Introduction to Linguistics

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Course Overview

Linguistics is a broad and diverse subject, focusing around *human language*. In linguistics, the sciences, the arts, and the humanities all come together for the purpose of understanding how language works and how it affects human cognition, culture, and society.

Whatever your academic background, linguistics has research topics that will align with it. From comparative philology and dialectology to neurolinguistics and Artificial Intelligence, there are linguists doing exciting research. At the same time, this breadth and diversity can be really overwhelming. **The aim of this course is to provide you with the tools to appreciate and embrace this.** We will be covering a wide variety of research areas in linguistics, discussing foundational concepts as well as exciting new research, so that you can take linguistics in the direction that interests you.

Required Materials

Some coursenotes and materials will be made available online.

Prerequisites/Corequisites

Prerequisites: None!

Course Objectives

1. To introduce linguistics as a scientific discipline that interfaces with the arts, humanities, philosophy, and mathematics.

2. To introduce fundamental concepts that are useful to understand first-year material in the Linguistics Tripos at Cambridge University.

3. To raise awareness about what is expected in undergraduate supervisions and weekly essays.

4. To provide guidance on how to read research papers and engage with them critically.

5. To foster interests in particular areas of linguistics for future study.

Course Structure

The course is split into "lectures", "supervisions", and "workshops". Lectures will be more like group discussions or seminars on a certain topic, while supervisions will require you to do some work in advance, which we will then discuss. Workshops will be something in the middle, where we discuss material covered in the lectures along with presentations from students.

We will cover the following topics in this course:

1. English Dialects and Varieties

2. Linguistics as a Science

3. The Evolution of Language

4. Language & the Mind & Brain

5. Computational Linguistics & Natural Language Processing

6. Comparative Linguistics & Languages of the World

Schedule

Lecture 1: Introduction to Linguistics

In this lecture, we look at linguistics from a birds-eye view, before diving into some key concepts, and applying them to some familiar and not-so-familiar cases. We examine a taxonomy of sub-disciplines in linguistics, and think about what they have in common. Broadly-speaking, we can think of linguistics as the study of the breathtaking diversity *and* startling uniformity of human language at many levels. There is variation and uniformity between speakers from the neurological and phonetic levels all the way up to the societal and cultural levels. We look at the distinction between *I-Language* and *E-Language* and its tangled relationship with *performance* and *competence*. We look at the learning problem that human language poses, and discuss it as a central problem of modern linguistics. To conclude, we apply these concepts to a series of English accents and dialects, pidgins, and the curious case of Nicaraguan Sign Language.

Optional further reading:

1. David Lightfoot. Language acquisition and language change. *WIREs Cognitive Science*, 1(5):677–684, 2010

2. Noam Chomsky. *Knowledge of language: Its nature, origin, and use*. Greenwood Publishing Group, 1986

Supervision 1: Varieties of English

Set work:

1. Explore the following **data repository** of native accents of England from the mid-twentieth century, and this **Pick two** and read their associated "linguistic descriptions". Come prepared to present on the interesting linguistic features of these accents, and how it differs from *your* accent.

2. Explore the following **data repository** of five modern English accents. Come prepared to present on the interesting linguistic features of **one of these accents**, and how it differs from *your* accent. **Note:** There are no associated "linguistic descriptions" here - use the descriptions for the previous task as 'templates' for this task.

3. Explore the following **resource** of English accents from across the world. **Pick two** and come prepared to present on the interesting features of these accents, and how it differs from *your* accent. *Try to pick one example from a country where English is not an official language, and another from a country where it is.* **Note:** There are no associated "linguistic descriptions" here - use the descriptions for the first task as 'templates' for this task.

Please send a list of the 5 accents/varieties you have chosen in advance.

Lecture 2: What do Linguists Do?

