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UCT lecture unpacks patterns shaping linguistic reality



Professor Ryan Nefdt.

Photo: Lerato Maduna

The University of Cape Town's (UCT) [Professor Ryan Nefdt](#) presented an engaging viewpoint in the longstanding debate about the science of language at his recent UCT Inaugural Lecture.

Philosophers and scientists have long debated whether linguistics is a science, and if so, how?

"According to my view, linguistics is a kind of structure. The question on its science bearing is on whether it's mathematics, biology or sociology. My answer is it's a structural enterprise, which links it more to mathematics and computer science, but with an important caveat," Professor Nefdt said.

Mafeje Room at the Bremner Building was filled to capacity when Nefdt delivered his inaugural lecture titled "Language, Patterns and Automata: The Algorithms Behind Linguistic Reality".

Nefdt is a professor in the [Department of Philosophy](#) and works at the intersection of philosophy of language, linguistics and cognitive science. His research focuses on the foundations of linguistic theory and the role of formal models in explaining language.

He started his lecture with a brief overview of John Conway's Game of Life, followed by Thomas Schelling's model of segregation – two perspectives that Nefdt said inspired him to explore language. "Before we get there, we have to speak about patterns, and here's a bit of a contradictory statement: life does not start at the beginning (of course it does) but we don't start at the beginning of life, as we were all already born into complex societies. We didn't get to be there when the game of life started, so we must reverse engineer the rules," he said.

He added: "We do this by finding patterns, ways to operate and a sense of regularity in the world, otherwise it is chaos, because the opposite of a pattern is randomness. The way we find patterns within all the noise in life and in science is through compression. The first being lossless compression: here we find regularity, and things that give us a path to understanding, but we try to keep as much of the information.

"There's also lossy compression, where we don't only eliminate the redundant stuff, but also, we eliminate things that are irrelevant. In my 2023 book, I argued that the grammars that linguists employ are like scientific models – specifically lossy compression models."

With the groundwork laid, the discussion turned to a central question: What is language? "I can't say I have a perfect answer to understand my answer, let's look at previous answers: Noam Chomsky tells us it is a distinct part of the human mind. Platonism says it is an abstract object, like a set. Sociolinguistics and philosophers of language say we are missing the point entirely – language is about people: how they interact and develop norms in a society. So, we have people, we have maths, and we have the brain."

Nefdt said that language is a complex system. "And that may be obvious, and in my view, languages are special kinds of complex, biologically real patterns – a bit like murmurations of birds, ant colonies and economies. The key to understanding complex systems is emergence."

He further said that languages emerge from simple rule-based systems of coordination, much like the game of life. "This structure literally rewired the human brain. However, these structures have co-evolved with our cultures to produce further intricate patterns. Given that the evolution never stops, language itself is an emergent pattern from the interaction of all these components," he concluded.

Story by Kamva Somdyala, UCT

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