

# QUANTENPHYSIK

Max Planck

'Energie ist gequantelt'



10 000 000 000 000 000 000 000 000

massiv



Redukt.

determinist

Induktiv

Energie  
(Kraft)

M A T E R I E

Zeit

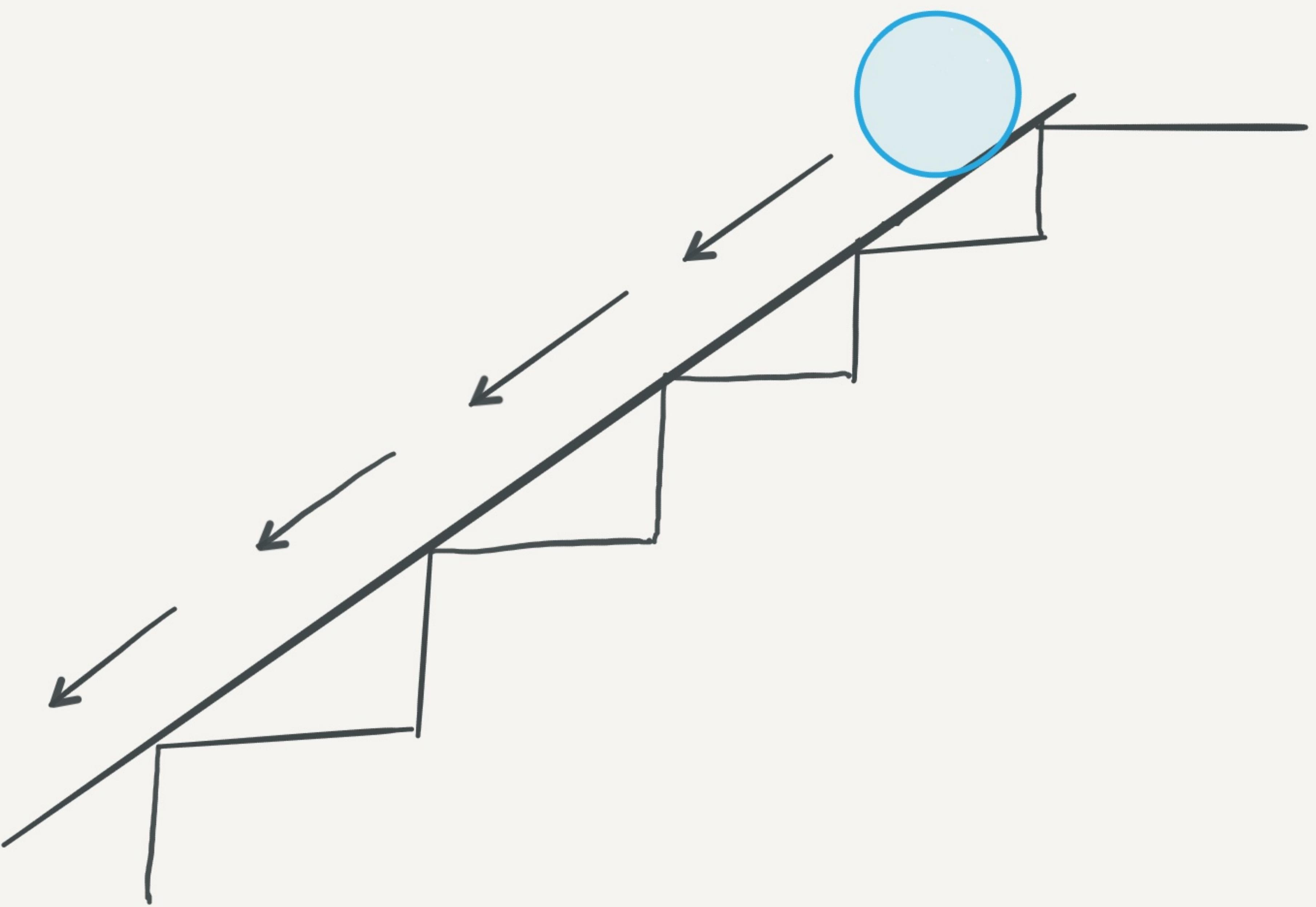
Raum  
3D

Ereignis

