Handout 3:
Bennett, Ch. 3: Jackson

Philosophy 691: Conditionals
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Subjective probabilities

1. The approach to indicatives that descends from Jackson (and Adams, Stalnaker and other before him) leans heavily on the notion of subjective probability. What is this?

2. We'll assume that the probability of a proposition can be represented as a (rational) numerical value in the interval from 0 to 1, using the expression $P(A)$ as shorthand for "the probability of the proposition A".

3. One kind of probability is *objective*, sometimes (stipulatively) called *chance*. Bennett asserts that if determinism holds, the chance of any proposition is either 0 or 1. Even if that is correct, we can sensibly think of general propositions as having chances between 0 and 1. So, for example, the chance that a fair coin will land heads when tossed is 1/2 (ignoring the possibility of its landing on edge): this is the case even if the universe is deterministic and so the chance that *this* coin will land heads on *this* toss must be either 0 or 1. Objective probability raises many fascinating and difficult philosophical problems that we will not explore.

4. So what is a subjective probability? Take a few propositions and rate them by how likely you think it is that each is true. The higher the proposition is on the list, the higher your subjective probability for that proposition. Bennett: "subjective probabilities are people's degrees of belief." Another common gloss is that they are *confidence levels* or *credences*. Are there such things as degrees of belief or credences, and if so does it make sense to assign numerical values to them? We will assume the answers are "yes".

5. You may be tempted to think of your credence in P as your estimation of P's chance. Don't. Not only is it surely false that you *do* fix your credences this way, it is doubtful that you *should*. It may be a good policy when playing poker. But a determinist who believes that the objective chance that it will rain tomorrow is now either 1 or 0 is under no rational obligation to set his credence in that proposition to either value.[1]

6. What are the values of your subjective probabilities? An operational definition descended from De Finetti:

    > Betting dispositions. Suppose someone offered you a \$$n$ bet on A: if A is true, you receive \$$n$; if A is not true, you receive nothing. What do you think is a fair price for that bet? Let \$$v$ be your answer to that question. Your subjective probability for A is v/n.

    A small ocean of ink has been spilled refining and defending versions of this idea. It presupposes a particular relation among subjective probability, expected utility, and preference. In my (admittedly amateur and thus humble) opinion, the correct account of the interrelation among these concepts awaits discovery.

7. If you are interested, Alan Hájek's Stanford Encyclopedia entry "Interpretations of Probability" is a great place to start exploring these issues in more depth.

[1] On the other hand, if you *know* that P has a chance of n, then it is plausible to think that you rationally ought to have a credence of n in P. David Lewis endorsed an influential form of this claim and called it the 'Principal Principle'.

§14. SETTING THE SCENE

1. Jackson also endorses HORSESHOE. But he deals with its problems in a different way than the Gricean.

2. Jargon: a proposition B is *robust* with respect to A for me to the extent that "I accord B a high probability on the supposition that A is true" (Bennett, p. 34). So described, robustness comes in degrees; we may say that B is robust *simpliciter* with respect to A iff the answer to the question in RT2 is "yes":

   RT2 Take the set of probabilities that represents your current belief system, add to it a probability of $A = 1$, and adjust the rest of the probabilities in the most natural and conservative way possible. Does B have a high probability in the resulting system?

3. Jackson: $A \to C$ is assertible by you "to the extent that" C is robust with respect to A. Following the suggestion I just made, Jackson could say that $A \to C$ is assertible by you iff for you C is robust *simpliciter* with respect to A.

4. Assert*i*bility vs. assert*a*bility.

   (a) Assert*i*bility. Degree to which asserting the sentence is "justified or warranted in the epistemological sense," which is the "aspect of a sentence's usage which tells us something about its meaning." For many simple non-conditional statements, "assertibility is one and the same as (subjective) probability of truth," though not for conditionals, and not for all non-conditional statements, either.

   (b) Assert*a*bility. A "wider, more pragmatic notion," which concerns the justifiability of "saying something" rather than of "what is said".

   (c) Examples (Jackson 1987, p. 10): "If I say that the Battle of Hastings was fought in 1066, then I will say something true" is not assert*a*ble in a silent reading room, even though it may be assert*i*ble. If someone offers you money to assert that P but you think P is false, then P may be assert*a*ble though not assert*i*ble.

