

Strategic Plan for the Department of Linguistics University of Colorado Boulder

April 2018

Who we are

Language is something that we do and something that we have. It is a fundamental part of the human experience and indispensable to human progress: humans interact, plan and reason through the medium of language. Language is a set of practices that reflect our social affiliations and identities and it a formal object representing a complex set of adaptations that have evolved through the course of human history. Our approach to investigating the structure and use of this fundamental and yet bewildering human capacity is necessarily interdisciplinary. On the one hand linguistic discovery relies on formal analysis and reasoning and, on the other, empirical methods and data collection.

The CU Department of Linguistics is a major center of research in cognitive-functional linguistics. It is uniquely situated in the landscape of linguistic research programs in the nation. For the past 50 years, programs of linguistic research in this country have been guided by theoretical frameworks and ideologies that have created a priori conceptions of what aspects of language are worth studying and foreclosed certain avenues of research into language diversity, language evolution and first-language acquisition. In one of the most popular prevailing views, linguistic structure is the result of innate stipulations that owe nothing to communicative efficacy or any other type of adaptive response. This ideological commitment has segregated linguistics from other research programs that target human culture, reasoning and behavior. At Colorado, by contrast, linguistic study articulates closely with the fields of anthropology, communication, sociology, cognitive science, neuroscience, computer science and psychology. We advance explanations that appeal not to innateness but to already known (if still not fully understood) human strategies and capacities—like processes and biases of categorization, orientations to social norms, social cognition and statistical learning—to account for our remarkable ability to learn and use language.

What we do

Our work is empirical, using rich data from diverse languages to enrich linguistic theory with linguistic fact, whether we are modeling the acquisition of word structure through machine-learning algorithms, studying nasal airflow during the production of nasal consonants, documenting an endangered language in the community where it is spoken, surveying attitudes toward people who speak a particular dialect, using experimental studies in the lab to explore the means by which young children learn linguistic categories and structures, examining conversational and gestural practices or tracking grammatical innovations through corpus studies of conversational English. The CU Linguistics department is unique in the variety of empirical methods—from acoustic analysis to computational modeling to fieldwork and ethnographic interviews—that it uses to study the connection between the formal properties of language and the functions—semiotic, socio-cultural and interpersonal—served by language.

Language is not static but ever changing. We focus on contextual factors that drive inference and condition language choice and examine identity as a dynamic construct, created and maintained through language. A look at our research programs and curricula reveals an intense focus on methods and methodological innovation, and on community-based learning and outreach, whether we are creating Arapaho language teaching tools for use at the Wind River Reservation or mentoring student ESL teachers in our professional TESOL MA and student literacy tutors in our undergraduate literacy practicum.

Our vision of linguistic research informs our educational mission: at both the graduate and undergraduate levels, we train students in formal methods of data analysis and reasoning, and provide them with analytic tools and linguistic insights that not only give them access to the discourse in our field but also make them more effective debaters, more critical consumers of public statement and better communicators. Coursework focuses on applications of linguistics—from building better language-teaching curricula to improving internet search algorithms to understanding the roots of socio-political language conflict around the world. We do not merely teach to those undergraduate students who are aiming for graduate school. Instead, we give students resources for whatever professional path they may be seeking, and the tools to find that path. We offer an undergraduate TESOL certificate that enables students to apply for language teaching jobs in the US and abroad armed with the Linguistics BA. We mentor undergraduates seeking the interdisciplinary Cognitive Science certificate. We offer a professional Master's degree to students seeking preparation in Natural Language Processing (the CLASIC MS in Computational Linguistics, Analytics, Search

and Informatics). We are in the process of converting our prior professional MA in teaching school age and adult learners of English as a second language (the TESOL PMA) to a more flexible graduate certificate. This could be acquired during the pursuit of a LING MA or as a post-MA stand alone certificate. In addition, we offer an interdisciplinary certificate to students exploring the interface of linguistics, sociology, anthropology and communication: the graduate certificate in Culture, Language and Social Practice. We offer a popular dual degree (the Linguistics BA/MA) and a high percentage of our talented BA/MA graduate take placements in prestigious graduate programs in the US and abroad (including PhD programs in linguistics and computer science at Penn, University of Michigan, UT Austin, Carnegie-Mellon).

