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On Understanding ‘Probably’ and Other Modal Qualifiers*

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ABSTRACT: An examination of several approaches to the force of ‘probably’, when used to qualify the conclusions of arguments and inferences. Among the views examined are those of Toulmin and Wilfrid Sellars. The paper recommends taking the utterance of “Probably *p*” to be *licensing or authorizing the adoption of a particular doxastic attitude toward p*, and offers a *functional account* of that particular doxastic attitude, *namely expecting that p will turn out to be the case*.

KEYWORDS: probability, cognitive or doxastic attitudes, modal qualifiers, evidence proportionalism, deliberation, Sellars, Toulmin, Ennis, Bratman

I. INTRODUCTION

In a recent paper I advanced what I called a qualitative version of evidence proportionalism, one of whose central ideas was that the type of cognitive attitude we adopt toward the conclusion of an inference must be appropriate to the evidence or premisses on which that inference is based. I suggested that we use modal qualifiers like ‘probably,’ ‘presumably,’ ‘possibly,’ or ‘almost certainly’ to qualify our conclusions in order to indicate when and how it is reasonable to use such conclusions as the premisses of further arguments. I went on to suggest (pp. 130-131) that such modal qualifiers are connected with a *range* of cognitive or doxastic attitudes – presuming that *p*, expecting that *p* and being certain that *p*, for example – and that each of these doxastic attitudes can be type-identified by reference to the *functional role in our cognitive lives* that it bestows on its propositional content. The present paper is part of the attempt to flesh out these ideas in somewhat more detail. It is a first pass at showing how a Toulminesque account¹ of the force of ‘Probably’ can be unpacked in terms of a particular doxastic attitude – expecting that *p* will turn out to be the case – and how that attitude can be type-identified by reference to its functional role in our cognitive lives.

* Note: What follows is a summary of the working draft of a much longer paper. The commentator was supplied with the full working draft. An electronic version of the full draft, together with its four appendices, is available upon request.

¹ Toulmin’s idea that the function of ‘Probably’ and ‘Probable’ is to express guarded commitment or assertion plays little or no role in this paper. For my comment on that idea, see Appendix D. However, in section 5 of Part III I draw on what I think are more important aspects of Toulmin’s treatment of ‘Probable’ in *Uses of Argument*.

The account of ‘probable’ I attempt to develop takes part of its inspiration from Bob Ennis recent work on ‘probable’ – work which stresses

- a) that the “qualitative” concept of ‘probable’ is not reducible to or replaceable by what Carnap called a “quantitative” concept of probability (see especially Ennis 2007) , and
- b) that what is probable is what we are *justified* in treating in a certain way (Ennis 2007b).

But I am led by these and other considerations to something that resembles Sellars’ idea (1964, p. 198) that

[i]n the basic non-metrical sense of “probable” (in relation to which all other senses are to be understood), to say of a statement or proposition that it is probable is, in first approximation, to say that it is worthy of credence, that it is acceptable in the sense of being worthy of acceptance; that is, to put it in a way that points to a finer grained analysis, it is to say that all things considered there is good reason to accept it.

However, where Sellars speaks of *accepting* that p I am going to speak of *expecting* that p .²

One way to understand *expecting* is to take the notions of belief and probability for granted and to identify *expecting that p* with *believing that it is likely or probable that p* . Such an approach leaves us with the problem of explaining what it is for a state of affairs to be likely or probable. In this paper, I propose to reverse the order of explanation, as it were. I propose to illuminate what it is for something to be probable by appealing to a prior notion of expectation.

II. REASONING, PROPOSITIONAL ATTITUDES AND MODAL QUALIFIERS

Part II of the paper draws on Toulmin’s distinction between the context- or field-independent *force* of these modal qualifiers and the *criteria* for their application - criteria which will vary from context to context (or in his view, from field to field). I embrace Toulmin’s idea that the force the modal operators of interest lies in the “practical implications” for the role that their propositional contents are to play in our cognitive lives. Highlighting Toulmin’s account of ‘possibly’ – according to which what is *possible* is what *deserves to be considered* in the context at hand – I emphasize that

- a) the implications of the modal qualifiers are *practical* in the sense that they are action-guiding,
- b) the practicality in question involves *epistemically normative* considerations.

