

Words like 'this' and 'that' act as attention tools across languages, research shows

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Sample trials. Credit: Paula Rubio-Fernández

Words like 'this' and 'that' or 'here' and 'there' occur in all languages. In a study [published](#) in *PNAS*, researchers from Yale University and the Max Planck Institute of Psycholinguistics (MPI) in Nijmegen show that such 'demonstrative' words are used to direct listeners' focus of attention and to establish joint attention.

Results from experiments with speakers of 10 different languages and [computational modeling](#) reveal that demonstratives are universal tools that link language and social cognition.

All languages have words like 'this' and 'that' to distinguish between referents that are 'near' and 'far.' Languages like English or Hebrew have two of these 'demonstratives.'

Languages like Spanish or Japanese use a three-word system. For instance, in Spanish, 'este' signals something close to the speaker, 'ese' signals something far from the speaker but close to the listener, and 'aquel' signals something far from both.

"The reason why we were interested in demonstratives is because of their connection to social cognition: demonstratives are used to direct the listener's [attention](#) to a referent and establish joint attention," says MPI's Paula Rubio-Fernández, senior investigator and co-author of the study.

"Engaging in joint attention is a uniquely human capacity that links language to social cognition in communication. Because demonstratives are universal, emerged early in language evolution and are acquired early in [child development](#), they offer an ideal test case for the interdependence between these two fundamentally human capacities."

There is debate about whether directing the listener's attention—the 'mentalistic' representation—is part of the meaning (semantics) of demonstratives, or whether it arises from general principles of social cognition (pragmatics). The researchers used computational modeling and experiments with speakers of ten different languages from eight different language groups to investigate this question.

In an online task, participants saw pictures of a 'speaker' requesting an object from a 'listener,' who was standing on the other side of a long table. The participants were asked to take the role of the speaker, and select a demonstrative from their [native language](#) to request the object ('Now I need ...').

In the pictures, the listener was either already looking at the intended object or looking at one of four other objects (closer or further from the target). If directing attention is part of the meaning of demonstratives, all speakers should be sensitive to a listener's initial attention when selecting

a demonstrative. However, there should also be variation across languages.

Results showed that participants were not only sensitive to the location of the target but also to the listener's attention. As expected, the meaning of demonstratives varied within and across languages. For example, the 'near' demonstrative (such as English 'this one') sometimes had a spatial meaning ('the one close to me').

But it also had a joint attention meaning ('the one we are both looking at') or a 'mentalist' meaning ('the one over here'), directing the listener's attention towards the [speaker](#). Interestingly, speakers of languages with a three-word system used the medial word (such as Spanish 'ese') to indicate joint attention.

"Our work sheds light on the interface between [social cognition](#) and language. We show that representations of interlocutor attention are embedded into one of the most basic word classes that appear across all languages: demonstratives," concludes Rubio-Fernández.

"Our work also shows through Bayesian computational modeling that this form of attention manipulation cannot be explained via pragmatic reasoning external to the linguistic system, suggesting that mentalistic representations are embedded in a universal component of language."

More information: Jara-Ettinger, Julian et al, Demonstratives as attention tools: Evidence of mentalistic representations within language, *Proceedings of the National Academy of Sciences* (2024). [DOI: 10.1073/pnas.2402068121](https://doi.org/10.1073/pnas.2402068121). doi.org/10.1073/pnas.2402068121

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