The Department is committed to excellence in both mentorship and classroom teaching. Our faculty features a recipient of the 2009 Boulder Faculty Assembly Teaching Excellence award, Prof. Kira Hall, as well as the 2013 recipient of the Graduate School's Outstanding Faculty Graduate Advising award, Prof. Martha Palmer. In 2017, Prof. Palmer was named a Professor of Distinction by the College of Arts and Sciences. We were instrumental in the creation and implementation of the A&S Computer Science major, ensuring that undergraduate students can pursue a passion for linguistic study while gaining marketable skills in programming that prepare them for positions in natural language processing at companies like Google, Apple and Cisco.

Our commitment to interdisciplinary study, the interactive nature of our classes and the assiduous mentorship our faculty provide enables us to engage an exceptional number of undergraduate students in research; some of these talented students have received support through the Undergraduate Research Opportunities Program (UROP). Linguistics majors show a high level of participation in the undergraduate Honors program—several of the resulting theses have received College-level awards—and many complete a thesis through the BA/MA program. Among over 50 majors, minors and certificate programs in the college of Arts and Sciences, the Linguistics department ranks second in percentage of BA degrees awarded with Honors.

Our courses feature impressive theoretical breadth (we don't just teach the *outré* or prevailing theoretical frameworks) and are highly interactive. We focus on the phenomena that don't fit the theories as well as newly emerging language phenomena and patterns of language change that challenge the existing explanations. CU Linguistics is an outstanding example of a department in which productive researchers bring their research findings to bear in their teaching and mentoring activities, actively engaging students in research and training them to be life-long learners, societal contributors, and

compassionate, innovative problem solvers in their communities and professional lives. Active student organizations run by both grad and undergrad Linguistics students are a testament to student involvement and the peer-to-peer support systems that exist in the Linguistics department.

In its 2010 survey of American doctoral programs, the National Research Council placed CU Linguistics in the top quarter of American linguistics programs. Based on an overall measure of excellence that combines factors like publication rates, faculty honors and PhD graduation rates, CU Linguistics was ranked thirteenth out of 52 linguistics programs in the country. CU Linguistics is one of only two units in the CU Social Sciences division to rank in the top 20 in their respective disciplines.

The Department's faculty combine innovative and creative thinking with deft, assiduous and ethical data handling. We offer a unique constellation of research programs, which examine spontaneous as well as experimentally elicited language data and target large-scale linguistic patterns as dynamic and complex systems:

- Computational lexical semantics: the wide scale analysis of verb meanings, with the aim of using the verb—the core of sentence meaning—to bootstrap to automated sentence understanding.
- Computational morphology and phonology, especially of understudied languages: developing tools for parsing of languages from wide varieties of typological classes
- Corpus syntax: using large databases of written and spoken communications to track grammatical phenomena as they evolve over historic time, and the variant forms of grammatical solutions that emerge in a population
- Analysis of conversational practice—the ‘primordial site’ of all human interaction—to aid in our understanding of the emergence of meaning in moment-by-moment interaction, the interactional construction of social and linguistic order, the manner in which interaction reflects our conceptions of self, and the etiology of communicative breakdowns in critical areas like lawyer-client and doctor-patient interaction
- Ethnographic analysis of language use as a hallmark of political, ethnic and gender identity, with the goal of understanding how linguistic practice is informed by broader ideologies of language that arise from media culture, political values, traditional practice and the pressures of globalization
- Psycholinguistic study of the relationship between language and cognition with a focus on child language development and the manner in which children acquire word meaning, express concepts grammatically and create discourse coherence.

