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Pascal's Pensées: Fragments of an Epistemology?

by

Patrick Quinn Moran

A Thesis submitted in conformity with the requirements
of the Degree of Doctor of Philosophy at the
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Abstract

Epistemology plays an important role in Pascal's Pensées, but nowhere in the Pensées will one find an explicit statement of this epistemology. The aim of this dissertation is to bring the epistemology of the Pensées out by considering Pascal's arguments against scepticism on the one hand and dogmatism on the other. The dissertation is thus divided into three chapters. The first chapter concerns Pascal's refutation of scepticism. Briefly, Pascal's rejects scepticism because it is impossible to put the sceptic's policy of universal doubt into practice. The second chapter concerns Pascal's refutation of dogmatism. According to Pascal, dogmatism fails because it is impossible to use reason to prove some certainties, such as first principles in mathematics, or "All men are mortal". In the third chapter we consider Pascal's positive epistemology. The refutation of scepticism shows that knowledge is possible, but the refutation of dogmatism shows that some knowledge is beyond reason. Since a complete epistemology accounts for the knowledge that is beyond reason (which Pascal calls "Knowledge by the heart") as well as the knowledge that is not beyond reason, this final chapter concerns how knowledge beyond reason may be accounted for, according to Pascal. In a word, knowledge by the heart is accounted for by identifying it as self-evidence.

L'épistémologie joue un rôle important dans les Pensées de Pascal. Il est toutefois impossible d'y trouver une version explicite de cette épistémologie. Mon but, dans cette thèse, est d'expliciter cette épistémologie en examinant d'abord les objections de Pascal contre le scepticisme et le dogmatisme. La thèse est donc divisée en trois chapitres. Le

premier chapitre traite de la réfutation du scepticisme par Pascal: en bref, Pascal rejette le scepticisme parce que ce dernier ne peut appliquer, pratiquement, son principe de doute universel. Le deuxième chapitre est consacré à la réfutation pascalienne du dogmatisme: selon Pascal, le dogmatisme est réfuté par l'impossibilité de prouver rationnellement certaines certitudes (e.g. les premiers principes des mathématiques ou la proposition "tous les hommes sont mortels"). Au troisième chapitre, l'épistémologie positive de Pascal est étudiée pour elle-même. La réfutation du scepticisme démontre que la connaissance est possible, tandis que la réfutation du dogmatisme démontre que la raison est incapable de tout connaître. Puisqu'une épistémologie complète doit expliquer l'ensemble de la connaissance, ce chapitre final montre comment, selon Pascal, on peut se rendre compte de la connaissance au-delà de la raison (ce que Pascal appelle "la connaissance du coeur") et d'une connaissance par la raison. La connaissance du coeur en est finalement expliquée comme celle qui repose sur l'évidence en soi.

Dedication

I dedicate this thesis to my family, particularly my parents, Judy and Jim,
and to my friends, particularly Jon Arnold Miller.

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I would like to thank members of the committee who have worked on this dissertation, namely Professors Côté, Dumas, and Forster. I owe my greatest thanks to my supervisor, Prof. Graeme Hunter.

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Introduction

In a recent study of Pascal's epistemology, Jean Khalfa writes that Pascal has only a "negative epistemology", meaning that Pascal has nothing to contribute to epistemology but criticism of what others say about knowledge, and no positive theory of his own [Khalfa, J., 2003, p.124]. Leszek Kolakowski goes further: he writes that Pascal has "no epistemology at all" [Kolakowski, L., 1995, p. 192]. To judge by these two scholars, the concept of knowledge has no significant, positive role in Pascal's philosophy. But Pascal's philosophical writings suggest the reverse. Pascal uses the words "connaissance", knowledge, or forms of the verb "connaître", to know, and "savoir" (as a noun and a verb also meaning "to know" or "knowledge") 444 times in the Pensées in 184 out of its 993 fragments; that is, in roughly 18 percent of the text. Knowledge is the key concept in Pascal's famous know-by-reason/know-by-the-heart distinction at L63 #110 and in his celebrated epigram "The heart has its reasons reason does not know" at L63 #423. Presumably, the undeniable presence of knowledge as a concept in the Pensées shows its importance in any account of Pascal's philosophy, despite what Kolakowski and Khalfa say.

Though I believe discounting Pascal's own positive contribution to epistemology is a mistake, it is perhaps easy to understand. On the surface, Pascal's most epistemologically relevant remarks are directed against the epistemologies of others (viz., the sceptic and the dogmatist); otherwise, what remarks Pascal makes about knowledge in the Pensées are scarce, scattered, and disjointed. They seem to be mere fragments of an epistemology. (This, it should be said, is not Pascal's fault: his premature death at age 39

prevented him from editing the 993 separate fragments of the Pensées into a substantial and systematic Apology for the Christian Religion that he had projected writing). But I maintain that if one looks more closely at the texts (reads them in the light of other contemporary texts, exposes them to internal analysis, etc.) one discovers that Pascal has a positive epistemology already all worked out in the Pensées. One has only to work to bring that epistemology to light. That work is the work of this dissertation.

Pascal undoubtedly has a “negative” epistemology, and it is useful to examine it in detail before setting out Pascal’s positive epistemology, for the negative epistemology determines at least what the positive epistemology cannot be. A detailed examination of Pascal’s refutation of the epistemologies he rejects is therefore the labour of the first two chapters.

Chapter One concerns Pascal’s refutation of scepticism. At L63 #131 Pascal brings the main sceptical arguments of his day (viz., Montaigne’s argument from infinite regress and Descartes’ dream scenario) together to form (what Richard Popkin calls) a kind of “super-scepticism” [Popkin, R.H., 1979, p.212]. He refutes this super-scepticism by pointing out its impracticality: no real person could live by the kind of universal doubt the sceptic urges we adopt. That we are certain of some things is implicit in our daily practices, and these daily practices are necessary for life. Therefore, in order for us to live, the sceptic must be wrong.

Chapter Two concerns Pascal’s refutation of dogmatism. Pascal uses the word “dogmatist” sparingly in the Pensées (a mere 6 times), so determining what he means by “dogmatist” is the first task of the second chapter. Through an analysis of Pascal’s usage and that of his contemporaries, “dogmatist” is defined as one who believes everything

may be known by reason, meaning by either deduction or induction, the operations of reason. With this definition in place, the chapter turns to Pascal's two arguments against dogmatism. First, in On Geometrical Demonstration Pascal argues that what the dogmatist assumes—that everything can be known by reason—cannot be true on pain of generating an infinite regress. Second, at L63 #821 Pascal points out two examples (viz., “All men are mortal” and “This day has a successor”) that cannot be proven by either induction or deduction. In presenting these counterexamples Pascal disables the dogmatist's basic assumption that by reason (viz., induction and deduction) the dogmatist could know everything.

In Chapter Three we come to setting out Pascal's positive epistemology. For this purpose the key text is L63 #110 where Pascal makes his only explicit reference to the knowledge-by-reason/knowledge-by-the-heart distinction. At L63 #110 Pascal also says that both kinds of knowledge lead to certainty though by different means. The task of the first part of Chapter Three is to determine what Pascal means by “knowledge” and “certainty”. Following an analysis of these terms, it is clear how knowledge by reason achieves certainty (viz., by induction and deduction), but it is unclear how knowledge by the heart achieves certainty. Determining how knowledge by the heart achieves certainty is thus the task of the second part of the third chapter. It will be seen that knowledge by the heart achieves certainty in almost all cases (with the exception of *religious* knowledge by the heart which ultimately fails to achieve certainty) by the *self-evidence* of the propositions the heart knows. Given certain conditions, the propositions the heart knows are perceived self-evidently with certainty.

Since knowledge by reason and knowledge by the heart exhaust the concept of knowledge in Pascal, the account of both set out in Chapter Three will yield a complete account of Pascal's positive epistemology. Together with the negative epistemology described in Chapter One and Two, the end of Chapter Three will bring the work of describing Pascal's epistemology to a close.

Before beginning, I should justify my choice of Louis Lafuma's 1963 Oeuvres Complètes (Paris: Éditions du Seuil) as the edition of the Pensées I will use throughout this dissertation. The two other alternate editions of the Pensées I might use are the Brunschvicg 1904 and the Sellier 1976 editions. Both of these editions are of wide enough influence and sufficient scholarly construction to recommend them as alternatives to the Lafuma 1963 edition. The trouble with the Brunschvicg edition, though, is that its influence is waning. There was a time, perhaps less than fifty years ago, when Brunschvicg's edition was taken as the standard edition of the Pensées. All articles and books and indeed even other editions of the Pensées (like Lafuma's own 1952 Delmas edition) were sure to refer to the fragment numberings in Brunschvicg's edition. Time passed, other editions of the Pensées were produced (not only Lafuma's editions, but those of Chevalier, Michaut, and Stewart), and gradually Brunschvicg's supremacy eroded. Lafuma's editions then ascended and now seem to predominate, though Brunschvicg's once considerable influence has still not wholly disappeared.

The trouble with Sellier's edition, conversely, is that its dominance has yet to be established. This is not to say that its influence is not wide, and even growing; but it has not supplanted Lafuma as of yet, and it is not entirely obvious that it ever will

permanently supplant the Lafuma edition --another edition might still do that. Using Sellier's edition as though it were sure to be the next authoritative edition is therefore somewhat premature.

So Brunschvicg's edition is vanishing and Sellier's edition has not yet taken hold – Where does this leave us? We are left with Lafuma's 1963 edition. I mean, however, to forestall this dissertation falling behind a trend towards Sellier's edition, and so I have added a concordance between Lafuma's 1963 edition and Sellier's 1976 edition at the end of this dissertation in an appendix.

Finally, I should say that, owing to their frequent use, it is convenient for me to list here the abbreviations of certain key texts to which I refer in the coming chapters.

AT= Adam, C. & Tannery, P., (eds.), Oeuvres de Descartes, (Paris: Librairie Philosophique J. Vrin, 1974) 13 Volumes. As is customary, the roman numeral following AT refers to the volume number in this edition, and the arabic numeral following the roman numeral refers to the page number in that volume.

L63= Pascal, B., Oeuvres Complètes, Lafuma, L., (ed.), (Paris: Les Éditions du Seuil, 1963). Throughout this dissertation I use Alban J. Krailsheimer's translation of the Pensées found in this edition (Toronto: Penguin Books of Canada, Ltd., 1995). Numbers following L63 refer to the corresponding fragment numbers in the Lafuma 1963 edition of the Pensées.

TMW= Pascal, B., Thoughts and Minor Works, Brunschvicg, L., (ed.), (New York: P.F. Collier & Son Co., 1938) a Harvard Classic, W.F. Trotter (trans.). TMW is always followed by a page number.

Otherwise, references in the text are by author's last name and year of publication followed by a page number (and, where appropriate, other identifying marks such as chapter and section numbers), and may be found in full in the bibliography.

Chapter One: Pascal on Scepticism

If we wish to understand Pascal's view of and response to scepticism and dogmatism, we could scarce have a better clue than his desire to hold positions intermediary between two extremes. Pascal repeatedly casts himself as holding a position between two extremes. "[I] refuse to be at the bottom end, not because it is the bottom", he writes, "but because it is the end; I should refuse just as much to be put at the top" [L63 #518]. Pascal stresses that in being able to stay "in the middle" lies "[t]he greatness of the human soul". Our natural propensity to avoid extremes helps us achieve the greatness that comes from staying in the middle. "[E]xtremes are as if they did not exist for us or we for them," he writes, "They escape us or we escape them" [L63 #199]. Pascal's characterization of the "middle state" takes a religious turn, for he writes that, "before Christ men did not know where they stood" nor did they "know whether they were great or small" [L63 #691]. They did not know how to assess themselves at all, and yet they made pronouncements all the same by guessing "at random" [L63 #691]. "[T]hose who said one thing or the other" about man's state, that man will always be totally ignorant or can be perfectly certain, writes Pascal, nevertheless "knew nothing about it" and "were always wrong" because they did not understand that human nature is dual, that man is both great and wretched, that he both believes and doubts naturally [L63 #691 and L63 #505]. "Such", he says, "is our true state" – a "knowledge of Jesus Christ finds [fait] the middle" because in it we find out about this intrinsic duality [L63 #199 and L63 #192]. Geneviève Rodis-Lewis has an apt formulation for Pascal's religious turn in epistemology: "Pascal renvoie dos à dos scepticisme et dogmatisme,

pour les dépasser par la seule foi” [Rodis-Lewis, G., 1992, p.207]¹. Pascal’s theory is that a position intermediate between scepticism and dogmatism, between total doubt and completely certain knowledge, will escape the limitations of philosophy by virtue of its reliance on something extra-rational, viz., faith.

1.1 *Historical Background*

For the purposes of this dissertation, "scepticism" refers to Pyrrhonian, not Academic, scepticism. The two types of scepticism may be distinguished in the following simple way: Academic sceptics say that nothing is known; Pyrrhonian sceptics say that it is not even known whether anything is known [Popkin, R.H., 1979, p. xv]. Pascal does mention the Academic sceptics very occasionally, but then he did not consider them to be true sceptics. To his mind, scepticism was exclusively Pyrrhonian scepticism. The word he uses to mean scepticism is simply “Pyrrhonisme”, and is indeed mostly translated into English as “scepticism” (e.g. L63 #518, L63 #886, or L63 #905). In the Conversation with deSaci, Pascal condemns the man he regards as the arch-sceptic, Montaigne, as “pur Pyrrhonien” [Pascal, B., Thoughts and Minor Works, (hereafter simply TMW), 1938, p.390]. Presumably, Pascal did not consider the Academic sceptics an epistemological danger anything like Montaigne and the Pyrrhonian sceptics².

¹ “Pascal puts scepticism and dogmatism back to back in order to transcend them with faith alone” (my translation).

² Of the five mentions Pascal makes of the Academic sceptics in the Pensées, only two show that he knows anything about them, and in one case what he thinks he knows about them is wrong. At L63 #520, Pascal mentions Arcesilaus, who was an Academic sceptic, but he misidentifies him, for he says that “he reverted [from scepticism] to dogmatism”. Antiochus of Ascalon, the *Pyrrhonian* sceptic, reverted to dogmatism, not Arcesilaus [Couissin, P, 1929, p. 261]. Sextus Empiricus records that Arcesilaus was a hypocrite, professing scepticism while really a dogmatist, not a turncoat. [Sextus Empiricus, 2000,

This meaning of “sceptic” as Pyrrhonian sceptic has changed little since the time of Sextus Empiricus: contemporary dictionaries begin their definitions of “sceptic” by referring to its ancient, Pyrrhonian roots [OED, 1975, entry “sceptic”; Robert, P., 1972, entry “sceptique”]. Since Pascal nowhere gives an explicit definition of “scepticism”, but instead relies on its ancient roots to supply a meaning for it, it is well that we make a brief overview of those roots now.

