaning	Research quality	Relevance to society	Viability
1	World leading/excellent	The unit has been shown to be one of the most influential research groups in the world in its particular field.	The unit makes an outstanding contribution to society	The unit is excellently equipped for the future
2	Very good	The unit conducts very good, internationally recognised research	The unit makes a very good contribution to society	The unit is very well equipped for the future
3	Good	The unit conducts good research	The unit makes a good contribution to society	The unit makes responsible strategic decisions and is therefore well equipped for the future
4	Unsatisfactory	The unit does not achieve satisfactory results in its field	The unit does not make a satisfactory contribution to society	The unit is not adequately equipped for the future

APPENDIX 2: PROGRAMME OF THE SITE VISIT

8.30-8.45 Word of welcome by rector prof. Han van Krieken

8.45-9.30 Closed session Committee

9.30-10.30 Interview Institute management

10.30-10.45 Break

10.45-11.30 Interview with representatives of Research themes Language system & language variation and Language processing & cognition

11.30- 12.15 Interview with representatives of Research themes Discourse & Communication and Language acquisition

12.15-12.30 Break

12.30-13.15 Lunch

13.15-14.00 Interview with (selection of) PhD students

14.00-14.15 Break

14.15-14.45 Meeting with societal partners

14.45-15.15 Tour Lab facilities (location: Erasmus building, Erasmusplein 1)

15.15-15.30 Break

15.30-17.00 Closed session Committee

17.00-17.15 Break

17.15-17.45 Presentation of preliminary findings (Elinor van Ostrombuilding, room EOS 01.150)

APPENDIX 3: QUANTITATIVE DATA

Table A. Research Staff

Research unit: CLS	2012 #	fte	2013 #	fte	2014 #	fte	2015 #	fte	2016 #	fte	2017 #	fte
Scientific staff	70	21.1	66	24.5	66	23.4	68	23.1	65	22.8	69	23.0
Post-docs	46	20.6	44	23.6	39	23.7	43	23.4	44	25.5	35	20.7
PhD candidates	64		65		55		49		49		52	
Total research staff	180	41.7	175	48.1	160	47.1	160	46.7	158	48.3	156	43.7

Table A. Research Staff*

Research unit: CLS	2012 #	fte	2013 #	fte	2014 #	fte	2015 #	fte	2016 #	fte	2017 #	fte
Scientific staff	70	21.1	66	24.5	66	23.4	68	23.1	65	22.8	69	23.0
Post-docs	46	20.6	44	23.6	39	23.7	43	23.4	44	25.5	35	20.7
PhD candidates	64	41.5	65	45.5	55	41.6	49	38.7	49	38.2	52	34.3
Total research staff	180	83.2	175	93.6	160	88.7	160	85.2	158	86.5	156	78

*includes fte PhD candidates

Table B. Research output

	2012	2013	2014	2015	2016	2017	Total
Research unit: CLS							
Refereed journal articles	110	125	111	134	139	138	757
Non-refereed journal articles	1	0	0	1	0	3	5
Books	1	1	2	1	1	0	6
Book chapters	54	73	67	42	43	36	315
PhD theses*	12	13	14	16	14	17	86
Conference papers	59	65	42	51	49	44	310
Professional publicatons and for general public**	85	108	85	106	119	111	614
Total publications	322	385	321	351	365	349	**2039**

*) Only PhD theses defended at the Radboud University are counted

**) Professional publications and publications aimed at the general public are counted together

Table C. Research Funding												
Research unit: CLS	**2012**		**2013**		**2014**		**2015**		**2016**		**2017**	
Funding:	**fte**	**%**	**fte**	**%**	**fte**	**%**	**fte**	**%**	**fte**	**%**	**fte**	**%**
Direct funding	33.0	40	44.8	48	41.6	47	36.7	43	32.0	37	28.4	36
Research grants	25.6	31	26.0	28	31.8	36	36.8	43	43.1	50	40.4	53
Contract research*	24.6	29	22.8	24	15.2	17	11.7	14	11.4	13	9.2	12
Total funding	**83.2**		**93.6**		**88.6**		**85.2**		**86.5**		**78.0**	
Expenditure:	**kEuro**	**%**	**kEuro**	**%**	**kEuro**	**%**	**kEuro**	**%**	**kEuro**	**%**	**kEuro**	**%**
Personnel costs	5.096	90	5.359	93	5.079	93	5.207	91	5.813	93	5.702	91
Other costs	554	10	397	7	383	7	484	9	458	7	532	9
Total expenditure	**5.650**		**5.756**		**5.462**		**5.691**		**6.271**		**6.234**	

*The high proportion of contract research funding in the years 2012 and 2013 is explained by an ERC Advanced Grant (2008) en ERC Consolidator Grant (2012).

Table D. PhD candidates

Enrolment			Succes rates												
Starting year cohort	Male	Female	Total	Graduated in year 4 or earlier		Graduated in year 5		Graduated in year 6		Graduated in year 7 or 8		Total graduated		Not yet completed		Discontinued	
	M	F	N	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2013	3	9	12	0	0%	2	17%					2	17%	9	75%	1	8%
2012	6	16	22	2	9%	3	14%	4	18%			9	41%	11	50%	2	9%
2011	3	5	8	1	13%	3	38%	1	13%	1	13%	6	75%	1	13%	1	13%
2010	4	5	9	1	11%	4	44%	3	33%	0	0%	8	89%	1	11%	0	0%
2009	6	8	14	1	7%	4	29%	1	7%	2	14%	8	57%	4	29%	2	14%
Total	22	43	65	5	8%	16	28%	9	14%	3	14%	33	56%	26	36%	6	9%