

Human language and dolphin movement patterns show similarities in brevity

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Images: D. Lusseau.

Two researchers from the Polytechnic University of Catalonia (UPC) and the University of Aberdeen in the United Kingdom have shown for the first time that the law of brevity in human language, according to which the most frequently-used words tend to be the shortest, also extends to other animal species. The scientists have shown that dolphins are more likely to make simpler movements at the water surface.

"Patterns of dolphin behaviour at the surface obey the same law of brevity as [human language](#), with both seeking out the simplest and most efficient codes", Ramón Ferrer i Cancho, co-author of the study published in the journal *Complexity* and a researcher in the Department of Languages and IT Systems at the UPC, tells SINC. The law of brevity,

proposed by the American philologist George K. Zipf, along with others, shows that the most frequently-used words are the shortest ones.

Ferrer i Cancho, together with the scientist David Lusseau from the University of Aberdeen in Scotland (although they actually carried out this study while working at the Universities of Barcelona and Dalhousie in Canada, respectively) have shown that when [dolphins](#) move on the surface of the water they tend to perform the most simple movements, in the same way that humans tend to use words made up of less letters when they are speaking or writing, in so-called "linguistic economy".

The research study includes the case of Oscar Wilde's novel *The Picture of Dorian Gray*. The most-used word is the three-letter article "the", while other larger ones, such as "responsibilities" are hardly found at all. Among bottlenose dolphins in New Zealand, the researchers looked at their behaviour patterns at the surface of the water. Each pattern is made up of up to four basic units.

So, the "tail slap" pattern is made up of the units "slap", "tail" and "two", while the "spy hop" pattern is made up of the units "stop", "expose" and "head", and the "side flop" pattern" comprises "leap" and "side", and the "tail-stock dive" only involves the "dorsal arch" unit.

In total, the scientists counted more than 30 patterns of behaviour and their related units, and have shown that dolphins carry out more behaviour patterns made up of just one unit, while those involving four units are used less frequently.

"The results show that the simple and efficient behaviour strategies of dolphins are similar to those used by humans with words, and are the same as those used, for example, when we reduce the size of a photographic or video image in order to save space", says Ferrer.

The researcher says that studies such as this one show that human language is based on the same principles as those governing biological systems, "which leads us to the conclusion that the traditional barriers between disciplines should be removed".

Source: Plataforma SINC ([news](#) : [web](#))

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