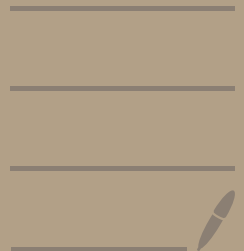


ZFC

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共尾

层叠谱系



## ZFC 公理系统. (Zermelo - Fraenkel)

Check on the Internet!

## 共尾 (Cofinality)

$$cf(r) = \min \{ \text{type}(X) \mid X \leq r \wedge \sup(X) = r \}$$

$$k^\lambda = \begin{cases} \lambda^+ & , k \leq \lambda \\ k^+ & cf(k) \leq \lambda < k \\ k & , 1 \leq \lambda < cf(k) \end{cases}$$

## 层空谱系.

$$V = \{x \mid x=x\} \quad WF = \bigcup_{\alpha \in On} V_\alpha \quad [V_\alpha = \{\phi, \{\phi, \{\phi, \dots\}\}\}]$$

$$\text{rank}(x) = \min \{\alpha \mid x \in V_{\alpha+1}\}$$

在 ZF<sup>-</sup> 中, 以下等价

- (1) 正则公理
- (2)  $\forall$  集合,  $\in$  良序
- (3)  $V = WF$