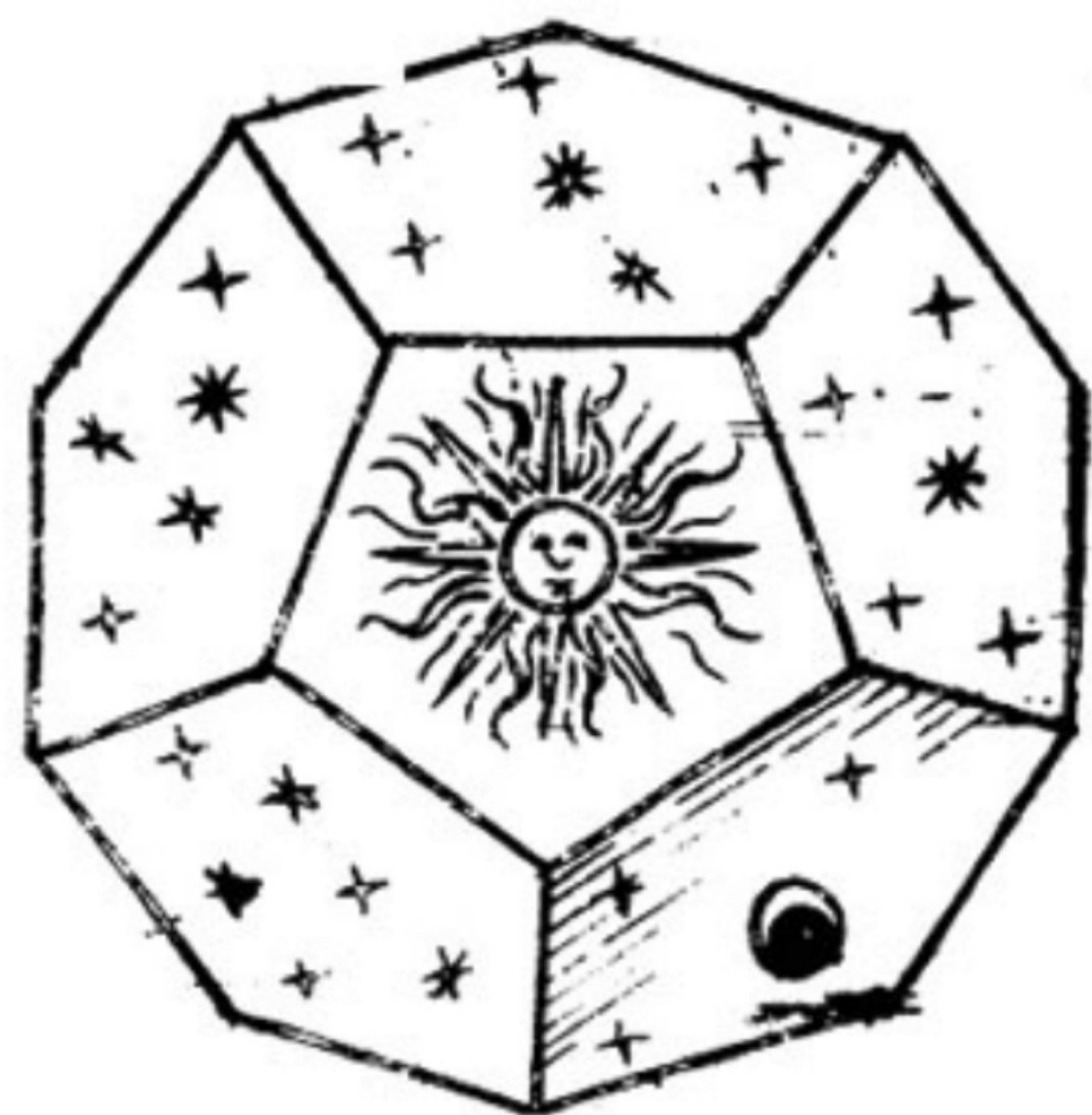
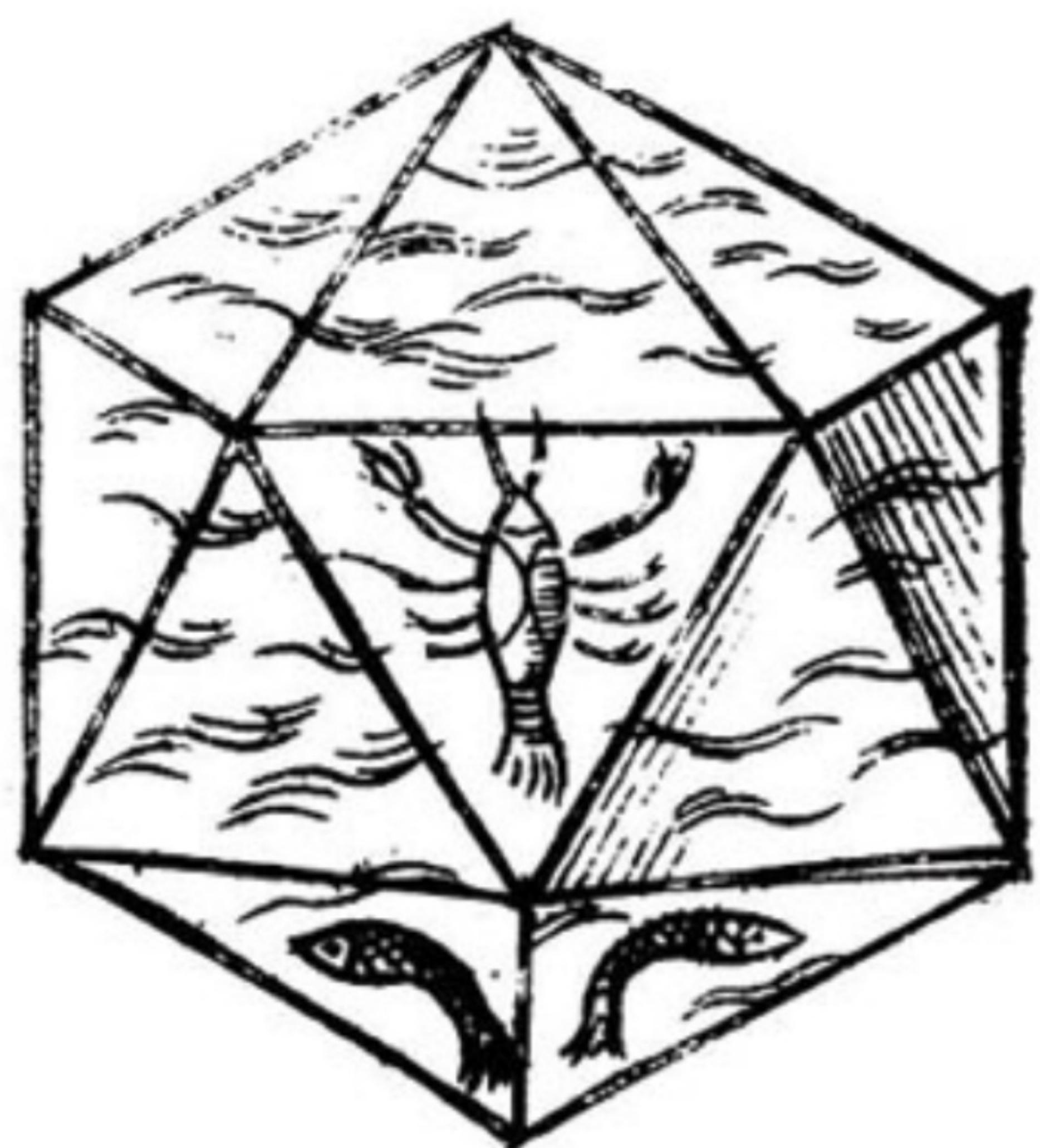
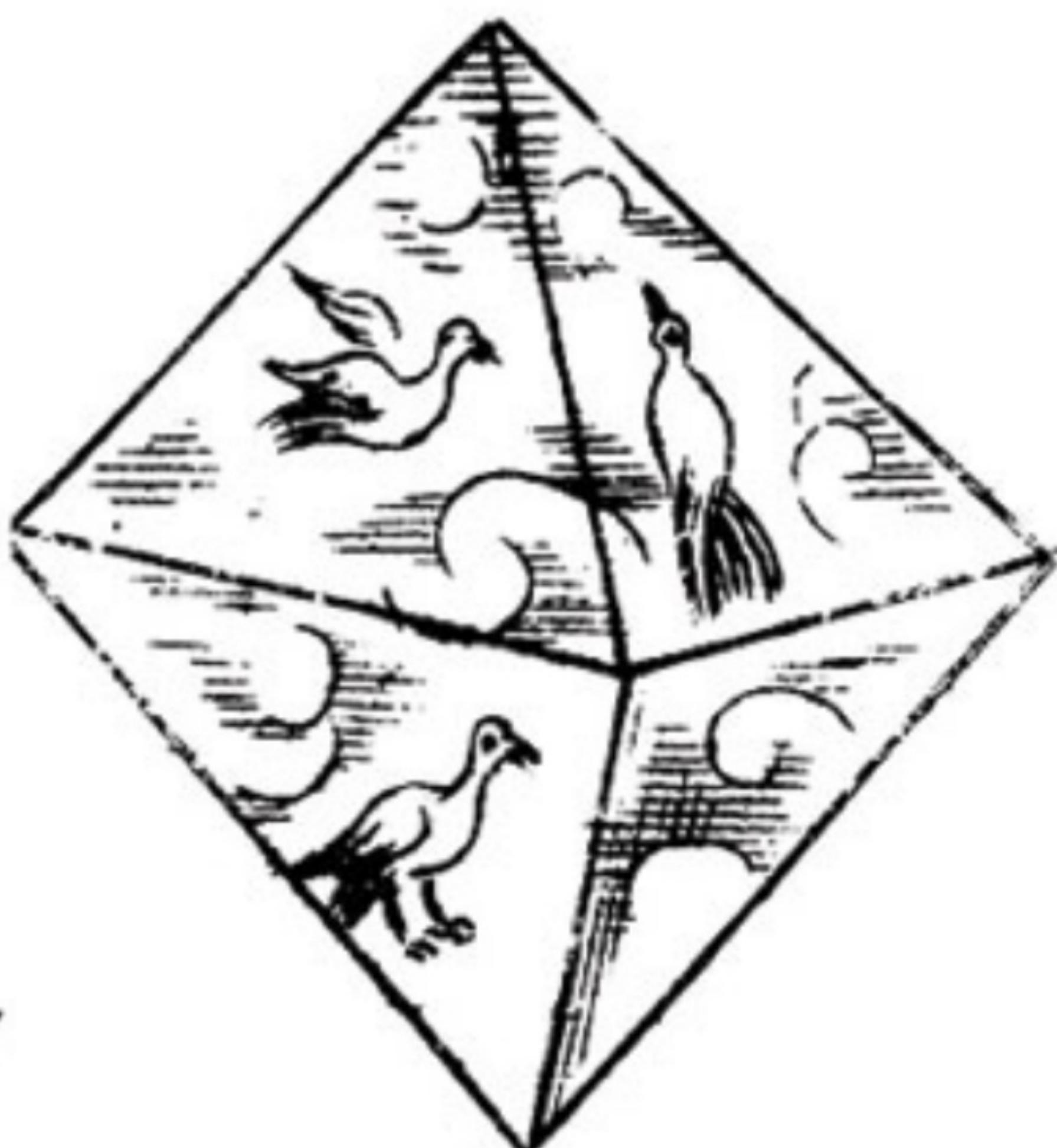
linear

