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Chances and Conditionals

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Notes

1. Two Kinds of Probability

CHANCES: postulated by theories in microphysics, genetics, etc. to explain frequencies.
CREDENCES: probability measures of degrees of belief, postulated by decision theories to explain actions.

2. Single-case Chances

A coin toss's chance *p* of landing heads is a *property of that toss s*uch that a sequence of frequencies of heads in ever larger classes of tosses *with that property* would have a limiting value *p*.

3. Conditionals

C 'If T then H' = 'If this coin is tossed it will land heads.'
'If E then F' ('F if E') = 'If I exercise I'll get fit.' ('I'll get fit if I exercise.')
'If (F if E) then (G if A)' = 'If I get fit if I exercise I'll join the gym if I can afford it.'

4. Inferential Dispositions

I ACCEPT 'If E then F' *iff* I'm disposed to believe 'F' if I believe 'E'.
I ACCEPT 'If (F if E) then (G if A)' *iff* I'm disposed to accept 'G if A' if I accept 'F if E'.

5. Safety

A conditional is SAFE (= truth-preserving) *iff* accepting it won't make a true belief cause a false one.

6. Centering

'If P then Q' is safe for all true 'P and 'Q'.
'If "P" is true it's worth believing' is unsafe for many 'P'.
'If "If P then Q" is safe it's worth accepting' is unsafe for many 'P' and 'Q'.

7. Dispositions & Reduction Sentences

SOLUBILITY: *x* is *Sn* (gms/litre): If 1 gm of *x* is put in *n*+ litres of water *and x is still Sn*, it'll dissolve.
VELOCITY: *y* has *Vn* (mph): If it's an hour later *and Vn hasn't changed*, *y* will be *n* miles away.
ACCELERATION: *y* has +ve *A*: If it's an hour later *and A hasn't changed*, *y* will be more than *n* miles away.

8. Chance and Determinism

DETERMINISM: C, 'If this coin is tossed it will land heads', is safe if the toss is *D* and all *D* tosses land heads.
CHANCE: C*p*, 'If this coin is tossed it'll have a chance *p* of landing heads', is safe if the toss has that chance.
COMPATIBILITY: a coin toss can be *D and* have a chance *p* of landing heads

9. Counterfactual and Conditional Chances

CONDITIONAL CHANCE of H if T = the actual chance of T&H/the actual chance of T.
COUNTERFACTUAL CHANCE of H if T = the *p* such that the counterfactual
C*p* 'If T then the chance of H is *p*' is safe.

10. Chances of Chances

C*p*′*p* 'If the coin's tossed there'll be a chance *p*′ of its having a chance *p* of landing heads.'
C*p* 'If the coin's tossed it'll have a chance *p* of landing heads.'
C 'If the coin's tossed it will land heads.'

11. Chances-as-evidence (C-E) Principle

If all you know about how a coin toss will land is that it has a chance *p* of landing heads, then your credence that it will land heads should also be *p*.

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