

Practical Arguments for Theoretical Theses ¹

Christoph Lumer

*Universität Osnabrück
FB2 - Philosophie
D-49069 Osnabrück
Germany*

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ABSTRACT: Pascal's wager is expounded as a paradigm case of a practical, decision-theoretical argument for acting as if a proposition is true when we have no theoretical reasons to accept or reject it (1.1.-1.2.). Though the paradigm is fallacious in various respects there are valid and adequate arguments for acting as if certain propositions are true: that theoretical entities exist, that there are material perceptual objects, that the world is uniform across time (1.3). After this analysis of examples the author's general approach for developing criteria for the validity and adequacy of types of argument (2.1.) is applied: Having discussed some problems (2.2.-2.3.), a general epistemic principle for such "pascal arguments" is developed, which characterizes their premisses and, if introduced as an additional premiss, can make them deductively valid (2.4).

KEY WORDS: Pascal's wager, practical arguments, theoretical reasons, prudential reasons, epistemology, validity, wishful thinking

1. The Type of Argument to Be Analyzed

1.1. Pascal's Wager - the Paradigm for Practical Arguments for Theoretical Theses

The subject of this article is practical arguments for theoretical theses. The paradigm for the arguments I want to analyze is *Pascal's wager*. The thesis of this argument is not totally clear; but it seems to be something like: 'It is better to believe in god and to act accordingly than not to believe in god and to act accordingly' (Pascal 1669: 954; 957). Let us call "*p*" the proposition: God does exist. The argument presupposes that we cannot prove and know if *p* (ibid. 954). Nonetheless we must decide if *p* (ibid. 954; 955). And the situation is that of a bet with the following uncertain results: If *p* and if someone *s* believes that *p* and behaves accordingly he must be honest and has to renounce pleasures, in addition, believing such things will make his life dull (ibid. 957), but he will gain eternal happiness (ibid. 955). If *s* believes that *p* and acts accordingly though *p* is false *s* will have all these disadvantages in addition to having a false belief without getting eternal happiness. If *s* does not believe that *p* and acts accordingly he need not be honest, can enjoy pleasures but, surely, will not gain eternal happiness; however, if *p* is true *s* has a false belief. These were the *consequences*. The subjective *utility* of eternal happiness, according to Pascal, is infinitely high (ibid. 955), to be

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honest is no disadvantage at all (ibid. 957), whereas all the other consequences have finite utilities (ibid. 955). The subjective probability of p compared to that of $\neg p$ may be small, writes Pascal, but the proportion is finite (ibid. 955). Therefore, it is clearly rational to opt for p (ibid. 955).

This argument has been (cf. e.g.: McClennen 1994: 116-122) and can be reconstructed by means of decision theory as follows:

Pascal's Wager, table of consequences

	p	$\neg p$
s believes that p and acts so	s behaves honestly s has a dull life eternal happiness	s behaves honestly s has a dull life false belief
s does not believe that p and acts so	s enjoys pleasures false belief	s enjoys pleasures

Pascal's Wager, utilities

	p	$\neg p$
s believes that p and acts so	0 -1 $+\infty$	0 -1 -1
s does not believe that p and acts so	1 -1	1

If the probabilities of p and $\neg p$ are $1/n$ and $1-1/n$ resp. then the expected utilities are: for believing in p : $1/n \cdot \infty + (1-1/n)(-2) = \infty$ (under the condition n itself is not ∞); and for not believing in p : $1/n \cdot 0 + (1-1/n) \cdot 1 = 1-1/n$. So, if Pascal's premisses are accepted, also according to modern decision theory, the expected utility of believing p is really very much higher than that of not believing p , and it would be rational to believe p .

