UNIQUE ALTERNATIVE GUESSING

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Guessing is usually considered to be outside the context of justification. The main goals of this paper are to show that guessing is inside the context of justification, that it can be integrated with believing and knowing, and to show its main structure. After giving a couple of examples of the nonjustificationist view of guessing, I provide some reasons for dissatisfaction with this view. Section II is an informal introduction to the view of guessing I wish to defend. In the next section, the view is more rigorously stated. The fourth section contains a defence of the thesis that guessing is incompatible with believing, which is followed by a definition of guessing. This definition explains the Moorean flavor of sentences like 'It is raining but I guess that it is not raining'. In the concluding section, I argue that my definition of guessing is incompatible with Colin Radford's claims about the case of the unconfident examinee, and that one should reject Radford's claims rather than my definition.

I

The nonjustificationist view of guessing is popular among those who have not reflected upon it and among the few philosophers who have. When people object to multiple-choice tests on the grounds that such tests give students credit for correct guesses, they usually presuppose a nonjustificationist view of guessing. Claiming to be guessing is one way of decreasing epistemic responsibility and increasing epistemic modesty. Claiming to be guessing that p is one common way of undermining a request for reasons in favor of p. L. Jonathan Cohen writes:

> Because guessing is what we have to resort to when there is not

> enough evidence to draw conclusions from, guesses are not so readily classifiable into the sheep-and-goats categories of reasonable and unreasonable. They are all, in a way, non-reasonable, since they are a substitute for proper reasoning. ([1])

Karl Popper writes that "The actual procedure of science is to operate with conjectures: to jump to conclusions – often after one single observation". ([2]) He believes that this view is fundamentally opposed to the "inductivist", "justificationist", philosophy of science he attributes to Carnap.

The nonjustificationist view of guessing does accommodate the element of arbitrariness, the lack of confidence, and the low degree of reliability associated with guessing. However, it makes one kind of curiousity about the guesses of others puzzling. Sometimes we ask questions when we believe that the questionee is only in a position to guess. For example, as they lament their confusion, two travelers may decide to go left after the first asks 'Left or right?' and the second answers 'Left, I guess'. Here the travelers act on the guess that by going left they will reach their destination even though it is not the case that they believe it. (Inconclusive) reason giving is not always out of place. The guesser might explain that the road on the left seems more heavily traveled, and that their destination is a popular one, so the left road is a bit more likely to lead to their destination. Guesses are sometimes described as stupid or smart, wild or educated. 'Your guess is as good as mine' is not a tautology. We are more curious about the guesses of some people than others because we believe that their guesses are more likely to be true. Our confidence in p is sometimes affected when we learn about the guesses of others concerning p. But if guesses are outside the context of justification, our confidence should not be affected and 'Your guess is as good as mine' is a tautology (unless there is some peculiar sort of correlation between p and guessing that p).

Second, it is just as absurd to guess as it is to believe pragmatic

([1]) Jonathan COHEN, "Guessing", *Proceedings of the Aristotelian Society*, vol. LXXIV 1973/74, p. 196.

([2]) Karl R. POPPER, *Conjectures and Refutations*, (London: Routledge and Keagan Paul) 1963, p. 53.

paradoxes like 'I do not exist', 'I am asleep', and 'I cannot communicate'. Also, the oddity of 'It is raining but I guess that is is not raining' is the same as the oddity of Moore's 'It is raining but I believe that it is not raining'. The oddity of Moore's sentence is widely agreed to be due to some sort of internal inconsistency. But it should be further noted that merely guessing either the former or the latter also seems to bring about an internal inconsistency.

II

To guess is to guess between alternatives. Although it is in practice fairly easy to specify the alternatives for a given guess, it is difficult to specify them systematically for all guesses. However, I think the logic of questions may provide the answer. In *The Logic of Questions and Answers*, Nuel D. Belnap and Thomas B. Steel describe direct answers as follows:

> A direct answer may be true or false. What is crucial is that it be effectively decidable whether a given piece of language is a direct answer to a specific question. ([3])
> To each [well-defined] question there corresponds a set of statements which are *directly* responsive...
> If we were to put the matter psychologically, we would say that a direct answer is precisely the kind of response the questioner *intends* to elicit with his question. The crucial point is that a direct answer must provide an unarguably final resolution to the question. ([4])

Most questions allow exactly one correct answer. Others, like 'What is an example of a prime number between 10 and 20?' allow several correct answers. Sometimes answerers do not answer directly (in the sense that they do not answer with a direct answer as defined by Belnap and Steel).