In this lecture, we will consider more deeply what linguistics is, and the various approaches to studying it. We will consider what the object of study is, *language*, and how different interpretations of what language is can lead to different perspectives on what linguistics should be doing. Namely, we discuss language as a physical object, a mental object, and, surprisingly, a mathematical or *Platonic* objects. I will posit that the most fruitful approach is to consider it as an object that we can study scientifically, in much the same way as we study physics or biology. However, I argue that the kinds of evidence you can bring to bear on theories about language can come from sources as varied as sociology, cognitive science, philosophy, literature, and mathematics. We take a tour of sources of evidence in psychology, including grammatical judgements, semantic intuitions, priming, brain-scanning techniques, and neuropsychology.

Required reading:

1. Ray Jackendoff. Linguistics in Cognitive Science: The state of the art. *The Linguistic Review*, 24(4):347–401, 2007 **Up to Page 359.**

Optional further reading:

1. Barbara C. Scholz, Francis Jeffry Pelletier, Geoffrey K. Pullum, and Ryan Nefdt. Philosophy of Linguistics. In Edward N. Zalta, editor, *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University, spring 2022 edition, 2022

2. Ray Jackendoff. Linguistics in Cognitive Science: The state of the art. *The Linguistic Review*, 24(4):347–401, 2007 **Remainder of Paper - if you dare.**

Lecture 3: The Broad Field of Linguistics

In this lecture, we do a brief and selective survey of the history of linguistics, from ancient times until now. We start off at the birth of written language in Ancient Mesopotamia, moving through the Hindu tradition, where Pāṇini was arguably the first to codify rules of syntax and phonology according to symbolic rules. We move through traditions in Greece, Rome, Persia & Arabia, China, and medieval Europe, before introducing the modern antagonism between generativism and functionalism. We discuss how this can be interpreted as a special version of a general, age-old debate about the human mind that is just as discussed now as it was 2000 years ago.

Finally, we question the eurocentric and anglocentric underpinnings of modern linguistics, and discuss how linguistics has been used for empowerment and marginalisation across the world.

Required reading:

1. Nicholas Evans and Stephen C. Levinson. The myth of language universals: Language diversity and its importance for cognitive science. *Behavioral and Brain Sciences*, 32(5):429–448, 2009 **Main Text Only: Not Open Peer Commentary**

Optional further reading:

1. Lyle Campbell. The History of Linguistics. In Mark Aronoff and Janie Rees-Miller, editors, *The Handbook of Linguistics*. Blackwell Pub, 2003

2. Carsten Levisen. Biases we live by: Anglocentrism in linguistics and cognitive sciences. *Language Sciences*, 76:101173, 2019

Lecture 4: Introduction to Typology and Language Contact

In this lecture, we take a tour of the world's language families, looking at some examples and analysing some language fragments. We start off in familiar territory, with the Indo-European languages, before moving slightly further afield to the Turkic languages. We then tackle a Pama-Nyungan language from Australia, Warlpiri, which looks very different from many languages you might have come across.

   We then look at the difficult issue of language contact, and how languages can influence each other due to geographical and social proximity. We look at extreme cases of language contact: jargons, pidgins, and creoles. We focus specifically on Tok Pisin and take a brief look at Basque-Algonquin Pidgin, spoken in the late 15th, 16th and early 17th centuries.

Required reading:

1. Edith A. Moravcsik. *Introducing Language Typology*. Cambridge University Press, 1 edition, 2012

Optional further reading:

1. Michael Dunn. Language Phylogenies. In Claire Bowern and Bethwyn Evans, editors, *The Routledge handbook of historical linguistics*, pages 190–211. Routledge Handbooks Online, 2015

2. Christine Jourdan. Pidgins and Creoles: Debates and Issues. *Annual Review of Anthropology*, 50(1):363–378, 2021

3. Lyle Campbell author. *Historical linguistics: an introduction / Lyle Campbell.* Edinburgh University Press, 3rd ed. edition, 2013

4. Bakker, P. (1989). "The Language of the Coast Tribes is Half Basque": A Basque-American Indian Pidgin in Use between Europeans and Native Americans in North America, ca. 1540-ca. 1640. *Anthropological Linguistics, 31(3/4)*, 117–147.

