The rhizosphere ubiquitously contains a plethora of chemical signals that originate from a wide variety of organisms. Detection and discrimination of these signals is crucial to launch the appropriate partner responses resulting in attraction and association. Distinguishing host from non-host or beneficial from parasitic microbe may be vital for survival. In beneficial interactions, such as the life-long alliance of arbuscular mycorrhizal fungi with plants, pre-symbiotic mutual recognition is manifested in a well-orchestrated exchange of signals. The nature of some of the signals has been discovered in recent years, providing a first insight into the type of chemical language spoken between the two symbiotic partners. Importantly, these discoveries suggest that the dialogue is complex and that additional factors remain to be unveiled. I will introduce fundamentally new concepts the “listening” of plants during rhizosphere communication with beneficial soil-borne fungi.