However, premisses of this argument have been criticized. Firstly, assuming indefinitely high utilities is rather problematic. Secondly, there are much more relevant alternatives and different circumstances having very divergent consequences. E.g. instead of a Christian god there might be an Islamic god demanding different other forms of reverence, or an Indian god etc. There might be different forms of almighty devils demanding different forms of immoral and cruel behavior. To sum up: For each way of life there could be a god exactly demanding this behavior. Perhaps these gods do not give eternal life and perhaps they send some people to hell. Regarding all these possibilities there will not remain a higher expected utility of believing in the Christian god. Thirdly, there are other consequences neglected in the mentioned calculation, e.g. that believing in god can provoke fear of hell-fire.²

² Pascal, at another place, discusses fear of hell-fire (Pascal 1669: 959). But he neutralizes this consequence with a fallacious argument: People not believing in god should have more fear of hell-fire

1.2. The Idea of the Paradigm Case: Practical Arguments for Theoretical Theses

Though Pascal's wager is a fallacious argument - as relevant possibilities have been neglected - I do think its structure is valid. The principal features of this structure are:

- The argument presupposes that we do not know any theoretical reason for either p or $\neg p$. If we have such reasons this type of argument may not be used.
- The *direct* thesis of the argument is not p itself but seems to be something like: 'It is better to believe that p than to believe that $\neg p$ and also than to believe nothing with respect to p and $\neg p$ '. So the direct thesis is a value judgement, i.e. a *practical* thesis. But p itself is the *indirect* claim. Only with respect to this indirect claim is the title of this paper correct: Practical arguments for *theoretical* theses.
- The arguments for the direct thesis are normal decision theoretical arguments for value judgements: Listing up possible consequences, evaluating them, estimating their probabilities and calculating the expected utility of the alternatives.
- The exact alternatives are not: simply to *believe* that p or not to believe. Instead they are: to *act* and calculate as if p is true or false. The main positive or negative consequences already stem from these states of affairs and not from believing in p or $\neg p$.
- To know that believing in p is better for us is no reason why p should be true. Therefore, without theoretical reasons increasing the probability of p - which by presupposition we do not have - we might not be able to believe that p ; to know that believing in p is better might not motivate us to believe that p . This problem is resolved in that we need not believe in p ; we only must behave as if p is true. If we do this for a while belief in p will arise on its own (Pascal 1669: 957). We can act as if p is true; and a belief that to act in this way is optimum for us will motivate us to do so.

Arguments having these structural features I call "pascal arguments".

Pascal arguments are not *argumenta ad ignorantiam*: They do not try to use the fact that we do not know if $\neg p$ as a reason for p . Instead they presuppose this fact. And though not being able to give arguments for p itself, they can be valid and adequate arguments for the value judgement that it is optimum to act as if p is true. - Pascal arguments do not have the intention of proving that a certain epistemological rule or epistemic behavior is optimum, thereby justifying such a rule or behavior. Instead they try to establish that to act *as if p is true* is optimum, thereby indirectly aiming at the truth of p . Justifications of epistemological rules do not have this hidden doxastic surplus.

At first glance Kant seems to use many pascal arguments. But this is not true. One of his arguments for the existence of freedom e.g. is: Freedom is the only possibility of letting the reason govern our actions (Kant, ²1786 BA: 114). The core of this argument is not that

(ibid. 959). However, this is no consequence at all; people not believing in god do not have fear from hell-fire, even if, according to Christian belief, they should.

believing in the existence of freedom ($=p$) is better than not doing so. But it is that the existence of freedom *itself* is a necessary condition for realizing a certain good. The pascal argument would be: Believing in p is optimum; Kant's argument is: p is a necessary condition of something good. This seems to be nearer to direct wishful thinking.