   (d) Here is a distinction in the neighborhood that may be identical to the one Jackson has in mind; if not, it is at least one I am able to understand. In order to properly assert something, you need to be in a good epistemic position with respect to what you assert; you can't go around asserting things you have no good reason to believe. (Further questions: what epistemic position is required? does it shift with circumstances? with the sort of thing you're asserting?) Being in an epistemic position to assert that P is clearly not sufficient for asserting P to be an okay thing to do (the assertion may still be misleading, rude, etc.) and it may not be necessary (it's sometimes okay to lie, for example). So an assertion may be epistemically okay without being okay period, and it may be okay period without being epistemically okay. The "epistemically okay" / "okay period" distinction seems close to the "assert*i*ble" / "assert*a*ble" one.

5. There are cases where an assert*i*ble conditional is unassert*a*ble due to misleading conversational implicatures (pp. 15-16). But interestingly, and to my mind surprisingly and somewhat confusingly, Jackson thinks that some of a statement's implicatures affect its assert*i*bility. Bennett also finds this strange.

§15. CONVENTIONAL IMPLICATURE

1. Grice held that some implicatures were *conventional*: rather than being generated by the assumption that the speaker is being cooperative (as conversational implicatures are), they are triggered by a convention associated with some particular word or words she utters.

2. One relatively uncontroversial example of a word that triggers a conventional implicature: 'but'.

   (a) Mary is poor and she is honest.

   (b) Mary is poor but she is honest.

   Theory: (a) and (b) have the same truth-conditional meaning, but (b) implicates that there is a contrast between being poor and being honest. Evidence: if you agree with (a) but want to object to someone's assertion of (b), your objection is (something like): "I wouldn't put it that way," not "That's not true." The difference between 'and' and 'but' amounts to just this: the latter triggers such an implicature, and the former doesn't.

3. Jackson's theory: $A \rightarrow C$ is true iff $A \supset C$, but asserting $A \rightarrow C$ conventionally implicates that C is robust with respect to A. The implicature comes from the conventional force of $\rightarrow$, not general conversational rules such as "assert the stronger". In some sense of "meaning", this implies that "C is robust with respect to A" is part of the meaning of $A \rightarrow C$, though it's not part of what you say when you assert $A \rightarrow C$. If it's correct that $A \rightarrow C$ is assertible only if C is robust with respect to A, then Jackson's theory explains why.

4. Conventional implicature is a slippery category. If uttering 'S' conveys that the speaker believes and intends to communicate that A, and this is due to some convention associated with the particular words in S, why shouldn't we regard A as (part of) what is said by an assertion of 'S'? See Kent Bach's "The Myth of Conventional Implicature" for further challenges.

5. Jackson defends the category of conventional implicature in chapter five of *Conditionals*; Bennett endorses his defense. Insofar as the point of asserting something is to get you to believe it, conventional implicature's purpose is to help "make this transfer go more easily" (Jackson, p. 93), to "get truths to glide smoothly into people's souls" (Bennett, p. 39). Jackson's examples of how 'but' and 'even' serve this purpose are worth looking at (pp. 93-95). If I think being poor makes you likely to be dishonest, it may be hard for me to accept (a); your use of 'but' in (b) helps me avoid this obstacle. This is an interesting and plausible story, though I'm not sure how much it helps with the question I just posed. But that's another class!

§16. THE CASE AGAINST JACKSON'S THEORY

1. If the point of a conventional implicature is to remove obstacles in the way of your listener's accepting what you've said, what obstacles to your listener's accepting $A \supset C$ would be removed by implicating that (for you, the speaker) C is robust with respect to A? Bennett says that he can see no answer.

2. 'But', 'nevertheless', 'yet', 'anyhow', and 'however', when used to join two sentences, can always be replaced by 'and' without affecting truth-conditions, and the sentence-joining 'and' can always be deleted in favor of a period. But there's no similar way to get rid of 'if'. So this is a disanalogy between $\rightarrow$ and other words plausibly thought of as triggering conventional implicatures. I'm not sure I see the force of this point: isn't it just due to the fact that the five words Jackson discusses are supposed to be truth-conditionally equivalent to 'and', while $\rightarrow$ is not?

3. Jackson, channelling Frege's anticipation of Grice, uses the word "tone" in connection with conventional implicature. But whatever is wrong with (e.g.) "If snow did not fall on Mt. Ranier last year, the U.S. debt was cut in half," it's not that the latter is true but has the wrong tone. Agreed, but so what? This objection is weak sauce.

4. Bennett's fourth objection relates to something I mentioned earlier: why should a statement's conventional implicatures affect its assertibility? Given Jackson's epistemic characterization of assertibility, it doesn't seem right to say that something could be unassertible just because it generates a misleading implicature. Jackson clearly doesn't agree: he says 'A and B' can be assertible when 'A but B' is not, the difference being just that the former conventionally implicates something the latter does not (see Jackson 1987, p. 9). I'm with Bennett here, though I don't know how deep the point goes. Here's a variation on Jackson's theory: $A \rightarrow C$ conventionally implicates that C is robust with respect to A, and so is typically assert*a*ble only if (for the speaker) C is robust with respect to A. This theory avoids the objection; is it any worse than the original?