kausal

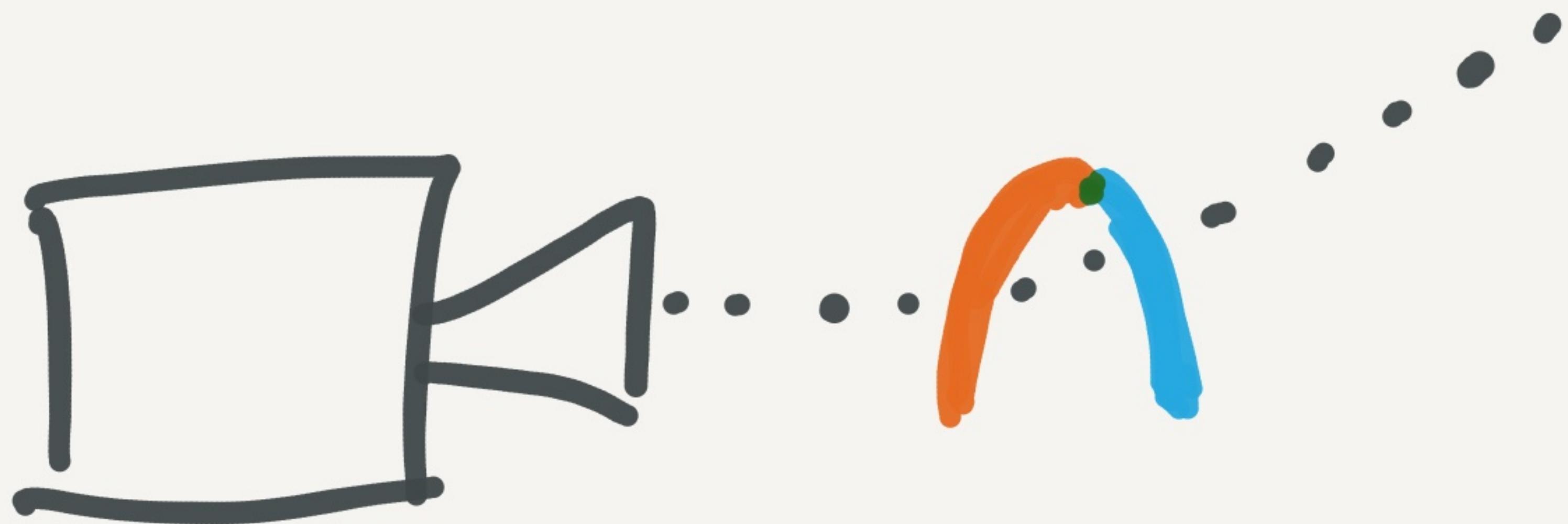
100 %. prognostizierbar



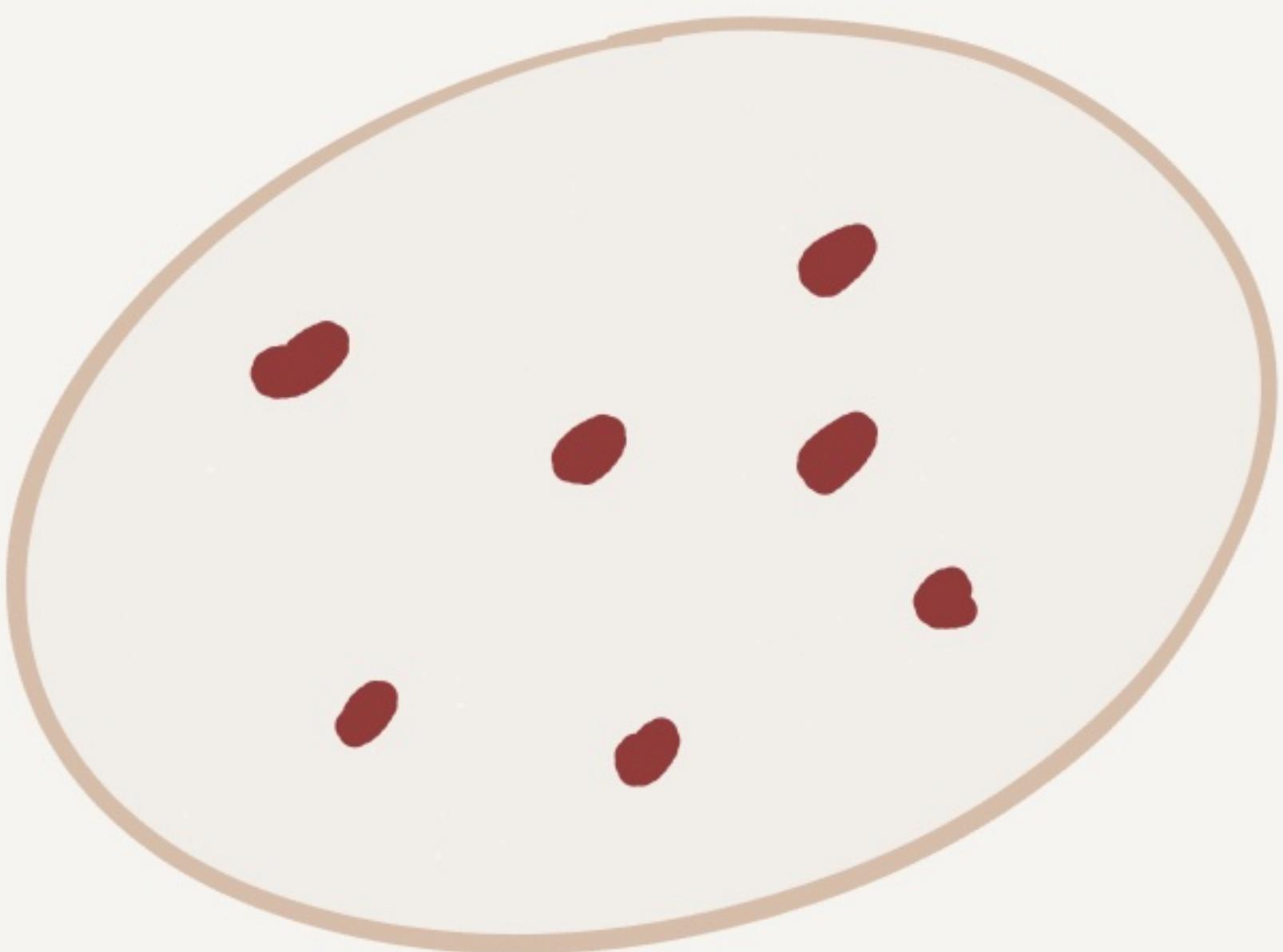




1890 Thomson