- Laboratory investigation of systematic variation in the sound properties of speech and the perceptual and communicative consequences of such variation, with particular reference to the manner in which variation is constrained or conditioned by communicative or representational factors.
- Documentation of endangered languages with an eye toward developing archival infrastructure and programs of language training that might help Native communities preserve their threatened heritages.
- Linguistic fieldwork investigating over 20 genetically and typologically diverse languages throughout the world (e.g., Mexico, West and Central Africa, Indonesia) and well as work with language consultants in local immigrant communities—activities that enrich linguistic theory with new insights and provide a more realistic picture of similarities and differences among languages.

Our faculty are in the vanguard of each of these areas, and in many cases are regarded as architects of the relevant frameworks (e.g., computational lexical semantics, socio-cultural linguistics, emergent grammar, construction grammar, computational morphology and lexically conditioned pronunciation variation). We are not merely the best at what we do; in many areas, we are the only ones who do what we do. We bypass the simple cases to focus on the hard cases. We eschew the introspective discovery procedures that characterize philosophical methods of language research in favor of experimentation, computational modeling, data mining and fieldwork. Our niche is the empirical study of language complexity and language dynamism. This work is perforce collaborative; each of our faculty members have a rich network of international research collaborators. Our graduate students have carried the CU Linguistics research commitment with them to jobs in industry and academics, landing tenure-track jobs at the University of New Mexico, Nagoya University, the University of Arizona, UC Davis, UC Santa Barbara, York University and the University of Illinois Urbana-Champaign, post-doctoral fellowships at Brown University, University of Michigan, the NIH, IIIT-New Delhi, Basel University, Saarland University and the Max Planck Institute for Psycholinguistics, and research scientist slots at the Army Research Lab and the Institute of Human-Machine Cognition.

Where we want to go

Outstanding strategic faculty hires within the past 10-15 years have put CU Linguistics on the cusp of excellence: comparison with the state of the Department in the mid-1990s reveals that we have greatly enhanced research productivity, visibility, grant funding, international standing and

competitive advantage in recruitment of top PhD applicants. Challenges remain:

- We must continue to grow the faculty, and faculty diversity, and fill lines vacated by retirements to ensure that we continue to offer cutting edge research and training programs in key areas and maintain the vital interdisciplinary connections for which we are known.
- While our MA and PhD programs are among the best in the nation and applicant levels are at a historic high, we must increase both undergraduate student credit-hour generation and participation in our major and minor, which remains small in comparison to those in other Social Sciences units.
- We must ensure that the CU linguistics degree is not merely a ticket to graduate education but also a career path.

How shall we meet these challenges? We must acknowledge first that we cannot grow our faculty without growing our student credit-hour production and participation in the Linguistics major and minor. Linguistics currently has one of the smallest majors on campus (about 130 students at this writing), and among the lowest levels of student credit-hour production—this despite the fact that our courses and instructors are highly rated by students in each semester’s FCQ surveys, and our majors report high satisfaction with the major and the graduate and professional careers it prepared them for. As a testament to the seriousness with which we take the task of enhancing participation in our courses and major, we note that we have recently created the position of Director of Undergraduate Studies, an associate chairship. Prof. Kira Hall, recipient of multiple teaching awards, including the BFA teaching excellence award, currently occupies this position. We have three interrelated plans for growing our student credit-hour production and major/minor participation. We intend to implement these plans over the next 5 years:

- Enhance the undergraduate student experience and bring students of diverse backgrounds and interests to our major
- Strengthen ties to other disciplines, with stronger and improved interdisciplinary programs
- Place greater emphasis on preparation for specific job opportunities and increase awareness of the wide range of skills a linguistic education confers.

Enhancing the undergraduate student experience

We seek to build a bigger and better undergraduate community, combining strategies to directly target increasing the number of majors and minors with strategies for improving the experience for both existing and new linguistics undergrads.

Linguistics is well positioned to attract double majors due to the relatively small number of credits required for the major, along with the inherent interdisciplinarity of our field. We have been successful through the efforts of Allison Sedey, who advises both Linguistics and SLHS students, in encouraging SLHS majors to add a second major in Linguistics. Communication with advisors for other related majors (Anthropology, Psychology, Computer Science (BA), Communication, Psychology, languages) could be similarly successful. This effort might involve developing sample double-major plans for a variety of other majors that advisors could be encouraged to distribute. This effort could include a marketing campaign encompassing both web and hard copy materials: imagine a campaign called *What Color is your Linguistics Major?* In this vision, different major streams would be color coded and described on laminated cards that students could pick up from a hallway display. On the web, this campaign could take the form of a color-wheel graphic that lists the various major streams available to Linguistics majors.