² See Appendix B for an overview of Sellars’ view of probability and induction from which this quotation is drawn. See section 5 of that appendix for the problems I see in Sellars’ use of the term “acceptance” for setting out his view.

III. THE FORCE OF ‘PROBABLY P’ – REASONABLE EXPECTATION

Moore has pointed out that there is *something* wrong or inconsistent in saying

- 1) It’s raining but I don’t believe that it’s raining

Now there is clearly *not* any inconsistency, pragmatic or otherwise, in saying

- 2) It will probably rain tomorrow, but I’m not convinced it will.

But it seems to me that there *is* clearly something incoherent, or at least odd, about saying:

- 3) It is probable that it will rain tomorrow but I don’t *expect* that that it will.³

The problem with (3) is, I think, a pragmatic inconsistency due to the fact that it is not *reasonable* to refuse to expect what you concede to be probable. But why not?

My suggestion is this:

Saying “it is probable that p” is equivalent to saying “it is reasonable to expect that p.”⁴

What I am suggesting is indeed a variant of the Sellarsian idea quoted in section 2 above, and might be expressed as follows:

In the basic non-metrical sense of “probable” (in relation to which all other senses are to be understood), to say of a statement or proposition that it is probable is, in first approximation, to say that it is worthy of credence, that it is acceptable in the sense of being worthy of *qualified* acceptance; that is, to put it in a way that points to a finer grained analysis, it is to say that all things considered there is good reason to *expect* it to be true.

IV. “QUALIFIED” BELIEF AND/OR ACCEPTANCE

To make sense of *expecting*, in terms of which I want to unpack the idea of probability, we need to make sense of *qualified* belief and/or acceptance. And like Adler (2002, p.232) I want to make a sharp, *qualitative* distinction between full or unqualified belief and the states of “partial belief” which (in Adler’s words)

are most naturally presented with such qualifications as “pretty sure,” “very sure,” “more sure than not,” as well as “think,” “suspect,” or “inclined to believe” – paradigmatically, “I am pretty sure that p.”⁵

³ Though not, of course, about “It is probable that it will rain tomorrow but Sam doesn’t expect that that it will.”

⁴ This equivalence is quite different from the following equivalence, which quite clearly does not obtain: Saying “it is probable that p” is equivalent to saying “it is reasonable to be convinced that p.”

⁵ Adler adds (p. 232): “Expressions for partial belief are not the same as (objective) probability judgments, for example, ‘The probability that the coin will land heads is 3/5.’ Probability judgments attribute properties, dispositions, or propensities to objects. Although they can, of course, be based on evidence, expressions of them are not incomplete without mention of evidence. However, the two are easily confused, since, for brevity, in expressing our partial beliefs, we cut away from reference to the believer or his

Part IV begins with a reworking of the distinction between believing a proposition and accepting it – a distinction to found in L. J. Cohen, in M. E. Bratman and in several of my recent papers. In this presentation I omit the details of that reworking, since what is most important for the project at hand is the distinction between full or unqualified belief *or* acceptance and the sort of qualified belief or acceptance that transpires when we expect something will turn out to be the case but are not sure that it will.

I claim that there are two key or crucial differences between unqualified belief or acceptance, on the one hand, and qualified belief or acceptance, on the other.