The locus classicus for the ancient meaning of scepticism is Sextus Empiricus’ Outlines of Pyrrhonism. There sceptics are defined as those philosophers who “are still investigating” the truth, for the Greek word skeptesthai, from which “sceptic” is derived, means “to investigate” or “to inquire” [Sextus Empiricus, 2000, I, iii, 7, p. 4]. The sceptic “puzzles over and investigates everything”, says Sextus, and at last comes to be “at a loss as to whether to assert or deny” any proposition put to him. This happens because, by investigating everything, the sceptic gains the ability to set out oppositions between the many “objects and accounts” he has encountered in his investigations to reveal their “equipollence” [Sextus Empiricus, 2000, I, iv, 8, p. 4]. Sextus explains that by “equipollence” he means “equality with regard to being convincing or unconvincing”; that is, none of the conflicting propositions is more convincing than its rival [Sextus Empiricus, I, iv, 10, p.5]. The effect of setting out opposite propositions in equipollence is first to cause suspension of judgement [epoche] in the aspiring sceptic [Sextus

I, xxxiii, 232-234, pp. 61-62]. In the other mention of any significance (at L63 #109), he says that the Academic sceptics would have wagered on the natural light that provides certainty. This is an intriguing reference to the Academic sceptic’s doctrine of probability, but it is hardly enough substance to construct a theory of what Pascal thought about the Academic sceptics [Penelhum, T., 1983, p.289. See also Sextus Empiricus, 2000, I, xxx, 226].

Empiricus, 2000, I, iv, 8, p. 4]. According to Sextus, suspension of judgement is “ a standstill of the intellect” during which one “neither reject[s] nor posit[s] anything”. Once suspension of judgement has been achieved, tranquillity [ataraxia] – “freedom from disturbance or calmness of the soul” -- is meant to follow from it. The hope of achieving tranquillity is what attracts men to scepticism, Sextus writes, though originally the discovery that the two were related was an accident [Sextus Empiricus, 2000, I, vi, 12, p. 5]. “[T]roubled by the anomaly in things and puzzled as to which of them they should rather assent to, [men] came to investigate what in them is true and what false, thinking that by deciding these issues they would become tranquil”. But what they discovered was that it is in holding no beliefs about these issues that one becomes tranquil. Scepticism offers a method for ridding oneself of one’s beliefs, namely the principle “that to every account an equal account is opposed”, which Sextus calls the chief constitutive principle of scepticism [Sextus Empiricus, 2000, I, vi, 12, pp. 5-6]. When the dogmatists in their rashness [propeteia] try to use reason to decide matters that are unclear (that is, matters whose determination is not immediately apparent as, for example, the dogmatists try to do in the sciences), sceptics provide antidotes to this rashness [Sextus Empiricus, 2000, I, vii, 13, p. 6]. These antidotes are the Ten Modes [tropoi]; ten arguments or strategies of argument designed to break reason’s power to determine any matter under investigation, and so leave everything indeterminate, equipollent, disinclined to elicit belief either way. Sextus lists these ten modes and then, conveniently, summarizes them into two [Sextus Empiricus, 2000, I, xiv, 35-37, p. 12]. Of the remaining two strategies, only one is needed for our purposes: If in the course of a dispute one tries to prove that one’s opinion is true (instead of merely asserting its truth), one will fall into an infinite regress; for “a proof of

its being true [requires] another proof of that [proof] (since it too has to be true), and so ad infinitum" [Sextus Empiricus, 2000, I, xiv, 122, p. 32]. But, as Sextus recognizes, "it is impossible to establish infinitely many proofs" and so trying to prove what one asserts will not establish its truth either [See also Sextus Empiricus, 2000, I, xiv, 114-117, pp. 31-32]. It ends up that "we have no point from which to establish anything, and suspension of judgement follows" [Sextus Empiricus, 2000, I, xv, 166, p. 41].

Sextus has other sceptical arguments besides the ten modes, one of which deserves special mention. Anticipating a strategy of sceptical argument that would only gain currency centuries later, Sextus attacks the method of induction [Sextus Empiricus, 2000, II, xv, 204, p. 123]. The method of induction seeks "to make universals convincing on the basis of particulars" – that is, to aggregate enough members of a given set possessing a given property to warrant the conclusion that all members of that set possess that property. This is done "either by surveying all of the particulars or some of them". But, Sextus points out, "if some, the induction will be infirm, it being possible that some of the particulars omitted in the induction should be contrary to the universal", while if on the other hand one tries to survey *all* of the particulars, "they will labour at an impossible task, since the particulars are infinite". In either case, Sextus concludes, "induction totters".

"Dogmatism" is scepticism's natural opposite [Popkin, R.H., 1979, p. xv]. But because the sceptics make no assertions, there is no single way to oppose them. One may oppose them either by asserting that nothing is knowable or that something is knowable. For the purpose of this chapter "dogmatism" shall refer to the doctrine that at least some

things are demonstrably true and are known with certainty. This definition, though serviceable, is incomplete and temporary and will be revised in the Chapter Two (See 2.1 and 2.2). For the moment, we may be assured that this temporary definition will not mislead us: Since dogmatism is scepticism's natural opposite, an appropriate definition of scepticism insures that it is also appropriately, though negatively, defined.

This chapter is about Pascal's view of and response to scepticism. The definition I gave above tells us something about what Pascal means when he uses the word scepticism (viz., Pyrrhonian scepticism), but it does not tell us what he takes the main arguments in scepticism's favour to be, or what he thinks its principle strengths and weaknesses are, or how he thinks it may be answered. So, in this second, more substantial sense, the question still stands: What does Pascal mean by scepticism?

1.2 *Analysis of Scepticism*

The locus classicus for Pascal's view of scepticism in the Pensées is L63 #131. This is the fragment in which Pascal makes the most and the most unified remarks about scepticism, and so it is to this fragment that I will mostly refer in discussing Pascal on scepticism.

Fragment L63 #131 begins by Pascal giving an account of what he takes the sceptic's case to be. He writes that one of the main sceptical arguments is that no one can "be certain that these [first] principles are true (faith and revelation apart), except that we feel them naturally [sentons naturellement]." Unfortunately, Pascal tells us, this "natural feeling" [sentiment naturel] of the truth of first principles "affords no convincing proof

of their truth” because if, “apart from faith, we are uncertain whether man is created by a good God, an evil demon [un démon méchant] or by chance, it is doubtful whether these principles given to us are true, false, or uncertain”, then, Pascal says, the answer “depend[s] on our origin.” What Pascal seems to be saying is this: if our arguments are to work, they must be based on first principles. However, this premise is open to sceptical attack in the form of the question, “ How are we to ascertain the truth of first principles, if all our arguments are based upon them?” The ready answer to this question is to say that we are aware of the truth of these first principles, not because of any argument (which would be a circular answer), but because of *natural feeling*. That is, we just *feel* that certain propositions (namely, our first principles) are true because our natural configurations, our natures, are set up so that we will feel them. The obvious question to raise given this answer would be something like, "How do we know that what natural feeling reveals as true is true? " But here Pascal seems to respond to an unexpected subsequent question, for the next thing he says is that “the answer must depend on our origin”, presumably meaning to answer a question more like "How do we find out what our natures are?" His answer to this less than apparent question is that if we wish to know our natures we must look to our origins. The problem with looking to our origins, as Pascal knows, is that these are unknown to us.

“[We] do not know who put [us] into the world ... [We] find [ourselves] attached to a corner of this vast space without [our] knowing why [we] happen to be here rather than some other place ... [We] are terrified and amazed to find [ourselves] here rather than there, for there is no reason why [we] should be here rather than there, why now rather than then. Who put [us] here? By whose command and act were this place and time allotted to [us]?”
[L63 #427 and L63 #68]

We look as though we have outwitted ourselves with this line of reasoning: To give our arguments a foundation, we based them on natural feeling; to give our natural feelings a foundation, we based them on our origins. But we do not know our origins, as Pascal eloquently attests, and so it seems the sceptics are right: we have no convincing proofs for the truth of our first principles, and so the whole argumentative superstructure that is based on those first principles crumbles.

This argument has a precursor in Montaigne's Essays, particularly from Book Two, Chapter 12 of the Essays -- An Apology for Raymond Sebond. Montaigne's scepticism (as presented in the Essays, and in An Apology for Raymond Sebond in particular) had an important influence on Pascal and Pascal's view of scepticism. Michel LeGuern can thus remark that Montaigne's Essays are second only to the Bible in their influence on Pascal [LeGuern, M., 1971, p.85].

To set up the case for his scepticism, Montaigne takes aim at the ways in which we claim validity for those statements we make about reality; viz., our reason and our sense perception. He writes, "The senses themselves being full of uncertainty cannot decide the issue of our dispute. It will have to be Reason, then. But no Reason can be established except by another Reason. We retreat into infinity." [Montaigne, M., 1991, Bk. II, Ch. 12, "An Apology for Raymond Sebond", p.679]. Montaigne is here arguing against our power to produce knowledge by deducing it from rational principles. He says that because all rational arguments rest on premises, the premises themselves, if they are derived from rational arguments, must rest on premises [Montaigne, M., 1991, Bk. II, Ch.12, p.679]. And so too must these premises rest on premises, and so on, producing an infinite regress and no solid first principle of reason from which one might generate

knowledge [Montaigne, M., 1991, Bk. II, Ch. 12, p.679]. This allows Montaigne to argue that because we “ha[ve] no knowledge of first causes and first principles, then let [us] boldly give up all the rest of [our] knowledge; without foundations, argument collapses” [Montaigne, M., 1991, Bk. II, Ch. 12, p.632]. Montaigne can then conclude that “there is no such thing as knowledge” on the basis of much the same argument as Sextus Empiricus had presented in his summary of his Ten Modes [Montaigne, M., 1991, Bk. II, Ch. 12, p.669; Sextus Empiricus, 2000, I, xiv, 122, p. 32. See also Sextus Empiricus, 2000, I, xiv, 114-117, pp. 31-32].

There are apparent differences between Pascal’s version of the argument from infinite regress at L63 # 131 and Montaigne’s: e.g. Pascal speaks of nature and origins and Montaigne does not. More importantly, Pascal does not say that the attempt to ground our knowledge ends in an infinite regress. But the essence of Montaigne’s argument from infinite regress is preserved in Pascal’s version. In both cases one looks to one seemingly sure foundation after another (the senses and then reason in the case of Montaigne; our nature and then our origins in the case of Pascal) only to find that none of them can truly provide the sure foundation we need for our knowledge. (The passage from one seemingly sure foundation to another in Pascal gives the sense that he could continue this regression indefinitely, even though he spares his reader a prolonged demonstration). Consequently, we find that we have no guarantor of the truth of knowledge, and so the whole body of it is cast into doubt.

Pascal well knows that the sceptic does not stop his arguments with Montaigne’s argument from the infinite regress in first principles. If Montaigne had a powerful

influence on Pascal's understanding of scepticism, then so too did Descartes. The weight of scholarly opinion seems to favour the view that Descartes is more influential forming Pascal's version of scepticism even than Montaigne. Indeed Henri Gouhier remarks that "[Pascal] lit les Essais [de Montaigne] en pensant à Descartes" [Gouhier, H., 1966, p.289]³. And Michel LeGuern writes that "Le procédé du doute provisoire l'a incontestablement séduit, à tel point qu[e Pascal] ne trouve pas de meilleur moyen d'exprimer le scepticisme de Montaigne que de le décrire en termes qui sont visiblement empruntés aux pages des Méditations traitant du doute méthodique." [LeGuern, M., 1971, p. 132]⁴. Textual evidence that Pascal has Descartes' version of scepticism specifically on his mind appears in fragment L63 #131 as he continues to recount sceptical ploys:

"Nobody knows for sure, apart from faith, whether he is sleeping or waking, for when we are asleep we are firmly convinced that we are as wide awake as we are now. ... [When we are asleep] we believe that we see space, shapes and movements; we feel time pass, we measure it, in fact, we behave just as we do [in our dream life] as when we are awake. As a result, since half our life, on our own admission and despite appearances is spent in sleep in which, we have no idea of the truth because all our feelings [sentiments] are simply illusions... Who knows whether the other half of life, when we think that we are awake, is not another sleep slightly different from the first ... from which we wake when we think that we are sleeping?"

"As we often dream that we are dreaming, piling one dream on another, is it not possible that this half of our life is itself a dream, on to which other dreams are grafted from which we shall awake when we die –[a dream during which] we are as little in possession of the principles of truth and goodness as during normal sleep [?] ... the different thoughts that stir us may be no more than illusions like the passage of time and the vain phantoms of our dreams?"

³ "Pascal reads Montaigne's Essays while thinking of Descartes" (my translation).

⁴ "The procedure of provisional doubt incontestably seduced him to such an extent that Pascal can find no better means to express Montaigne's scepticism than to describe it in terms that are obviously borrowed from the pages of the Meditations that treat of methodical doubt." (my translation).

The reader will recognize the resonance with Descartes here, particularly the dream scenario that Descartes describes in Meditation I [AT VII, 19]. It is unmistakably recognized by its essential features, viz., the identity of dreaming and waking life, and hence, our inability to decide whether the experiences of our daily lives are genuine or merely illusory. The reader will recall how Descartes develops the argument of the first Meditation. Descartes begins by turning a sceptical eye upon all his former opinions, realizing that because “it is sometimes proved to me that the senses are deceptive, [it] is wiser not to trust entirely to those by whom we have once been deceived.” [AT VII, 18]. But Descartes hesitates to dismiss such a large and significant class of opinions so quickly. There are at least *some* sensory experiences it does not seem reasonable to doubt. Descartes has ready a particular example of something known by the senses but of which it would not seem reasonable to have any doubt. Descartes’ example is a very ordinary, everyday, and unremarkable sort of occurrence: “[T]he fact that I am here, seated by the fire, attired in a dressing gown, [with] this paper in my hand, [etc.]” [AT VII, 18]. Doubting this sort of occurrence would be a very bizarre doubt indeed, as Descartes himself suggests: “[H]ow could I deny that these hands and this body are mine, were it not perhaps that I compare myself to certain persons, devoid of sense, whose cerebella [are] troubled and clouded ... But [such people] are mad, and I should not be any the less insane were I to follow [their] example ...” [AT VII, 18-19]. Descartes’ point here is simply that surely he would have to be mad to go around denying or doubting the sort of thing that our senses teach us are so obviously true. Madmen “assure us that they think they are kings when they are really quite poor, or that they are clothed in purple when they are really without covering ...” as Descartes says [AT VII, 19]. Similarly, he puts it

to us, he would also have to have gone mad to deny that he is sitting by the fire, wearing a dressing gown, holding a piece of paper in his hands.

