Prof. Dr. Gregor Schöner December 21, 2018

Exercise 6/Essay (worth 3 exercise sheets), due January 17, 2019 (4 weeks, but including Christmas)

This is a reading excercise with an essay component. In response to each question, write a short self-contained text that can be read without having read the question. Make sure you deliver to the reader all information necessary to appreciate the point you are making. Take the reader step by step through your argument. Use illustrations that you label and explain so that they can be understood without going back to the source. Finish each point with a short conclusion.

Do not quote literally from sources, and indicate the source of illustrations.

Read the Chapter 4 "Embodied Neural Dynamics" by Gregor Schöner, Christian Faubel, Evelina Dineva, and Estela Bicho in the book "Dynamic Thinking" (available as page proof on the course web page). You can skip the box about obstacle avoidance and all reference to obstacle avoidance in the text.

1. Around Figure 4.14 , reproduce the argument as to why there is a "read-out" problem for neural fields. Explain in words, drawings, or mathematical deduction, how that problem is solved.

2. Is there a similar "read-in" Problem, in which inputs must be normalized? Describe aspects of such a problem or argue why there isn't one.

3. The robotic implementation of the "A not B" model brings together neural dynamics and behavioral dynamics. Formulate in your own terms, what insights the robotic implementation of the model my provide or help illustrate.

4. Express one thought of your own stimulated by reading the chapter. This could again be a point that you understood better than in the lectures (or that you understood well in both). You could formulate a question that arose on reading the chapter. You could speculate about possible broader implications of what you learned. You could even make a critical comment about the chapter.