

# The Copenhagen Interpretation

o two realms:            micro            macro  
                                 quantum        classical  
                                 unspeakable    speakable

o positivism

o impossibility of realist theories

o completeness of  $\psi$  in the micro realm

o language of measurement

o narratives, not serious

o complementarity

## Reactions to the measurement problem

- nobody can solve Schr. eq. for  $10^{23}$
- systems are never isolated
- $\nexists$  wf of the universe
- questionable if  $\Psi(t_1) = \psi \otimes \phi$
- derivation of collapse rule
- collapse of prob.
- decoherence

# Transactional Interpretation

J. G. Cramer 1986

$\psi(x)$  or  $|\psi\rangle$

$\psi^*(x)$  or  $\langle\psi|$