What Do Bats and Plants Have in Common? High-pitched Screaming!

Polyglot like a pitcher plant or cryptolectic like a sperm whale?

A: “Pitcher Tower, this is Bat K hardwickii, established ILS 16. Do you copy me?”
B: “Bat K hardwickii, clear to land. Please confirm: are you ready to discharge the cargo?”
A: “Roger. Affirmative.”

This is how I imagined a conversation between the tropical carnivorous pitcher plant *Nepenthes hemsleyana* and the bat *Kerivoula hardwickii* would go. No, I am not on drugs; bats and plants can communicate with each other, as a study from Michael and Caroline Schöner together with other researchers (2015) just confirmed.

The carnivorous plant and the bat share a special language, ultrasound, which they use as radar. The bat emits a sound at a specific frequency, and it assesses distances to objects by measuring the time delay between the emission of the sound and the returning echo, just like how it is done in submarines. In order to communicate with the bat, the pitcher plant developed its shape to have certain echo-reflectors that make it easier for the bat to locate them.

The question is obvious: why would pitcher plants ever let bats know their position? No, wait, it is not what you just imagined, *N. hemsleyana* plants do not eat bats! Instead, they eat their poo. Yes, you are right, it is even grosser than you’d thought. But in the end, it is just a matter of taste… You can imagine the underlying mechanism as follows: the plant provides a cozy and overall safe room for the bat to rest, with a solid roof, a warm bed and a little toilette. The toilet’s plumbing ends in the pitcher plant’s mouth, which uses the poo as fertilizer. After all, this is a kind of bed (for the bat) and breakfast (for the plant).

Of course the pitcher plant and the bat do not literally talk to each other, but we have here two totally different organisms, a plant and an animal, that can understand each other. It is extraordinary, especially if we consider that sometimes humans have difficulties communicating with each other, due to differences in culture, language, viewpoints or social status. All these features define different speech communities, which are not always able to fully connect to one another. Think about “My fair lady”, when eventually Eliza fluctuates in between the cockney and elite coterie worlds. At least, we are not the only ones having trouble when communicating with...
our own species. As a study from Cantor et al. (2015) revealed, sperm whales also have different dialects. In parallel with “My fair lady”, we can find upper class Prof. Higgins- like sperm whales and cockney flower seller- like ones.

Although inter- species communications and formation of dialects appear to lie at opposite ends of the spectrum, they are both results of adaptation. In order to survive or improve the quality of life it may be useful to learn a foreign language, as pitcher plants did, or to create a language that nobody else but your friends understand, like the sperm whales.

After all, you may not be able to guess what your professor is talking about during his class, but you can definitely spot when your pet is hungry or when your best British friend is Hank Marvin.

References:
