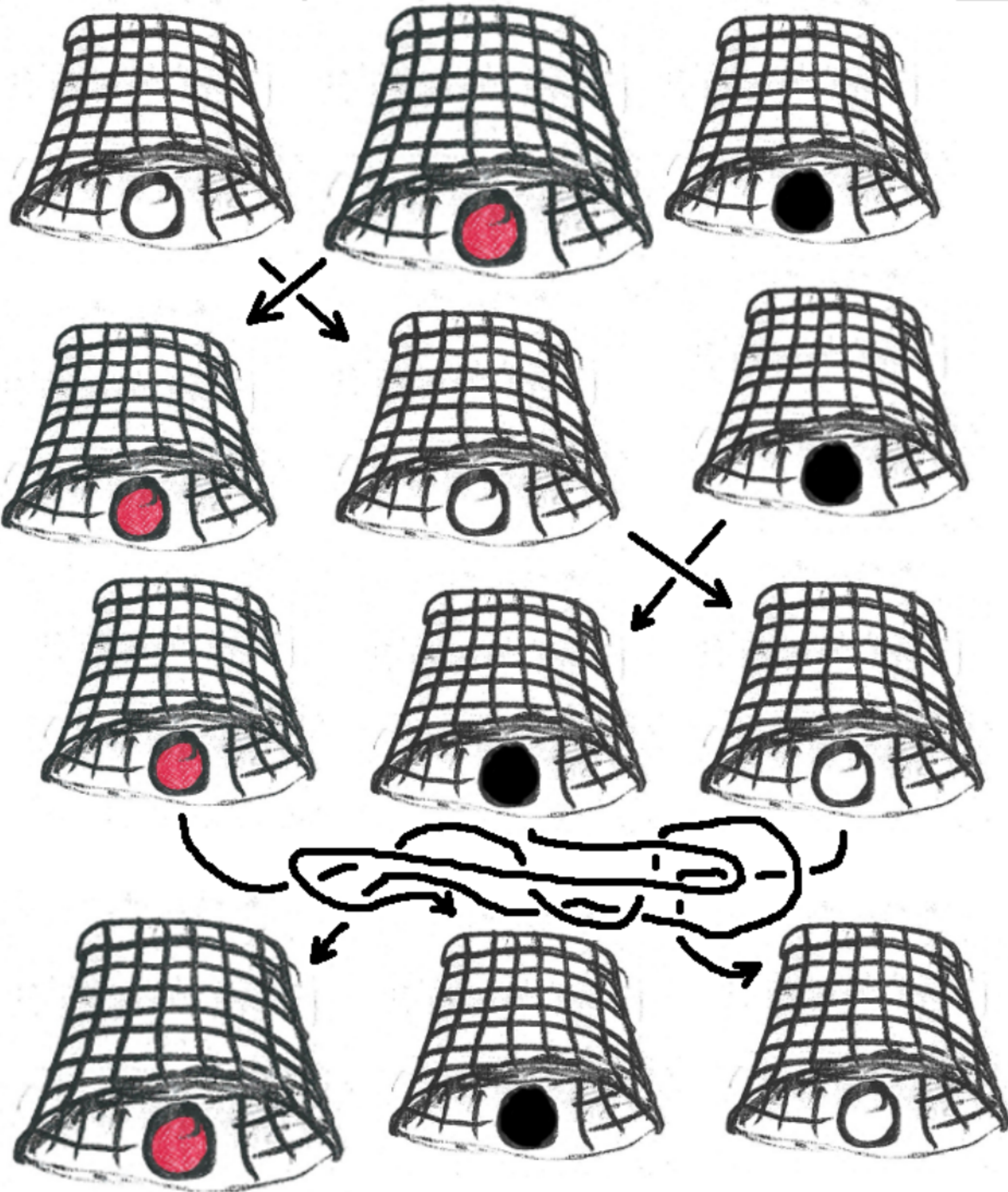


(1, 2)

(2, 3)

id



$(1, 2)$

$(2, 3)$

id

Symmetrische Gruppe:
 $S_3 = \{\text{id}, (1, 2), (2, 3), (1, 3), (1, 2, 3), (1, 3, 2)\}$

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J.H.M. Wedderburn läßt S_3 verschwinden!



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J.H.M. Wedderburn



schwinden!

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J.H.M. Wedderburn



schwinden!

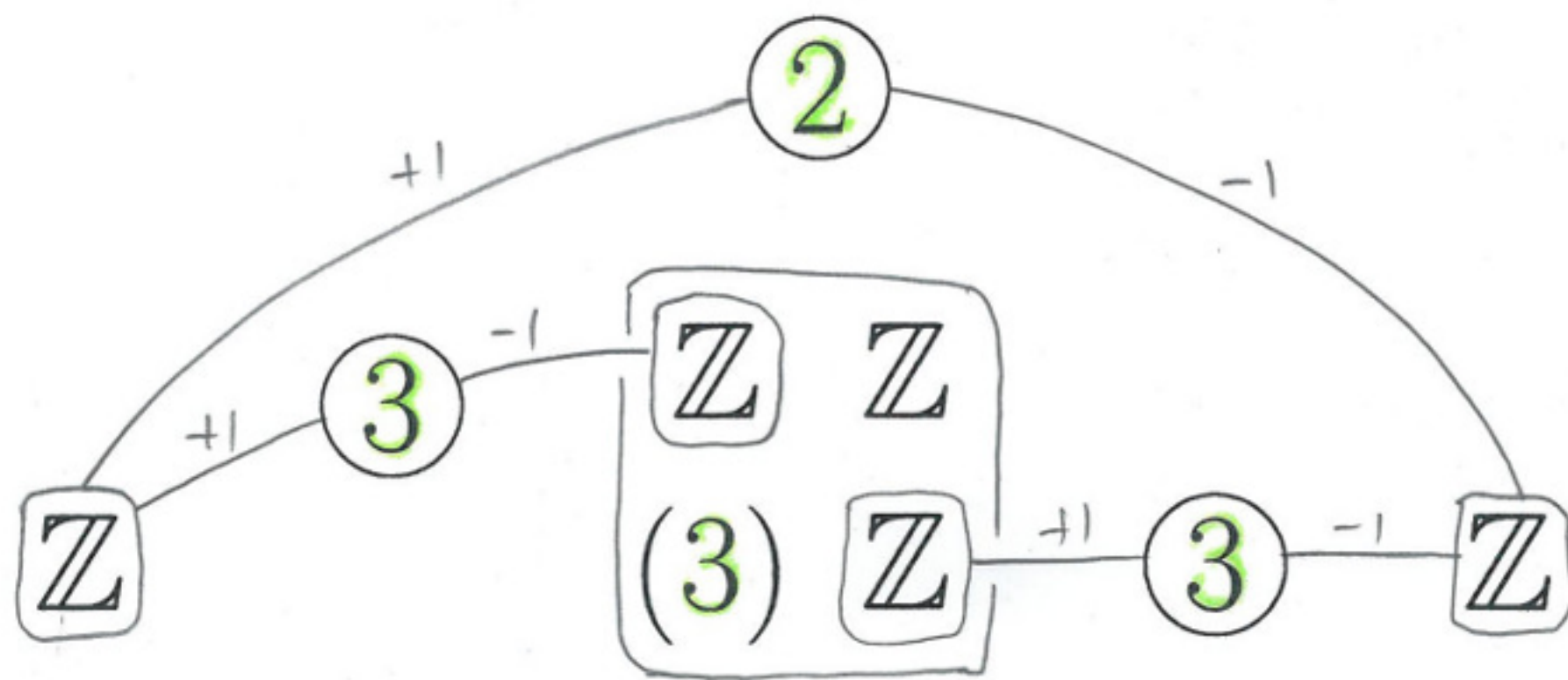
1. Er erlaubt sich die Addition:

$$\mathbb{Z}S_3 = \{ z_1 \text{id} + z_2(1, 2) + \dots + z_6(1, 3, 2) : z_k \in \mathbb{Z} \}$$

