Expressivity of Logics of Knowledge and Action

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Stellingen behorende bij het proefschrift

Expressivity of Logics of Knowledge and Action

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1. $\mathcal{L}_{\mathrm{CP}}$ is to $\mathcal{L}_{\mathrm{R}}$ as $\mathcal{L}_{\mathrm{CU}}$ is to $\mathcal{L}_{\mathrm{U}^*}$, so it is surprising that $\mathcal{L}_{\mathrm{CU}}$ is equally expressive as $\mathcal{L}_{\mathrm{U}^*}$ while $\mathcal{L}_{\mathrm{CP}}$ is less expressive than $\mathcal{L}_{\mathrm{R}}$.

2. The difference between $\mathcal{L}_{\mathrm{CP}}$ on the one hand and $\mathcal{L}_{\mathrm{R}}$, $\mathcal{L}_{\mathrm{CU}}$ and $\mathcal{L}_{\mathrm{U}^*}$ on the other is that, in some sense, $\mathcal{L}_{\mathrm{R}}$, $\mathcal{L}_{\mathrm{CU}}$ and $\mathcal{L}_{\mathrm{U}^*}$ can create memories but $\mathcal{L}_{\mathrm{CP}}$ cannot.

3. An "arbitrary public announcement" operator $\Diamond$ from the logic APAL should be considered truly arbitrary if and only if it quantifies over all APAL formulas.

4. A pointed model is only given meaning by the formulas that may or may not hold there.

5. A formula is only given meaning by the pointed models where it may or may not hold.

6. A modal logic should be considered equal to the combination of a set of formulas, a class of (pointed) models and a satisfaction relation between formulas and models.

7. Suppose several expert marksmen all independently and with several years in between take a shot at a blank wall, that the shots all hit a specific small section of the wall and that the marksmen seem to be very satisfied with their shots. Then it is reasonable to assume that the marksmen were trying to hit this section of the wall and that there is some salient feature that made them target it.