

Chapter III

On Drives

Abstract

In this chapter we briefly overview the connections between drives, motivations, and actions in an agent. Drives take a central place in our agents and influence significantly how they use their internalization of the environment. Appendix B focuses more elaborately on these phenomena in humans.

Introduction

Apart from the intrinsic representation of the environment, another important part of the agent is its actuator system. Based on tendencies, this subsystem decides which actions are to be undertaken based on the history and the anticipated consequences of the actions.

The concept of *reactive action* is quite often mistakenly confused with the term *reactive behavior*, where the concept of motivation and decision are intrinsically connected to the agent. Nevertheless, the problem of executing actions and the organization of the actions in reactive systems has been studied in detail by a long list of researchers, normally under the terming of the *problem of choice of actions*. The bottom line of the problem is as follows: What actions to shoot in order to achieve a certain goal, taking into account the action repertoire, based on the external stimuli to the agent (Meyer & Guillot, 1989; Meyer, Roitblat, & Wilson, 1993; Meyer & Wilson, 1991).

On Hunger

In this section we give the link between appetitive behaviors, taxings, and consummatory acts, all of which are inherently connected to the satisfying of (a) given drive(s) in an agent.

Actions do not have to have the same influence on the *agents*. Difference is often being made between the *consummatory acts* and the *appetitive behaviors*. The former relate to the intention to satisfy a tendency, while the latter are being exhibited in the active phase of the goal-oriented behavior. For example, when an agent takes food, the consummatory act is *eating*, whereas the appetitive behavior is *searching for food*. In general, the consummatory acts complete the appetitive behaviors and therefore they are sometimes termed as final, terminal acts. We can also notice that the appetitive behavior most often happens without the presence of a stimulus from the environment, while the consummatory act depends exclusively on the presence of the stimulus in the environment. Thus, the appetitive behavior is a precondition to the consummatory act. Indeed, an agent cannot eat if there is no food, while the quest for food happens in the absence of food in the environment. Appetitive behavior, thus, is directed by the internal drives of the agent.

On the verge between the appetitive behaviors and the consummatory acts are the so-called *taxings*, a term borrowed from the airport terminology. Those are behaviors that orient and move the agents so that they are directed towards (or from) the source of stimulation. When a taxing is getting the agent towards the goal, taxings are the link between the appetitive behavior and the consummatory act. If an agent in its appetitive phase sees food, it will start taxing before it starts consuming it.

Through the percepts, the agent gets information about the world surrounding it and prepares its action(s) geared towards seeing through its goal. The perceptual system is the door between the world and the agent. The perception phenomena

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