weich



1900 PLANCK

wellenartig

&

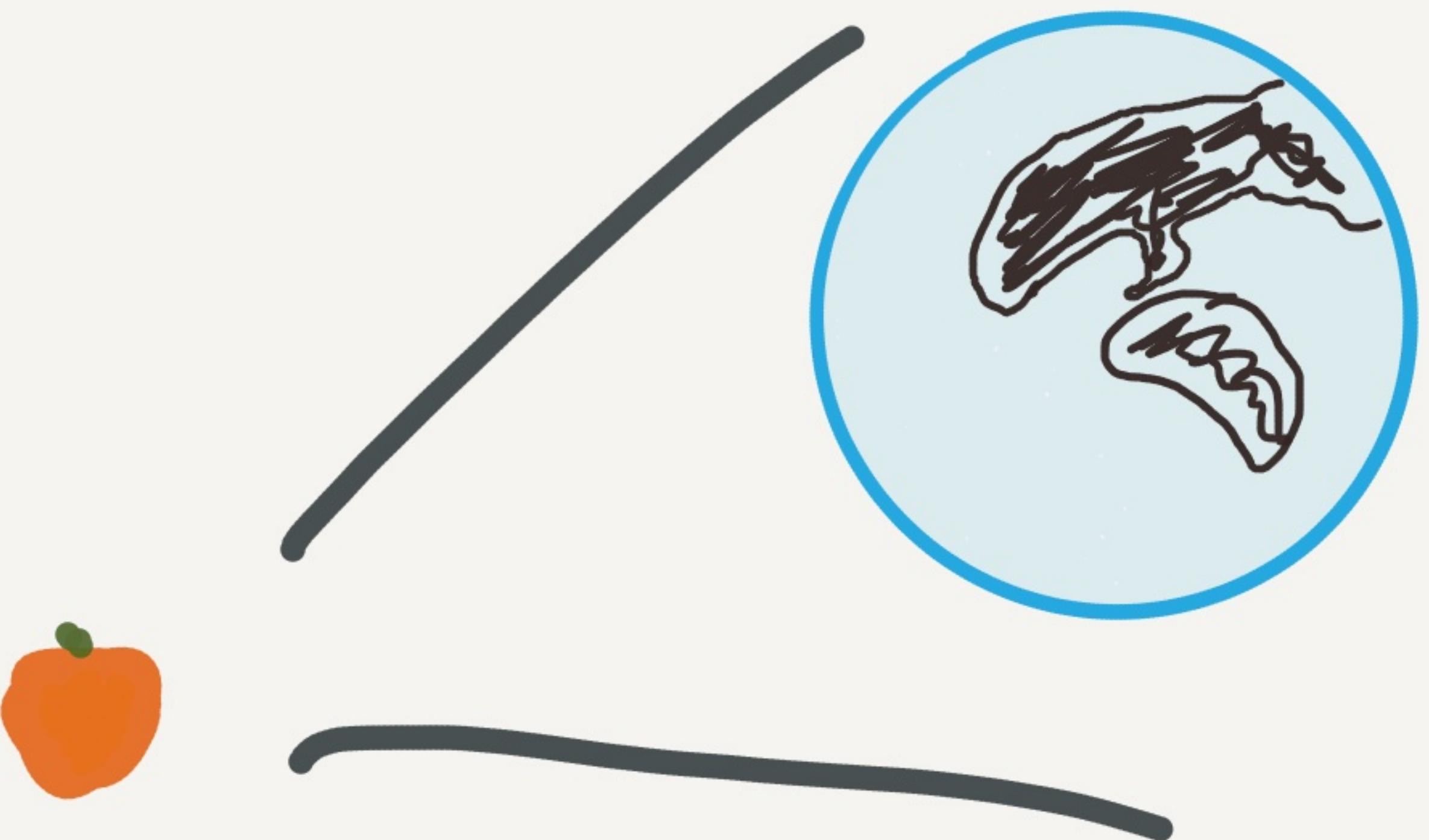
ge quantelt



Young

# 1911 RUTHERFORD

beer !



