Theses (*stellingen*)

1 Mass-spring models describe equilibrium point control (chapters 6, 7). However, in contrast to what their name suggests, such models do not describe the limb's *mechanical* behaviour (chapters 2, 7; note 1).

2 The preceding target's velocity influences the hand's trajectory (chapter 3).

3 The direction in which an interceptive movement starts is suited to the target's speed only if the target moves relatively slowly (chapter 4).

4 When people hit a number of targets sequentially, the kind of target influences how the subject will move in the subsequent trial. This influence reflects anticipation rather than changes in the subject's strategy (chapter 5; note 2).

5 A mass-spring model with relative damping (Fig. 6.1) is much better than one with absolute damping in generating movements of a large range of velocities. In addition, a model with relative damping predicts the influence of target motion on interceptive movements well, confirming that target velocity is used to control the movement (chapter 6).

6 What are the optimal moment arms of uni- and biarticular muscles and what is their optimal relative onset time depends on the load that is moved and on what is optimised (3).

7 Seahorses' (and other *Syngnathidae*'s) snouts have a length that is optimal for rapidly reaching a prey that just fits in the mouth (4).

8 Aphids (*Acirthosiphon pisum*) whose grandmother grew up on an inferior plant, behave deviantly (de Lussanet, study report).

9 Unicellular organisms need good chemistry, which depends on having the right genes. Complex, larger organisms do not need more chemistry, but complex regulation mechanisms to control their cells. Thus one cannot expect a relation between the complexity of an organism and its number of genes (5).

10 The test object *Homo sapiens* is very interesting as a model for many other animals, because it can easily and accurately be instructed to perform a large variety of tasks (6).

11.1 11 is an appropriate number of theses (Carnival's Council of 11; Doctoral regulations, section 4.2).

11.2 A humiliated people or group is an ideal condition for terrorism.

11.3 Environment friendly electricity production is a national rather than an individual responsibility. Offering such electricity without the explicit obligation for electricity companies to keep "normal electricity" at least as "clean" is fraud.

11.4. When economics grow faster than the maximal speed on highways, then the size of cars grows proportional to the economics.

11.5 The art of formulating mathematical models for fundamental insight is to reduce.

11.6 Science and art have in common the desire to present an original observation or interpretation. Science differs in its desire to be objective.

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noten / *notes*

1: voor dynamische modellen / *for dynamical models*: Mechsner et al, 2001, Nature 414: 69-73.
2: vgl. / *cf.* Kowler et al., 1984, Vision Res 24:197-210.
3: de Lussanet & Alexander, 1997, J Theor Biol 184:187-201.
4: de Lussanet & Muller, 1997, Proc Internat Conf Motion Systems
5: bijvoorbeeld / *for example*: the special human genome issue of Nature, 2001, 409
6: vgl voor zebravissen / *cf. for zebra fish*: Fishman, 2001, Science 294: 1290