Developing more lower level undergraduate courses covering “fun” topics of general interest to the undergraduate A&S population, such as *Language and computers*, *Language and happiness*, *Language and new media*, *Language and mind*, *Language and interaction*, *World Englishes*, could serve to introduce new students to Linguistics. These courses might also especially draw students who are already in majors that coordinate well with Linguistics as double majors (or with a Linguistics minor).

We also seek to provide a richer undergraduate experience for our majors and minors. We believe that building a larger and more diverse undergraduate population, through the initiatives described above, will have direct positive impact on the experience for all of our majors and minors. We can also directly encourage a sense of community among these students. We can support and enhance existing groups like our Undergraduate Association and the undergraduate Linguistics Club. We can sponsor undergrad-focused events, both social and academic, to promote a Linguistics “culture” among undergraduates. And we can enhance the website with information highlighting undergraduate opportunities and information relevant to our majors and minors. In addition, we want to enhance the scholarly community for our undergraduates. Some possibilities toward this end include encouraging greater undergraduate involvement in faculty research, instituting/expanding awards for undergraduate papers, extending interdisciplinary certificates (e.g., CLASP or HLT) to undergraduates, providing an honors course for majors (and minors) meeting a GPA threshold, and instituting a freshman seminar and/or a capstone seminar for our majors.

Finally, we need to increase our focus on paths to careers for undergraduate majors, as well as the knowledge of our undergraduate advisor and faculty of such opportunities. (See the section on career paths below.) Specifically for undergraduates, we hope to continue to offer career talks (like that which Anna Marie Trester offers regularly in our department) and to develop a webpage focusing on career opportunities. In addition, we hope that our undergraduate TESOL certificate will provide one obvious career-related opportunity for interested undergraduates.

Strengthening our Interdisciplinary ties

Linguistics is by definition strongly interdisciplinary, with longstanding and foundational ties to anthropology, cognitive science, computer science, philosophy, psychology, sociology, and speech, language and hearing sciences, and particular language studies departments, among others. While our faculty members already work across many of these disciplinary boundaries, we need to improve our students' awareness of the connections. This is particularly true for our undergraduates. We want undergraduate students majoring or minoring in linguistics to be aware of productive major-minor or double-major combinations, to have a strong sense of the most relevant parts of different disciplines in combination with linguistics, and to be able to stitch together a logical, coherent whole of the disciplines they wish to study.

Concrete steps we plan to take to accomplish this include:

- Developing courses that showcase the multiple and varied connections between linguistics and other disciplines, including possibly an introductory “linguistics in XX” course providing an overview of such connections
- Developing more courses that provide a launch pad to other disciplines by providing students with essential background in the subject. For example, we are in the process of devising an undergraduate/graduate “Introduction to programming for linguists” to encourage students without a computer science background to explore computational approaches to linguistics, something that is now a central technique in the study of language. Similar courses could target linguistic anthropology (where a graduate course already exists), linguistics and psychology, and so on.
- Mapping out a clearer sense of what other subjects our current majors and minors are concentrating on, and making available examples of course combinations from those disciplines and linguistics that can lead to coherent major/minor degrees tied to career paths.
- Exploring the possibility of cross-listing more courses between linguistics and the various related disciplines, as well as opportunities to expand the

activities of our undergraduate Linguistics Club to explicitly explore more interdisciplinary opportunities.

Directing our Students onto Career Paths

There are multiple career paths open to those holding the BA or BA/MA in Linguistics. Within the next two years, we intend to create a range of individualized degree plans based on these career paths. These plans will be the basis of the marketing campaign (“What Color is your Linguistics Major?”) discussed above that we will execute through web and print materials, as well as through designated individuals who are in close contact with undergrads (e.g., student leaders of the new undergraduate linguistics group, our A&S professional advisor, faculty advisors).