Z.B.: $2 \cdot \text{id} - 3 \cdot (1, 3) + 7 \cdot (1, 3, 2) \in \mathbb{Z}S_3$

2. Er ersetzt:

$$\mathbb{Z}S_3 \xrightarrow{\sim}$$

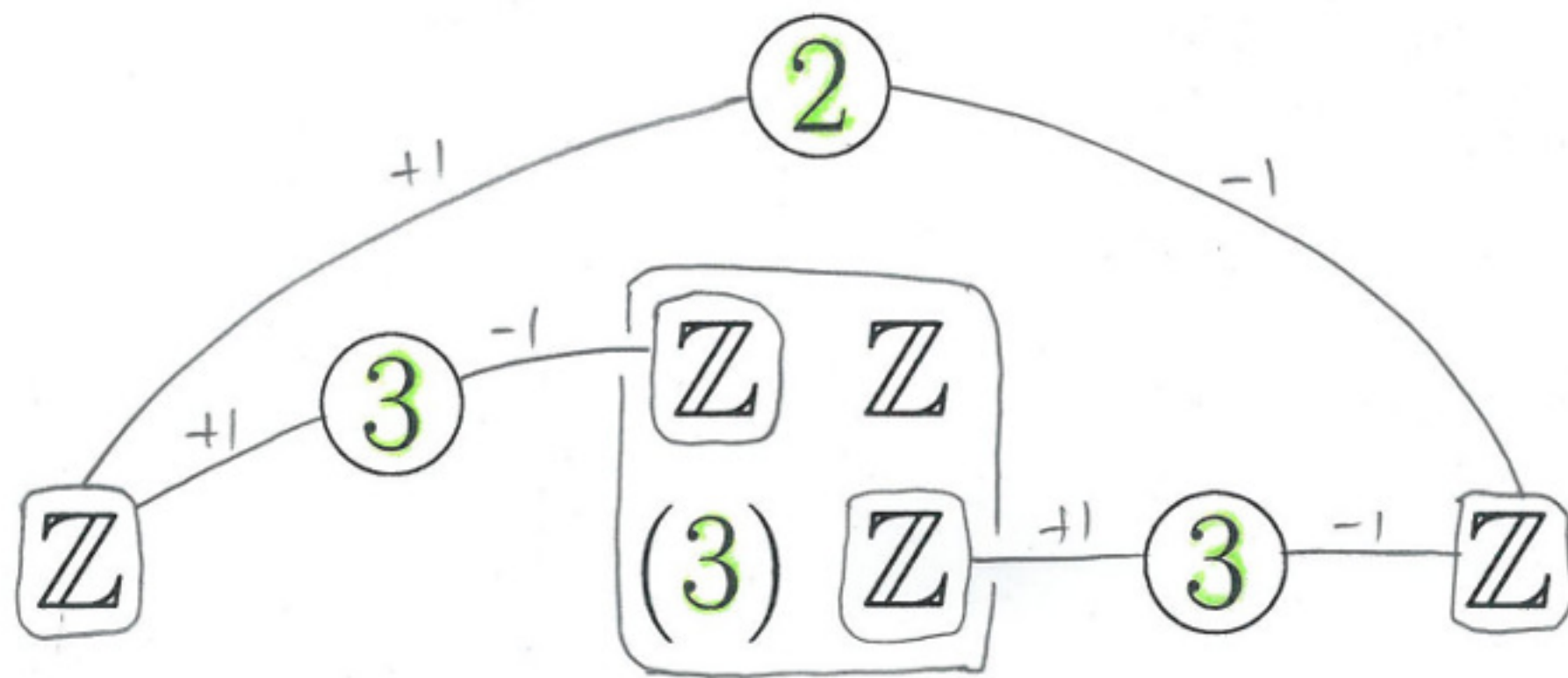


$$(1, 2) \mapsto$$

$$\left(1, \begin{pmatrix} -2 & -1 \\ 3 & 2 \end{pmatrix}, -1\right)$$

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$$\mathbb{Z}S_3 \xrightarrow{\sim}$$