Descartes realizes that perhaps he would not have to be mad at all, to have these doubts:

“[After all,] I must remember that ... I am in the habit of sleeping, and in my dreams [I am in the habit of representing] to myself the same things or sometimes even less probable things, than do those who are insane in their waking moments.” [AT VII, 19]

It is in the perfectly ordinary occurrence of *dreaming* that one finds oneself in the extraordinary circumstance of sharing the hallucinations of madmen:

“How often has it happened to me that in the night I dreamt that I found myself in this particular place, that I was dressed and seated near the fire, whilst in reality I was lying undressed in bed!” [AT VII, 19]

Though it seemed to Descartes that he could never find himself in a situation in which he would doubt the opinions caused in him by his senses, there is one such kind of situation (viz., dreaming) and it is one that is commonplace to the point of arising every night when Descartes goes to bed. Descartes tries to find some way of distinguishing between his dreams and his waking experience so that he may distinguish himself from the madman by knowing at least when he is hallucinating and when he is not. At first he believes he has found just that point of distinction between dreams and reality when he realizes that “what happens in sleep does not appear so clear nor so distinct as does [all his waking experiences].” [AT VII, 19]. But at once it occurs to him that this purported point of distinction will not work because he “[has] in sleep been deceived by similar[ly clear and distinct] illusions [of wakefulness]” and so he concludes that “there are no certain indications by which we may clearly distinguish wakefulness from sleep [AT VII,

19]. Since Descartes has now succeeded in finding grounds for doubting all the opinions he has formed through his senses, he is now in a position to rid himself of them.

Allusion to Descartes' dream scenario at L63 # 131, on the heels of Montaigne's argument that first principles are unfounded is significant. It is as though Pascal were trying to describe a kind of "super-scepticism", a scepticism that combines both the attack on knowledge derived from first principles found in Montaigne and the attack on knowledge derived from the senses found in Descartes [Popkin, R., 1979, p. 212]. It would seem that Pascal is gathering the strongest sceptical arguments together in one place so that he might reply to them, decisively, all at once.

Pascal opens his reply to these main sceptical arguments by saying that he thinks dogmatists make a "strong point", which is that when speaking "sincerely and in good faith", we cannot doubt natural principles [L63 #131]. Pascal seems to mean that, while the sceptics argue, however convincingly, that life is indistinguishable from dreams and so everything we are now experiencing may be illusory, that is all well and fine. At the end of their arguments, though, we all (sceptics included) return to our daily business as though their arguments were completely without effect. Or again: when the sceptics contend that all our arguments are baseless because a hunt for first principles leads to an infinite regress, at the moment we may find their contention compelling. But once they have done inveighing against arguments, everyone (including the sceptics) goes on making arguments just the same. In other words, when we are perfectly honest and frank about what the sceptics say, we do not find it convincing enough to cause us any consternation or doubt about the assumptions or, as Pascal calls them, natural principles that underwrite our lives and daily activities. Pascal is saying that to this unflinching

unperturbedness the sceptics have no reply, except to revert to their complaint about “the uncertainty of our origin, which includes [enferme] that of our nature.” Faced with a contented trust in natural principles, that is, the sceptics merely repeat the arguments that they have against relying on natural principles (viz., that these depend upon our nature, which in turn depends on our origins, which we do not know, etc.). “[D]ogmatists have been trying to answer [this sceptical argument against trying to give first principles a foundation] since the world began”, writes Pascal. Perhaps this is a reference to the futility he perceives in the dogmatic approach to answering scepticism, or perhaps it is a reference to what he says elsewhere about sceptics; namely, that “scepticism [spells] obstinacy”, in this case meaning that sceptics are simply too stubborn to accept defeat [L63 #886].

Returning to L63 #131, Pascal claims that the epistemological world is divided into two great camps; the dogmatists and the sceptics. There is, he says, “open war between [these camps of] men in which everyone must take sides, either with the dogmatists or the sceptics” (I re-open the question of how one may be neither a dogmatist or a sceptic later in this chapter at 1.5). One might wonder, given the flaw Pascal points to in scepticism and the futility he suggests exists in dogmatism, whether there might not be a third way, some camp in this “open war” that is neither sceptical nor dogmatic. No, says Pascal, for “anyone who imagines that he can remain neutral will be the sceptic par excellence”. “[N]eutrality”, he tells us, “is the essence of the sect [of sceptics]”, so much so in fact, that whoever “is not against them is well and truly for them [excellerment pour eux].” Indeed, Pascal claims that these sceptics “are not

[even] for themselves: They are neutral, indifferent, suspending judgement on everything, including themselves.” So it would seem that, according to Pascal, scepticism has set itself up as a kind of *default setting* in epistemology: if one wishes to avoid choosing sides, to avoid both scepticism and dogmatism and be neither, one will end by being claimed by one side (the sceptics) after all. For, since one has elected to remain *neutral* in the sceptics-versus- dogmatists debate, and since neutrality is the “essence” of scepticism, then at bottom one is electing to be a sceptic by remaining neutral in this debate. If one protests being counted with the sceptics on the grounds that one is not well and truly *for* them, that is no matter: they are not well and truly for themselves – one who is not well and truly for them will blend seamlessly into their midst. If one puzzles at how any group of people might not be “for themselves” ; i.e., how any group of people could be “neutral, indifferent” with regard to themselves, the answer is simple: this group of people “suspend[s] judgement on everything, including themselves.” The doubt of the sceptics is applied *universally*, that is; they even apply it to themselves, with the result that they do not know whether they should be for or against scepticism itself.

It is at this point in L63 #131 that Pascal breaks into the sceptical train of thought with his own objections to it.

“What then is a man to do in such a [universally sceptical] state of affairs? Is he to doubt everything? [Is he] to doubt whether he is awake, if someone pinches or burns him? [Is he] to he doubt whether he doubts? [Is he] to doubt whether he exists? One cannot come to [doubting these things], and I maintain that a perfectly genuine sceptic has never existed.”

The point of these questions, his objections to scepticism, is that there is an intrinsic impossibility to doubting things like whether one is awake, whether one is in pain, or whether one exists, or has doubts [Cf. Arnauld, A., 1996, p.7]. These things,

Pascal is claiming, are so basic to our lives that it is impossible to detach ourselves from them sufficiently to doubt them. That is surely why he can “maintain that a perfectly genuine sceptic has never existed” – a perfectly genuine sceptic would have had to work a trust in these things out of his life, and so, Pascal suggests, would have had to divest himself of a precondition of life to become a sceptic. Of course, if he had done that (divested himself of a precondition of life) he would never have lived to stand as a counterexample to Pascal’s claim that there never has been a completely genuine sceptic. “Nature”, says Pascal, prevents man from this universal doubt because such universal doubt “go[es] wildly astray”, and going wildly astray is dangerous for the survival of all natural creatures.

“Nature” is a word with many meanings, so it is important that we know which meaning Pascal is thinking of here. There are 327 uses of “nature”, “naturel” and “naturellement” that appear in the Pensées. The uses of “nature” and its cognates that are relevant here are “nature” in the sense of “the fundamental qualities or essential character of a thing” (“nature” in sense 1 with 148 uses), and in the sense of “the entire material universe, its phenomena, system of forces, and patterns of events” (“nature” in sense 2 with 70 uses). (The remaining 128 uses of “nature” and its cognates are divided amongst the senses of “sort, kind, variety” with 8 uses; “instinct” with 4 uses; “innate” with 27 uses; “physical or actual, as opposed to spiritual” with 18 uses; “normal” with 16 uses; and sundry others). “Nature” in sense 1 is distinguished either by the presence of the possessive “of” (“de” in French) followed by a noun (e.g. “the nature of things”) or an adjective modifying it (e.g. human nature). For example, Pascal uses “nature” in sense 1 at L63 #978 when he writes that “The nature of self-love [de l’amour-propre] is ... to

love only self [n'aimer que soi]. "Nature" in sense 2 is distinguished by references to objects in the material world, such as animals and plants and the objects that surround them. Pascal uses "nature" in sense 2 at L63 #148 when he writes that "God alone is man's true good and ... nothing in nature [dans la nature] [can] take his place: stars, sky, earth, elements, plants, ... animals, ... [etc.]."

Judging by this one fragment alone, the sense of "nature" at L63 #131 is not definitely "nature" in either sense 1 or sense 2. It is not clear that it is sense 1 because at L63 #131 Pascal neither uses "nature" in conjunction with a possessive nor a modifying adjective. He simply says that "Nature backs up [man's] helpless reason and stops it from going so wildly astray [as to adopt genuine scepticism]." But he also does not make reference to the contents of the material universe. Fortunately, there is another place in Pascal's writings besides L63 #131 where Pascal says that "nature" prevents creatures from "going astray". In the Preface to the Treatise on the Vacuum, Pascal writes that "nature" infuses animals with instincts to help preserve them:

"Beehives were as well laid out a thousand years ago as today, and each bee forms that hexagon[al] [cell in the honeycomb] as exactly the first time as the last. It is the same with everything animals make by that hidden motion [mouvement occulte] [viz., instinct]. Nature teaches them in response to the pressure of necessity ... [N]ature['s] object [in giving instincts to animals] is merely to maintain animals in an order of limited perfection, infus[ing] in them this necessary knowledge, *lest they perish* [qu'il ne tombent dans le dépérissement], and does not allow them to add to [this necessary knowledge] *lest they go beyond the boundaries prescribed to them* [qu'il ne passent les limites qu'elle leur a prescrites]." [TMW p. 441, italics mine]

Given the similarity of what Pascal says here and at L63 #131 (viz., that nature prevents creatures from exceeding their boundaries, "going astray"), it is probable that he means "nature" similarly in both passages. "Nature" in the above passage from the

Preface to the Treatise on the Vacuum is clearly “nature” in sense 2, “the entire material universe and its system of forces, etc.”, as may be seen from the reference to the contents of the world in that passage (viz., bees, honeycombs, animals). Hence “nature” as used at L63 #131 which is probably similar to the use of “nature” in the passage from the Preface to the Treatise on the Vacuum, is also “nature in sense 2.

This interpretation of “nature” makes for a good defence against the sceptic, for people generally (not the sceptics, perhaps, but Pascal’s readers who are forming their opinions of the sceptics) will admit that, unless we know some things (e.g. when one is being pinched or burned), one is in danger of one’s life. (We recall the case of Pyrrho of Elis, the founder of Pyrrhonian scepticism, who nearly died because he tried to deny knowing that there were carts barrelling towards him in the streets) [Diogenes Laertius, 1979, Vol. 2, Book IX, Ch. 62, p.475]. In this way Pascal can claim without fear of contradiction that “one cannot come” to doubt these very fundamental beliefs that sustain life. Since it is Pascal’s view that “the behaviour of the hardened unbelievers violates every canon of common sense and the most elementary human instinct for self-preservation”, it is reasonable to conjecture that, by a kind of principle of natural selection, that there will be none of them around [Wetsel, D., 1994, p.297]. We should also note in passing that it follows immediately from the impossibility of doubting these few, albeit very fundamental, beliefs (e.g., one’s existence, one’s conscious state, etc.), that it is impossible that the sceptic doubt *everything*, these few, fundamental beliefs each standing as an example of something that, to Pascal’s mind, *cannot* be doubted. Once sceptics admit to at least this little bit of self-preserving knowledge, the universality of their doubt is ruined, and with it so is the consistency of their philosophy.

When the sceptic does deploy arguments that are intended to cast doubt on these indubitable beliefs, Pascal says that then “[n]ature backs up helpless reason and stops it from going so wildly astray.” This is significant. This is Pascal’s first suggestion that doubting everything the way sceptics do (i.e. to the point of doubting first principles) is not merely wrong; it is wrong-headed. Pascal’s view is not so much that scepticism is refutable, as that it is absurd from the outset. It is, to his mind, something that it is better not to introduce at the start, rather than something to bother oneself to argue against. The fact that Pascal says that Nature will prevent reason from going “so wildly astray” as to doubt these fundamental beliefs together with him saying that “one cannot come to [such a sceptical point]” as to doubt them, urges his reader to think that one need not argue against scepticism at all – Nature will stymie it before it ever gets started. This interpretation of Pascal’s view on this point is corroborated by what he says in another important passage in the *Pensées*, namely, L63 #110. Pascal begins this important, corroborating passage by speaking about the distinction between knowledge by reason and knowledge by the heart. “We come to know truth not only by reason,” he writes, “but even more by our heart.” [L63 #110].

“[I]t is through this second way [i.e. through the heart] that we know first principles, and reason, which has no part [in knowing first principles], tries in vain to combat [*combattre*] them. The sceptics have no other object than that [i.e., to combat first principles, but their project is something] they work at it to no purpose.”

Here again we find Pascal saying that the sceptic’s business of “combatting first principles” is impossible. It is undertaken “in vain”, as Pascal says – those who work at it (the sceptics) do so to no purpose; that is, futilely. But then, remarkably, Pascal repeats

his idea that this sceptical toil to unseat first principles is not merely *wrong*, nor even just *wrong and impossible*; what is more, it is *absurd*. He writes that it is “useless [and] ridiculous [*inutile et ridicule*] for reason to demand of the heart proofs of its first principles”. (The “heart” is a key term in Pascal’s positive epistemology and I will discuss what he means by “heart” in detail when I describe Pascal’s positive epistemology in Chapter Three. See 3.3.3). So Pascal repeats that it is *ridiculous* to try (as the sceptics wish us to try) to find arguments in support of first principles. Previously, we heard Pascal say that there is something “wildly astray” in trying to use reason to undermine first principles; now we find him saying that this practice is futile, “in vain”, “useless”, and (which is my point) “ridiculous” [L63 #131 and L63 #110].

This is not the only passage in the Pensées in which Pascal confirms that he considers scepticism to be wrong to the point of absurdity. For example, at L63 #33 he says that scepticism is “the most extravagant [of] opinions”, diverging as it does so greatly from “natural wisdom [*sagesse naturelle*]” as is recognized by “so many people in the world who are not sceptics”. In yet another passage, immediately after writing the word “Scepticism”, Pascal writes that “Extreme intelligence is accused of madness [*folie*] just like an extreme lack of intelligence” [L63 #518]. One reads this and naturally concludes that, either as an example of excessive or defective intelligence, Pascal thinks that scepticism is *rightly* accused of madness.

This corroborating evidence from the passages elsewhere in the Pensées brings us back to the passage where we first heard Pascal say that the sceptical project of doubting first principles (e.g. one’s existence) goes “wildly astray”. Granting now, on the basis of this corroborating evidence, that Pascal thinks that this project of universal doubt is

absurd, or mad even, we are right to wonder why Pascal would say (as I believe he does say) that the correct response to the “extravagant opinions” of the sceptic is not to engage them in debate at all.

A further statement at L63 #131 confirms that this is truly Pascal’s opinion.

Having said that it is impossible for one to “come to such a pass” as to doubt the fundamental principles of daily life, and having claimed that he takes it as given that there never has been a perfectly genuine sceptic, Pascal then says that “[n]ature lends its support to helpless reason and stops it going so wildly astray”. He then adds (by way of corroborating my contention) that it is “[n]ature [that] confounds the sceptics”. This re-enforces his earlier claim that it is Nature, not human reason, that prevents scepticism.

