Seminar Series
for Joint East-West Early Language Project

アジア欧米言語獲得研究プロジェクト セミナーシリーズ

Seminar Series #2

What we can learn from birdsongs and rat tweets

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Admission: Free

Registration site ↓

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Kazuo Okanoya (The University of Tokyo)

Animals communicate with variety of sounds. Many species of birds sing songs for mating. Bengalese finches are a domesticated strain of white-rumped munias. While Bengalese finches sing complex songs with multiple song syllables arranged in a finite syntax, white-rumped munia songs are much simpler. By comparing these two strains of birds, we can learn how domestication process could affect evolution of behavioral complexity. Domestication involves selection of calm individuals, resulting in lower stress level. This affects behavioral characteristics to enable evolution of complex signals. Turning to another form of communication, rats use two types of ultrasonic vocalizations to convey emotional states. Pleasure calls are emitted when the rat is in positive states such as eating, being groomed, or copulating. Please calls are around 50 kHz and last about 50 msec, and are repeated with frequency modulation in a quick succession. Distress calls are emitted when the rat is in negative states such as being defeated in the fight, being bitten, and get injured. These calls are around 22 kHz and last about 700 msec, repeated slowly. Using operant conditioning, we showed that rats that were exposed to pleasure calls behaved more positively while rats exposed to distress calls behaved more negatively, indicating that “emotion contagion”, a simple form of “empathy”, occurred in rats. Taken together, studies of animal acoustic signals give us opportunities to study the biological process of communication, including human speech.