1.3. Examples of Valid Pascal Arguments

Pascal's wager is not a valid argument. Are there any examples of valid and adequate pascal arguments? The *existence of theoretical entities* can be defended by means of a pascal argument: We have no real theoretical evidence for theoretical entities. All we can observe and know is that there are certain complex empirical relations; and in principle we could restrict empirical science to observing and stating such empirical relations. Explaining these relations as effects of causal relations between hidden and unobservable theoretical entities is pure interpretation. But assuming these entities and the causal relations between them is good for us: Surely, we could observe all empirical relations; but there are so many of them that it is impossible to know them all. Furthermore, for predicting empirical results of certain changes we first had to know the corresponding empirical relation *by observation*, i.e. we first had to find a situation sufficiently similar to our situation and had to observe what happened in that case. By contrast, assuming theoretical entities and theoretical laws enables us to predict such complicated empirical relations without ever having observed them. In addition, we can construct new technologies by beginning to design their central features. Finally, the number of theoretical laws is rather small. Therefore it is much better to behave as if there are theoretical entities. - This is a rather short sketch of a pascal argument for theoretical entities. It may be schematized as follows: Let p be the proposition that theoretical entities exist. The advantage of easier predicting when believing that p behaving accordingly may have the desirability of 5; the disadvantage of claiming more or less entities than there really are may have the desirability of 2. The desirabilities of the two alternatives (believing or not in p) under the circumstance p and $\neg p$ respectively then are:

The existence of theoretical entities

desirabilities	p	$\neg p$
s believes that p and acts so	5	5-2
s does not believe that p and acts so	-2	0

Though we do not have any idea of the probability of p (it is a decision under complete uncertainty) believing in p is better because this alternative dominates the other one (it is better in *any case*).

A similar pascal argument can be given for the thesis that there are material, perceptual objects. The argument runs as follows: The only states of affairs of which we can

have certain knowledge are our subjective, innerpsychic experiences. There is no theoretical evidence for the existence of the exterior world. Our assumption that it exists is pure interpretation. But behaving and thinking as if there is an exterior world facilitates our storing of information and enables us to forecast events and to plan complex forms of actions which otherwise would have been out of reach. If e.g. we have seen an object we now know at once that we can touch it if we approach it. Having felt, seen and smelled a perceptual object and obtained information about its shape, colour, surface etc., from all this we need to store only information of one modality, e.g. the visual information, and we can deduce the rest. Then we can forecast effects, deriving them by using knowledge of general attributes of perceptual objects. We know, e.g., that odours decrease with distance; perhaps we know that certain objects giving these visual impressions stink; then we see such an object. Now we can deduce from all this and other general assumptions about perceptual objects that we can avoid the stench by not getting too near; we need not have this experience to be able to forecast it. Some general ideas of perceptual objects being used in that deduction are, that the stench is connected to a material object, which is visible too, that we ourselves are material objects having distances to other objects etc. Without these ideas we cannot forecast such relations and plan the proposed course of action. We would have to learn by many observations that if we use our legs with the consequence that visual objects of this type get "bigger" we shall smell the stench. So, assuming perceptual objects and behaving as if they existed is much better than not doing so. - This is the sketch of another valid and adequate pascal argument. The scheme of this argument would be the same as that of the argument for theoretical entities.

A third example is an argument for the uniformity assumption underlying inductive generalization, that the world will be as it was, especially that there are physical laws, which implies that empirical regularities will not change.³ The idea of the argument is: We cannot have any evidence that the uniformity assumption is true (Hume 1748: 30-32). But without uniformity, according to Hume, there would not be causality and our actions would not have consequences; there would be events following our actions, but they would not be their consequences. Similarly, it would be absurd to say that another action would have had such and such consequences. And because desirability of actions depends on their consequences all our actions and all their alternatives would have the desirability 0; they all would be neutral, and there would be no difference in desirability between them. So, if there is no uniformity (i.e. $\neg p$ holds) all our actions are in vain. But if there is uniformity (p) assuming uniformity and, using this premiss, calculating consequences and desirabilities of our actions and then performing the seemingly best one is our only chance to improve the world compared to what would happen if we acted arbitrarily or didn't act at all. Let the medium desirability of

³ I have exposed this argument in: Lumer 1990b: 671-674.

arbitrary action be 1, and the medium desirability of trying to find out and performing the subjectively best action be 2. The desirabilities of the alternatives then are:

Uniformity of the world

desirabilities	p	$\neg p$
s believes that p , tries to find out and performs the subjectively best action	2	0
s does not believe that p and performs arbitrary action	1	0

Surely, we have no idea of the empirical probability of p . But considering only small worlds the number of possible worlds is finite, and the Laplacian probability of p is greater than 0. Therefore, believing in p and acting accordingly has a higher expected desirability than not doing so. (But believing in the uniformity of the world is not the dominant alternative - unlike believing in perceptual objects and theoretical entities. Therefore, doing so may be in vain.)

