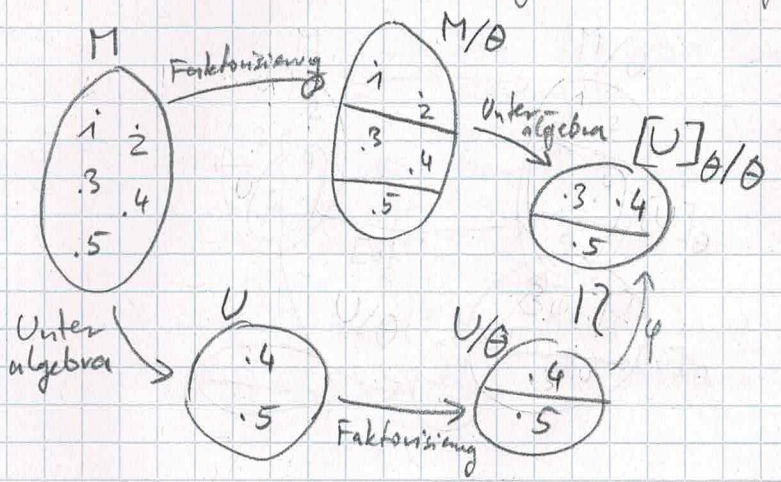
ALG Ü3

126) $M = \{1,2,3,4,5\}$ Θ.. Äquivalenzrelation definiert durch $\{\{1,2\},\{3,4\},\{5\}\}$

$U = \{4,5\}$ ges: $\mathcal{M} = (M, w_1, w_2)$ sodass

neben Äquivalenz nicht $2 \sim 3$. Θ Kongruenz, U... Unteralgebra und Isomorphismus



$\varphi : U/\Theta \to [U]_{\Theta/\Theta}$

$\varphi([4]_{\Theta|_U}) = [4]_\Theta \; (= \{3,4\})$

$\varphi([5]_{\Theta|_U}) = [5]_\Theta \; (= \{5\})$

$$w_1(a) = \begin{cases} 2, & \text{falls } a=1 \\ 1 & a=2 \\ 4 & 3 \\ 4 & 4 \\ 5 & 5 \end{cases} \qquad w_2(a) = \begin{cases} 1, & \text{falls } a=1 \\ 2 & a=2 \\ 5 & 3 \\ 5 & 4 \\ 5 & 5 \end{cases}$$

offenbar $w_1(U) \subseteq U$, $w_2(U) \subseteq U$

$1 \sim 2 \Rightarrow w_1(1) \sim w_1(2) \Leftrightarrow 1 \sim 2$ ✓

$3 \sim 4 \Rightarrow w_1(3) \sim w_1(4) \Leftrightarrow 4 \sim 4$ ✓ $\quad w_2(3) \sim w_2(4) \Leftrightarrow 5 \sim 5$ ✓

$2 \sim 3 \Rightarrow w_2(2) \sim w_2(3) \to 2 \sim 5 \to w_1(2) \sim w_1(5) \Rightarrow 1 \sim 5$

$\Rightarrow w_1(2) \sim w_1(3) \Rightarrow 1 \sim 4$ also $1 \sim 2 \sim 3 \sim 4 \sim 5$ ✓