([3]) Nuel D. BELNAP and Thomas B. STEEL, *The Logic of Questions and Answers*, (New Haven: Yale University Press) 1976, p. 3.

([4]) Ibid., p. 13.

For at least the central cases of guessing, the principle 'To guess is to guess between alternatives' can be transformed into the principle 'To guess is to guess with respect to a question'. A guess belongs to this set just in case the guess is a direct answer to a question which the guesser believes has exactly one correct answer. This question need not be explicitly posed to the questioner; it need only express his puzzlement. I shall call such a guess a unique alternative guess. From now on my claims about guesses should be understood as claims limited to unique alternative guesses.

If one guesses that alternative p is true, then one must consider that alternative at least as likely as any other. This is the nondomination condition for guessing. Sometimes more than one alternative is nondominated. If one guesses that p and there is more than one nondominated alternative, then p must have been picked arbitrarily from the set of nondominated alternatives. Such guesses are arbitrary guesses. All other guesses dominate their alternatives and are called nonarbitrary guesses. Arbitrary guesses are peculiar since there is an element of choice involved (albeit arbitrary). Although one does not choose to consider one alternative more likely than another, one must choose between the nondominated alternatives. If the guesser has n alternatives, and there is a m-way tie among the nondominated alternatives, then the degree of arbitrariness of his guess equals m/n (if there is no tie, arbitrariness equals 0). For example, if John can eliminate alternatives (1a) and (1e) as he works on the first question of his multiple choice biology examination and believes that the remaining alternatives, (1b), (1c), (1d), are equiprobable, the arbitrariness of his guess equals. 6. *Wild* guesses are those which are either highly arbitrary or highly improbable. 'Educated guess' and 'wild guess' are polar opposite terms. The arbitrary choice involved in arbitrary guessing is needed to satisfy the uniqueness condition for guessing: if one guesses that p at time t, then one does not guess that q at t if q is a distinct alternative to p.

III

The above claims about unique alternative guessing can be formalized and integrated with some claims most philosophers would make about belief and knowledge. Let 'Gxp' stand for 'x guesses that p', 'Bxp' for 'x believes that p', 'Kxp' for 'x knows that p', and '$p \gtrless_x q$' stand for 'x believes that p is more likely than q'. Let x range over rational agents at a given time and let $p_1, p_2, \ldots, p_n$ range over the direct answers to the question with respect to which the agent is guessing, believes, or knows. Now, three uniqueness principles can be formulated:

(KU) $(x)(p_1)(p_2)(Kxp_1 \supset (Kxp_2 \supset p_1 = p_2))$
(BU) $(x)(p_1)(p_2)(Bxp_1 \supset (Bxp_2 \supset p_1 = p_2))$
(GU) $(x)(p_1)(p_2)(Gxp_1 \supset (Gxp_2 \supset p_1 = p_2))$

The nondomination principles are:

(KN) $(x)(p_1)(Kxp_1 \supset -(\exists p_2)(p_2 \gtrless_x p_1))$,
(BN) $(x)(p_1)(Bxp_1 \supset -(\exists p_2)(p_2 \gtrless_x p_1))$,
(GN) $(x)(p_1)(Gxp_1 \supset -(\exists p_2)(p_2 \gtrless_x p_1))$.

The only surprising member of this list is (GN). If someone claims to guess that p and one knows that he believes alternative q is more likely than p, one would then either reject his claim or consider his guess irrational. (GN) lies behind this criterion for rejecting and criticizing claims about guessing.

Almost all those who accept (KN) and (BN) would accept stronger, domination principles:

(KD) $(x)(p_1)(Kxp_1 \supset (p_2)((p_1 \neq p_2) \supset (p_1 \gtrless_x p_2)))$,
(BD) $(x)(p_1)(Bxp_1 \supset (p_2)((p_1 \neq p_2) \supset (p_1 \gtrless_x p_2)))$.