2. Practical Reconstruction of Pascal Arguments

2.1. In Search of an Epistemological Principle for Pascal Arguments - The Principle's Consequent

In my "practical theory of argumentation" I have shown how criteria for the validity and adequacy of arguments can be developed, especially criteria for non-deductive arguments (Lumer 1990a: 30-84; see also: Lumer 1991; Lumer 1995). According to this theory, finding and justifying the suitable epistemological principle is the key step in the process of developing criteria for a new type of argument. Such epistemological principles are general criteria for the acceptability of a certain type of thesis. Being general (bi-)conditional propositions⁴, they say under which condition the respective type of thesis is acceptable, i.e. true, probable, verisimile or the like. Once having found and justified a suitable epistemological principle developing criteria for the validity and adequacy of the argument is comparatively simple.

Let us call the desired epistemological principle for pascal arguments the "pascalian (epistemological) principle". According to the analyzed structure of pascal arguments, the consequent of the pascalian principle must be something like: On a certain database d it is optimum for a subject s from t onward to behave as if p is true. (Of course, the database d then should be identical with s ' database at the moment t .) If s (at t) believes in this proposition and if d then is his actual database s rationally should be motivated to behave in

⁴ They also may be general propositions about the equality of certain values. In this case they only imply a general equivalence proposition that a certain function F has a certain value x exactly if ...

such a way; and this after some time will evoke his believing in p itself. This is only the crude form of the consequent; later on we still have to qualify it a bit.

2.2. *The Pascalian Principle's Antecedent*

To behave as if p_I is true can be optimum only compared to suitable alternatives, namely to behave as if another proposition from a set $\{p_I, \dots, p_n\}$ of mutually inconsistent propositions which are altogether exhaustive alternatives is true, or to behave agnostically with regard to all of them. Therefore, in the pascalian principle we first have to fix the range of relevant alternatives: p_I must be an element of a set $\{p_I, \dots, p_n\}$ of mutually inconsistent propositions which are altogether exhaustive alternatives.

One presupposition of pascal arguments is that on the subject's actual database d there is no theoretical evidence for any of the considered propositions - i.e. $p_I, \dots,$ and p_n - and their negations. This implies that on the database d no empirical probability of the propositions p_I etc. can be calculated. This presupposition too is part of the principle's antecedent condition, because otherwise there would be better possibilities of recognizing the truth of at least one p_i from $\{p_I, \dots, p_n\}$.

The main antecedent condition then has to provide that behaving as if p_I is true is better than the alternatives. The desirabilities to be compared can only be *expected* desirabilities. But instead of empirical probabilities we may use laplacian probabilities, too. The third antecedent condition thus has to refer to the definition of expected desirability, saying that according to this definition the expected desirability of behaving as if p_I is true is higher than that of all relevant alternatives.

Behaving as if p_i is true has no intrinsic desirability for the subject. Then, according to usual desirability theories, for calculating the expected desirability of such behavior we have to regard its possible consequences and their probabilities. What are such possible consequences? First some positive consequences:

P1: Calculating as if p_i is true might enable us to predict events at all and particular events.

P2: Such calculation may render evaluation of actions and aim-directed behavior possible in the first place.

P3: Dismantling recognizable processes into their presumed underlying components might enable us to construct courses of action, techniques, technologies and effects, which otherwise could not have been constructed.

P4: Presuming underlying entities may simplify our theories by drastically reducing the number of theoretical laws. This simplification has economic effects: We may undertake more predictions; then we can give much more far-reaching explanations thereby perhaps grasping more of the nature of things.

