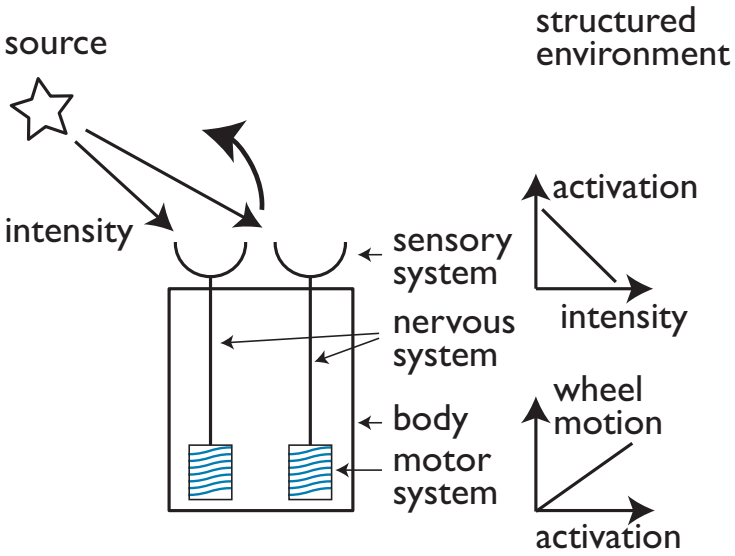
Prof. Dr. Gregor Schöner October 28, 2021

Exercise 2, hand in by November 4, 2021

Consider a Braitenberg vehicle number 2, with two sensors, which are connected to the ipsilateral (same side) effector. Assume the sensor characteristic is monotonically *decreasing* while the motor characteristic is monotonically *increasing*.



1. Analyze the behavior in the presence of a single source of stimulation by making a drawing and arguing qualitatively like in the lecture, a form of mental simulation.

2. Think about what determines the forward speed of the vehicle? What would make the vehicle drive faster in the forward direction? Would it be possible to drive faster in the forward direction but not turn faster? [You can tinker with the sensory and motor characteristics and/or with the strength of the source/intensitly level and its fall of in angular direction.]

3. If the foward speed was much higher, but the turning remained similar, how would that affect the behavior? Could taxis break down? Which implicit assumption was thus made in the lecture?

4. What would happen if the sensor characteristic has a zero crossing at a non-zero level of the sensed physical intensity? This implies negative actions are possible, so assume that negative activation going into the motor characteristic makes the motor turn backwards. Support your argument with a drawing.