5. Here is one reason you might think the answer is 'yes': this variation is vulnerable to Edgington's objection to HORSESHOE quoted at the end of the last handout. If, on the other hand, the asser*i*bility of $A \rightarrow C$ depends on its passing the Ramsey Test, then since asser*i*bility is an epistemic affair, it is a short leap to saying that $A \rightarrow C$'s rational acceptability is also so dependent. If the rational acceptability of $A \rightarrow C$ requires that C is robust with respect to A, then we have an explanation for why one may be confident in $\neg A$ but disbelieve $A \rightarrow C$. However, this account of the acceptability of $A \rightarrow C$ leaves the claim that $A \supset C$ is its truth condition looking superfluous. Why not drop the HORSESHOE and say that the whole meaning of $A \rightarrow C$ is captured by the Ramsey Test? This is the direction that Bennett is headed.

§18. THE OR-TO-IF INFERENCE

1. Before abandoning HORSESHOE, Bennett returns to the or-to-if argument "to see how feebly it supports" it (p. 44). Here is Bennett's statement of that argument:

   > "You believed Vladimir when he told you 'Either they drew or it was a win for white'; which made it all right for you to tell Natalya 'If they didn't draw it was a win for white'. Why was this all right? The explanation is that what Vladimir told you entailed what you told Natalya, because quite generally $P \vee Q$ entails $\neg P \rightarrow Q$."

2. Bennett says that this explanation is both insufficient and unnecessary:

   (a) Why it is unnecessary: because the Gricean explanation for why it was all right for Vladimir to assert the disjunction (instead of either disjunct) predicts that for him "it was a win for white" is robust with respect to "they didn't draw". (Bennett's discussion is *very* condensed here, but he is right. Exercise: demonstrate why.) So the Ramsey Test / robustness requirement explain why that conditional is assertible by him, "and your trust in him makes it all right for you to assert this also." This explanation offers HORSESHOE no support.

   (b) Why it is insufficient: the fact that the disjunction entails the conditional doesn't explain why the latter is all right to say, since given HORSESHOE, many true indicatives are absurd things to say.

3. These may be good responses to the or-to-if argument Bennett presents (we will return to (a) twice: once in Bennett's chapter 10, and once later on when looking at Stalnaker and some of his followers, who deal with or-to-if in a similar fashion). But there are other, and maybe better, or-to-if arguments. Here is one that has nothing to do with what it is or is not all right to say. It is closely related to that given by Hanson in "Indicative Conditionals Are Truth-Functional," (*Mind* 100, 1991):

   Assume that conditional proof is a valid inference rule for $\rightarrow$; i.e., that a valid derivation of Y from the assumption of X establishes $X \rightarrow Y$. Now consider:

(1)	$\neg A \vee C$	Premise
(2)	A	Assumption
(3)	$\neg\neg A$	2, Double Negation
(4)	C	1, 3, Disjunctive Syllogism
(5)	$A \rightarrow C$	2-4, Conditional Proof ($\rightarrow$)

   This shows that $A \rightarrow C$ is derivable from $\neg A \vee C$. The converse derivation is uncontroversial; therefore, $A \rightarrow C$ and $\neg A \vee C$ are logically equivalent. QED.

   Resistance requires denying that conditional proof is valid for $\rightarrow$. But that is a high price. Echoing Hanson's remark on p. 54 of his paper, it seems obvious that if, correctly using transparently valid rules of inference, we can derive Y from X, $X \rightarrow Y$ must be true. To deny this would be tantamount to accepting that: recognizing and accepting a genuine *proof* of Y from X, you may yet rationally doubt whether 'If X is the case, then Y is the case' is true. Do you think such a doubt is ever rational?

CONDITIONAL PROBABILITY AND JACKSON'S 'ADAMS'

1. Jackson endorses an equation he calls ADAMS (after Ernest Adams, whose important work on conditionals and the logic of probability influenced Jackson, Bennett, and many others):

   > ADAMS. $As(A \rightarrow C) = P(C|A)$

   $As(X)$ stands for X's degree of assertibility and $P(X|Y)$ stands for the conditional probability of X given Y. What is a (subjective) conditional probability? Here are two answers; they stand in some degree of tension:

   (a) Bennett: "the best definition we have is the one provided by the Ramsey Test: your conditional probability for C given A is the probability for C that results from adding $P(A) = 1$ to your belief system and conservatively adjusting to make room for it" (p. 53). Note that this definition identifies a conditional probability with a subjective probability we do or would assign to a proposition under a certain supposition.