$$(1, 2) \mapsto$$

$$\left(1, \begin{pmatrix} -2 & -1 \\ 3 & 2 \end{pmatrix}, -1\right)$$

$$(1, 2)^2$$

$$\left(1^2, \begin{pmatrix} -2 & -1 \\ 3 & 2 \end{pmatrix}^2, (-1)^2\right)$$

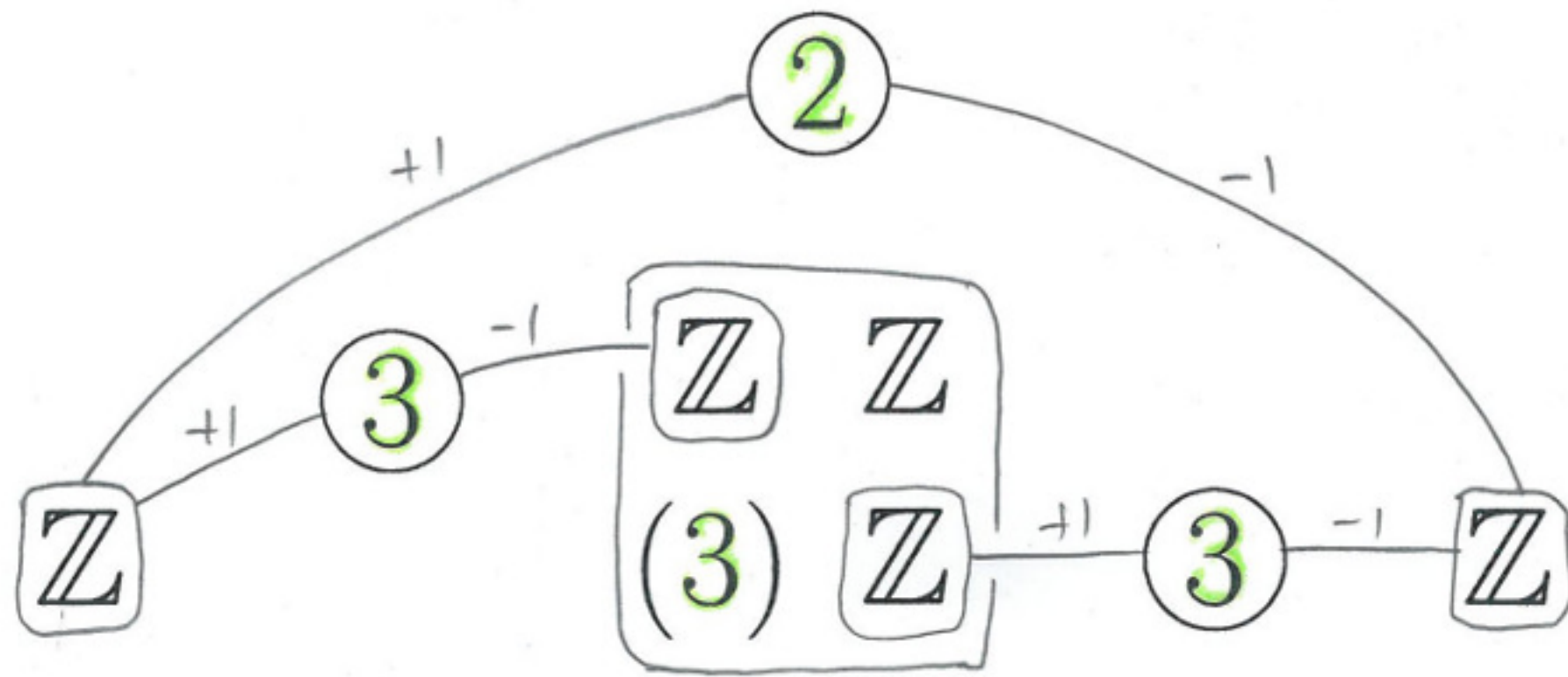
$$\parallel \iff$$

$$\parallel$$

$$\left(1, \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}, 1\right)$$

2. Er ersetzt:

$$\mathbb{Z}S_3 \xrightarrow{\sim}$$



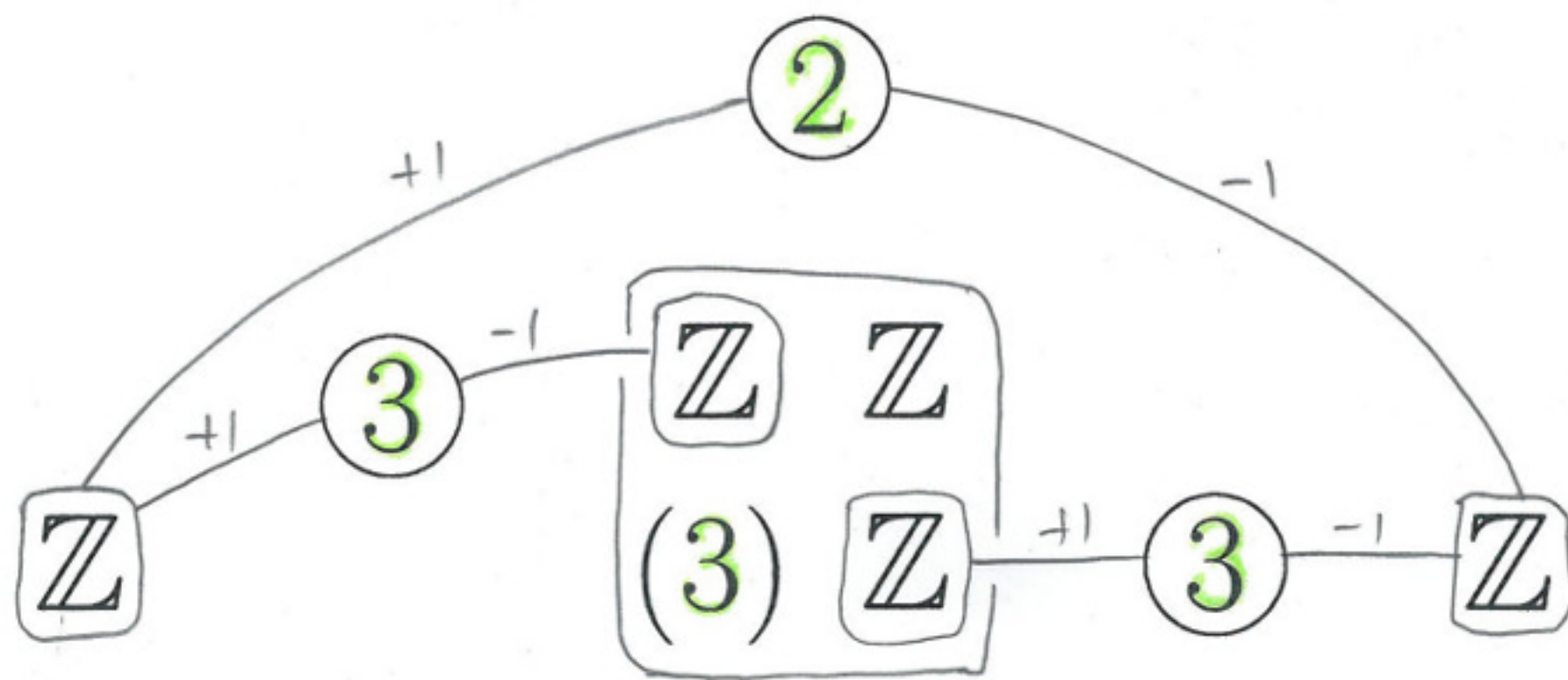
$$(1, 2) \mapsto$$

$$\left(1, \begin{pmatrix} -2 & -1 \\ 3 & 2 \end{pmatrix}, -1\right)$$

↑
teilbar durch 3

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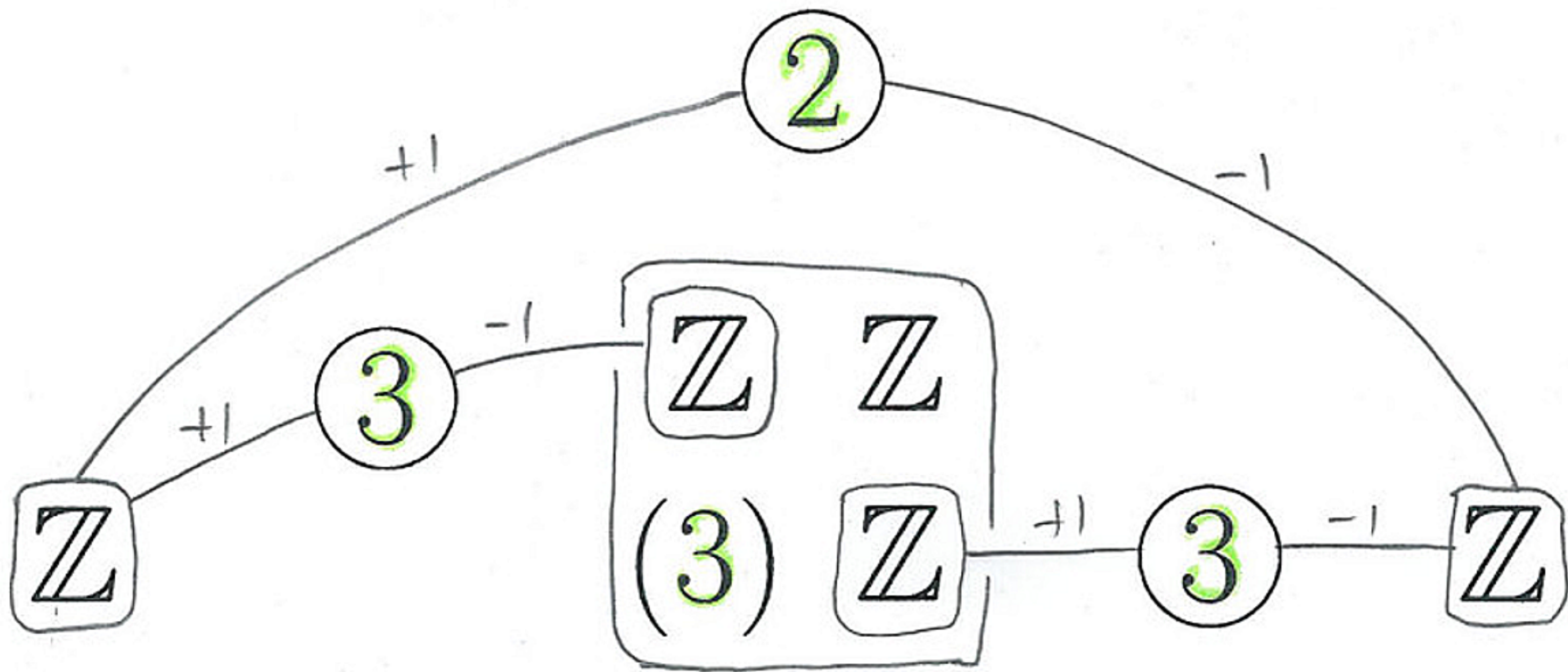
$$\mathbb{Z}S_3 \xrightarrow{\sim}$$