The domination principle for guessing must be excluded because it would rule out arbitrary guesses. Most philosophers would go on to accept the still stronger thesis that knowing or believing that p_1 implies that p_1 dominates the alternation of the other $n-1$ alternatives. Where $1 < i \leqslant n$, we have:

(KDA) $(x)(p_1)(Kxp_1 \supset (p_2)\ldots(p_n)(p_1 \neq p_i \supset (p_1 \gtrless_x (p_2 \vee \ldots \vee p_n)))$,
(BDA) $(x)(p_1)(Bxp_1 \supset (p_2)\ldots(p_n)(p_1 \neq p_i \supset (p_1 \gtrless_x (p_2 \vee \ldots \vee p_n)))$.

IV

I do not know of anyone who has addressed the question 'Is believing compatible with guessing?'. It seems to me that believing is incompatible with guessing:

(BIG) $(x)(p_1)(Bxp_1 \supset -Gxp_1)$

There are a number of arguments for (BIG). First, (BD) is plausible and one cannot accept (BD) without rejecting the possibility of believing an arbitrary guess. This argument is not conclusive since some guesses are not arbitrary. The stronger thesis, (BDA), is also plausible since its negation implies that one can believe that p and yet believe −p more likely. In addition to ruling out arbitrary guesses as believable by the guesser, (BDA) rules out believing guesses which are not more likely than their negations. However, (BDA) does not rule out believing guesses which are considered more likely than their negations. So the arguments from (BD) and (BDA) are both incomplete. There are complete arguments in favor of (BIG), such as:

(1) One believes that p only if one considers p true.

(2) One guesses that p only if one does not consider p true.

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(3) One cannot both believe that p and guess that p.

Unfortunately, someone who rejects (3) would probably reject (2) as well. Since I do not know of any conclusive arguments against the possibility of believing one's guesses, I shall instead argue for acceptance of (BIG) by showing some of the advantages of accepting (BIG).

When (BIG) is conjoined with the thesis that knowledge implies belief, the incompatibility of knowing and guessing can be deduced.

(BIG) $(x)(p_1)(Bxp_1 \supset -Gxp_1)$

(KEB) $(x)(p_1)(Kxp_1 \supset Bxp_1)$

(KIG) $(x)(p_1)(Kxp_1 \supset -Gxp_1)$

This consequence is desirable since (KIG) explains why it is so natural to infer 'John did not know that p' from 'John guessed that p'.

Another nice feature of (BIG) is that it can be conjoined with (GU) and (GN) to provide a definition of guessing. Let 'Pxp' read 'x pickx p', yielding:

$$\text{(G)}\ (x)(p_1)(Gxp_1 \equiv [-(\exists p_2)(p_2 \underset{x}{\gtrless} p_1)\ \&\ (p_3)(Pxp_3 \supset p_1 = p_3)\ \&\ -Bxp_1)].$$

J. L. Cohen criticizes Robert Fogelin's claim that 'John guessed that p' means the same as 'John adopted p and John lacked adequate grounds for p' because it fails to distinguish guessing from conjecturing or jumping to conclusions. Much of the fear that (G) is too broad can be allayed by checking whether terms close in meaning to 'guess' satisfy the nondomination condition. Imagining, supposing, assuming, and hypothesizing each fail to satisfy the nondomination condition. Suspecting also fails to meet the nondomination condition since one suspects that p_1 just in case one ranks p_1 among those alternatives which have a high relative probability. For example, a police officer might round up five suspects for a crime he knows only one person committed. Although he suspects each of the detainees of committing the crime, he does not guess that each has committed the crime. He might guess or even believe that a particular suspect is the criminal since there might be a prime suspect (a suspect who has the highest probability of being the correct alternative). Also, there is no such thing as completely arbitrary suspecting since that would preclude the existence of a subset of alternatives which have a high relative probability. One might object that a detective might know that exactly one of the ten people he has assembled in a room committed a murder and consider each no more likely to be the murderer than any other, and yet have 10 suspects rather than 0. My reply is that relative to the question 'Which of the 10 is the murderer?' he has 0 suspects but relative to the question 'Who is the murderer?' he has 10 suspects. Surmising and conjecturing satisfy a domination condition. In fact, a conjecture can be defined as a nonarbitrary, educated guess. Jumping to conclusions always involves a defective ranking. So guessing is distinct from, but not incompatible with, each of the above.

