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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 1: Negation

C 'If T then H' = 'If this coin is tossed it will land heads.'

¬C 'If T then ¬H' = 'If this coin is tossed it won't land heads.'

4. Conditionals 2: Acceptance

'If E then F' = 'If I take exercise I'll get fit.'

To ACCEPT 'If E then F' is to be disposed to believe 'F' if I believe 'E'.

5. Conditionals 3: Safety

If 'If E then F' is SAFE, i.e. truth-PRESERVING, then accepting it won't make a true belief cause a false one.

If 'If E then F' is SAFE, 'If E then ¬F' is UNSAFE.

If 'If ¬E then ¬F' is SAFE, 'If ¬E then F' is UNSAFE.

6. Centering

For all 'P and 'Q', if 'P' and 'Q' are TRUE, 'If P then Q' is SAFE.

'If "If P then Q" is safe it's acceptable' is UNSAFE for many 'P' and 'Q'.

'If "P" is true it's believable' is UNSAFE for many 'P'.

7. Counterfactual and Conditional Chances

C*p* 'If T then the chance of H is *p*' = 'If this coin is tossed it will have a chance *p* of landing heads'

COUNTERFACTUAL CHANCE of H if T = the *p* such that C*p* is safe if it's counterfactual.

CONDITIONAL CHANCE of H if T = the actual chance of T&H/the actual chance of T.

8. 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.

9. Chance and Determinism

DETERMINISM: C, 'If the coin's tossed it will land heads', is safe if the toss is *D* and all *D* tosses land heads.

CHANCE: C*p*, 'If the coin's 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

10. 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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