The question arises of course "What does it mean to say that Pascal has shown that scepticism is absurd? " But what does "absurd" mean here? Is it the type of absurdity the logician speaks of, or its it the common ordinary type of absurdity to which common, ordinary speakers refer when they find something ridiculous or laughable or hopelessly impractical?

I do not think that the absurdity to which Pascal reduces scepticism is the first type, the logical type of absurdity. That type of absurdity is defined strictly as a contradiction in terms and is easily identified by its form; viz., $A \ \& \ \neg A$. It nowhere appears that Pascal tries to make out a contradiction in terms in anything the sceptic says. Pascal’s characterization of scepticism is rather that it is wholly impractical, or practically impossible than that there is any formal contradiction in a statement of scepticism. Indeed in the Conversation with de Saci, Pascal gives vent to his frustration with the sceptics for

their cunning avoidance of contradiction in stating their position. Montaigne, the arch-sceptic, "will affirm nothing" says Pascal, and so he is "unable to express [his scepticism] by any positive term" [TMW, p.390]. So, instead of using the statement "I do not know" (an affirmation inasmuch as it expresses a positive statement "at least that he doubts") and thereby break his rule against affirming anything, he expresses his scepticism rather by interrogation; that is, by asking (not *asserting*) "What do I know?" [See Montaigne, M., 1991, Bk. II, Ch. 12, "An Apology for Raymond Sebond", p. 591] By this clever ploy, then, Montaigne is able to avoid making a statement of scepticism that might be charged with being something more like a contradiction in terms, and hence something more like what a logician means by an absurdity. Since Pascal knows that this is Montaigne's stratagem to avoid uttering a contradiction in terms in the statement of his position, it is not plausible to assume that Pascal would still pursue this charge against scepticism.

There is also textual evidence for thinking that Pascal does not mean what the logician means when Pascal attacks the sceptic's position as absurd. The word that Pascal uses against the sceptics at L63 #110 is "ridicule", as we saw above. Interestingly, this is the same word that Pascal uses at L63 #84 against Descartes. There he writes that Descartes' philosophy is "ridiculous [ridicule]" because "it is useless and uncertain and painful". This is a significant use of the word "ridicule" because it gives the meaning of "ridicule" not as a logician would give it (as absurdity; i.e., a contradiction in terms) but with reference to practical considerations, such as utility, certainty, and harmlessness. According to this passage, what makes something ridiculous in Pascal's eyes is that it does not serve any of these practical ends. If it does not contribute to utility, certainty, or

the reduction of pain (so if it is "useless, uncertain, and painful"), then to his mind it is deservedly also called *ridiculous*. It is presumably with similar *practical* (as opposed to *logical*) considerations in mind that Pascal applies the same word to scepticism. This is borne out plainly by the specific complaints that Pascal raises against scepticism; viz., that it is very nearly an entirely non-functional philosophy, at least inasmuch as it does nothing to disturb the daily practices of ordinary people (including the sceptics themselves) [See also L63 # 958 for another similarly practical use of "ridicule" in the Pensées].

Resuming our analysis of L63 #131, we should consider an important piece of evidence corroborating the interpretation I have given it thus far. Pascal thinks that there are things one has to believe in order to live *this* life. This claim parallels what Pascal also says about believing in order to live in the *next* life, the life after death. The two are analogous in Pascal: believing that one exists, that one feels pain, etc. are as necessary to one's natural life as believing in the existence of God and the immortality of the soul is necessary to one's supernatural life. The parallel is wholly intentional, as David Wetsel astutely observes: "Pascal makes his strategy perfectly clear ... Hardened disbelief will be shown to be tantamount to insanity. In the most essential of all matters, that is, the question of a life beyond this one, the hardened sceptics can be shown to act directly contrary to their most basic self-interest." [Wetsel, D., 1994, p.376]. This analogy corroborates the claim I make that Pascal thinks certain beliefs about the natural world are preconditions for natural life.

To take belief in the immortality of the soul first, Pascal writes of it that it is a matter of "such vital importance to us" that "one must have lost all feeling not to care to

know the facts of the matter” [L63 #427]. Belief in the immortality of the soul is so important, in fact, that Pascal claims that “[a]ll our actions and our thoughts must follow such different paths according to whether there are eternal rewards to hope for or not” [L63 #427]. Without this belief in an immortal soul capable of receiving eternal rewards for actions in its credit in this life, it would be “impossible to take a step [faire une démarche]” [L63 #427]. “It affects one’s whole life” Pascal writes, “to know whether the soul is mortal or immortal” [L63 #164].

It is important to one’s *whole* life, natural and supernatural, to know that one’s soul is immortal, and yet, Pascal ascertains, this belief is useful only in conjunction with a belief in the existence of God. Indeed, Pascal says that “It is certain that there is nothing good without a knowledge of God” [L63 #432]. In the particular case of human beings and their aspirations, this means that our hope for eternal happiness lies in faith in God: “All men seek happiness ... [y]et for very many years no one without faith [in God] has ever reached the goal at which everyone is continually aiming” [L63 #148]. But this happiness we are all seeking and for which faith in God is the necessary pre-condition is not to be found within us or anywhere else in the temporal plane: “Happiness”, Pascal tells us, “is neither inside us nor outside us” [L63 #407]. Rather, “it is in God” and in the eternal rewards that await us in a life after death.

There is a sceptical answer to the claim about the necessity of a belief in God and in an immortal soul for an eternal afterlife, just as there is a sceptical answer to the claims about the existence of a material world and a self. In the case of those beliefs that are a pre-condition to an afterlife, this sceptical answer is *atheism*, the denial of the existence of God. The transition from scepticism to atheism is natural, for, as Gouhier points out in

his explanation of L63 #162, for the purposes of Pascal's Apology, sceptics and atheists belong to the same camp – they are both “les incroyables”, *unbelievers* [Gouhier, H., 1985, p.120]⁵. Pascal is aware of this sort of unbeliever's response. and he addresses himself to it directly. He says that though the atheists may seem clever, in reality their cleverness is limited [L63 #157]. We see the limitation of atheism at several points. Firstly, their scepticism about the existence of God and the immortal soul do not contribute positively to human happiness. The effect of their atheism is quite the opposite:

“[W]hat advantage is it to us to hear someone say that ... he does not believe that there is a God ...? Does he think that by so doing he [has] won our full confidence ?” [L63 #427].

Clearly the atheist does not inspire Pascal with this sort of God-denying talk.

Neither does he please Pascal by denying the immortality of the soul, if we judge by the following rhetorical questions:

“Do they [viz., the atheists] imagine that they have given us great pleasure by telling us that they think that our soul is only a bit of wind or smoke ...? Is this something to be said gaily ? Is it not on the contrary something to be said sadly, as being the saddest thing in the world?” [L63 #427].

If the denial of the existence of God is (as Pascal says) discouraging, and the denial of the immortality of the soul is something akin to "the saddest thing in the whole world", there is no chance that Pascal sees these denials as contributing to human happiness. As Terrence Penelhum puts it, “Pascal... [holds] that the attempt to practice

⁵ At this point in the seventeenth century the distinction between those who denied God's existence (viz., atheists) and those who merely doubted it (viz., agnostics) was not yet fully clear, possibly because by then there had still not been a case of a person openly denying God's existence. See Buckley, M.J., 1987, pp.9-11 and p.27. Clearly, only if atheist here means “non-theist”, not one who positively asserts God's non-existence, can a sceptic (who will positively assert nothing) be an atheist.

Sceptic recommendations leads only to despair.” [Penelhum, T., 1983, p.311]. In a universe devoid of God and the promise of an eternal life after this life ends, we are left to the terrors of the emptiness of the natural world: “The eternal silence of these infinite spaces terrifies me [m’effraie]” as Pascal puts it, possibly speaking for his reader as well as himself [L63 #201].

Not only do these atheistic denials contribute to man’s misery and despair instead of his happiness, there are in Pascal’s mind serious doubts as to the grounds upon which atheists make these denials. Their evidence that God does not exist and that the soul is not immortal is, in Pascal’s judgement, obviously lacking. Pascal addresses himself to this lack on the point of denying the evidence of a life after death. He writes, “Atheists – What ground have they for saying that we cannot rise from the dead?”, meaning to force the atheists to give evidence for thinking that life after death is any less credible a belief than death after life [L63 #882].

“Which is harder [Pascal asks the atheist] to be born or to rise again [from the dead]? ... Is it harder to come into existence than to come back [into existence]?” [L63 #882].

Pascal suggests to the atheist that his view that life after death is not a credible belief is based merely on convention: “Custom [coutume] makes us find [coming into existence] easy, while the lack of custom makes us find [coming back into existence] impossible” [L63 #882. See also L63 #227]. It may be the “popular way to judge” to use custom as the arbiter in the case of deciding on the credibility of the belief of an afterlife, but it hardly strikes one as the obvious final arbiter in the matter. One would rather suppose that *evidence* would be brought in to decide the value of the sceptic’s denials of the afterlife but, as Pascal suggests, the sceptic has none. So in the end it is not at all clear

that the sceptic's denial of the immortality of the soul is in fact the more credible of the two alternative beliefs. Mutatis mutandis, Pascal might make the same argument against the sceptic's denial of the existence of God. Specifically, Pascal might demand of the sceptics their evidence that God does not exist in just the same way as he demands they produce evidence showing that there is no immortal soul. In the absence of any direct evidence in their favour (for one rather supposes that after thousands of years, if there were any direct evidence against God's existence it would have turned up by now), Pascal might well draw the same conclusion about their denial of the existence of God that he draws about the immortality of the soul. He might conclude that their denial is under-motivated by the existing evidence, and so inspires no credence, or at least inspires no more credence than the belief that there is a God.

The easy, straightforward retort to this line of reasoning is to object that a lack of contrary evidence does nothing more than assure us that the existence of God and the immortality of the soul are *logical possibilities*. They are not excluded from logical possibility by any evidence, and so, in the continuing absence of such evidence, belief in these things is still at least logically legitimate. The force of this objection comes from the near total universality of logical possibility. Only statements that are formally self-contradictory are excluded from logical possibility. The fact that a statement of belief in God or an immortal soul contains no formal contradiction is right away sufficient to mark these beliefs as logically possible. But this is no great distinction since on that definition of logical possibility nearly *everything* (including some things we would find outlandish and absurd) is logically possible. Pascal may have succeeded in showing that the existence of God and an immortal soul are logically possible, but that is not a sufficiently

robust defence of these possibilities to render them credible, or even to make them appear less incredible than the host of other possibilities that also fall into the category of the logically possible.

In Pascal's defence it might be argued that, although showing that the existence of God and an immortal soul are logically possible is not much of an accomplishment, it is still a necessary first step in the process of making these possibilities credible. Having clearly set these possibilities apart from formally self-contradictory statements serves at a minimum to shut off one avenue of sceptical criticism. This means of defending Pascal is itself open to criticism. If these remarks at L63 #882 are a *start* at a legitimization of belief in the existence of God or an immortal soul, they are all that Pascal seems to do to make these beliefs legitimate. Pascal does not appear to *finish* this legitimization anywhere. This meta-criticism, however, would be misplaced for two reasons. The first is that Pascal considers a certain kind of effort to render these beliefs legitimate ineffective, if not actually counter-productive. Efforts to demonstrate the existence of God by way of evidence from the wonderful "works of nature" (i.e., *deism*) or metaphysical arguments for the existence of God, for example, are, in Pascal's words, of "little impact" at the best or, at worst, they are "likely to bring [religion] into contempt in [people's] eyes" [L63 #190 and L63 #781]. Pascal may not anywhere try to make these beliefs (e.g. the existence of God) legitimate by arguing for them after this pattern (by metaphysical or deistic arguments, that is), but then by his own standards such arguments would be unacceptable anyhow. The second reason is that in his own unique way Pascal *does* try to finish the legitimization of at least one of these beliefs, viz., the existence of God. This he does in the famous Wager argument, by arguing that of the two options, disbelief or belief

in God, it turns out that it is belief in God that is reasonable, inasmuch as this belief maximizes one's chances at the most happiness at the least cost [L63 # 418]. (We will consider the Wager Argument in detail in Chapter Three. See 3.4.5). If one considers the Wager argument as an attempt to make the belief that there is a God more reasonable than the alternative, then it should also be considered as an attempt to complete the process (begun in showing the logical possibility of God's existence) of making that belief legitimate.

A summary of the preceding pages might run as follows: To corroborate a claim about Pascal requiring certain beliefs to act as pre-conditions for life, I made an analogy to his also requiring certain beliefs to act as pre-conditions for an afterlife. I named a belief in God and an immortal soul as two beliefs Pascal would say were a pre-condition to an afterlife. This met with an objection that the sceptic about knowledge might also be expected to be a sceptic about the existence of God and the immortality of the soul. I then pointed out that Pascal had two answers to this objection: first, that sceptics about the existence of God and an immortal soul do not contribute to human happiness, quite the contrary, in fact; second, that sceptics about the existence of God and an afterlife do not necessarily stand on firmer ground than do those who believe in these things. I concluded by examining what answer might be made on Pascal's behalf to the objection that the lack of evidence against belief in God and the immortality of the soul is not nearly a complete defence of these beliefs.

Now that we have Pascal's response to scepticism presented, analyzed, and corroborated, it is time to turn to the deep questions that his response raises.

1.3 *On Whether the Sceptic Can Live His Scepticism*

Of course one of the deep questions that L63 #131 raises is whether Pascal is right to say that by making some beliefs preconditions of life nature has precluded there being any genuine, through-and-through, practising sceptics. Let us try to evaluate that claim independent of L63 #131 to see whether Pascal is right on this point.

One thing to think of when evaluating the claim that there are no through-and-through, practising sceptics is how one would go about checking that someone who claims to be a through-and-through, practising sceptic is in fact what he claims to be. Suppose I were to try to conduct the exhaustive search for a through-and-through, practising sceptic. What if in the course of this search I were to encounter someone who claims to be such a through-and-through, practising sceptic? How would I assess the truth of his claim?

If one believes Montaigne, there would be nothing in his behaviour that would show that he is (or is not) a sceptic – the sceptic’s behaviour would be identical to the behaviour of all the people around him: “[S]ince I am not capable of choosing [the best way to live], I take the choice of other men and keep myself in the station in which God has placed me.” [Montaigne, M., 1991, Bk. II, Ch.12, “An Apology for Raymond Sebond”, p.642]. Montaigne encourages the sceptic to conform to the customs of those around him, making his outward behaviour utterly conventional and unremarkable (-- Montaigne recommends that we “[k]eep to the beaten track”, adding that “All roads which wander from the norm displease me”--), but keeping his attitude, his inner state, in detachment from this outward behaviour [Montaigne, M., 1991, Bk. II, Ch.12, p.629].

According to Montaigne it is in one's inner life, the life that does not show in one's behaviour, that one is a sceptic: "[I]t is in his soul that a wise man should withdraw from the crowd, maintaining its power and freedom freely to make judgements, whilst externally accepting all received forms and fashions." [Montaigne, M., 1991, Bk. I, Ch. 23, "On habit: and on never easily changing a traditional law", p.133].