Lastly, (BIG) helps to explain the oddity of 'It is raining and I guess that is is raining'. With (BIG), this sentence implies 'It is raining but it is not the case that I believe it'. Since this latter sentence is one version of Moore's problem, the oddity of the former sentence is explained. The oddity of 'It is raining but I guess that it is not raining' can be likewise reduced by appealing to an analogue of (BIG): if one believes that p, then one does not guess that –p.

V

I think that the nonjustificationist view of guessing is due to the tendency to assimilate all guessing to completely arbitrary guessing. The suspicion that arbitrary choice is either impossible or irrational has a long history. Without this suspicion, people would never have been puzzled by Buridan's Ass. If one pictures guessing as always involving an arbitrary choice, and one has suspicions against the rationality of arbitrary choice in nonepistemic contexts, then one will naturally view the introduction of arbitrary choice into the epistemic context with alarm.

Most guessing is not completely arbitrary. Usually, we have reasons for our guesses. Indeed, guessing can be quite methodical. Consider the boy who guesses how many jelly beans are in a jar by counting how many jelly beans are needed to fill a similar jar.

One might claim that my definition of guessing is too broad since it leaves open the possibility that a guesser can be non-accidentally right. It seems natural to require that he could only be highly accurate through luck. The persuasiveness of Colin Radford's (6) example of the unconfident examinee rests on this requirement. Jean, a French-Canadien who believes that he does not know any English history, agrees to answer some questions about it. Jean sincerely claims that he is only guessing, and so does not believe any of his answers. However, Jean does so well that, according to Radford, we should conclude that Jean was not merely guessing and really does know some English history. Radford makes the story more plausible by adding that Jean then remembers that he did learn English history. Radford claims that the unconfident examinee is a counterexample to three popular theses about knowledge (letting 'Cxp' read 'x is confident that p'):

(5) Max DEUTSCHER, "Bonney on Saying and Disbelieving", *Analysis*, vol. 27, no. 6 (June, 1967).

(6) Colin RADFORD, "Knowledge – by examples", *Analysis*, vol. 27, no. 1, (October, 1966).

(KEB) $(x)(p)(Kxp \supset Bxp)$,
(KEC) $(x)(p)(Kxp \supset Cxp)$,
(KEKK) $(x)(p)(Kxp \supset KxKxp)$.

If my previous comments on methodical guessing are conjoined with the observation that people sometimes underestimate the reliability of their methods, one might suspect that someone could be guessing even though he was non-accidentally right. Consider the case of Julia who has fallen behind in her physics class. A friend teaches her a method for calculating viscosity but warns her that it is only reliable up to the second decimal place. The next day, her physics teacher gives a surprise examination which requires viscosity calculations up to the third decimal place. Having no other method, Julia uses her friend's method. Since she realizes that her answers have little better than a .1 chance of being correct, she does not believe any of her answers. Julia's teacher then informs her that she answered all of the questions correctly and asks her how she did so well. Julia honestly replies that she guessed with the help of her friend's method. After Julia describes the method, her teacher informs her that, contrary to her friend's warning, the method is reliable up to the third decimal place.

Since Julia was mistaken about the reliability of her method, she did not know the answers. Notice how this explanation of why Julia did not know conforms with most analyses of knowing inspired by the Gettier counterexamples.

In the case of Jean, the method in question is the informal one of saying the first thing that comes to mind. This method is reliable if one has learned English history but unreliable if one has not. Since Jean believes that he never learned English history, Jean was mistaken about the reliability of his method. Therefore, Radford's case of the unconfident examinee is not a counterexample to any of (KEB), (KEC), (KEKK), nor is it a counterexample to my definition of guessing.

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