1. Computational linguistics

The field of computational linguistics, also known as text analytics, natural language processing, or informatics, is burgeoning. A few years ago, it was primarily associated with universities or a few corporate research labs, such as IBM, Microsoft, Raytheon-BBN (Bolt, Baranek and Newman), and SRI International. The landscape has changed dramatically, as “text analytics” and “informatics” are increasingly being perceived as mainstream technologies, and are featured in SIRI, Alexa, Dr. Watson and Google Translate. Google’s research labs have now surpassed Microsoft’s, while Nuance, Amazon, Yahoo, Intel, Twitter, Facebook and even Bloomberg are suddenly competing with Google for the brightest young PhD graduates in NLP. IBM’s current Cognitive Computing initiative has analytics as a major thrust. There are also several local companies that are interested in hiring students with credentials in Computational Linguistics, including Pearson Knowledge Technologies, Boulder Language Technology, IBM-Denver, Oracle, Lena, Sensory, Inc., MyMedicalFinder, and FindMyAudience, all of whom have recently inquired about potential consultants, interns or employees in NLP.

Linguistics and Computer Science have a successful history of collaboration at the graduate level on topics in Computational Linguistics. Examples include joint Cognitive Science and Computer Science/Linguistics PhDs and Master’s students earning the Human Language Technology Certificate or the Professional MS (CLASIC). This arrangement spans more than 25 years, and has produced cutting edge, licensable technologies. The advent of the CS BA degree in the College of Arts and Sciences creates a new realm of opportunities for similar types of collaboration and joint training programs at the undergraduate level with CS/LING double majors and major/minor combinations. The wealth of on-campus projects in this area provide a

multitude of opportunities to engage undergraduates in research experiences that can be directly tied to different types of employment opportunities, both locally and nationally, such as recommender systems, automated customer service, medical informatics, human-robot interaction and question answering systems. This training can prepare students for entry-level positions in companies specializing in NLP research, as well as more advanced degree programs.

2. Teaching English as a second language

The widespread role of English as an international lingua franca opens up many opportunities for trained English teachers globally. Increasingly, EFL (English as a foreign language) providers want to hire individuals with relevant training—not just those who are native or near-native speakers. In conjunction with their bachelor's degrees, students completing the new undergraduate TESOL certificate will have the credentials to be able to tap into professional opportunities in the dynamic world of English language teaching—globally and domestically. We are investigating our ability to also offer this qualification as a stand-alone post-baccalaureate certificate.

3. Elementary and secondary teaching licensure

A student can combine a LING degree with a teaching credential; linguistics is important preparation for teaching literacy, foreign languages, and a host of other subjects

4. Speech pathology

Many LING majors find that their grasp of linguistic analysis (e.g., phonetics and phonology, sentence structure, word structure) make them ideally suited for Master's programs in speech pathology and audiology. Many LING majors take courses in SLHS that make them very competitive for such programs. With accelerated training, they find themselves working as clinicians within a couple of years of graduation. There is a strong bond between LING and SLHS that makes it highly feasible for LING majors to work with SHLS faculty, including one cross-listed course (Language Development).

5. Language and Social Engagement

In addition to the career paths discussed above, we plan to explore the feasibility of developing an undergraduate version of our CLASP certificate. The graduate certificate has been proven to be beneficial to students interested in careers in social work, public health, or education (in fact it can be combined with a teaching credential). A background in language and

identity can help professionals address diversity concerns in any field. Finally, we note that we must embrace revolutionary changes in the way people communicate. We propose to explore a double major in Linguistics and Public Discourse, offered in conjunction with the College of Media, Communication and Information (CMCI). Many of those who gravitate to the field of Linguistics seek not only a theoretical grounding in language science but also a deeper understanding of the power of language to yield communicative successes and failures in arenas like journalism, strategic communication and media production. Students in this program will leave the classroom to apply their linguistic knowledge in workshops, internships and community partnerships.