**Das Betreten  
des Rasens ist  
Elektronen  
verboten!  
Niels Bohr  
(1913)**



1926

Begründer der  
Quantenmechanik

300



1,53€

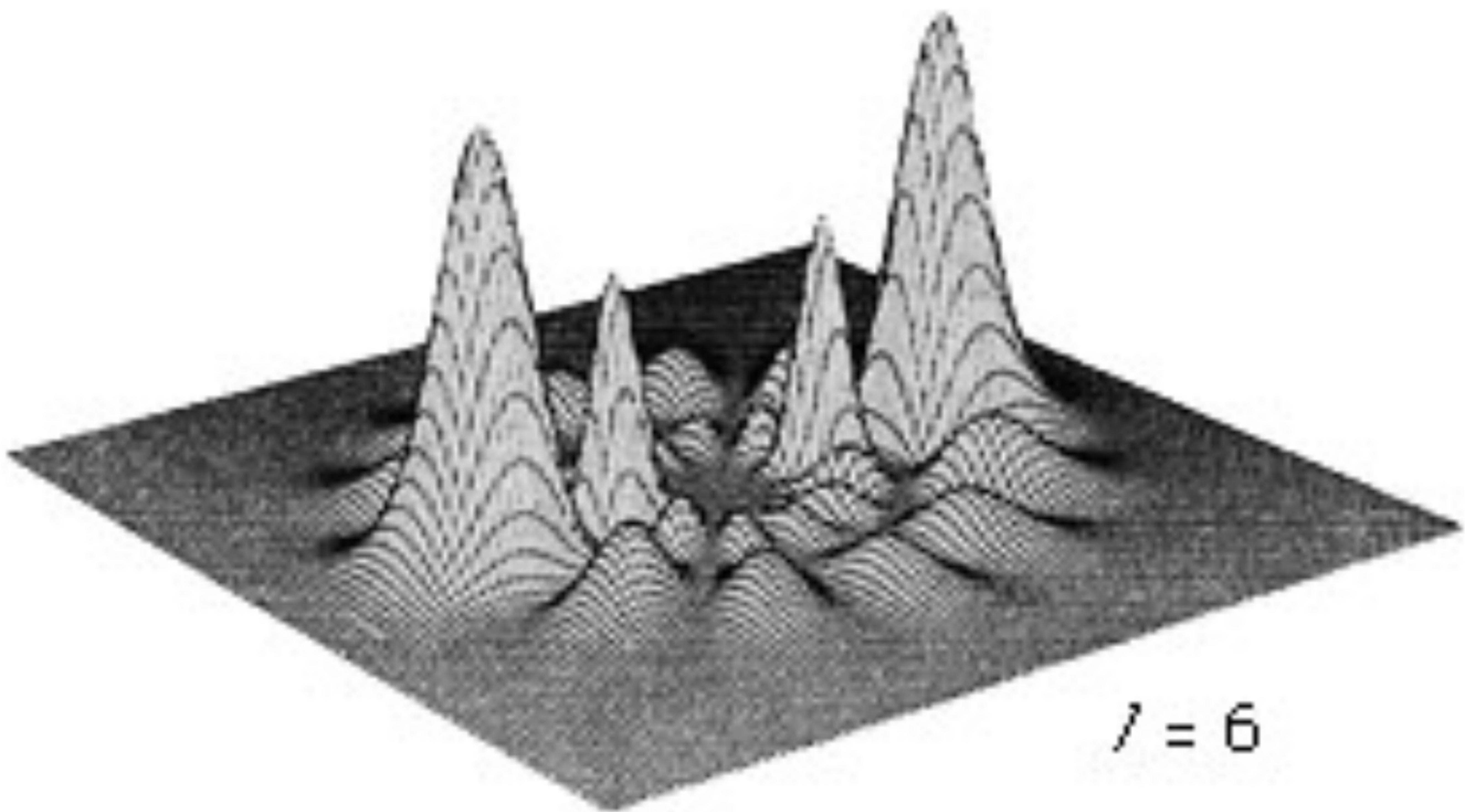
$$\Delta p \cdot \Delta q \sim h$$

*Heisenbergsche  
Unschärferelation*

Deutschland