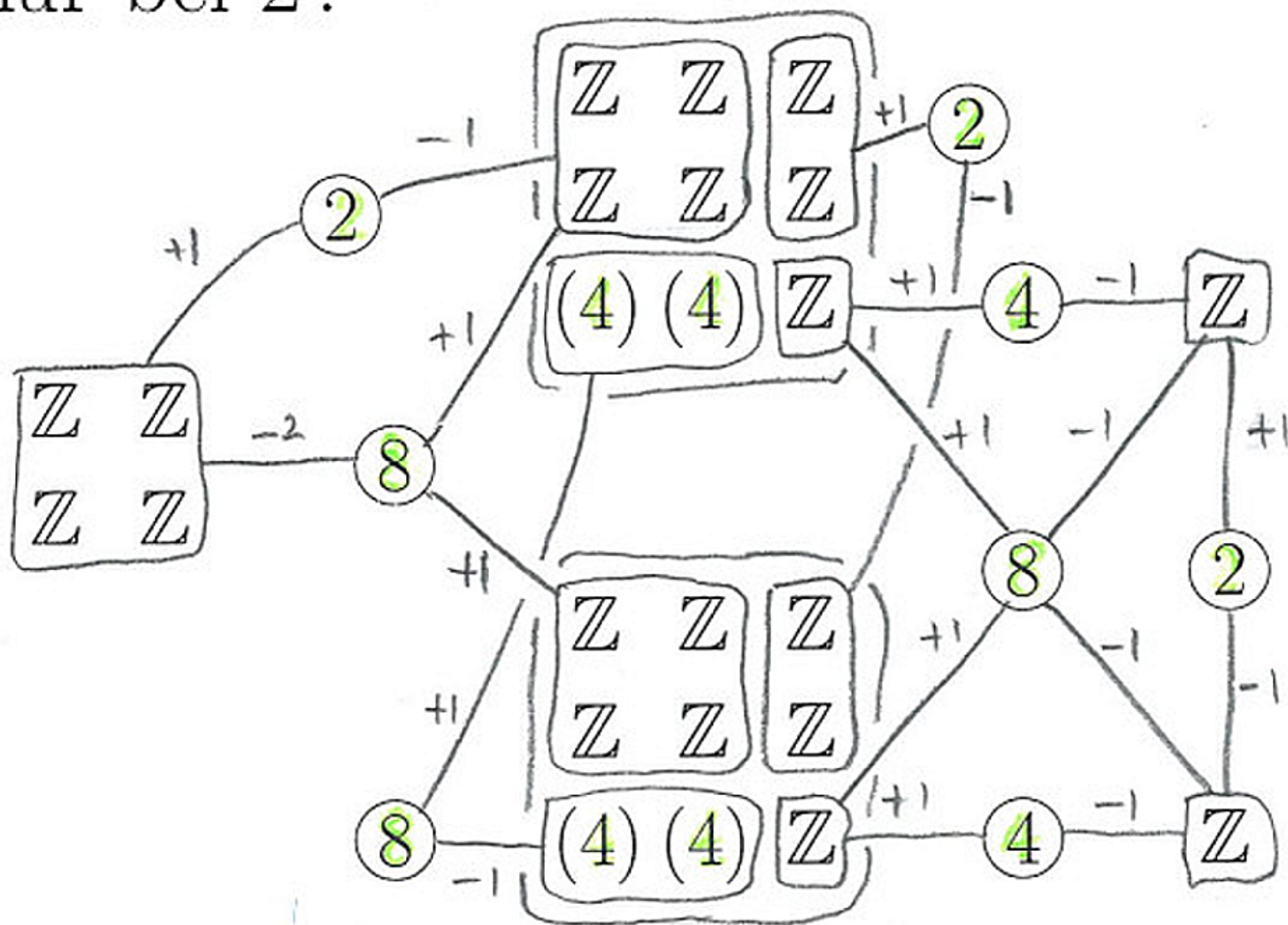
$$(1, 2) \mapsto$$

$$\left(1, \underbrace{\begin{pmatrix} -2 & -1 \\ 3 & 2 \end{pmatrix}, -1}\right)$$

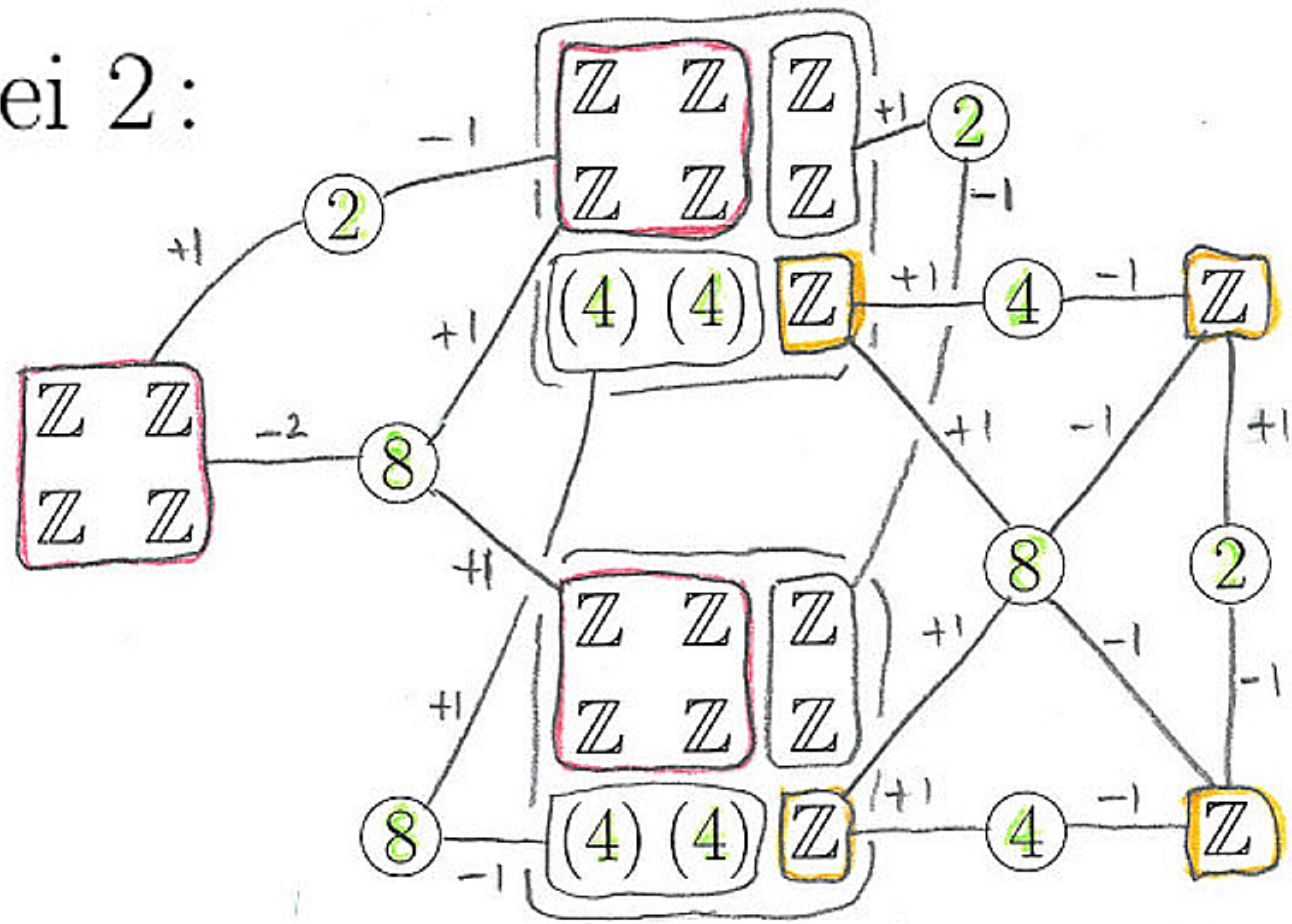
$(+1) \cdot 2 + (-1) \cdot (-1)$ teilbar durch **3**



$\mathbb{Z}S_4$, nur bei 2:

