

# Language speed versus efficiency: Is faster better?

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A recent study of the speech information rate of seven languages concludes that there is considerable variation in the speed at which languages are spoken, but much less variation in how efficiently languages communicate the same information. The study, "A cross-linguistic perspective on speech information rate," to be published in the September 2011 issue of the scholarly journal *Language*, is co-authored by Francois Pellegrino, Christophe Coupe, and Egidio Marsico.

Their research sheds new light on the ways in which languages ensure the efficient communication of [information](#). The study is based on 20 short texts (each consisting of five [sentences](#)) translated into seven languages (Mandarin Chinese, English, French, German, Japanese, Italian, and Spanish) and pronounced by about 60 [native speakers](#).

Dr. Pellegrino outlined the major findings of the team's research: "Languages do need more or less time to tell the same story – for instance in our study, the texts spoken in English are much shorter than their Japanese counterparts. Despite those variations, there is a tendency to regulate the information rate, as shown by a strong negative correlation between the syllabic rate and the information density." In other words, languages that are spoken faster (i.e., that have a higher syllabic rate) tend to pack less information into each individual syllable (i.e. have a lower information density).

As Dr. Pellegrino notes, "this result illustrates that several encoding strategies are possible. For instance, Spanish is characterized by a fast

rate of low-information syllables, while Mandarin exhibits a slower syllabic rate with more informative syllables. In the end, their information rates are very similar (differing only by four percent)." Furthermore, Dr. Pellegrino concluded, "we discovered a strong relationship between the information density of the syllables and the complexity of their linguistic structure." Pellegrino and colleagues' result confirms the existence of distinct linguistic ways of packing information into syllables which eventually interact with the actual speech rate to result in a tendency toward a uniform information rate.

The origin of the speech regulation remains unclear and the team explores several hypotheses in the article involving cognitive or social factors for potential follow-on research. Whether this variation involves cognitive or social factors, it also affirms our appreciation for the richness of languages and their power of expression across different cultures and peoples.

**More information:** A preprint version is available on line at <http://lsadc.org/info/documents/2011/press-releases/pellegrino-et-al.pdf>.

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