- a) Unqualified belief or acceptance that *p* requires *discounting* the possibility that not-*p*, whereas qualified belief or acceptance involves *acknowledging* that there is a real or genuine possibility that not-*p*.⁶
- b) Adjunction (or what Bratman [1999, p. 19] calls *agglomeration*) applies to unqualified belief and acceptance, but does not apply to qualified belief or acceptance. That is to say, if it is reasonable to believe/accept that *p* and it is reasonable to believe/accept that *q*, then it is reasonable to believe/accept that *p* & *q*. But from the fact that it is reasonable to *expect* that *p* and it is reasonable to *expect* that *q*, it does *not* follow that it is reasonable to expect that *p* & *q*. Otherwise, whenever it were reasonable to expect of each individual ticket in a lottery that it will lose, it would be reasonable to expect that no ticket will win.

(I suspect, by the way, that point (b) is a consequence of point (a), but I do not know how to prove that that is so.)

I maintain that this contrast should *not* be reduced to the idea that unqualified belief or acceptance that *p* is according a probability of 1 to the proposition that *p* (and thereby assigning a probability of 0 to the proposition that not-*p*).⁷ For declining to treat the falsity of *p* as something that deserves to be taken into account as a possibility need not be the same as assigning a probability of 0 to the proposition that not-*p*. For example,

evidence. Typically, we say ‘It’s probable that Mary will meet us’ just as we say ‘It’s possible that Mary will meet us.’ In either case what is usually meant involves a disguised reference to the asserter (and his evidence) – it’s probable or possible, given the asserter’s beliefs.”

⁶ Compare Adler (2002, pp. 36ff.), where it is maintained that the reasons adequate for justifying belief (and he means full or unqualified belief) must be *conclusive* reasons. Though Adler does not spell out in detail which is necessary for a reason to be conclusive, there are strong hints on p. 37 that conclusive reasons for believing that *p* must rule out any “serious” possibility that would render it false that *p*.

⁷ Compare Bratman (1987, pp. 36-37): “None of this [i.e., what he has said about the importance of flat-out belief] assumes that there is a simple relation between flat-out belief and degrees of confidence. In particular, it does not assume that to believe flat-out that I have only one car I must assign this proposition a subjective probability of 1. If you were to offer me a bet in which I pay one dollar if I own only one car but receive one million dollars if it turns [p. 37] out that I own a second car, I might well accept this bet; for I judge that there is better than a one-in-a-million chance that, unknown to me I own a second car. (Perhaps my aunt has just died and left me her car in her will.) Still, though I would take such a bet if offered, I believe flat out that I own just one car. What makes my attitude toward my having just one car one of flat-out belief, and not merely the assignment of some probability somewhat less than 1, is, at least in part, its distinctive role in the background of my further planning-in particular its role in providing a screen of admissibility for my options.” But see also his remarks in Bratman 1999, pp. 28-29, especially his comment that “practical pressures can make it reasonable of me to accept that *p* in a certain practical context even if it is not reasonable of me to assign *p* a probability of 1 in my theoretical reflections.” It is unclear to me exactly how this latter comment fits with the passage I just quoted from Bratman 1987.

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a reasonable policy is to assign a probability of 0 only to those propositions which are “logically impossible”, or only to those proposition which semantically entail propositions which are logically impossible. But it is, as far as I can see, logically possible that I am a brain in a vat, but by my lights that is not a possibility that deserves serious consideration in most contexts.⁸ It is just when someone’s “default” position is take *this* attitude toward the proposition that she is a brain in a vat that it becomes correct to say of her that she believes without qualification that she is not a brain in a vat.

V. EXPECTING THAT *P*

Part V begins by pointing out some of the ways in which what we expect and what we consider to be genuinely possible can and do function as *reasons* in contexts of deliberation. For example, if I want to meet Saul this afternoon and I expect that if I go to the library this afternoon I will meet him there, then I have a (non-conclusive) *reason* to go to the library this afternoon. For another example, the mere possibility that a nuclear accident like the one which occurred in Chernobyl will occur at a nuclear plants in the US or Canada is a *reason* for scrutinizing the pros and cons of tolerating such plants especially carefully.

