PH130 Meaning and Communication

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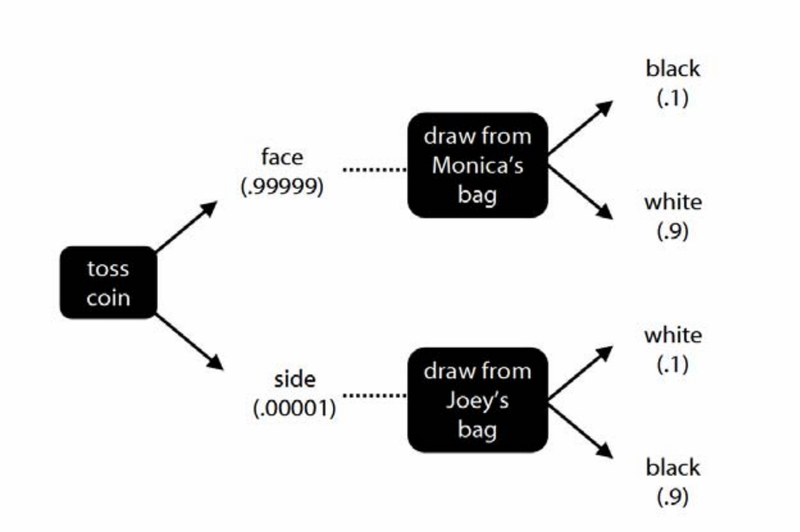
The Real Argument against treating conditionals as truth functional

The game from Tuesday …



Test question: For each of the following statements, if you were forced to be either that it is true or else that it is false, which way would you bet?

a. Supposing the coin lands on its side, the ball will be white. (x)

b. The coin will not land on its side. (v)

c. Either the coin will not land on its side or the ball will be white. (v)

d. If the coin lands on its side the ball will be white. (x)

Results: Nearly all students on PH130 prefer to bet that (c) is true, where they prefer to bet that (d) is false.

Discussion: *If* these preferences are rational, (c) and (d) cannot be logically equivalent and so conditionals cannot be truth functional. But are these preferences rational?

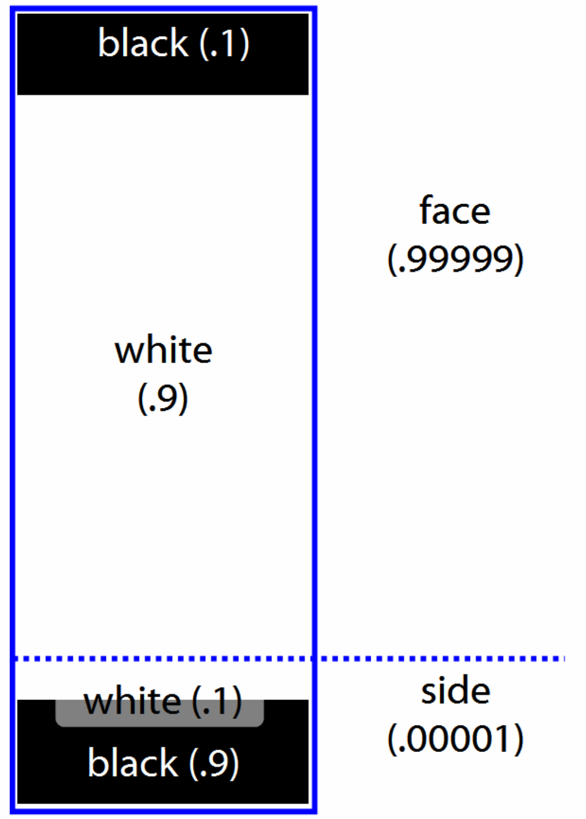
Consider how you worked out whether to bet for or against (d). You may have implicitly used the Ramsey Test:

Ramsey Test

““If two people are arguing ‘If *p* will *q*?’ and are both in doubt as to *p*, they are adding *p* hypothetically to their stock of knowledge and arguing on that basis about *q*.” (Ramsey 1931: 247)” (Edgington 1995: 264)

Probabilities and conditional probabilities—examples

1. P(white ball drawn | coin lands on its side) = .1
[corresponds to the white space in the ‘side’ section; the ‘face’ section is ignored]
2. P(black ball drawn) ≈ .1
[corresponds to the total black area]
3. P(not land side or white ball drawn) ≈ .9
[corresponds to the ‘face’ area plus the white part of the ‘side’ area]



Hypothesis about betting strategy:

> If forced to bet on either the truth or the falsity of 'If A, B', choose to bet on the truth of 'If A, B' when P(B|A) is higher than P(¬B|A)

In general:

> **The Thesis**[1] It is reasonable to accept 'If A, B' to the degree that P(B|A)

If we accept The Thesis, then it is sometimes rational to have different attitudes to the truth of (c) and (d), and so they cannot be logically equivalent. (This is a little controversial: Jackson 1987 would disagree).