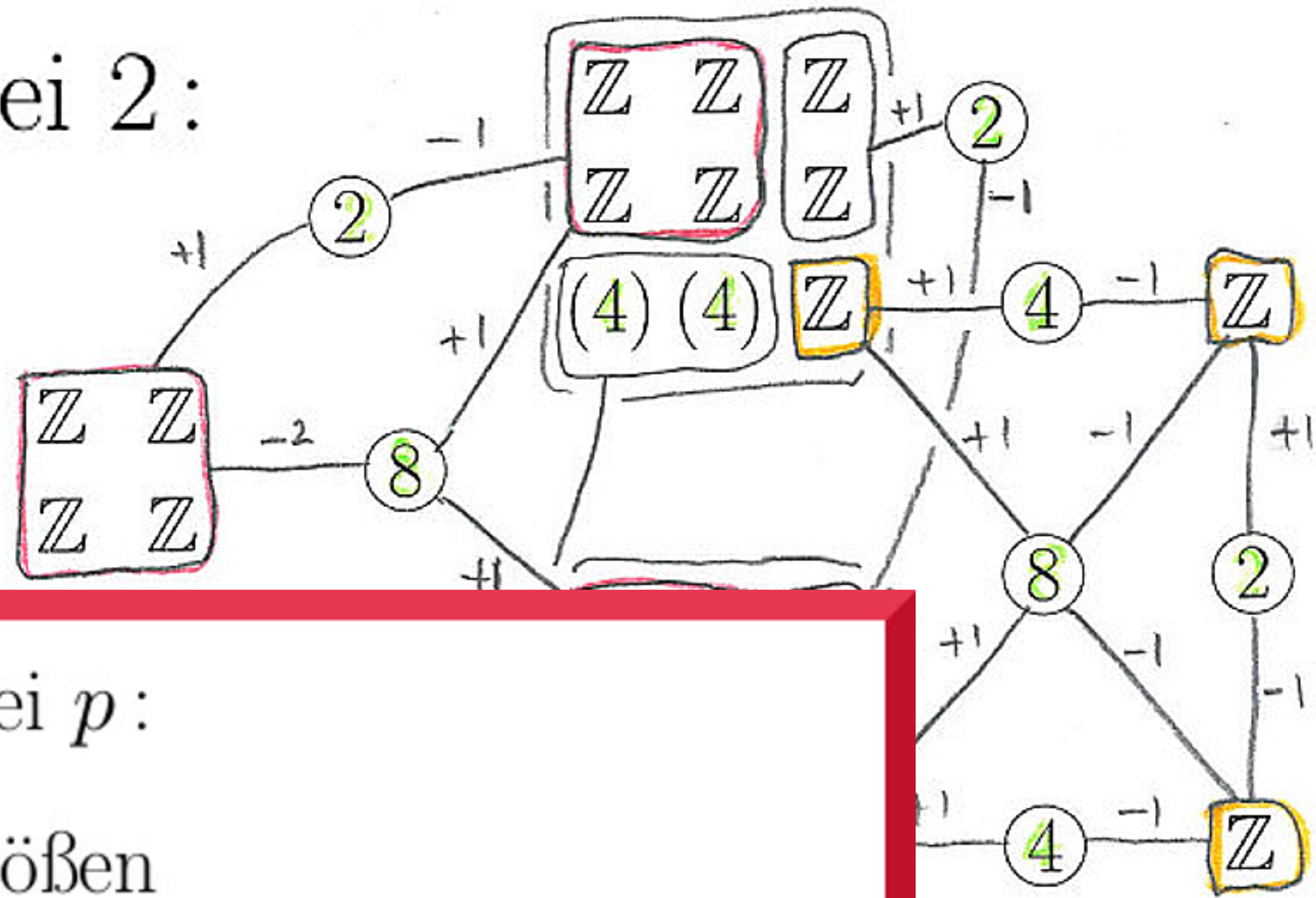


$\mathbb{Z}S_4$, nur bei 2:



Blockgrößen: 2×2 und 1×1 .

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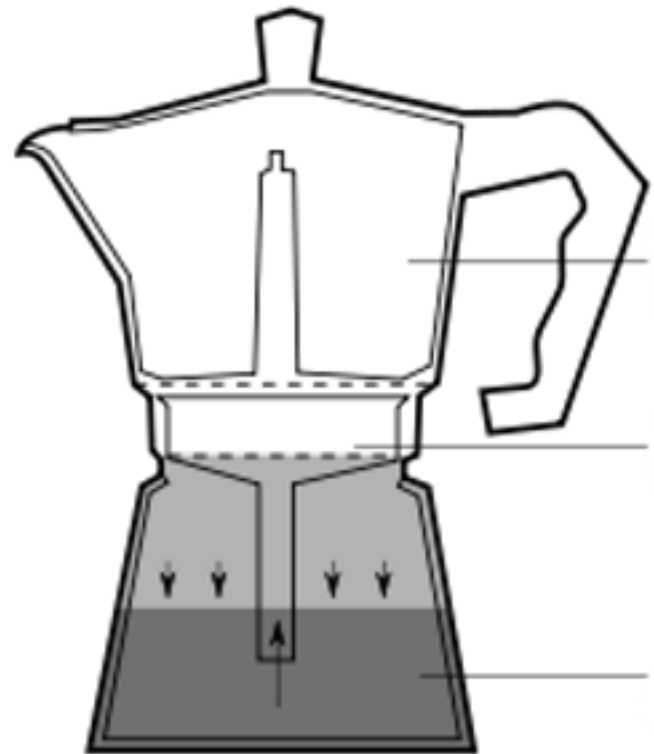
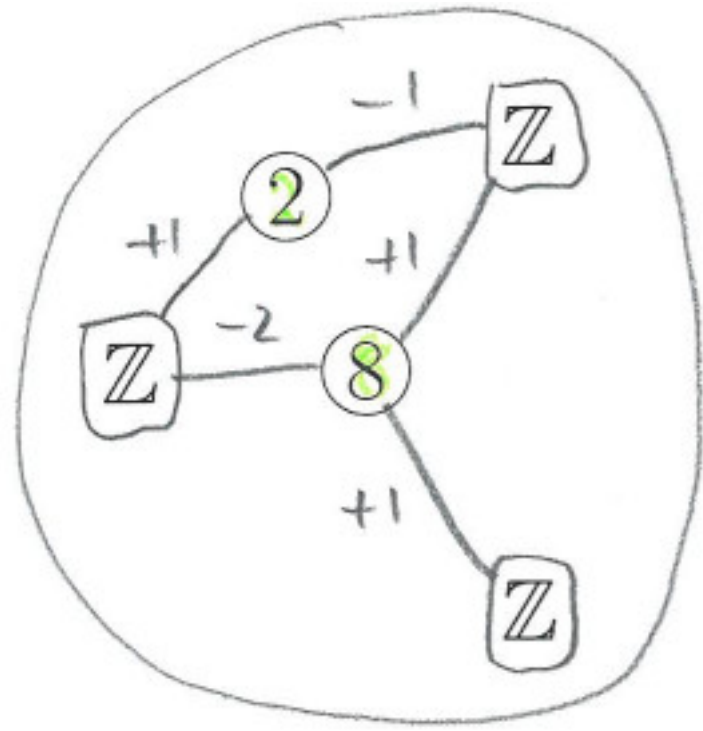
Für $\mathbb{Z}S_n$ bei p :