But there is, it seems to me, a damaging Pascalian line of questioning to put to the man who, despite the conformity of his outward behaviour, nevertheless claims to be a sceptic "on the inside". Presumably there are no born through-and-through, practising sceptics – scepticism, as Montaigne describes it, after all, is a state of withdrawal from the world, implying that first there had been a state of engagement with the world that the sceptic has since disengaged to become a sceptic. The question Pascal might put the person claiming to be a through-and-through, practising sceptic is this: How could one's inner state, one's attitude towards the world, have changed so radically without there having been a corresponding change in one's behaviour? This is a principle to which Pascal refers more than once in the *Pensées*: it is by changing one's behaviour (so-called outward behaviour) that one changes one's inner state, one's beliefs -- "[R]égler la vie pour régler l'esprit" as Alexandre Vinet calls it [Vinet, A., 1904, p.259]⁶. This is the principle on which Pascal relies at the end of the Wager argument fragment when he advises the unbeliever how to go about learning a belief in God: It is by "behav[ing] just as if [you] did believe ... That will make you believe quite naturally" [L63 #418]. And he repeats this principle (that behaviour changes belief) elsewhere too: "Man is so made that if he is told often enough that he is a fool, he believes it" [L63 #99]. If we accept this

⁶ "To govern life in order to govern the mind" (my translation).

principle, we are then in a position to ask anyone professing to be a through-and-through, practising sceptic two tough questions; viz., (1) how did he manage to become a sceptic (i.e. to change his beliefs) *without* changing his behaviour ? and (2) if he *did* change his behaviour to become a sceptic, how did he change it and still keep the sceptic rule of conformity to custom?

We seem to have caught the professed through-and-through, practising sceptic between these two questions; for, if he denies that he changed his behaviour we may (following Pascal's principle) wonder if he really did manage to change anything (e.g. his attitude towards the world and experience, and his state of inner attachment to them) at all in his inner life; if, on the other hand, he says he *did* have to change his behaviour to change his attitude, state of attachment to the world, etc. aspects of his inner life and so become a sceptic, how could he also keep in conformity with convention? It seems that either way the sceptic answers he is undone. If he says that he hasn't changed his behaviour, the truth of his claim to be a through-and-through, practising sceptic is cast in suspicion. If he answers that he *has* changed his behaviour to become a sceptic, then he has, ipso facto, admitted to having broken with custom because presumably the customs of those who surround the professed sceptic are the customs of non-sceptics. Breaking with custom, though, also undermines the professed sceptic's claim to scepticism. The sceptic claims that he does not know any better than anyone else how to live his life. In the absence of that superior knowledge, and perhaps with a view to living harmoniously with his neighbours (--"The Pyrrhonian yields to appearances and to local opinion in order to carry on the affairs of the day in the least stressful manner."--), he agrees to live according to their customs, keeping the doubts he has as to their rightness entirely to

himself [Penelhum, T., 1983, p. 289]. Indeed, Penelhum writes that “although the sceptic’s practice may not differ outwardly from that of his unphilosophical fellows, he is someone who *returns* to common practice after extinguishing his wish to judge it, and who returns to a common practice that is disinfected of those underpinnings of belief and valuation that have given it meaning and helped to establish it for those with whose behaviour he allows himself to conform. He is *in* their world, but not *of* it” [Penelhum, T., 1983, p.292]. But if he breaks custom (say, in order to become a sceptic), then by his own reckoning that implies that he *does* claim to know better than those around him how to live his life—he had precisely *not* “extinguished his wish to judge” common practice, nor has he “disinfected” himself entirely of “those underpinnings of valuation” that have helped to establish the behaviour of those with whom he would conform. Obviously any claim to knowledge ruins a professed sceptic’s claim to be a *through-and-through* sceptic; at best he is only a *near* through-and-through sceptic, but Pascal nowhere denies the existence of near through-and-through sceptics.

The sceptic might try to escape this two-question trap by denying Pascal’s principle that one changes one’s inner states, beliefs, etc. by changing one’s behaviour. Very well, but then Pascal would be within his rights to ask how else one would change one’s beliefs, attitudes, and sundry other aspects of one’s inner life if not by changing one’s behaviour. If he were not an atheist, the sceptic might claim that God can change one’s beliefs, attitudes, etc. by means of grace, and so allow one to forego changing one’s behaviour. But the sceptic is an atheist, and so cannot avail himself of this way out. He might then try claiming that it is by a simple act of mental concentration or brute will that he changed his beliefs, and that changing his behaviour just did not enter into it. Leaving

aside the obvious problem with this solution (e.g. how does one change one's concentration or will without changing one's behaviour?), there is at least one serious strike against it. In some matters, it is true, one can change one's beliefs, attitudes, etc. at will. I can, for example, change how I think of a chessboard (as black squares on a white background or vice versa) at will. If I am accustomed to thinking of a chessboard as black squares on a white background, and if it for some reason suits me to think of it inversely, as white squares on a black background, then it is a simple thing for me to switch my thinking around: an act of will or mental concentration is all I need to effect the transformation. In some other matters, though, making this kind of change is not so easy. An example would be my belief that when a heavy object near the surface of the earth is dropped, it will fall to the ground. Of course I can imagine dropping a heavy object and imagine watching it float up into the sky instead of falling to the ground. But when I actually try dropping a heavy object, I find that I have a very hard time believing that it has not fallen to the ground, but has only floated into the atmosphere. It does not seem to matter how much I wish to believe that it has floated away, or how much I concentrate on imagining it: I look at the heavy object sitting on the ground and fail utterly to believe it.

The lesson here is that some attitudes, beliefs, etc., may be easily changed by will or concentration alone, while others may not. Applying this lesson to the sceptic's claim to be able to detach himself from his experience of the world by a mere act of will or mental concentration has the effect of making this claim very implausible. The sceptic, after all, is not claiming to dispense with this or that single belief which may or may not be hard to dislodge by will or concentration alone. The sceptic is rather claiming to dispense with *all* beliefs, attitudes, etc., altogether, regardless of whether they are easy or

hard to dislodge. In my example I found it hard to divest myself of one belief in particular; viz., the belief that when dropped near the surface of the earth, a heavy object will fall to the ground. But this is only one of myriad beliefs I hold: surely there are many more that will be just as hard (if not harder) to dislodge. The sceptic claims to have divested himself of *all* these beliefs – but this must have been many times more difficult than my trying to divest myself of this one belief just because of the numbers of beliefs involved. If I couldn't manage to change this *one* belief by sheer strength of will or concentration, how can I be expected to believe that the sceptic did so in the case of *all* his beliefs? Even if we allow that the sceptic makes these changes of belief successively instead of all at once, it is very hard for me to believe that he could manage to change all of them, if I could not even change one of them.

In the end, then, the would-be through-and-through, practising sceptic is left with no way out of Pascal's two-question trap. If he admits he changed his behaviour to become a through-and-through sceptic, his scepticism is no longer perfect inasmuch as he has broken with convention. If he denies he changed his behaviour to become a through-and-through sceptic, he owes an explanation of how this is possible (given that behaviour changes beliefs, attitudes, etc.). And as we have just seen, no explanation available to him is plausible. Catching the would-be sceptic in this two-question trap is good for Pascal's claim at L63 #131. It means that Pascal's claim that nature prevents there from being any through-and-through, practising sceptics has a good deal of independent verification to speak for it. If the sceptic tries to divest himself of all his beliefs (presumably including the beliefs that L63 #131 indicates are preconditions for life) he will be frustrated. This

adds significant corroboration to Pascal's claim that nature has made it so that some beliefs (e.g. "I am awake", "I exist", "I am in pain" etc.) cannot be dispensed with.

1.4 Evaluating Pascal's Answer to the Sceptics that the Ineffectiveness of their Arguments is their Refutation

Hearing Pascal's answer to the sceptics, questions arise in the minds of his listeners, "But is this answer right? Is it right to argue that because the sceptic's arguments are ineffective in changing human beliefs that this constitutes their refutation?" Surely there is some prima facie reason to doubt that this answer is right: it relies, after all, on a kind of hard-headedness in men, an inability to understand or a brute unwillingness to accept the sceptic's arguments. "The ordinary man", as Pascal says, "has the faculty of not thinking about things that he does not wish to think about" [L63 #815]. One would prefer that an argument against the sceptics depend on a more elevated human faculty than a mere wilful ignorance or an invincible incomprehension of another's point. These less reputable qualities make it look as though the sceptic's argument has nothing wrong with it per se; it is simply the sceptic's audience that is defective, and the sceptic can scarcely be blamed for that.

Pascal might make two answers here. The first is that if the sceptic wishes to convince an audience of ordinary men, he will have to work with the limitations of that audience. If it is a poor workman who blames his tools when the work does not go well, it is a poor orator who blames his audience when his message is not received. Calling the mass of ordinary men to whom he makes his arguments hard-headed or dull-witted looks

very much as the sceptic is blaming his audience for what is in fact a fault of his own approach to it (a fault Pascal alleges lies in the very arguments the sceptic makes). He would be better advised to approach his audience differently, using arguments better attuned to their natural tolerance of his point and their capacity to understand how he reaches it. Complaining about the intelligence and wilfulness of his audience makes it look as though it is the sceptic who has poorly assessed his audience, not his audience that has poorly assessed the sceptic's arguments.

The second answer Pascal might make is that *the sceptic himself is not convinced by his own arguments*. If we judge by what one does as a consequence of being convinced by sceptical arguments (the same rule the sceptic judges by when he accuses his audience of not being receptive to his arguments), then it is clear that the sceptic too is not convinced by them, for the sceptic behaves just like everyone else. (Recall that Montaigne made conformity to conventional behaviour the standard of his morality). The sceptic does not stop responding to pain simply because he can produce arguments calling its existence into question. The sceptic does not stop making and responding to arguments simply because he can produce a master-argument that shows that ultimately all arguments are baseless. In fact, he carries on in exactly the same way that everyone else does in all things. This identical behaviour makes it impossible to believe that somehow the sceptic is convinced by his sceptical arguments while everyone else is not. This in turn makes it impossible to accept that the sceptic's audience is hard-headed and ineluctably uncomprehending when confronted with his arguments, while he is not. Either he is just as stubborn and stupid as he accuses his audience of being, or neither he nor his audience are stubborn and stupid for not adjusting their behaviour to display their

sceptical convictions. There is, it must be admitted, an aspect of the tu quoque fallacy to this answer. Accusing the sceptic of being as stubborn or as stupid as he accuses his audience of being is not logically inconsistent with his being right all the same: perhaps his sceptical arguments are correct, but no man is capable of accepting them in an on-going, practical way. Though it may yet be logically possible that the sceptic's arguments are correct despite his inability to live them out at all times, this answer nevertheless strikes at the sceptic's *credibility*. It strikes against the sceptic's credibility because if he is no less stupid and stubborn than the rest of mankind, then why should anyone believe what he in particular has to say? And if the sceptic wishes his audience to *believe* what he says (over and above his wish that it recognize the simple logical possibility that what he says may be right), he had better stay credible in its eyes.

In the end, then, the sceptic's attempt to thwart Pascal's refutation of scepticism founders. The sceptic cannot appeal to the judgement of the ordinary run of men and hope for its approbation, only to renounce it when it turns against him. That sort of vacillation harms his credibility too⁷.

1.5 *Explaining Pascal's Intermediary Position between Scepticism and Dogmatism*

I mentioned at the beginning of this chapter (at 1.2) that Pascal's view is that between scepticism and dogmatism there is "open war" in which all of us "must take

⁷ Of course I do not mean credibility the way one means it in politics; viz., that what a politician promises, he will in fact do; nor do I mean credibility the way lawyers mean it; viz., that the testimony a witness gives is unimpeachable for reasons of self-interest. I mean rather the kind of credibility one needs in order to get people to believe in the probable truth of a given proposition enough for them to test it for themselves. This is something like the credibility that a scientist needs to get other scientists to test the hypotheses he claims are true.

sides, either the dogmatists or the sceptics” [L63 #131]. Since it is my contention that Pascal is neither a sceptic nor a dogmatist, I need to explain how he can insist that one is either one or the other, and yet be neither.

According to Pascal in the Conversation with de Saci, a fatal moral flaw has infected scepticism. It is scepticism’s failure to recognize that “the state of man at the present time differs from that of his creation” [TMW, p. 397]. Pascal explains that the sceptic, “feeling the present wretchedness” of human nature while at the same time “being ignorant of the original dignity” inherent in it, makes the mistake of constantly under-estimating human nature. Thus the sceptic “ treats [human] nature as necessarily infirm and irreparable”, causing the sceptic to “despair [of people] arriving at real good”. This attitude (despair at anyone ever arriving at real good) in turn causes the sceptic to give up on trying to do *any* good: it precipitates a state of “extreme laxity” as Pascal calls it. Similarly, a fatal moral flaw has infected dogmatism, one that also proceeds from failing to recognize that the state of man at the present time differs from his state at his creation. In the case of the dogmatist, the mistake is to notice only "some trace of [man’s] first greatness" whilst forgetting those traces of his subsequent corruption. This leads the dogmatist to treat human “nature as sound and without need of redemption”, and leads him consequently to the sinful “height of pride”. If such a thing were possible in philosophy, scepticism and dogmatism could serve as mutually correcting tutors toward the end of producing a single, perfect philosophy. But Pascal contradicts this vision. “[N]othing but war and a general ruin would result from their union”, he predicts, “for the one establishing ... the greatness of man, the other his weakness, they would destroy the truths as well as the falsehoods of each other.” So instead of each one

correcting the other, Pascal foresees each one cancelling the other out, annihilating both. The impossibility he sees in both their union and their separate existences, means that scepticism and dogmatism are doomed: “[T]hey cannot subsist alone because of their defects, nor unite because of their opposition”, and so “they break and destroy each other”.