Truth conditions

Recall the two questions:

> Does 'if A, B' mean the same as not-A or B?
>
> Are sentences of the form 'if A, B' capable of truth?

So far: If The Thesis is true, the answer to Q1 is 'no'.

Next: If The Thesis is true, the answer to Q2 is also 'no'.

[1] This is Edgington's (1995: 263) name for the claim that b(B if A) = b(A&B)/b(A).

Argument for the claim that conditionals lack truth conditions:

> 1. The Thesis: 'believing If A, B is reasonable to the extent that P(B|A)'
>
> 2. If it is reasonable to accept If A, B to the degree that P(B|A), then P(If A, B) = P(B|A)

Therefore:

> 3. P(If A, B) = P(B|A)

But:

> 4. There is no connective '*' such that, for all propositions A and B and all probability distributions P, (i) A*B has truth conditions and (ii) P(A*B)=P(B|A).
>
> This was First proved in (Lewis 1976 [1991]). Further proofs of this and stronger claims are demonstrated in chapters 6–9 of Eells and Skyrms (1994). Readable version in (Adams 1975: 34ff.)

Therefore:

> 5. If A, B lacks truth conditions.

Compositionality. The Thesis tells us nothing about embedded conditionals:

> "A language is compositional if the meaning of each of its complex expressions (for example, 'Every time t: If F(t), then G(t)') is determined entirely by the meanings [of] its parts ('every', 'if' ,'F', 'G') and its syntax" (modified from Richard 1998).
>
> "A bloke was telling me, if you're in the army and there's a war you have to go and fight."
>
> I.e.: Every time there is a war: if you're in the army, you have to fight in it.

Conclusion

Of the following claims, (1) is incompatible with (2) and probably with (3) as well:

1. The Thesis—it is reasonable to accept If A, B to the degree that P(B|A)—provides a systematic explanation of judgements involving conditionals.
2. Conditional statements are capable of being true or false
3. Some languages containing conditional statements are compositional

Which should we abandon?

References

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Lewis, David (1976 [1991]), "Probabilities of Conditionals and Conditional Probabilities", in *Philosophical Papers vol. 2*. Oxford: Oxford University Press.

Postal, Paul M. (2006), *Skeptical Linguistic Essays*. Oxford: Oxford University Press.

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Appendix: Loose end

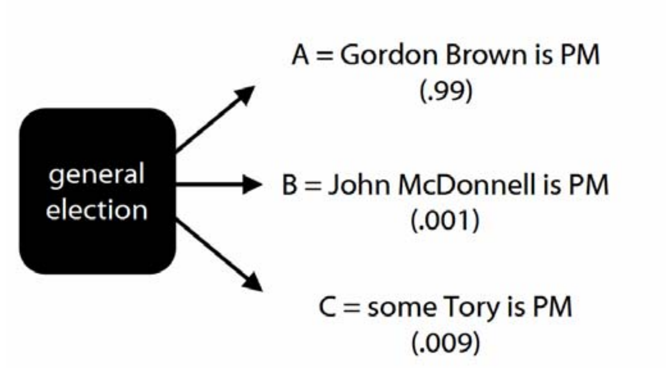
If we accept The Thesis we have to abandon:

(2) A∨B entails If ¬A, B?

But isn't (2) plausible?

It's consistent with The Thesis to say that (2) is correct *providing A∨B is certain*. (Where 'A or B' is certain, P(B|¬A)=1 so it is reasonable to hold that If A, B.)

But where we are at all uncertain about 'A or B', P(B|¬A) may be small (and, crucially, smaller than P(¬B|¬A)). For this reason, it may be reasonable to hold A∨B while rejecting If ¬A, B.



P(A∨B) = .991

P(B|¬A) = .1

P(¬B| ¬A) = .9

(Proponents of The Thesis talk about 'reasonable inferences' rather than logically valid inferences because they don't think conditional can be true or false. And since they can't be true or false, they can't feature in logically valid inferences as standardly defined (a logically valid inference is one where there is no possible situation in which the premises are true and the conclusion false).)