Lecture 5: What does language tell us about the mind? The case of language games

Language is humanity's most distinctive behaviour. As it stands, most researchers think it is unique to us, and it is what makes us so different in all parts of cognition from other animals, including the great apes. The way humans learn, manipulate, and use language is a fascinating window onto the workings of our mind and brain. We can discover a lot about the kinds of computations and processes that we are capable of.

In this lecture, we look at language games - regular transformations of conventional spoken language used by particular sub-groups. Cockney Rhyming Slang and Verlan are famous examples you may have heard of. The way speakers are able to manipulate language quickly and subconsciously according to highly abstract rules demonstrates the amazing computational power of the human mind.

Required reading: None!

Optional further reading:

1. Bert Vaux. Language Games. In *The Handbook of Phonological Theory*, pages 722–750. John Wiley & Sons, Ltd, 2011

Supervision 2: How to read academic papers

Set work:

1. Read Evans and Levinson (2009). Present a summary of the paper, its main argument, and the evidence it draws on. Generalise beyond the paper to give a succinct synopsis.

Workshop 1: Linguistic Typology

We will continue the discussion from the Lecture 4, and then students will be required to present on two non-Indo-European languages, and one pidgin/creole each.

Set work:

1. Present on **two non-Indo-European languages**. Discuss which language family they are a part of, what reasons we have for this, and any interesting properties of the languages that interest you. Use this **resource** to help you.

2. Present on **one pidgin or creole**. Discuss which languages acted as substrate and superstrates, and what evidence we have for that. Use this **resource** to help you.

Lecture 6: The Evolution of Language

In this lecture, we look at a relatively under-studied area in linguistics: how language evolved. This is not about how language changes over generations, but about how the capacity for language evolved in humans over hundreds of thousands of years. This is perhaps the hardest question to answer in evolutionary biology and evolutionary psychology: where we have evidence of early human physical evolution in the bones they left behind, as well as their cultural behaviours in the artefacts they left behind, *spoken language leaves no trace.* So researchers interested in the evolution of language need to be smart about what kinds of evidence they use to justify their theories.

As a starting point, we take a look at other species that might have properties of earlier stages in human evolution[1] that might be thought to have language, and discuss whether we agree. We look at what criteria we might appeal to when evaluating whether another animal has language. Then we survey some ideas about why and how language evolved, and how it is possible that such broad linguistic diversity can exist.

Required reading:

1. Steven Pinker and Paul Bloom. Natural language and natural selection. *Behavioral and Brain Sciences*, 13(4), 1990

Optional further reading:

1. W. Tecumseh Fitch. The Evolution of Language: A Comparative Review. *Biology and Philosophy*, 20(2):193–203, 2005

2. James Thomas and Simon Kirby. Self domestication and the evolution of language. *Biology & Philosophy*, 33(1), 2018

Workshop 2: The Evolution of Language

In this workshop, we will continue the discussion of the evolution of language, and then students will present a summary of Pinker & Bloom (1990) on the evolution of language and how it fits with broader ideas about natural selection.

Set work:

1. Present a summary of Pinker & Bloom (1990) on the evolution of language and how it fits with broader ideas about natural selection.

Lecture 7: Introduction to Computational Linguistics & Natural Language Processing

In the past decade, we have seen incredible advancements in Artificial Intelligence. A lot of progress has been made towards building systems that can produce language like humans. We characterise the problem of building AI that talks like us as both an engineering and a scientific issue. I gently introduce key principles that underpin modern AI systems, focusing on neural networks and their extensions.

A key issue as we develop more powerful systems that can generate human-like laguage is how these systems can be used and *misused*. AI systems currently rely on a huge amount of data, mostly from the internet, which might introduce bias and blindspots in these systems. We discuss the ethical and societal impact of large-language models in the short- and long-term, and the importance of social scientists, especially linguists, in developing better, more robust, and *safer* AI.

Required reading: None!

Optional further reading:

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[1]Although they are not *actually* at earlier stages! A chimpanzee has gone through just as much evolution as us, simply proceeding down a different path.