Blockgrößen

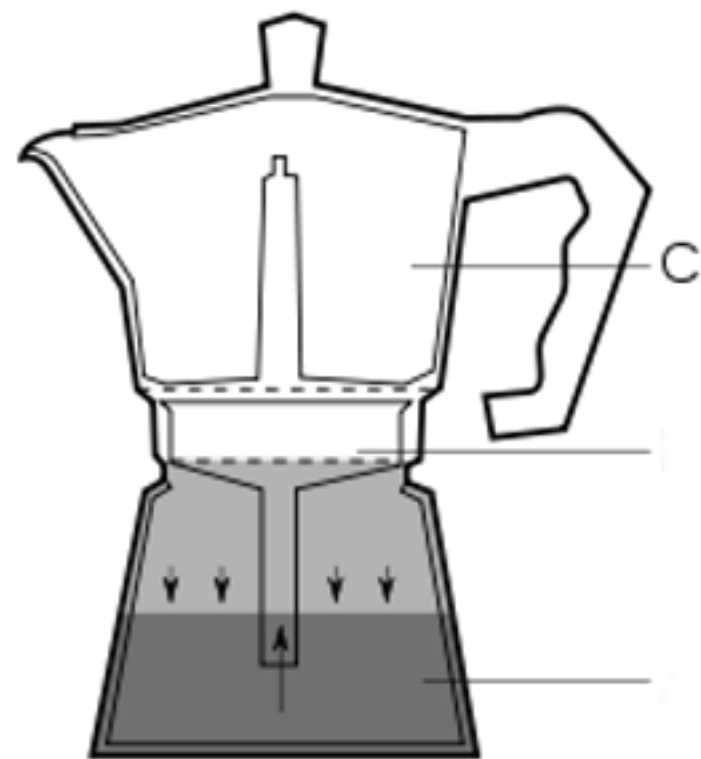
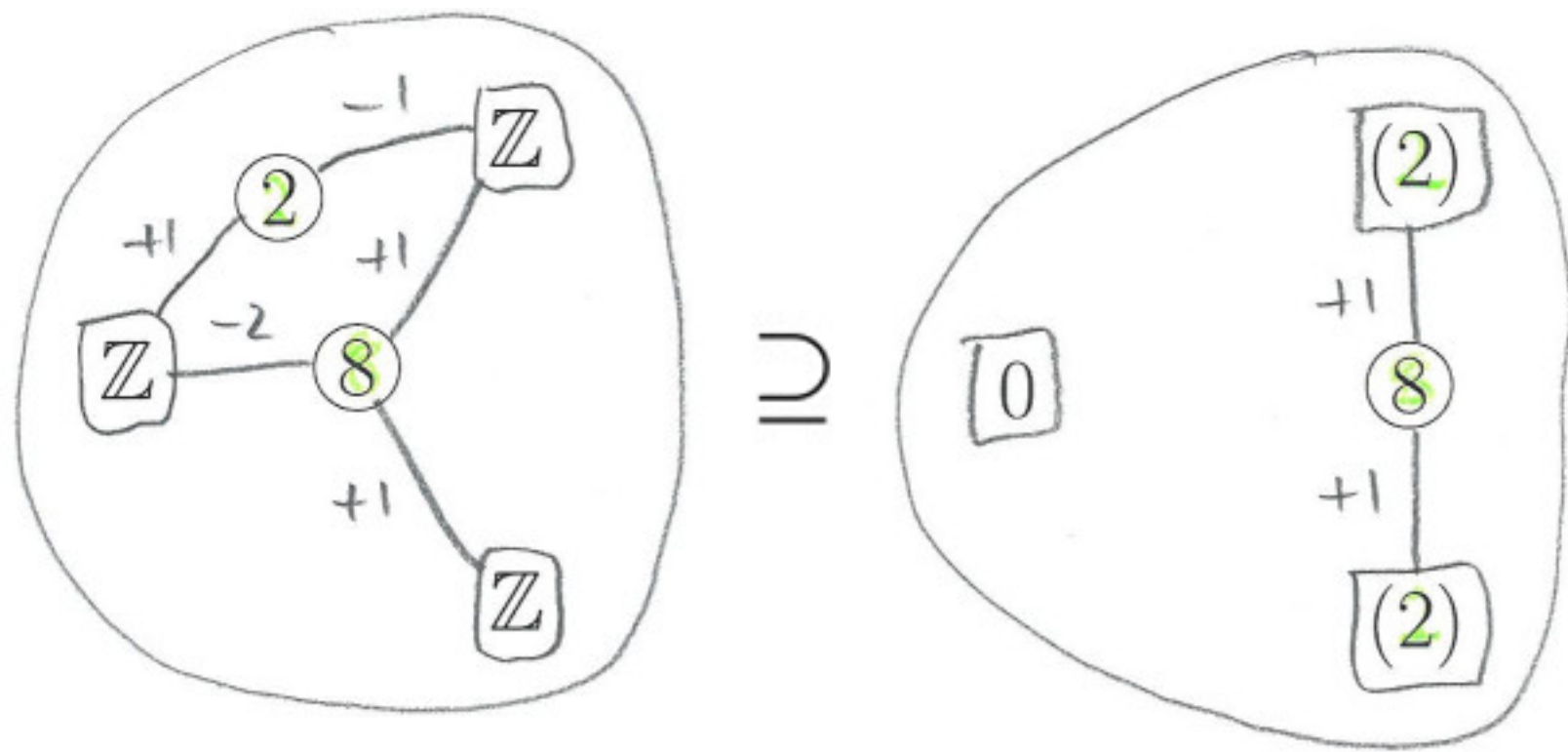
= Größe der "Elementarteilchen"

= ??

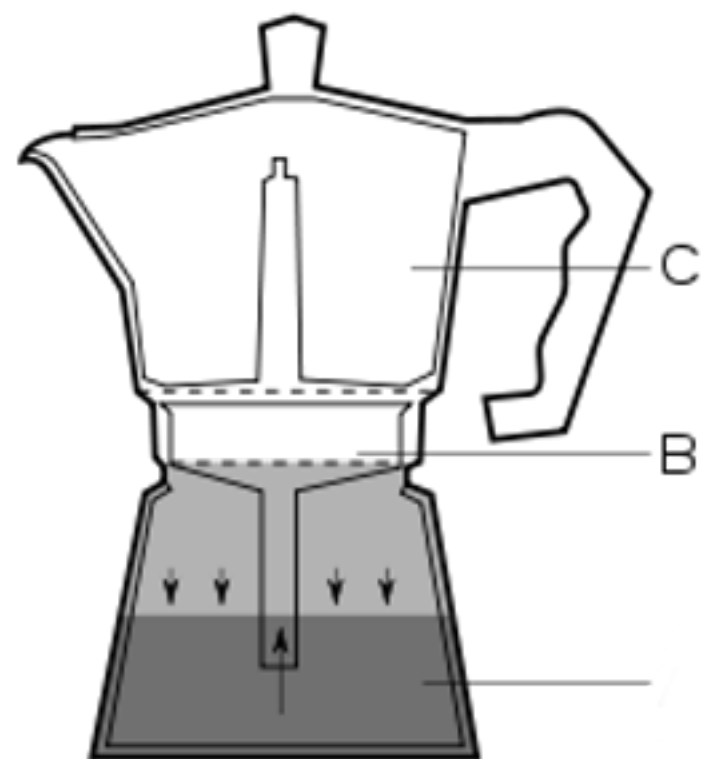
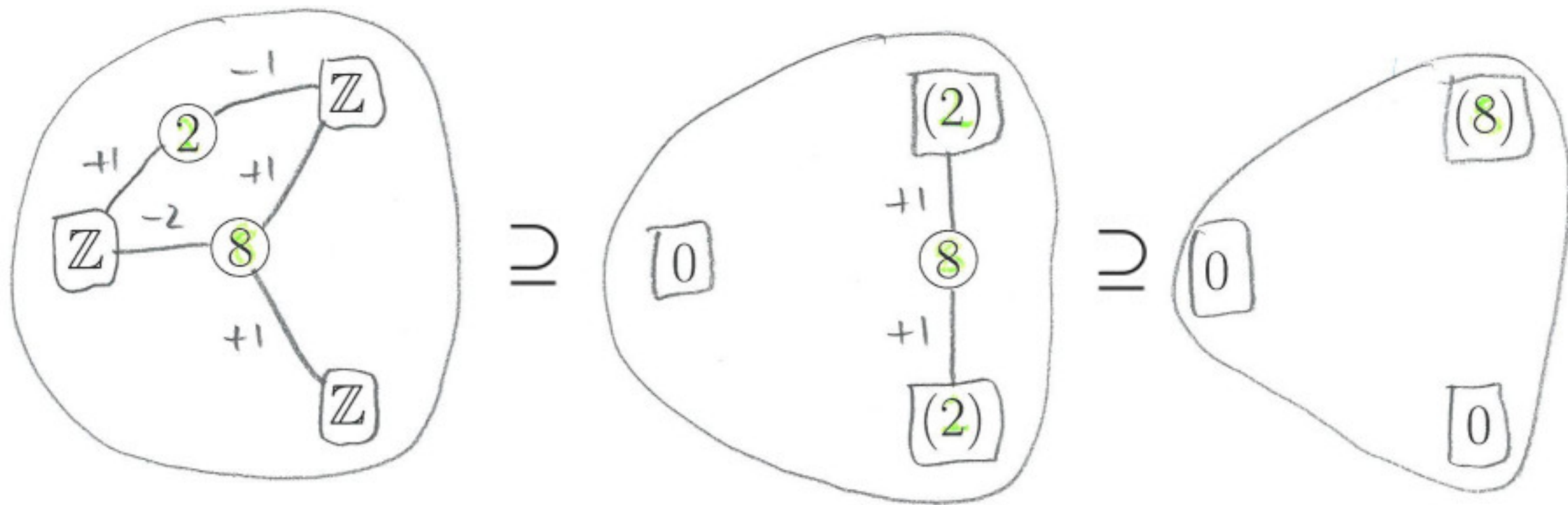
B. Keller und S. Schmid: Filtrieren!