It is clear that, against the background of conative and/or evaluative attitudes, attitudes such as expecting and treating as genuinely possible can supply considerations that play premiss-like roles in the inferences that occur in the context of deliberation. Bratman (1987, pp. 36-37) once treated the cognitive component of deliberation as consisting only of “flat-out” or unqualified beliefs. Later (1999, chapter 2) he acknowledged and stressed the importance of context-relative acceptance (or “taking for granted”) as a crucial component of the “cognitive background” of deliberation. I am maintaining that in addition to the sorts of unqualified belief and acceptance Bratman has recognized, we need to explore the roles in deliberation of expecting that *p* and taking seriously the possibility that *p*.

I submit that these cognitive attitudes are to be distinguished *functionally*, by distinguishing

- a) *what they can be reasons for* (that in relationship to these attitudes are *inputs*)
- b) the circumstances under which they can play the role of reasons.
- c) *what gives rise to* and/or *what justifies them* (that in relationship to these attitudes are *outputs*)

⁸ Adler has also argued that doubt is compatible with full belief – see especially his defense of that view in chapter 10 of Adler 2002. Though I am personally not completely comfortable with the arguments Adler advances for that thesis, I think it is quite correct that straightforwardly believing a proposition is consistent with varying degrees of confidence in that proposition – that I can be “more certain” of some of the things I believe than I am of others. That is why in Pinto 2003b, pp. 6-7, in addition to acceptance attitudes and to doxastic attitudes, I recognized degrees of confidence as a third, distinct category of cognitive attitude.

VI. THE ROLE OF THE *POSSIBLE* AND THE *PROBABLE* IN DELIBERATION

1. There are of course models of decision-making in which the assignment of *numerical* probabilities plays a central role. Crudely put, in most such models one chooses among courses of action on the basis of expected utilities, and one determines the expected utility of each course of action by listing its possible outcomes and then adding up the products of the numeric probabilities and numeric utilities of those outcomes.⁹ Clearly there are decision problems for which such methods are appropriate. However, Bayesianism notwithstanding, those methods are appropriate only in situations where there is an *evidentiary* basis for assigning numeric probabilities to outcomes and where a principled approach to assigning cardinal numbers to the utility of relevant outcomes is available. Very frequently, perhaps even in the majority of cases in which we make decisions under conditions of *uncertainty*, those enabling conditions don't apply. In that event, we must fall back on *qualitative* probability statements – that is to say, we must fall back on what it is reasonable to expect.

Part VI of the paper contains an attempt to identify *specific roles* that expecting and taking something to be a genuine possibility play in deliberation.

2. First I try to identify roles that taking something to be possible play in helping to determine the options worth considering. I try to capture these roles in two principles (P1 and P2) which purport to state *necessary* conditions an option must meet in order to be worth considering.

P1 I have a (non-conclusive reason) for considering a conceivable course of action an option worth considering *only if* I am prepared to treat that course of action as one that it is “genuinely possible” for me to perform

And, of course, my reason will be a *good* reason if and only if it is reasonable for me to do so.

Moreover, a conceivable course of action is an option worth considering in a context of deliberation only if it has some bearing on what I desire, prefer or intend to do. Hence I submit that we recognize a second sort of constraint on options worth considering:

P2 I have a (non-conclusive reason) for considering a conceivable course of action A an option worth considering only if I treat it as “genuinely possible” that performing A will produce some specific outcome I desire or prefer or will make it possible for me to perform some other specific action that I intend to perform – in short, only if I treat it as “genuinely possible” that performing A will result in some specific benefit .

Again, my reason will be a *good* reason only if it is *reasonable* for me to treat it as “genuinely possible” that this course of action will have such result.

Finally I propose a third principle which purports to capture a *sufficient and necessary* condition for having for having a (non-conclusive) reason to *settle on* or *adopt* a course of action.

⁹ Pollock (1995, chapter 6, section 4) offers a what appears to be quite different way of conceiving of the “expected value of a plan,” which I don't attempt to consider or deal with here.

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- P3 I have a (non-conclusive) reason for settling on a conceivable course of action if and only if I assume or expect that performing that course of action will result in some specific benefit.