1. Luciano Floridi and Massimo Chiriatti. GPT-3: Its Nature, Scope, Limits, and Consequences. *Minds and Machines*, 30(4):681–694, 2020

2. Colin Conwell and Tomer Ullman. Testing Relational Understanding in Text-Guided Image Generation, 2022. arXiv:2208.00005 [cs]

Workshop 3: GPT-3 and DALL-E 2

We will go over GPT-3 and DALL-E 2, the newest and most powerful language models humanity has built so far[2]. Licences permitting, we will play around with it. Namely, through the DALL-E mini interface. We will discuss issues relating to GPT-3 and whether we think that such big data approaches are the right way to think about language processing in humans and machines.

Set work:

1. Sign up to GPT-3 and play around with DALL-E Mini at craiyon.com.

Deadline: 10am, Thursday 8th September

Supervision 4: How to structure and write a Tripos Essay

Set work:

1. Write a (max.) 2-page essay plan on the title **Language Universals Do Not Exist**.

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[2]Although this probably is not true anymore at the time you are reading this, because AI research moves so quickly!

Acknowledgements

Thank you to Ollie Sayeed for materials pertaining to Lectures 1 & 7, Supervision 1, & Workshop 2. Thank you to Bert Vaux for materials pertaining to Lecture 5.

Licence

References

[1] Lyle Campbell. The History of Linguistics. In Mark Aronoff and Janie Rees-Miller, editors, *The Handbook of Linguistics*. Blackwell Pub, 2003.

[2] Noam Chomsky. *Knowledge of language: Its nature, origin, and use*. Greenwood Publishing Group, 1986.

[3] Colin Conwell and Tomer Ullman. Testing Relational Understanding in Text-Guided Image Generation, 2022. arXiv:2208.00005 [cs].

[4] Michael Dunn. Language Phylogenies. In Claire Bowern and Bethwyn Evans, editors, *The Routledge handbook of historical linguistics*, pages 190–211. Routledge Handbooks Online, 2015.

[5] Nicholas Evans and Stephen C. Levinson. The myth of language universals: Language diversity and its importance for cognitive science. *Behavioral and Brain Sciences*, 32(5):429–448, 2009.

[6] W. Tecumseh Fitch. The Evolution of Language: A Comparative Review. *Biology and Philosophy*, 20(2):193–203, 2005.

[7] Luciano Floridi and Massimo Chiriatti. GPT-3: Its Nature, Scope, Limits, and Consequences. *Minds and Machines*, 30(4):681–694, 2020.

[8] Ray Jackendoff. Linguistics in Cognitive Science: The state of the art. *The Linguistic Review*, 24(4):347–401, 2007.

[9] Christine Jourdan. Pidgins and Creoles: Debates and Issues. *Annual Review of Anthropology*, 50(1):363–378, 2021.

[10] Carsten Levisen. Biases we live by: Anglocentrism in linguistics and cognitive sciences. *Language Sciences*, 76:101173, 2019.

[11] David Lightfoot. Language acquisition and language change. *WIREs Cognitive Science*, 1(5):677–684, 2010.

[12] Lyle Campbell author. *Historical linguistics: an introduction / Lyle Campbell*. Edinburgh University Press, 3rd ed. edition, 2013.

[13] Edith A. Moravcsik. *Introducing Language Typology*. Cambridge University Press, 1 edition, 2012.

[14] Steven Pinker and Paul Bloom. Natural language and natural selection. *Behavioral and Brain Sciences*, 13(4), 1990.

[15] Barbara C. Scholz, Francis Jeffry Pelletier, Geoffrey K. Pullum, and Ryan Nefdt. Philosophy of Linguistics. In Edward N. Zalta, editor, *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University, spring 2022 edition, 2022.

[16] James Thomas and Simon Kirby. Self domestication and the evolution of language. *Biology & Philosophy*, 33(1), 2018.

[17] Bert Vaux. Language Games. In *The Handbook of Phonological Theory*, pages 722–750. John Wiley & Sons, Ltd, 2011.