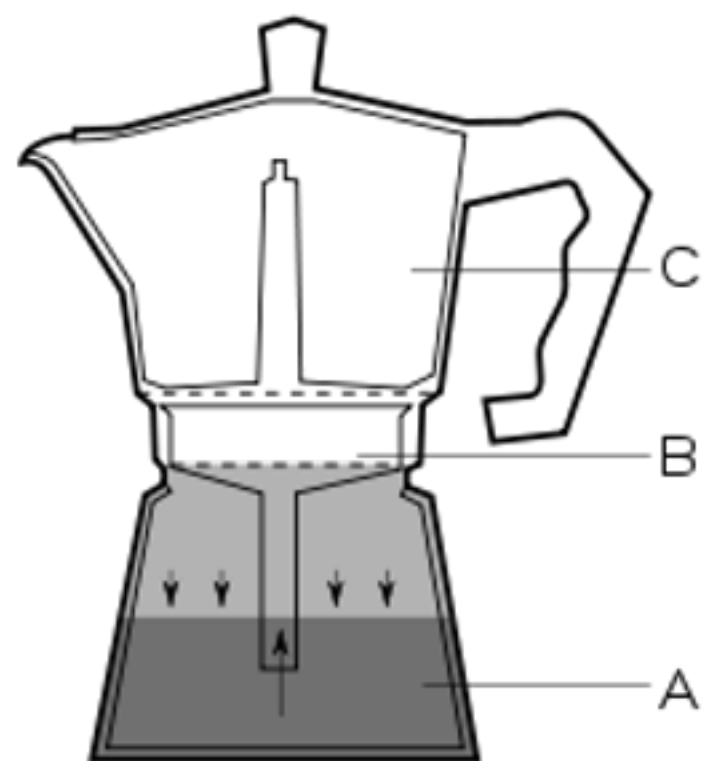
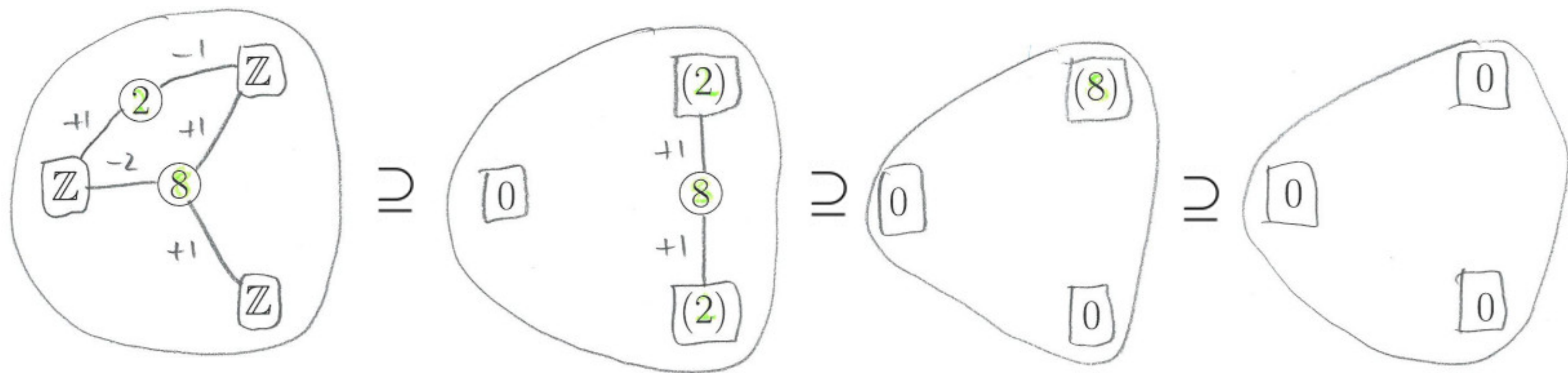
B. Keller und S. Schmid: Filtrieren!



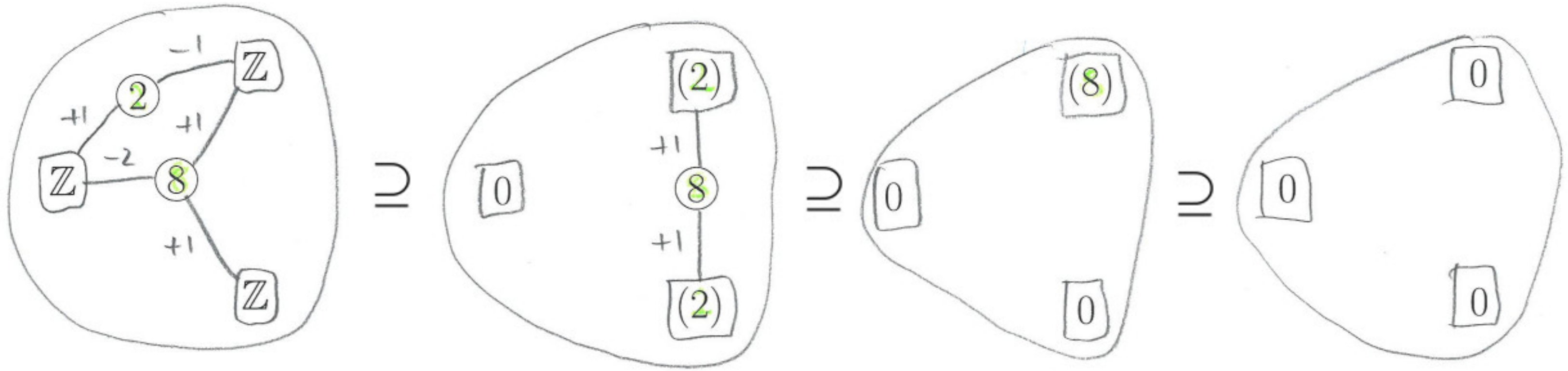
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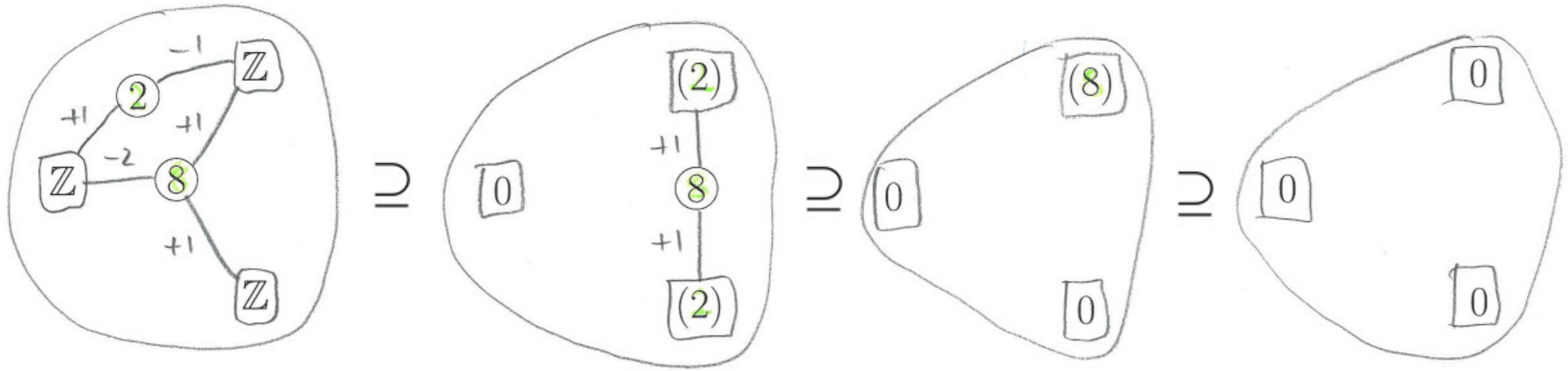