Let X be the benefit I have in mind. Then my reason for settling on a course of action A will be a *good* (non-conclusive) reason if and only if (a) it is *reasonable* for me to assume or expect that performing action A will result in X and (b) it is *reasonable* for me to treat X as a benefit.

The reader or listener can perhaps see where I am going with this. I am suggesting that a defining function of *expecting* as a *cognitive* attitude is that it can *in the absence of certainty*, and in conjunction with the *evaluative* attitude of *treating something as a benefit*, render its propositional content a reason for settling on a course of action.

3. Notice that when I tried in P3 to state the conditions for having a reason to *adopt* a course of action, I used the *disjunctive* expression “assume or expect.” I did this quite deliberately, because I concede to Bratman (1999, chapter 2, esp. pp. 22-23) that when we are deliberating we often assume or *take for granted* things we are not certain of.¹⁰ That is to say, we often *simplify* our deliberations by taking for granted what we only *expect* to be the case. In the remainder of Part VI of the paper, I develop an argument that purports to show that we cannot *always* simplify our deliberations by taking for granted that our expectations will pan out. The argument concerns deliberations that result in what I call “branching plans” – plans which involve conditional steps such as

- a) If the weather tomorrow is sunny and warm, we will have a picnic (Plan A)
- b) If the weather tomorrow is *not* sunny and warm, we will go to the theater. (Plan B).

The argument turns on the fact that such branching plans often commit us to “preparatory steps” we must take *today*, in order to keep *tomorrow’s* options open and that often the costs incurred by taking those preparatory steps are not negligible.¹¹

I argue that where we require a branching plan whose preparatory steps incur non-negligible costs, we can no longer employ the simplifying strategy of *taking for granted* or *assume* what we only *expect* to be the case. Here we see quite clearly the function of *expecting* as a *cognitive attitude* which *in the absence of certainty*, and in conjunction with the *evaluative* attitude of *treating something as a benefit*, can render its propositional content a reason for settling on a course of action.

¹⁰ Bratman’s example is “taking it for granted that it won’t rain even though I am not certain of this” – which is clearly a case of

¹¹ I introduce corollaries of P1 and P3 as follows:

- P1a We have a (non-conclusive reason) for including a possible branch in our plan *only if* we are prepared to treat its triggering condition as “genuinely possible.”
- P3a If we judge the costs associated with the preparatory steps of a conceivable branch to be more than negligible, we have a (non-conclusive reason) for including that branch in our plan *if and only if* either (i) we *expect* that its triggering condition will occur and that the branch will produce specific benefits or (ii) we *expect* to obtain other benefits from its preparatory steps even if its triggering condition does not occur.

VII. PROBABILITY AND RELATIVE FREQUENCY

I said above in section 9 that there is a third factor by which cognitive attitudes are to be distinguished, namely

- c) what *gives rise to* and/or what justifies them (that in relationship to these attitudes are *outputs*)

A thorough treatment of expecting that *p* would therefore include a full account of what gives rise to it and/or and what justifies it – something that is beyond the scope of this paper. However, a few closing remarks about this matter are in order.

It is clear, I think, that *one* sort of thing which gives rise to and justifies both *expecting that an event of a certain kind will occur*, as well as *taking its occurrence to be a genuine possibility*, is our knowledge or belief about the relative frequency with which events of that kind have occurred in the past.¹² Even the claims that we judge to be “qualitatively” probable are typically (though by no means always) backed up by claims about or estimates or relative frequency, albeit quite vague ones: “that happens all the time,” “that’s pretty rare,” “most of the people of such-and-such a description are like this,” “no need worry about *that*, since it almost never happens,” and so on. In such cases, we may construe the inference to be one in which an *expectation that p* is grounded in the acceptance of some proposition about a relative frequency. And where we judge the inference to have been a good one we will judge that *it is reasonable to expect that p* – which, in my scheme of things, is to judge that *it is probable that p*. Looking at things in this manner offers a way of fleshing out the variant on Sellars’ account of ‘probable’ that I floated in section 6 above, namely that

[i]n the basic non-metrical sense of “probable” (in relation to which all other senses are to be understood), to say of a statement or proposition that it is probable...it is to say that all things considered there is good reason to *expect* it to be true.