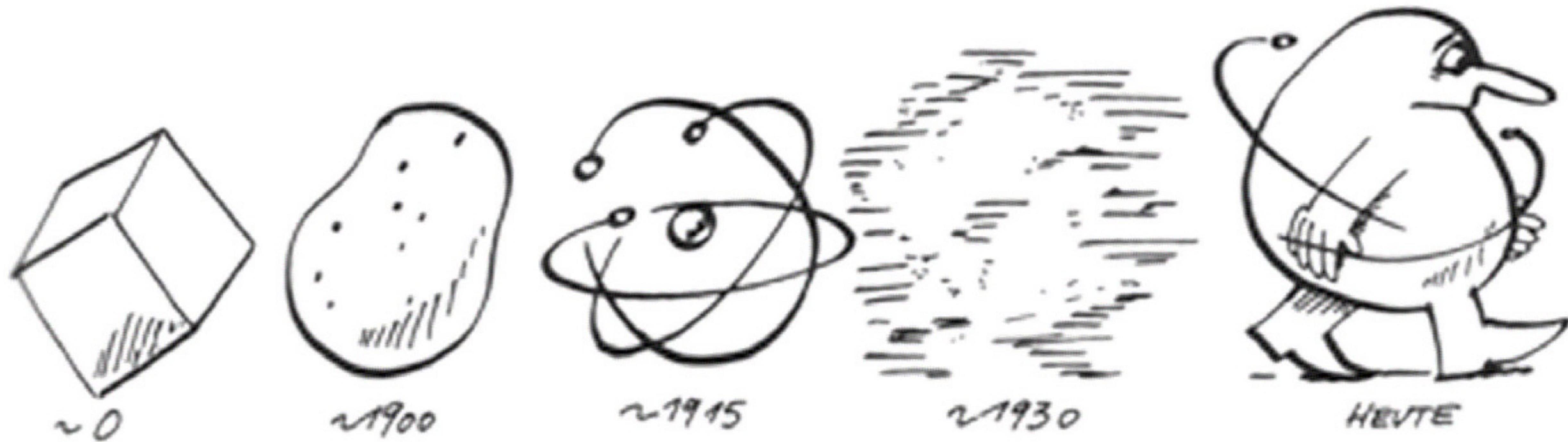
Werner Heisenberg  
Physiker  
2001

1901 – 1976

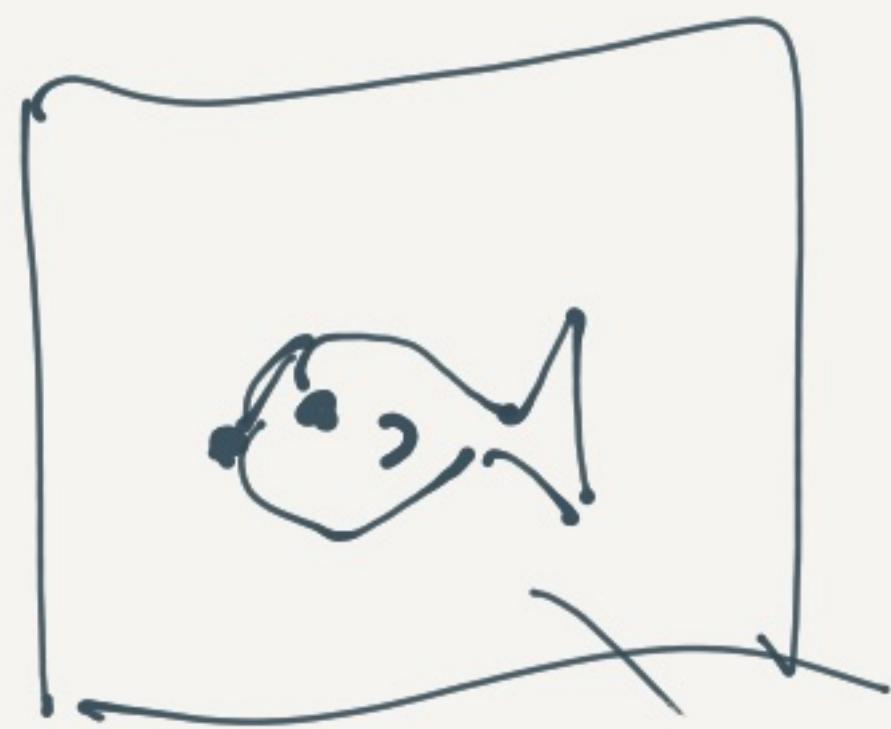


$\lambda = 6$

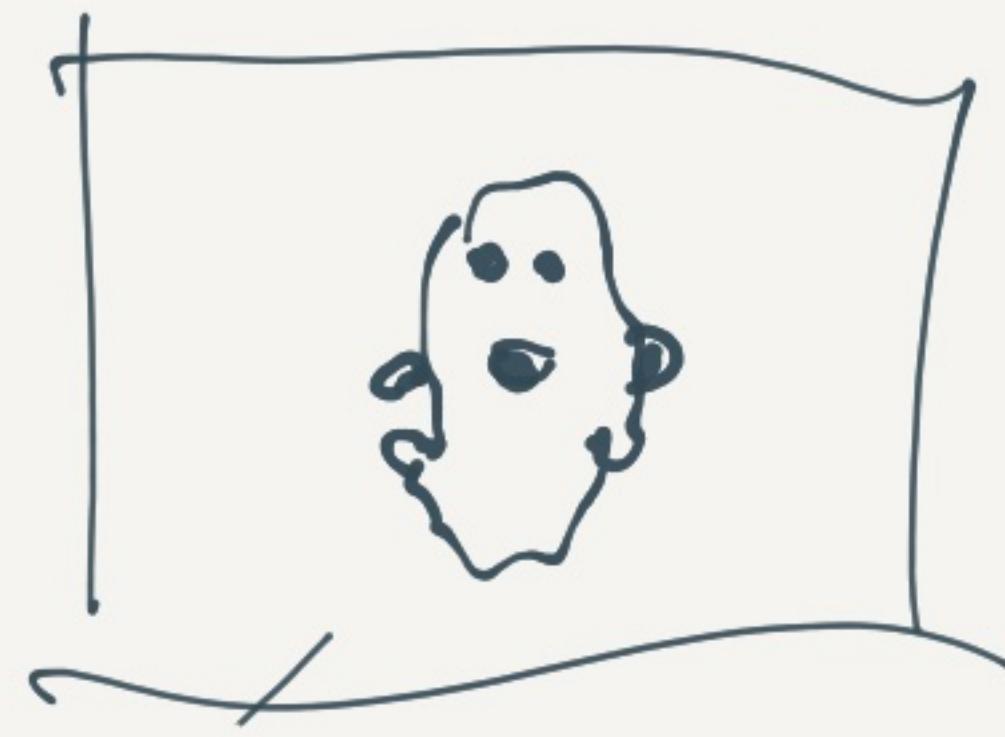
## DAS WUNDER DER EVOLUTION



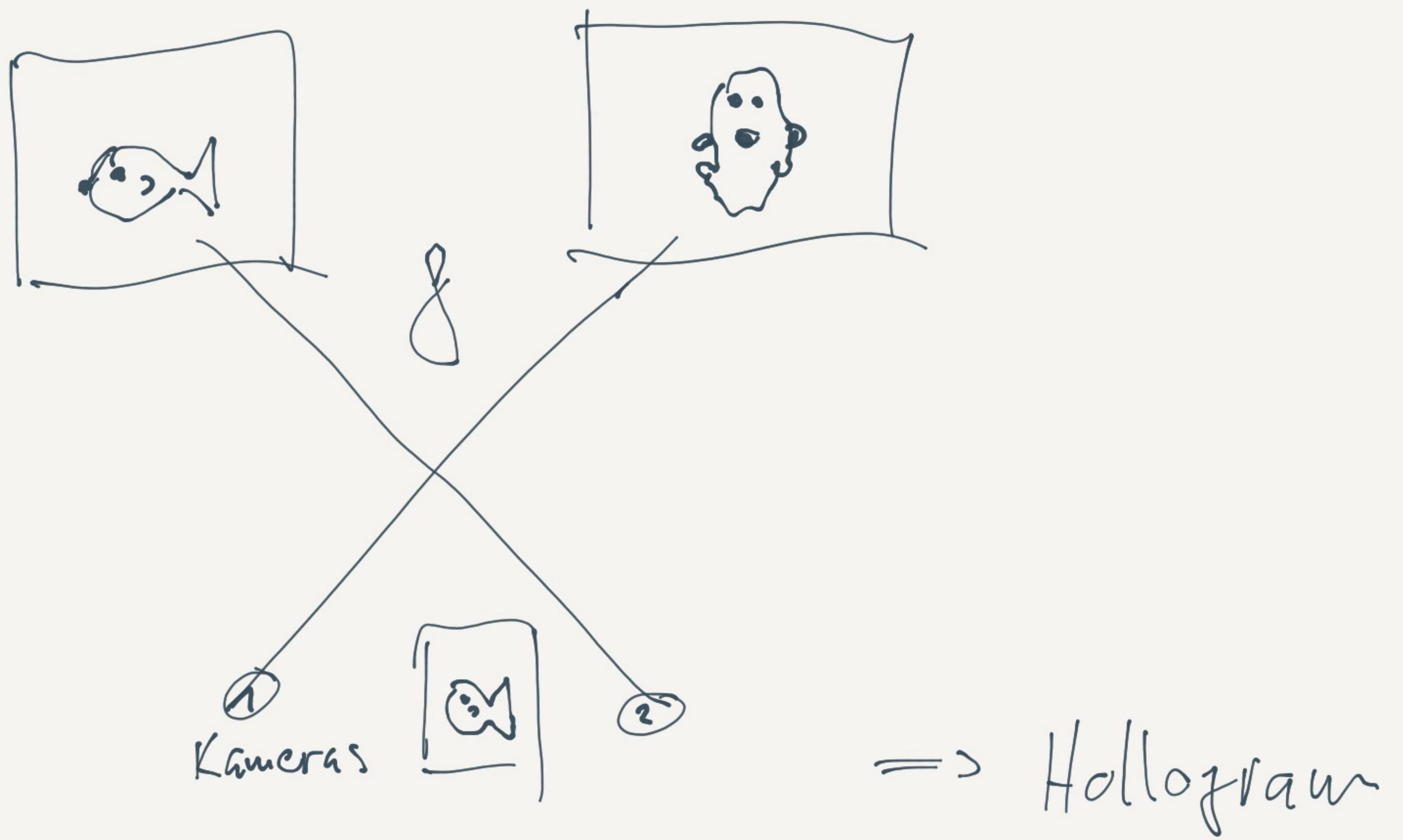
David Bom :