P5: Calculating as if p_i is true after a while may lead to believing that p_i is true. This then will facilitate our thinking: With respect to p_i we need not calculate hypothetically any longer.

Some important possible disadvantages on the other hand are the following:

N1: Calculating as if p_i is true might lead us to false predictions and thereby to choosing sub-optimum actions.

N2: The presumption may imply an offence against ontological economy by introducing more entities. But ontological economy is only a part of the *epistemological* economy; and ontological costs may be outweighed by other epistemological gains (cf. P4).

N3: Assuming p_i may be ad hoc; i.e. p_i may be an isolated hypothesis and not an organic part of our theories, only complicating them. If for rescuing a certain theory the introduction of an ad-hoc-hypothesis is necessary this often is hint that the theory is false. Assuming p_i then may prevent the falsification of false theories and the invention of better theories.

Some only seemingly negative consequences and possible negative consequences which can be avoided by appropriate behavior are:

S1: Using pascal arguments may be a slippery slope to mere phantasy. - But this is not true if we respect the rules and limits of pascal arguments.

S2: Assuming p_i without having theoretical evidence will prevent our open-mindedness in case of getting such evidence later on. - This is not true either: Pascal arguments depend on the database d ; with new evidence d has changed to d' ; and if d' contains evidence for p_i or another element from $\{p_1, \dots, p_n\}$ d' does not entitle us to a pascal argument with respect to p_i . The procedure then is the same as with probabilistic arguments: Having obtained more information we perhaps have to give up old beliefs because now we have stronger reasons for a contradicting belief. And pascal arguments perhaps provide only the weakest form of reasons.

For determining the expected desirability of behaving as if p is true we have to fix the probabilities and desirabilities of such possible consequences, to multiply and finally add them - all as usual. For most propositions we will not be able to calculate this way because the possible consequences depend on the truth of p itself. But in some cases we might be able to compare the desirabilities of all relevant alternatives by means of laplacian probabilities, or if some consequences are equal for most alternatives.

2.3. The Problem of Hedonistic Wishful Thinking

But we have not yet considered some problematic consequences, namely wishful thinking. There are some cases of wishful thinking perhaps having negative consequences. Believing in a life after death e.g. might lead us to committing suicide more easily.⁵ But surely some illusions are harmless in this respect. To believe in a sort of personal angel showing sympathy with us without being able to intervene might be such a harmless illusion:

⁵ Furthermore, the idea of living on after death hardly is compatible with our explanations of the mind.

We do not change our course of action ⁶ but find it comforting not to be alone. Simple illusions normally are unconsciously generated by wishes and they are destroyed when their origin is uncovered (Strube 1976: 211 f.). But for a rational hedonist the way may be exactly inverted: He consciously and instrumentally creates his illusion; he thinks behaving as if there are such angels will cause his believing in them, with the mentioned positive consequences for his feelings; there are no other negative consequences, and the alternatives are not better; therefore, it is optimum to behave as if there are angels; and so he does.

By presupposition there are no other overweighing negative consequences of such thinking. Furthermore, because the hedonist has clear arguments he will not suffer from further confusions and from living a dull life. Illusions can restrain people from changing the world; but this would be a negative consequence, which for the sake of argument was excluded; and sometimes it is exactly the reverse: Only illusion encourages us to follow certain courses of action (cf. Strube 1976: 214). So, what is wrong with the rational hedonist's thinking? Our epistemic systems, i.e. our beliefs, striving for knowledge, the epistemological principles etc., are instruments for our orientation in the world. And the main function of these instruments is helping us to choose the best action. Another function is connected with wisdom: Informing us about the main features of world for us to be able to know what is important. Orientation simply would be disturbed by admitting reasons which in no way are hints at the truth or falsity of the thesis under discussion. Even pascal arguments are a threat to the orientation function of our epistemic systems. But in this case the overall orientation function is enhanced: Using a possibly suspicious hypothesis enables us to get much more relevant information.