It is especially important to note my way of looking at things can accommodate expectations about the *relative frequency* with which we will encounter situations of type A among situations of type B *in the future*, or among “unexamined” situations of type B. It can therefore accommodate *probability statements about such anticipated relative frequencies*. This, it seems to me, introduces *numeric* considerations into the “propositional content” to which the modal qualifier “probable” is applied, and it may turn out to be a first step in the direction of introducing a quantitative or numeric concept of probability on the basis of the qualitative concept of probability I have tried to sketch in this paper.

I do not have the competence to discuss in detail the technical aspects of the relation between epistemic concepts of probability, on the one hand, and considerations of relative frequency, on the other – nor, for that matter, the relationship between what Carnap called probability₁ and probability₂. It is worth noting, however, Carnap’s

¹² Clearly this is not the *only* sort of thing that gives rise to and may justify these attitudes. Thus prominent among are reasons for expecting are considerations of *analogy* and similarity. I expect John to be familiar with French history because I know that John and Bill are good friends who went through school together and that Bill is familiar with French history.

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discussion (1962, §42) of what he took to be “the shift in the meaning of the word probability.” He claims (p. 182) that the word ‘probable’ and its counterparts in German, French and Latin

were used originally in everyday speech for something *that is not certain but may be expected to happen or presumed to be the case.* [Italics not in the original]

He then suggests that this common use led to “the similar or more specific use in early books on probability” in which it was meant (pp. 182-83)

in the sense of ‘evidential support for an assumption (or event)’ or ‘rational credibility of an assumption’, and, more specifically, as ‘numerical degree of support of this credibility’. In other words, ‘probability’ [in these early books] had the sense of what we have called probability₁. Its use in the sense of probability₂ is of relatively recent date; it goes back not more than about a hundred years.¹³

What Carnap thinks was the sense in which ‘probable’ was “originally used” is close to the sense which I think it commonly bears today.¹⁴ As for the quantitative or “metric” uses of probable, my sympathies are with the frequentists. I have therefore included, in Appendix C, a somewhat crude and preliminary sketch of how the results of common applications of mathematical statistics in which a metric concept of probability occurs might be recast in terms of the vocabulary I’ve tried to outline in this paper.

APPENDIX A: BELIEF AND ACCEPTANCE

APPENDIX B: SELLARS ON PROBABILITY AND INDUCTION

APPENDIX C: STATISTICAL PROBABILITIES

APPENDIX D: GUARDED ASSERTION

[link to commentary](#)

¹³ Carnap thinks (p. 186) its use in this sense really begins with Venn in 1866, though (pp. 186-87) “it only was a half century later that comprehensive systematic theories were developed which took probability₂ as their basis. This was done, on the one hand, by Hans Reichenbach, and Richard von Mises and, on the other, by R.A. Fisher and subsequently by the majority of contemporary mathematical statisticians.”

¹⁴ Whether Carnap is historically right about its *original* use is debatable. A somewhat different picture is presented in Ian Hacking’s revealing accounts of the emergence of the modern concept of probability, which he dates from the late 17th century, and in which he treats the quantitative or at least comparative aspects of the emerging concept as essential to what emerges at that time. Consider the following comment (Hacking 1975, p. 1) about the concept whose history he is tracking: “Probability has two aspects. It is connected with the degree of belief warranted by evidence, and it is connected with the tendency, displayed by some chance devices, to produce stable relative frequencies.” But in Hacking’s account, before about 1660 probability was an attribute of “opinion” as contrasted with “knowledge”, and a probable opinion was not one supported by evidence, but rather one which was approved by some authority – see chapters 3 and 4 of Hacking 1975.

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