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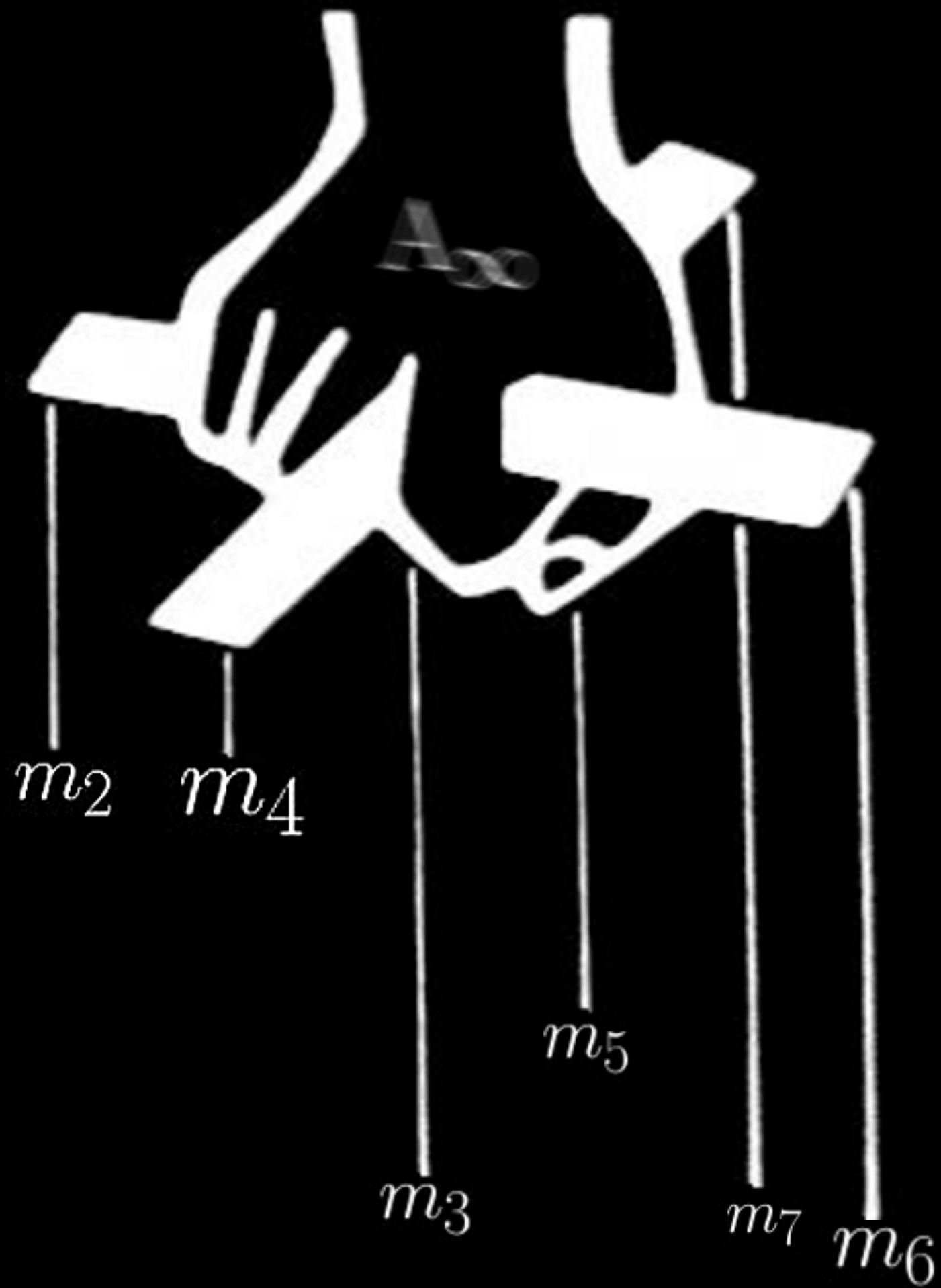
Bekannt: dies ist unter Kontrolle einer A_∞ -Kategorie.

B. Keller und S. Schmid: Filtrieren!

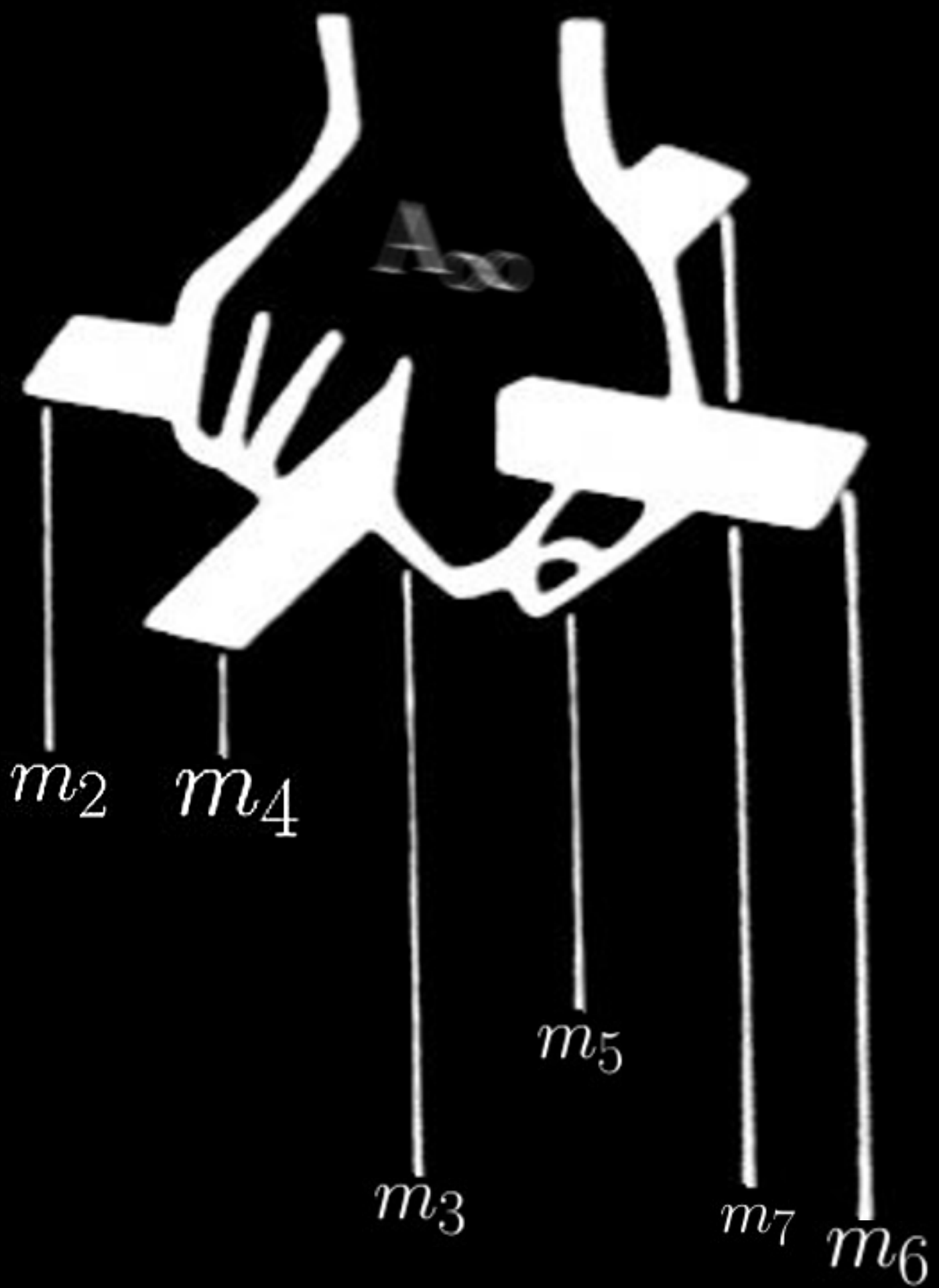


Bekannt: dies ist unter Kontrolle einer A_∞ -Kategorie.

Unbekannt: die A_∞ -Kategorie.



beschattet von N. Yoneda





J. Stasheff konnte ein Familientreffen beobachten:

$$0 = \sum_{r+s+t=k} (-1)^{r+st} (\text{id}^{\otimes r} \otimes m_s \otimes \text{id}^{\otimes t}) \cdot m_{r+1+t}$$