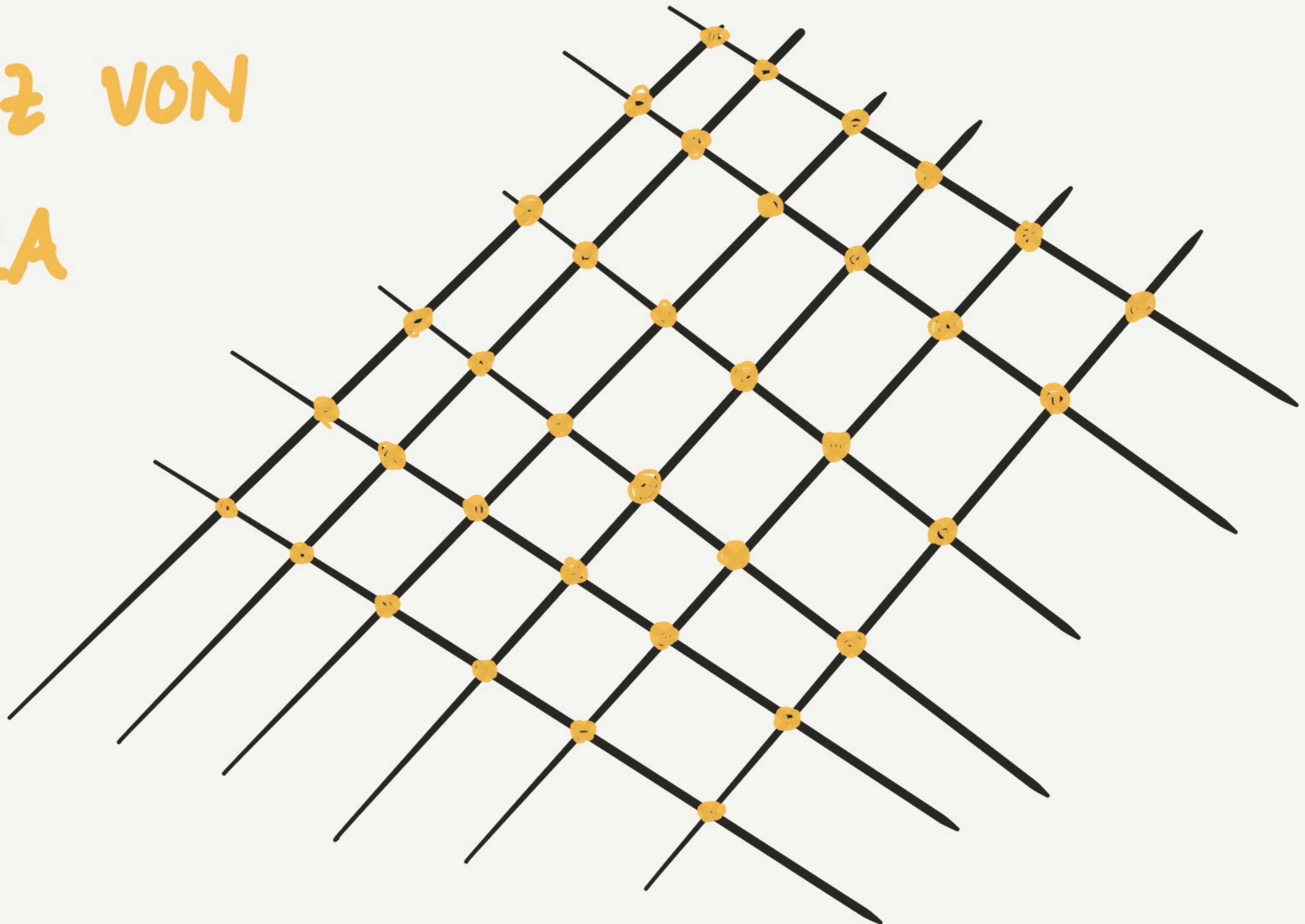
g



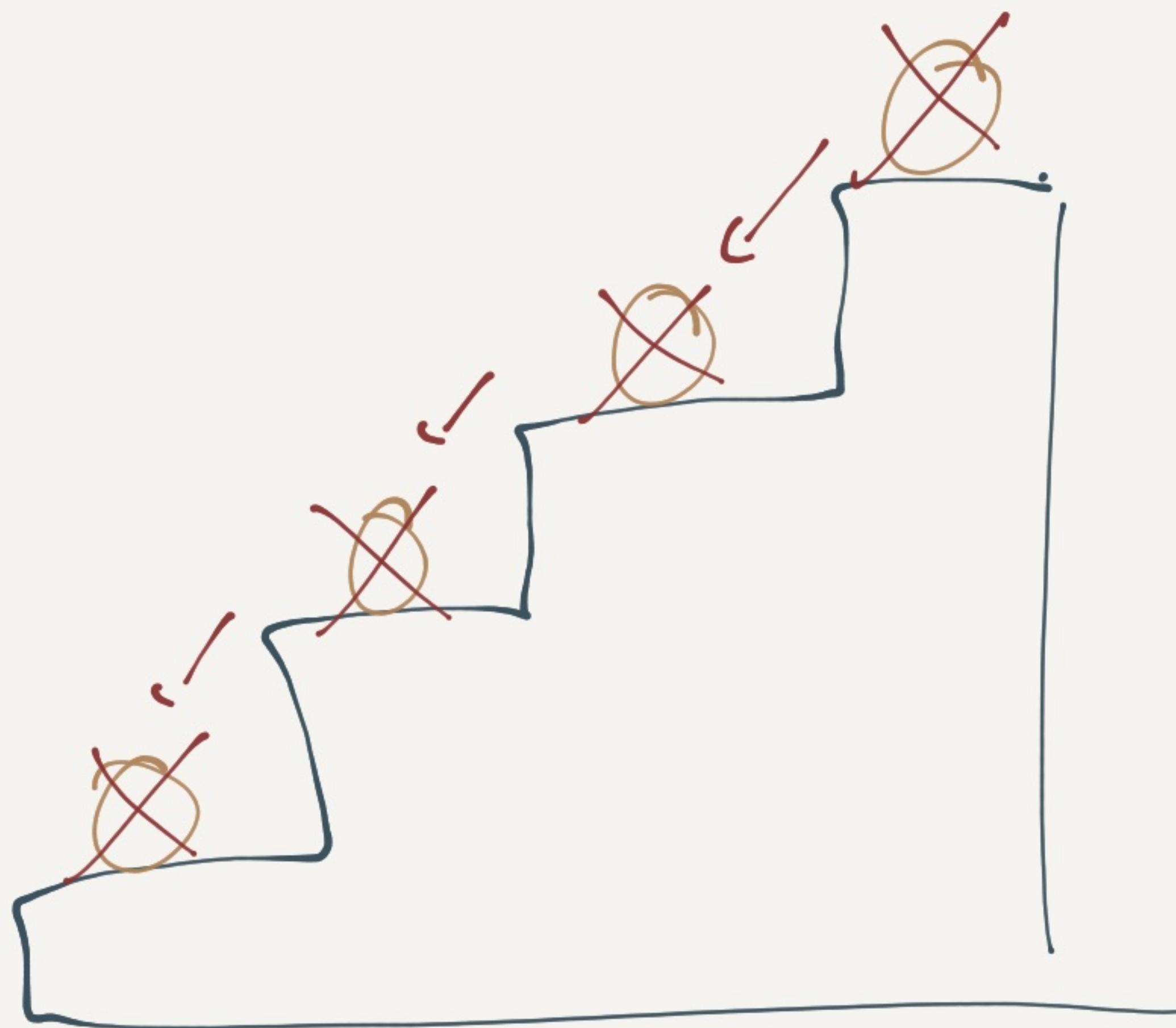
David Bohm :



# NETZ VON INORA



# QT - physikalisch - Ball







339A

130/17



$$|\Psi\rangle = \frac{1}{\sqrt{2}} [ | \downarrow \rangle + | \uparrow \rangle ]$$



$$\Delta\varphi \geq \frac{\pi}{2}$$

$$\psi \approx e^{i(\vec{k} \cdot \vec{x} - \omega t)}$$

$$i\hbar \frac{\partial}{\partial t} \psi = -\frac{\hbar^2}{2m} \nabla^2 \psi + V \psi$$