Let's use the term *conditionalizing on* A to name what you're doing when you set $P(A)$ to 1 and adjust the rest of your credences in the most natural and conservative way possible. Then we can call this the *conditionalization definition*. Given the conditionalization definition, ADAMS is nothing more than a statement of the Ramsey Test with the added idea that assertibility comes in degrees.

(b) Jackson gives the *ratio definition*, which is the standard mathematical definition of conditional probability. It provides a link between ADAMS and the formal machinery of probability theory:

THE RATIO DEFINITION. $P(C|A) =_{df} \frac{P(A\,\&\,C)}{P(A)}$ (provided $P(A) > 0$)

Jackson appears to think that "it is easy to show" (p. 14) that when we conditionalize, we conform to the ratio definition. If this is correct, then the conditionalization definition and the ratio definition are equivalent. But he doesn't show this, and I'm not sure how he could. Many have argued that we *ought to* respect the ratio definition when conditionalizing. While I think this is quite plausible, it is quite a different thing from saying that we *do*.[2]

2. Bennett endorses the equivalence stated in the ratio definition but does not treat it as a *definition*; following Hájek, he refers to it as the "Ratio Formula".[3] See §22 for Bennett's motivation and defense of the Ratio Formula.

3. Two noteworthy results. First, the ratio definition enjoins ADAMS to remain silent on the assertibility of an indicative when the antecedent's probability is 0. Since Bennett accepts the Ratio Formula, the same goes for the ADAMS-esque principle he endorses called "The Equation" (p. 58):

THE EQUATION. $P(A \to C) = P(C|A)$

Bennett is happy with the restriction and says that it reflects the "zero-intolerance" of indicatives (see §23). Be skeptical. In dealing with apparent counterexamples to zero-intolerance he leans heavily on the distinction between dependent and independent conditionals, which (you will recall) we found reason to regard as dubious.

Second, the ratio definition (with a few other assumptions) implies that when $P(C) = 1$, $P(C|A) = 1$. (We will prove this informally next time.) So ADAMS implies that any indicative whose consequent has a probability of 1 has maximal assertibility. Does "If I usually and unwittingly make simple arithmetical errors, then 12+7=19" seem maximally assertible to you? Gricean principles may explain what's wrong with asserting such conditionals. But assuming you are absolutely certain that 12+9=19, THE EQUATION says that you should be absolutely certain that if you usually and unwittingly make arithmetical errors, then 12+7=19.

These results are sophisticated cousins to the problems that stalked HORSESHOE.

4. Another worrisome feature of ADAMS is that it gives us intuitively wrong answers about how assertible some conditionals are. I know that there are two balls in the bag: one red and one white. Conditionalizing on "I choose a random ball from the bag" the probability of "the chosen ball will be red" is 1/2. ADAMS thus tells me that the assertibility of "If I choose a random ball from the bag, it will be red" is 1/2: half way between utter unassertibility and full assertibility. But to me, it seems like that conditional is utterly unassertible. Escape routes: follow Lewis in saying that $As(A \to C)$ "goes by" $P(C|A)$, or retreat to something without degrees, such as: $A \to C$ is assertible iff $P(C|A)$ is high.

5. Finally, one might raise concerns about the assumption that subjective probabilities are relevant to assertibility, understood in terms of one's epistemic right to assert. My subjective probability for "You won't win at PowerBall" is extremely high, and robust with respect to "You play PowerBall". But do I have an epistemic right to assert "You won't win at PowerBall" or "If you play PowerBall, you'll lose"? After all, you never know, do you?

Another kind of example: there are cases where $P(C|A) \approx P(C)$ but where $A \to C$ seems much less epistemically respectable than C. I am about to toss a fair coin. Conditionalizing on "God wants me to kill my mother" has no effect on my probability for "This fair coin will come up heads", but "If God wants me to kill my mother, then this fair coin will come up heads" seems less epistemically respectable than "this fair coin will come up heads".

[2] See if you agree that this is what Jackson is thinking: look at the passage beginning with "We can express this..." on p. 14.

[3] Note that Bennett uses '$P(X)$' for the unconditional probability of X and '$\pi(X|Y)$' for the conditional probability of X given Y. This is helpful because it gives us a typographical reminder that unconditional and conditional probability are distinct, but it departs from the standard usage that we'll encounter in other readings. I will always use '$P(X)$' for the unconditional probability of X and '$P(X|Y)$' for the conditional probability of X given Y; I'll adjust passages quoted from Bennett and others that depart from this usage accordingly.