Pascal’s theory is that the moral flaws in scepticism and dogmatism consign them to mutually assured destruction. This leaves sceptics and dogmatists in a predicament. If one must be either a sceptic or a dogmatist, as Pascal himself says at L63 #131, what philosophy can one have if one can be neither? Pascal believes that the mutual destruction of scepticism and dogmatism will lead their adherents out of philosophy and the domain of reason into religion and the domain of the heart. Out of the ashes of their mutual destruction emerges not another, albeit superior philosophy, but rather, Pascal alleges, religious belief, specifically *Christian* religious belief. In other words, Pascal turns to “the truth of the Gospel ... [to] harmonize the contrarities” of scepticism and dogmatism “by a wholly divine act” [TMW, p.397]. Paraphrasing Pascal on this point Hugh Davidson writes: “[Philosophers] have not discovered that the problem [of the seeker of God] calls for reconciliation on a higher level ... [T]he searcher arrives onto the plane of religion and the religious experience.” [Davidson, H.M., 1979, p.103]. Maybe this is all well and good when considering the *moral* dimension of the conflict between scepticism and dogmatism; i.e., when scepticism and dogmatism are considered for their moral, as opposed to their epistemological content, perhaps then Christianity can serve as some kind of solution. But how does this contribute to finding a solution to the *epistemological* conflict between them? It contributes to epistemology by introducing the

idea that the solution to the conflict between scepticism and dogmatism is not to be found within the domain of reason. An intuitive element, the heart, the seat of religious belief, is needed [L63 #424]. Pascal's epistemology is thus marked by a combination of rational and extra-rational (i.e. intuitive) elements. This lifts him out of the all-or-nothing conflict between scepticism and dogmatism that is internal to philosophy, and places his intermediary solution on a separate (he would say higher) plane. "Les deux routes [de la philosophie] sont deux impasses", Henri Gouhier writes, describing this intermediary position, "Il faut sortir de la philosophie pour trouver la solution aux problèmes qu'elle pose" [Gouhier, H., 1985, p.160]⁸. It is in this way that Pascal's epistemological solution can be both intermediary between scepticism and dogmatism while at once insisting that these two schools exhaust the range of possibilities in philosophy. It is precisely because his proposed solution escapes pure philosophy that he can offer a third option. Of course this is a part of Pascal's larger, apologetic strategy. "[This is] an almost invariable feature of Pascal's dialectic," Alban Krailsheimer writes, because it forces Pascal's opponent "to admit that human reason can go no further, before triumphantly proclaiming that the answer must therefore lie outside human reason" in faith [Krailsheimer, A., 1980, p.31] .

Taking the matter out of philosophy does not necessarily make Pascal's point uninteresting from a philosophical point of view. True, Pascal offers the Gospels as the answer to the conflict between scepticism and dogmatism, and such a religious answer admittedly does not provide much positive replacement for scepticism and dogmatism. It is more like a rejection of the idea of any mere philosophy being adequate to explain and heal human confusion and its consequent woes. Penelhum explains that, for Pascal, this

⁸ "Philosophy's two paths are two dead-ends... One must exit philosophy to find

solution is unique because “only the Christian revelation, with its doctrine of original sin can respond to the ambiguity which generates Scepticism *and* explain it; for only it insists upon, and only it remedies, the corruption which prevents our recognizing the presence of God and our need for him.” [Penelhum, T., 1983, p. 303]. Still, its unique usefulness apart, it is hard to think what could be intrinsically *philosophically* interesting about something that is so forthrightly anti-philosophical. But considered as a contribution to the history of solutions to scepticism, Pascal’s answer *is* philosophically interesting inasmuch as it epitomizes a new type of epistemology, something Richard Popkin discusses in The History of Scepticism from Erasmus to Spinoza [Popkin, R.H., 1979, p.213]. The newness of that answer derives from its insistence that reason (in the form of philosophy) cannot provide *all* the answers, and that at least some part of epistemology depends on a non-rational (in this case, an intuitive) solution.

“This solution, [Popkin writes,] formulated in embryo [in the seventeenth and eighteenth centuries, means that] in a fundamental sense our basic beliefs have no [rational] foundation and must be accepted on faith, be it animal, religious, or blind”.

The dialectic of scepticism in Pascal’s hands is one that leads from the internal dissatisfactions of philosophy (in the form of scepticism) to a synthesis of philosophical and non-philosophical (meaning religious), rational and intuitive elements. (There may be a narrow, philosophical sense of “epistemology” whereby only what is known *by reason* counts as knowledge. In that sense of course the non-rational elements of Pascal’s epistemology would be excluded. But there is a perfectly legitimate, wider sense of “epistemology”, which applies to whatever is rightly said to be known, by whatever

solutions to philosophy’s problems.” (my translation).

means. In that wider sense, these intuitive elements may be included). “Reason’s last step”, as Pascal writes, is the recognition that there are an infinite number of things which are beyond it” [L63 #188]. The newness of Pascal’s solution is accentuated by the context in which he offers it. (We shall see in Chapter Three –at 3.6 --in what precisely this extra-rational (or intuitive) solution consists). He offers his rational/extra-rational hybrid epistemology *after* the western philosophical world has been captivated by the rationalist philosophy of Descartes. “The [Cartesian] revolution ... thus came in time for the youthful Pascal to take it in and, in due course, challenge it in direct confrontation” [Krailsheimer, A., 1980, p. 3].

1.6 *Contrast with Descartes*

At this point it may be appropriate to confront a denial of Pascal’s contribution to the history of philosophy on grounds that it is not distinct from Descartes’ contribution. Let us lay the problems and questions that L63 #131 raises aside and consider how Pascal’s answer to scepticism contrasts with Descartes’ answer, the Cogito. Pascal and Descartes share so much in their conception of scepticism—they had both carefully studied Montaigne’s scepticism and, as I said above at 1.2, it seems that the most important influence on Pascal’s understanding of scepticism comes from Descartes [Brunschwicg, L., 1944, p.167]. What is striking is that, being so similar in their conceptions of scepticism, they should conceive such dissimilar answers to it.

The reader will recall that in the second Meditation Descartes resumes the scepticism of the first Meditation. Descartes does not want to accept scepticism and he struggles against it. Working under the supposition that “all the things that [he] see[s] are

false” and that “nothing has ever existed of all that [his] fallacious memory” represents to him, Descartes has now “to discover one thing which is certain and indubitable” even though he now “consider[s] that [he] possess[es] no senses” and “ imagine[s] that body, figure, extension, movement and place are but fictions of [the] mind.” [AT VII, 24].

He tries to develop some answer to scepticism out of the fact that, despite his universal doubts, someone or something is still causing thoughts to arise in his mind. “[Perhaps there is] some God, or some other being by whatever name we call it, who puts these reflections into my mind”, he conjectures [AT VII, 24]. This conjecture will not save him from radical, universal doubt, however, since it is “possible that [Descartes is] capable of producing [these mental reflections him]self” [AT VII, 24]. So he cannot infer the indubitable existence of a God or some other being from the obvious fact that he has these mental reflections; he himself might be their cause. Well, then, Descartes wonders, needn’t his own existence be assured if he is so certain that he is having these mental reflections? “I myself, am I not at least something?”, he asks [AT VII, 24]. This too seems doubtful, since he has “already denied that [he has] senses and [a] body” [AT VII, 24]. Indeed, if he “persuaded [himself] that there [is] nothing in all the world, that there [is] no heaven, no earth, that there [are] no minds, nor any bodies”, it would seem to follow that he was thereby persuaded that he too does not exist; for, if the world does not exist, then how much less likely does it seem that Descartes, a mere item in that world, should exist [AT VII, 25]? Here, though, Descartes stops. He perceives a fatal flaw in that line of reasoning that has his non-existence as its conclusion: if he persuaded himself that he does not exist, then surely he had to exist to be so persuaded

[AT VII, 25]. There looks to be some substance to this idea, but an objection readily appears: Descartes remembers that he is operating under the evil genius hypothesis whereby “some deceiver or other, very powerful and very cunning [is] ever employing his ingenuity in deceiving [him]” into thinking he (Descartes) exists when, in fact, he does not [AT VII, 25]. Happily, Descartes recognizes that the same flaw infects this alternate way of arguing to his non-existence: “[W]ithout doubt I exist also if [the evil genius] deceives me”, writes Descartes, “[L]et him deceive me as much as he will, [this evil genius] can never cause me to be nothing so long as I think that I am something” [AT VII, 25]. Put another way, if there is an evil genius deceiving Descartes into thinking Descartes exists, then (as Descartes realizes) Descartes must exist in order to be deceived in this way. Again: either Descartes is right to think he exists, or he is deceived. If he is right to think he exists, he exists. If he is deceived, he must exist in order to be deceived. In either case, he exists. “[A]fter having reflected well and carefully examined all things,” Descartes concludes, “we must come to the definite conclusion that this proposition: I am, I exist, is necessarily true each time that I pronounce it, or that I mentally conceive it.” [AT VII, 25]. This, then, is the one, certain truth that Descartes has wrested from the rigours of his sceptical exercises: by the very fact of his pronouncing it, or “mentally conceiving” it, the statement “I am” must be true. Everyone knows this one, certain truth by the first word of its Latin formulation, the Cogito, from cogito, ergo sum [AT VI, 33].

One difference between Pascal’s and Descartes’ refutations of scepticism is nicely expressed by Penelhum. Penelhum writes that “[Pascal rejects] the Cartesian attempt to refute the Sceptic by reason” and explains that this rejection is due to Pascal’s insistence “that the propositions the Sceptic questions are beyond [reason’s] powers”

[Penelhum, T., 1983, p. 311]. These propositions that are beyond reason's powers "only become objects of human assent through the operation of other principles in our natures."

[Penelhum, T., 1983, p. 311]. Penelhum brings out the main point of contrast between Pascal's and Descartes' refutations of scepticism: the basis of Descartes' refutation is ratiocinative, where Pascal's refutation is not. We saw in Descartes' case that answering the sceptic takes considerable argumentative effort – first there is his attempt to rid himself of all his former opinions based on his senses by way of doubting them in a bunch; then there is his exposition of the sceptical devices of the dream scenario and the evil genius hypothesis; and finally, Descartes' refutation ends in a deductive argument, the Cogito, meant to refute scepticism. All this ratiocinative effort Pascal regards as pointless, as we heard him say at L63 #110. Nature teaches us what we need to know in order to live far better than reason can. In contrast to Descartes, Pascal's refutation of scepticism depends on something more like an appeal to the good horse sense Nature has instilled in every man and, perhaps moreover, to every man's intellectual honesty.

Pascal's answer to both Descartes' and Montaigne's sceptical arguments, after all, is to deny that they may ever be deployed with full sincerity. The things one would have to doubt (e.g. that one exists, that one is awake, that one is in pain) as a condition of honestly asserting such sceptical arguments are so fundamental to life that it would make it impossible from the outset to assert them. Anyone who did manage to assert them with total sincerity would have first to go a little insane to do so, and might die if he persists in doing so. Thankfully, Pascal says, Nature prevents human reason from ever truly doubting these fundamentals of life, and hence prevents anyone from ever truly advancing these arguments. (There is something deeper at work here than horse sense and

honesty, however. We will see more fully in Chapter Two – at 2.5 --that Pascal regards some propositions --like “All men are mortal” --as known with objective certainty despite their fallibility and our inability to prove them. They are self-evident truths, and arguments are unnecessary for us to know them). If the appropriate answer to scepticism is to let Nature refute it, then it is emphatically inappropriate to fight scepticism by proclaiming against it what the sceptic denies. This means there is an inherent ineptitude in answering scepticism by asserting dogmatism, scepticism’s natural opposite. It merely leads to a business of making replies to the sceptic that Pascal wryly says has been going on since the world began [L63 #131]. Descartes makes just this mistake when he asserts what the sceptics deny; viz., that he can use reason to prove the certain truth of at least one of the things he knows, namely, his existence.

Second, consider the contrast in the sorts of things Descartes subjects to sceptical doubt versus the things Pascal thinks can be doubted at all. One particular case of this would be doubting one's own pain. Descartes famously allows the scepticism he develops in Meditation I to undermine all the experiences one has by the senses, including pain [AT VII, 77]. By contrast, we have seen that at L63 #131 Pascal does not think that man can doubt that he is in pain "if someone pinches or burns him". Nature, says Pascal, prevents man from going so wildly astray as to doubt such a thing as whether or not he is in pain. One does not doubt, for example, that one is suffering from a headache; this is because “[w]e are quite sure about our health”, as Pascal says, though we may be in doubt in a great many other matters [L63 #98 and L63 #100]. Being in pain is on the list of things Pascal thinks are “known by the heart”. The things known by the heart are those first principles of life one cannot doubt. They include such items as one’s own existence,

one's own conscious state (waking or sleeping, in pain or not in pain), and one's current activities (doubting or not doubting) as we saw at L63 #131.

1.7 *Is the Cogito an Inference or an Intuition?*

One objection to this contrast between responses to scepticism is that I am mistaken to characterize Descartes' response to scepticism as ratiocinative. To make this claim means to claim that the Cogito is not ratiocinative, and indeed, some have said that the Cogito does not count as an *argument* against the sceptic (much less a deductive argument), but merely an "intellectual intuition", citing for evidence Descartes' statement in the Replies to Objections II, "He who says '*I think, hence I am, or exist,*' does not deduce existence from thought by a syllogism, but by a simple act of mental vision" [AT VII, 140. See Beck, L.J., 1952, Chapter VI, passim].

First, there is at least prima facie support for claiming that the Cogito is an inference. E.M. Curley writes that "each of the traditional answers to [the problem of deciding whether the Cogito is an inference or an intuition] has knowledgeable and interesting defenders" [Curley, E.M., 1978, p.73]. Curley says that those who think that it is inferential include such scholars as Bernard Williams, Konrad Marc-Wogau, and E.M. Curley himself [Curley, E.M., 1978, p.80].

Second, I think that it misses the point to say that *the Cogito* is not a deductive argument against scepticism, because even if the Cogito is not, surely *everything leading up to* the Cogito amounts to a deductive argument against scepticism. The structure of this implicit argument leading up to the Cogito works something like a process of elimination and could be depicted something like this: Knowledge as it has been

traditionally conceived is subject to sceptical doubt, and so is rejected. Scepticism taken to its logical conclusion is abortive, and so is rejected. What remains (the Cogito) is the only acceptable foundation for knowledge, and is neither sceptical nor traditional, but dogmatic inasmuch as it purports to discover certain knowledge by way of reason. Since dogmatism is hereby proven, scepticism (dogmatism's natural opposite) is defeated.

1.8 *Henri Gouhier versus the Non-Cogito Interpretation of Pascal's Answer to Scepticism*

Certainly not every scholar has agreed with the contrast I have made between Pascal's and Descartes' responses to scepticism. For example, Henri Gouhier suggests that what Pascal is saying at L63 #131 is meant to be something like Descartes' Cogito solution to scepticism [Gouhier, H., 1985, p.126]. So when at L63 #131 Pascal asks the string of rhetorical questions (listed at 1.2 above) that include, in succession, the questions "Will he doubt whether he doubts? Will he doubt whether he exists?", Gouhier sees in this a restatement of Descartes' idea that since the act of thinking implies the existence of the thinker, and since one doubts (a form of thinking according to Descartes), one must therefore also exist [AT VII, 28 and AT VII, 35]. In this opinion Gouhier is partly echoed by Michel LeGuern. LeGuern writes that "[Q]uand Pascal demande: 'doutera-t-il s'il doute, doutera-t-il s'il est?' on sent qu'il songe *au mouvement de la pensée* de Descartes: je doute, donc je pense; je pense, donc je suis" [LeGuern, M., 1973, p.157. Italics mine]⁹. But LeGuern does not say that this is a suspicion that one has about *the argument* Pascal is making against scepticism, saying instead that this is the

⁹ "When Pascal asks: 'will he doubts whether he doubts, will he doubt whether he exists?' we sense that he is thinking of the progression of Descartes' thought: I doubt, therefore I think; I think, therefore I am" (my translation).

feeling one gets from the *progression* (“mouvement de la pensée”) of Pascal’s thought, *not* its argumentative force.