So we have to introduce a limiting condition: The pros and cons in a pascal argument must be restricted to consequences regarding the orientation function of the epistemic system. I.e. the consequences to be evaluated must be of the above described form (P1 to P5 or N1 to N3) or similar. Such consequences may be called "*consequences relevant for orientation*"; and we may distinguish *total desirability* from *epistemic desirability* which would be constituted alone by the consequences relevant for orientation. The most important positive consequences relevant for orientation then are: P1*: By means of *p*, additional information important for decision making can be derived, information about such consequences of actions which are not only relevant because of believing in *p* itself. P2*: Information can be derived offering new and interesting courses of action. P3*: Assuming *p* simplifies the epistemic system and thereby gives room for finding more information relevant for decision. - Believing in angels may be comforting; but this is no consequence relevant for information. Surely, our beliefs may have such pleasant consequences, but they may not be *reasons* for

⁶ But such consequences also in this example are at least conceivable: The idea of not being alone might prevent or hinder the subject's search for human company. But for the sake of argument, let us assume that there are no such negative consequences.

beliefs. So the pascalian epistemological principle's consequence has to be qualified in that only the *epistemic* optimum is relevant. And the antecedent must be qualified in that only consequences relevant for information count.

But epistemic desirability is only *one* component of the total desirability. And the epistemically best alternative may be different from the totally best alternative. Then we have two problems: 1. How can believing that an alternative is epistemically but not totally optimum motivate us to choose the epistemically best alternative? 2. Wouldn't it be rational to choose the *totally* best alternative, because practical rationality requires taking positive and negative side-effects into account? These problems have analogies in ethics: Why be moral if the morally required action is not prudentially, i.e. totally optimum? Doesn't practical rationality require performing the prudentially best action? However, perhaps not only the epistemological and the ethical problems are analogous but the solutions or at least parts of the solutions, too. One important type of consequence reconciling, at least to some extent, the totally good with the morally good is the consequence for our self-esteem: Acting immorally may contravene our ideal self and therefore diminish our self-respect. By analogy, believing in p for other than epistemic reasons may contravene our ideal self of being a well-informed person capable of self-orientation. Such a person need not believe in illusions and can bear unpleasant truths.

2.4. The Pascalian Epistemological Principle

Now we have gathered all the relevant parts of the *pascalian epistemological principle*; the principle is:

PP0: For all $\{p_1, \dots, p_n\}$, s , d , t holds the following:

PP1: If $\{p_1, \dots, p_n\}$ is a set of mutually inconsistent propositions which are altogether exhaustive alternatives, and

PP2: if d is s ' database at the time t , and

PP3: if for all p_i from $\{p_1, \dots, p_n\}$ the database d does not contain any theoretical evidence for p_i and $\neg p_i$, so that d does not provide any empirical probabilities for p_i and $\neg p_i$, and

PP4: if for all p_j from $\{p_2, \dots, p_n\}$, from t on regularly behaving as if p_1 is true, on the database d and regarding only consequences relevant for orientation, has a higher expected desirability for s than behaving as if p_j is true and than behaving as being agnostic with respect to $\{p_1, \dots, p_n\}$,

PP5: then on the database d it is *epistemically optimum* for s , with respect to the relevant alternatives, from t on to behave as if p_1 is true.

Using this principle as (implicit) premiss we can argue deductively from specifications of the conditions PP1 to PP4 as premisses for a thesis having the form PP5. But the difficulty is proving the premisses PP4 (that behaving as if p_1 is true is better than behaving as if p_j is true). This can be done by proving theses of the form: 'The expected desirability for s of

behaving as if p_i is true on the database d is x' , following the lines of differentiating practical arguments (cf. Lumer 1990a: 362-364). Or we argue directly for the comparative theses 'the expected desirability for s of behaving as if p_i is true on the database d is higher than the expected desirability for s of behaving as if p_j is true'. In this case the probabilities and desirabilities of consequences being equal for both alternatives must not be determined - which is much easier.

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