

# Two languages in peaceful coexistence

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Physicists and mathematicians from the University of Santiago de Compostela in Spain are putting paid to the theory that two languages cannot co-exist in one society.

Analysing the pattern of populations speaking Castilian, the most common [language](#) spoken in Spain, and Galician, a language spoken in Galicia, the North West autonomous community of Spain, the researchers have used mathematical models to show that levels of [bilingualism](#) in a stable population can lead to the steady co-existence of two languages.

The research, published today, Thursday 3 March 2011, in [New Journal of Physics](#), refutes earlier research which sought to show how one of two languages would inevitably die out.

Older models only took the number of each language's speakers and the relative status of each language into consideration, concluding that eventually the most dominant language would kill off the weaker; the decline of Welsh is often cited as an example of this.

Still with an interest in languages' relative status, the researchers used historical data to show how you can predict the continued existence of a language when you also incorporate a mathematical representation of the languages' similarity to one another, and the number of bilingual speakers, into the calculation.

If a significant fraction of the population is bilingual in two relatively

similar languages, there appears to be no reason to believe that the more dominant language will inevitably kill off the weaker.

Researcher Jorge Mira Pérez said, "If the statuses of both languages were well balanced, a similarity of around 40% might be enough for the two languages to coexist. If they were not balanced, a higher degree of similarity (above 75%, depending on the values of status) would be necessary for the weaker tongue to persist."

The researchers suggest their work could be used to inform political decisions concerning the protection of endangered languages, "Allowing for varying statuses and interlinguistic similarity could suggest further and more precise political guidelines for protecting endangered tongues, as well as illuminating the evolution of the language entities themselves."

**More information:**

[iopscience.iop.org/1367-2630/13/3/033007/fulltext](https://iopscience.iop.org/1367-2630/13/3/033007/fulltext)

Provided by Institute of Physics

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