

I Probability

Topics: ① Objective + Subjective Probability -

Utility, Fact that S.D. prob. does exist, and forms better starting point, examples

Joint distribution model as example (3 variables unknown)

I information

② Information: definition = plausibility - hypothetical
 $\text{Entropy} = -I$

③ Correlation: Algebra, Inequalities, examples.

Define a total correlation = $I_{abc} - I_a - I_b - I_c$ I theorem

II Quantum Mechanics:

The Paradox - possible resolutions

a. hidden variables

b. exclusion of classical level
(trouble with this)

c. Universal W.F. and its correlations - splitting discussion, examples, analogies (atoms etc.)

Show how Von Neumann Mas. works

To be investigated: Uncertainty relation: is $I_x + I_k \leq \ln \frac{1}{\pi e}$?
all W.F.'s ($\hbar k = p$)

Modified second law: direction of correlation entropies
example of close stat mech: prove that total entropy invariant \Rightarrow (second law $\uparrow \Rightarrow$ [correlation \downarrow])

Correlations in field theory \rightarrow expect C's to decrease as function of distance
(maybe get a C¹-metric)

Symmetry properties, Partial addit., cohesion force (over)



Transitivity of Correlations for Measurements!

(not true generally, See Counter example around 8.30)