There may be a reason for LeGuern’s reticence. Evidence that Pascal simply and straightforwardly followed Descartes in using the Cogito to refute scepticism is very scant – indeed, this succession of rhetorical questions at L63 #131 is the only evidence for that hypothesis that I can find in the Pensées. This lack of corroborating evidence would have justified him in avoiding a claim which the text would not confirm. Furthermore, there is a competing theory of Pascal’s response to scepticism at L63 #131, a theory that is better supported by textual evidence, and which, strangely, also appears in Gouhier [Gouhier, H., 1985, pp.124-125]. This theory is that what Pascal is offering in this series of rhetorical questions (of which two are “Will he doubt whether he doubts?” and “Will he doubt whether he exists?”) is a collection of “certitudes inébranlables”, unshakeable certainties. These unshakeable certainties “ne relèvent pas de [la] raison” but which nevertheless form the foundation of all the operations of life, including the operations of reason¹⁰. Pascal’s answer to the sceptic, then, is not the Cogito argument that because I think (or doubt) I must exist, but rather that the certainty that I think and the certainty that I exist are both examples of things I need to believe in order to live – they are preconditions of my life. Pascal’s answer to the sceptic is not like Descartes’. Pascal thinks that my assurance of my own existence is not the consequence of some other certainty but a presupposition of certainty itself. This we have already seen. But notice: if Pascal’s listing of these preconditions in succession implies an entailment

¹⁰ These unshakeable certainties “do not depend on reason” (my translation).

(namely, an entailment between questions about doubting one's doubting and doubting one's existence), why would there also not be an entailment between the question about doubting one's existence and the next question in the series, viz., doubting whether one is awake? And then why would there not also be an entailment between doubting whether one is awake and the question that follows that, viz., doubting one is in pain? Descartes never even suggests these additional inferences. Why would the cascade of inference at L63 #131 stop with the first two questions of the series only? This sudden stop seems improbable, and its absence in L63 #131 means there is a discrepancy between Pascal's and Descartes' replies to scepticism. Another strike against Gouhier's interpretation is that, though at L63 #131 *Pascal* asks whether one will doubt whether he doubts, *Descartes* never asks if he doubts whether he doubts. That question is appropriate in Pascal's series of questions because he is challenging the sceptic to doubt those basic beliefs that sustain human life, in this case the knowledge that one is consciously engaged in a cognitive activity, namely, doubting. In Meditation II, meanwhile, Descartes doubts whether he exists, and then uses that doubt to prove that he exists [AT VII, 25]. He does not use his doubt that he exists to prove that he doubts -- proving that he doubts will not put an end to sceptical doubts about his existence, the existence of the world, and his sensory perceptions, etc. and so it would be useless to his purpose to do so. The difference in the questions asked subsequent to the two Gouhier fixes on thus supplies a third reason not to accept his identification of that part of L63 #131 and the Cogito.

One might wonder, though, why Pascal uses an allusion so plainly Cartesian to express a reply to scepticism that is so different from Descartes'. Wouldn't it have been wiser to have chosen a phrasing that made his own reply more distinctive? Here there are

two possible explanations. The first is that he did not rightly understand Descartes' Cogito, and that this different reply to scepticism emerges simply from a failed (but, in another way, lucky) attempt to reproduce that Cartesian reply. Unfortunately, there is not much evidence either to confirm or invalidate this possibility: this one succession of two questions at L63 #131 is the only even remotely close reference to the Cogito in the Pensées. The only other place that Pascal refers to it (in The Art of Persuasion) he does not discuss it at all, so there is no way to tell whether he understood it properly or not [TMW, p. 408].

The other possibility is that this similarity is a deliberate manipulation of the Cogito argument to make Pascal's own argument against scepticism. This possibility at least has some evidence in its favour. Manipulation of existing arguments to suit his own ends is commonly Pascal's modus operandi. Pascal is said to do just this with the Wager Argument, and with Montaigne's insistence on sceptical detachment in conformity with convention. On just this point John Cruickshank writes that Pascal stands out from his contemporaries "because of the skill with which he deploys arguments already used by others, the way in which he gives such arguments new sharpness and significance..." [Cruickshank, J., 1983, p.46]. This is in keeping with Pascal's general view that what he has to say is new because "the arrangement of [his] material is new" not because he has avoided using "old words" -- "[T]he same words make different thoughts when they are arranged differently" as he himself puts it [L63 #696]. The application in the case of this succession of rhetorical questions would then be that Pascal is deliberately using the "old words" of the Cogito to "make a different thought"; viz., that these are some of the beliefs

that are preconditions of life and that the sceptic cannot doubt them without annihilating himself.

1.9 *Doesn't Descartes, too, Think that Sceptical Doubts are Ridiculous?*

Another objection along the same line would represent Descartes as making the same reply as Pascal. This objection would have it that Descartes too thinks that in ordinary life the doubts the sceptic raises against our natural beliefs are ridiculous, but that within the special, philosophical context of refuting scepticism Descartes allows himself to entertain the notion that what the sceptic says is not ridiculous. Otherwise he is happy to admit, as he does in the Synopsis to the sixth Meditation that “no sane person has ever seriously doubted” the items he doubts in the course of his sceptical investigations. As further textual evidence for this reading of Descartes, an objector might cite the very last few lines of the Meditations, where Descartes dismisses the sceptical doubts he has been considering throughout as “hyperbolic” and “ridiculous” [AT VII, 90].

First, it is one thing to call sceptical doubts ridiculous *after* one has refuted (or *thinks* one has refuted) them as Descartes does in Meditation VI; it is another thing to say, as Pascal does, that these sceptical doubts are ridiculous from the outset and that that is sufficient for their refutation. Calling the sceptic's doubts ridiculous *after* he has refuted them makes it look as though they are only ridiculous *because* they have been refuted, not as Pascal thinks, they are ridiculous (meaning hopelessly impractical), and that this counts as the whole of their refutation. The fact that they both call the sceptic's

doubts “ridiculous” is merely a point of verbal similarity; in the substance of their answers to scepticism they are very different.

Second, it is hard to see how one could only temporarily make the sceptic’s doubts sensible. The contention of this objection is that Descartes is only admitting the sceptic’s doubts temporarily, for the sake of his own philosophical ends. Once he is done with them, Descartes can shake off his sceptical doubts for the nonsense they are, or so this objection would claim. The trouble with this claim is that making something make sense has a peculiarly permanent effect. If I explain something, say the meaning of the Latin phrase “Semper paratus” to someone, then provided that person does not forget my explanation, that phrase will forever make sense to him. Similarly, once Descartes has explained the sceptic’s doubts to us, (viz., by way of the dream scenario), they will forever make sense to us. He may later refute those sceptical doubts; indeed, he may *call* those doubts “ridiculous”, but this cannot mean that they no longer make sense to us, because his own Meditation I serves as a recipe for our explaining the sense of those doubts to ourselves. Even were one to forget how these doubts could make sense, one could always consult Meditation I to find that out! Now that he has spent Meditation I using the dream scenario to show how they can make sense, it is too late for Descartes to say that the sceptic’s doubts are ridiculous. The fact that Descartes himself regards his own work in the first Meditation as the work of making sense of sceptical doubts is reflected even in the way Meditation I is structured. The reader will recall that when at first it occurs to Descartes to doubt that he is seated by a fire, with a paper in his hands, etc. he dismisses this doubt as the ravings of a madman [AT VII, 19]. It then dawns on him that because (like all men) he dreams, there may yet be a perfectly ordinary, sane

way to account for the doubts the sceptic has about his being seated by the fire, with a paper in his hands; viz., he may be *dreaming* that he is seated by a fire, with a paper in his hands, etc.. The structure of this account is clearly that *at first*, the sceptic's doubts just seem crazy, *and then* Descartes succeeds in showing that they are sane. Notice that he shows that they are sane, not in any temporary, for-philosophical-purposes-only, sort of way. He shows that they are sane even according to the abiding experiences of *all men*, for in his explanation of the sense of these sceptical doubts he relies on the experience of dreaming, an experience he assumes all men have all the time, no matter how sane or un-philosophical. Descartes is relying on precisely the universal, un-philosophical experiences of men to make sense of the sceptic's doubts, and so it cannot be that it is only within the context of philosophy that he thinks these doubts make sense.

(I want to be very clear: my point is not that Descartes has successfully shown that the sceptic's doubts make sense. My point is rather that *supposing that he has made sense of the sceptic's doubts*, he cannot then say that they are ridiculous and mean that they do not make sense. I am saying that it's either sense or nonsense, not both. I am not claiming any victory for Descartes' over Pascal's approach to scepticism here).

Finally, there is a difference between Descartes and Pascal in that Descartes thinks that scepticism is ridiculous because he thinks he has found *something* (viz. his existence) that is certain where the sceptic says that *nothing* is certain. Pascal thinks that scepticism is ridiculous because it is not practically possible for people to believe it.

1.10 *Closing Summary*

Pascal derives his view of scepticism from Montaigne and moreover from

Descartes. In particular, we see that at L63 #131 Pascal derives his view of scepticism from (1) Montaigne's argument for an infinite regress in first principles, and (2) from Descartes' dream scenario. In both cases Pascal views scepticism as the project of attacking the existence of knowledge by attacking the fundamental beliefs upon which he alleges knowledge rests. In both cases, Pascal sees in the arguments of the sceptics an attack on those beliefs that people hold that act as preconditions to their lives. The argument for the infinite regress in first principles attacks the belief that knowledge may be advanced by the use of arguments; the dream scenario attacks beliefs we have about our existence, our conscious states, our self-conscious activities, our pain states, etc. Pascal's answer to these attacks is to contend that precisely because they are directed at beliefs people hold as preconditions to life, if someone did try to divest himself of them, he would be engaged in undoing the foundations of his own life and, at that point where he begins his undoing, nature would prevent him. Nature prevents these attempts from the start by instilling in men's hearts the beliefs that they need in order to live. These beliefs include (but are not exhausted by) beliefs about one's existence, one's pain states, and one's conscious states. Because men have these beliefs instilled in their hearts by Nature, it is practically impossible for them to be brought to doubt these beliefs by way of reason and argumentation. As Penelhum explains, reason cannot dislodge them because it was not reason that set them in place [Penelhum, T., 1983, p. 311].

I wish to highlight a substantial point in Pascal's reply to scepticism on which he differs from Descartes. Pascal disagrees with Descartes that reason should be used to confute the sceptics. Nature, not reason, confutes the sceptics, says Pascal. He does not

try, as Descartes tries, to prove by reason any of the certainties the sceptics are wont to doubt.

Chapter Two: Pascal on Dogmatism

There are only seven mentions of “dogmatist” [dogmatiste] in Pascal’s philosophical writings. Six of these appear in the Pensées and one appears in the Preface to the Treatise on the Vacuum [L63 #4, L63 #76, L63 #109, L63 #131, L63 #208, L63 #406, and TMW, p.438]. None of these mentions is longer than a sentence, and none of them explicitly defines the word “dogmatist”. Although he nowhere explicitly defines “dogmatist”, neither does he seem to use it in a wholly unconventional way. A brief history of the word will therefore allow us to understand how and why Pascal opposes dogmatism.

2.1 *What did “Dogmatist” Mean in Seventeenth Century France?*

The two senses of the word “dogmatist” in seventeenth century French texts appear to be: (1) The opposite of a sceptic; and (2) One who propounds a dogma or religious teaching, or who propounds any positive belief as though it were dogma [Dictionnaire Historique de la Langue Française, 1992, V.1, entry “dogme”].

The first meaning of “dogmatist”, the opposite of a sceptic, is the ancient meaning of this word. Indeed, the history of the word “dogmatist” begins in the word “dogma” which means belief in ancient Greek [Burnyeat, M., 1980, p.26]. The idea of dogmatism developed out of a group of philosophers being called “dogmatists”, that is, *believers*. According to Myles Burnyeat, the earliest appearance of the word “dogmatist” [dogmatikos in Greek] was when the Pyrrhonian sceptic Aenesidimus wanted to distinguish his sort of philosophy from that of the Academic sceptics. Aenesidimus

wanted to make this distinction because the Academic sceptics “affirm some things without hesitation and deny others unambiguously” while Pyrrhonian sceptics like Aenesidimus are free of all belief [Burnyeat, M., 1980, p. 48, n50]. Where the Academic sceptics denied that they knew anything, the Pyrrhonian sceptics would not even assent to this meagre belief, and this distinction defined the two sceptical sects [Sextus Empiricus, 2000, I, i, 3, p.3 and I, xxxiii, 223, p. 58]. The first dogmatists, meanwhile, did not *call themselves* “dogmatists”; they were *called* “dogmatists” by another group of philosophers, viz., the Pyrrhonian sceptics, who wished to set themselves off from the dogmatists precisely because the sceptics conceived of themselves as total *non-believers*. Sextus Empiricus’ Outlines of Pyrrhonism is the locus classicus for this ancient derivation of “dogmatist” [Liddell, H. and Scott, R., 1996, entry “dogma”]. “Those who are called Dogmatists”, writes Sextus, “think that they have discovered the truth” and Sextus names the schools of “Aristotle and Epicurus and the Stoics” as examples of some of the dogmatists he has in mind [Sextus Empiricus, 2000, I, i, 3, p.3.]¹. Obviously Aristotelians, Epicureans, and Stoics do not all agree what truth is, so Sextus’ thought cannot be that these schools are all dogmatic because they believe the same truths. Rather his thought must be that they are all dogmatic inasmuch as they all believe that they have discovered some truths, whatever those purported truths may be and however those truths agree with the truths the other dogmatic schools profess. “Dogmatist” is thus the name that the sceptic Sextus uses to group together those various philosophers who disagree with the sceptics. Dogmatists assert some truths; the sceptics, meanwhile and conversely,

¹ For examples of the variety of what different dogmatists assert see Sextus Empiricus, 2000, I, xiv, 151, p.38

do not. So “dogmatism” is not only the group-name of a number of philosophical schools that scepticism opposes, it is also defined in opposition to scepticism. (See 1.1 and 1.2 for more on scepticism).

“Dogmatist” appears for the first time in French in this sense in Montaigne’s Essays, (1588) whose influence would extend well into the seventeenth century [Caillon, O., 1967, entry “dogmatiste”]. In the Apology for Raymond Sebond Montaigne says that where the Pyrrhonian and the Academic sceptics, “two out of the three generic schools of Philosophy” profess their doubt and ignorance openly, “the Dogmatists [les Dogmatistes]” oppose them by “put[ting] on an assumed face” [Montaigne, M., 1991, Bk. II, Ch. 12, p.565]. This repeats the tripartite division of philosophy that Sextus Empiricus makes in the Outlines of Pyrrhonism [Sextus Empiricus, 2000, 3, p. 3]. When Montaigne transplants this tripartite division in his Essays, he repeats the wholly negative meaning of “dogmatism” (viz., being the opposite of scepticism) implicit in Sextus’ usage. Rudolphus Goclenius’ definition of “dogmatist” in 1613 in the Lexicon Philosophicum confirms this purely negative first meaning. Goclenius defines dogmatists as “those who oppose the sceptics or the Ephetics [i.e. the Inquirers, another name for sceptics]” [Goclenius, R., 1964, p. 557. See also Sextus Empiricus, 2000, p. 4. I, iii, 7]. This first meaning of “dogmatism” would continue throughout the seventeenth century in learned circles. For example, in his Critique de la Recherche de la Vérité, (1675), Simon Foucher attacks Nicolas Malebranche for not having taken ancient sceptical arguments seriously: “[Malebranche] aurait dû satisfaire à Sextus Empiricus et à toutes les raisons

que cet auteur apporte contre les Dogmatistes” [Foucher, S., 1969, p. 17]². Never in the course of his Search after Truth does Malebranche use the word “dogmatist”, but Foucher uses it against Malebranche several times in this first sense in his Critique. Foucher never says as much, but by referring to himself as a sceptic and by opposing Malebranche, he implies that Malebranche is a dogmatist. In 1690, Pierre-Daniel Huet published a little book entitled Traité Philosophique de la Faiblesse de L’esprit Humain. It is meant as a defence of mitigated or Academic scepticism, although often it merely rehearses arguments made by the Pyrrhonian sceptics against the possibility of any knowledge (like the argument from infinite regress in first principles) [Huet, P.D., 1974, p.65]. In it, Huet repeatedly uses “dogmatist” to mean nothing more than the opponent of the sceptics. True to the ancient use of “dogmatist”, Huet speaks of dogmatists as a mere group-name for diverse philosophical schools that oppose scepticism. In places it looks as though Huet were thinking of “dogmatist” as meaning something more as when, for example, Huet speaks of dogmatists arrogantly asserting that they have knowledge [Huet, P.D., 1974, p. 94 and p. 221]. But upon examination this is nothing more than the denial of the sceptical claim to have humbly avoided asserting any knowledge. So Huet’s case simply provides corroboration of this seventeenth century use of dogmatist in this first sense.

It is in this first sense of “dogmatist” that Antoine Furetière’s Dictionnaire Universel, (1690), describes the “Philosophe dogmatique” as “celui qui assure positivement une chose, et qui est opposé au sceptique, qui doute de tout” [Furetière, A.,

² “Malebranche should have satisfied Sextus Empiricus and the arguments he brings against the Dogmatists” (my translation).

1690, entry “dogmatique”]³. Indeed, Furetière’s definition of the “Philosophe dogmatique” is little more than this first, wholly negative sense of “dogmatist”. The only quality it attributes to the dogmatist, that of being “one who positively affirms something”, is nothing but a denial of the one quality the Dictionnaire Universel attributes to sceptics, viz., “de douter de tout”, doubting everything [Furetière, A., 1690, entry “sceptique”]. Where the sceptic doubts everything, the dogmatist affirms something positively – according to the Dictionnaire Universel, the dogmatist plainly just is what the sceptic is not, and vice versa. In Pierre Bayle’s Dictionnaire Historique et Critique, (1697), the definition of the one philosophical school by its opposition to the other would continue but reverse itself, and “scepticism” would be defined as the opposite of dogmatism. Speaking of the tenet of some unnamed dogmatists that whatever is evident is true, Bayle writes that “Pyrrhonism properly speaking consists only in not admitting this fundamental maxim of the Dogmatists” [Bayle, P., 1699, “Pyrrho”, V.3, p.734, note “C”].

The first appearance of “dogmatist” in its second sense (viz., one who propounds a dogma or religious teaching or propounds any positive belief as though it were dogma) in French occurred in 1558 with the publication of Simon Fontaine’s Histoire Catholique de Nostre Temps [Fontaine, S., 1563, p.82; Caillon, O., 1967, entry “dogmatiste”]. It occurs as Fontaine is recounting Martin Luther’s “arrogant” presumption to have discovered the correct interpretation of Scripture. Fontaine writes that in claiming to have

³ “The Dogmatic Philosopher [is] he who positively affirms something, and who is opposed to the sceptic, who doubts everything” (my translation).

the correct interpretation of Scripture Luther breaks the restraints of “civil courtesy” by assuming for himself the authority of “a great dogmatist”, that is, a teacher of religious dogma. Fontaine uses “dogmatist” without reference to scepticism, so his usage cannot be the old usage where dogmatists only appear where there are sceptics to oppose. The absence of reference to scepticism allows that the second sense of “dogmatist” be easily distinguished from the first. To take another example: Pierre Nicole, Pascal’s Port-Royal colleague, also uses the word “dogmatically” to mean to speak as though one were teaching a dogma or principle [Steinmann, J., 1965, p. 89]. In his Oeuvres Philosophiques et Morales, (1678), in an essay entitled, “Concerning the Way of Preserving Peace with Men”, Nicole uses the word in the context of criticizing various kinds of inflammatory conversation. According to Nicole, one group prone to aggravate people in conversation is scholars who “by virtue of their learning, assume to themselves a power of talking dogmatically [dogmatiquement] of all things, wherein they take wrong measures” [Nicole, P., 1970, p.229. Locke translation]. We can gather from what Nicole says next that by “dogmatically” he means to refer to a teacher’s way of talking: “For men grant that privilege [viz., of talking dogmatically of all things], not to real knowledge, but to those they allow to be learned”. That is to say, men will not suffer to be taught by those they deem incompetent to teach. “Where we are not thought to be so,” Nicole explains, “‘tis all one as if it were not so”. “Wherefore,” he concludes, “we cannot from thence take a liberty to be dogmatical, since we ought to govern ourselves therein, by the proportion we bear to those with whom we discourse”. Whatever the value of this antidote to talking dogmatically in all things, it is at least certain that it is connected in Nicole’s mind with those who teach, or who speak as though they would teach others.

Nicole also provides confirmation of the hypothesis that what dogmatically inclined people teach is religious dogma or principles when he addresses another group prone to dogmatize. Nicole directs “the religious” to “season their discourse with doubt” because doubt is contrary to their “dogmatical [dogmatique] way of talking” [Nicole, P., 1970, p.227. Locke translation]. It should be noted in passing that this also confirms the first sense of “dogmatist” (viz., meaning the opposite of “sceptic”) inasmuch as Nicole is saying that doubt, the principal activity of the sceptic, is the antidote to the confidence of the dogmatist.

Confirmation of this second sense of “dogmatist” (viz., meaning one who talks as though teaching a dogma) may be found in the Dictionnaire Universel, (1690). Under the entry for “dogmatiquement”, to speak dogmatically is defined as to speak “comme on en parle en l’Ecole”, presumably the way a teacher in a school (not a student there) would speak [Furetière, A, 1690]. Pierre Richelet’s Dictionnaire Français, (1680), is very similar, for it defines “dogmatique” as “[i]nstructif” and it defines “dogme” as “[p]récepte, instruction”.

These appear to have been the two main senses of “dogmatist” in seventeenth century France. It is perhaps appropriate to remark in passing that the two senses of “dogmatist” in seventeenth century France put the meaning of “dogmatist” somewhere between its ancient and our contemporary meanings. To us, “dogmatism” means authoritarianism. The Oxford English Dictionary, for example, defines “dogmatize” as “speak[ing] authoritatively or imperiously upon [a subject] without reference to argument or evidence”, and Le Petit Robert defines “dogmatiser” as “exprimer son opinion d’une manière absolue, sententieuse, tranchante” –“expressing one’s opinion in an absolute,

sententious, and trenchant way” [OED, 1975 and Robert, P., 1972, translation mine]. The ancient meaning of “dogmatist”, the opposite of the sceptic, is retained in the seventeenth century, but our meaning of the word, dogmatist as authoritarian (in the form of teaching authority) has already arisen and has begun to take hold even in the seventeenth century.

2.2 *What did Pascal Mean by “Dogmatist”?*

When we look at Pascal’s use of the word “dogmatist” [dogmatiste] we see that, for the most part, his usage conforms to the first sense of the word. For example, when Pascal writes that when the dogmatists are upset, the sceptics glory in it, we see clearly that he believes that these two are opposed, even to the point where the displeasure of one pleases the other [L63 #109]. When Pascal wants to contrast knowledge of the heart, “an idea of truth which no amount of scepticism can overcome”, with something, he contrasts it with our “incapacity for proving [some things] which no amount of dogmatism can overcome” [L63 #406]. We saw in Chapter One that at L63 #131 Pascal several times opposes scepticism and dogmatism (e.g. at 1.2). The reader will recall Pascal there saying that the dogmatists have only one strong point (viz., that we cannot doubt natural principles if we speak “sincerely and in good faith”) to which the sceptics answer with doubts about the origins of these “natural principles”. And, he adds, the dogmatists have been replying to these doubts since the world began. It is obvious from this alone that Pascal sees these two philosophical camps as locked in a perpetual epistemological struggle against each other. This raises an objection: If Pascal believes that the dogmatists are the epistemological force equal and opposite to scepticism, why should he mention the sceptics by name so often (over thirty times) in the Pensées and the dogmatists only

seldom? [Davidson, H., and Dubé, P., 1975, p. 1117]. I think a simple answer may be had in the apologetic nature of the Pensées. The Pensées was written as a defence of Christianity against *unbelief* or *atheism*, that is, against a species of scepticism. Dogmatism, in the form of the belief that knowledge may be had entirely and only by reason, did not threaten Christianity in the serious way that scepticism threatened Christianity. (The threat dogmatists made to religion was that faith might cease to be necessary for religion – it could be replaced by rational proofs of God’s existence. But obviously this does not deny God’s existence). In conformity with Pascal’s stated policy of upsetting one group of opponents by confronting them with another, opposite group of opponents (the “continual reversal of pro and con [renversement continuuel du pour au contre]”) Pascal needed to mention his dissatisfaction with the dogmatists as a balance to his attacks on the sceptics [L63 #93. See also L63 #90 and #130]. Still, the greater seriousness of the threat that scepticism posed to Christianity demanded that it receive greater attention in his apology for Christianity. “Whatever course [my opponent] adopts I will leave him no rest [repos]” [L63 #449. See also L63 #464].

Of the remaining remarks that Pascal makes about the dogmatists in the Pensées only one is significant. The others (at L63 #4, L63 #208, and L63 #520) merely refer to the dogmatists as one group of philosophers among all the others (viz., Stoics, Epicureans, Sceptics, and Academicians). The one remaining significant remark about dogmatists in the Pensées occurs in the form of a rhetorical question at L63 #76. Pascal is discussing the limitations of human knowledge: “Let us examine what [reason] has devised in matters over which it has control”, he writes. First, he considers the power of human knowledge to know the sovereign good: “If there is anything to which, in its own

interest [human knowledge] must most seriously have applied itself,” he explains, “it is the search for the sovereign good” [L63 #76]. The trouble with the search for the sovereign good is that “powerful and clear-sighted [clairvoyantes] souls” have not agreed on where it lies. “One [man] says that the sovereign good lies in virtue, another finds it in sensual pleasure; another in following nature, another in truth ...”, etc. Disappointed by a lack of agreement, Pascal suggests that if humans cannot know their sovereign good, they may at least know themselves. He begins with attempts to know the nature and properties of the soul, for “[p]erhaps at least the soul will come to know itself.” But, in a series of rhetorical questions Pascal implies that no conclusions have hitherto been reached about the soul’s substance, location, origin, duration, or eventual departure from the body. From this total ignorance of the nature of the soul Pascal concludes that “the soul is too noble a subject for [the] feeble [human] understanding”. If the soul is inaccessible, then perhaps the body is accessible, and so Pascal asks whether men know “what [their] own body, to which [the soul] gives life, is made of”. “What”, Pascal asks, “have [the] great dogmatists, who are ignorant of nothing, known about [the body]?”, and he answers with a quotation from Cicero’s Tusculanian Disputations, I, 11,23 : “Which of these opinions is the true one? Only a god could decide” [Cicero, M.T., 1810, p. 244, translation mine]. Pascal implies that dogmatists are the opposite of sceptics inasmuch as he alleges that dogmatists claim to know everything, where the sceptics (it is understood) make no claim to know anything. But this usage at L63 #76 moves beyond the first sense of dogmatist as the opposite of sceptic, for that sense of dogmatist defines the dogmatist in entirely negative terms, where the dogmatist is what the sceptic is not. But here the dogmatist is implicitly defined in his own terms, with his own positive attribute; viz., dogmatists think

they know everything. As we will see, Pascal also thinks that the dogmatists are *wrong* to think they know everything – the quotation from Cicero implies that they do not know what they think they know (If only a god could decide which theory is correct, then no *man* knows) – but this does not detract from his free-standing conception of “dogmatist”.

This is not the only instance where Pascal uses “dogmatist” in an expanded way. In the Preface to the Treatise on the Vacuum, Pascal describes two goals one may have in acquiring knowledge [TMW, pp. 438-439]. The first goal is to have as one’s “only object to know what authors have written”. The group that has this as their goal “depend exclusively on memory and are purely historical”. The other goal one may have is “to seek and discover hidden truths”. To judge by what Pascal goes on to say in the Preface to the Treatise on the Vacuum (namely, that natural science is the province of reason, while theology is the province of authority), these hidden truths are presumably the truths of the natural sciences [TMW, p.438]. The group that pursues this second goal “depend[s] exclusively on reason”, and so, Pascal says, is “wholly dogmatic” [TMW, p.438]. So here again we find Pascal describing what it means to be a dogmatist in positive terms, and here again wholly without reference to being the opposite of a sceptic, although this is implied by Pascal’s remark. Sceptics deny that there is any knowledge, so it follows that they deny that knowledge may be had by reasoned arguments. By contrast, the dogmatic group that Pascal mentions is identified precisely by their refusal to use anything *except* reasoned arguments to acquire knowledge. Pascal’s usage in the Preface to the Treatise on the Vacuum therefore supplements his remark about dogmatists at L63 #76. Not only is a dogmatist one who thinks that one can know everything, he is also defined as one who insists on using *only reason* to acquire this universal knowledge. His

usage in these passages is interesting because it means Pascal adds a *third* meaning to “dogmatist” (viz., one who knows or would know everything) to the two we have already seen (the opposite of the sceptic, and the teacher of dogma) in seventeenth century France. But Pascal’s third meaning was not a total aberration in the intellectual world of his day: the dogmatist as one who knows or would know everything is the same meaning Joseph Glanvill introduced in 1661 in the Vanity of Dogmatizing [Glanvill, J., 1970b, p.15].

Exactly whom, then, does Pascal have in mind when he speaks of dogmatists? In its first sense, in which it designates a non-sceptic, the word “dogmatist” might apply to Pascal himself, since he, like the dogmatist, also opposes scepticism, as we saw in Chapter One. But who is Pascal referring to when he speaks of the dogmatist in the third sense of “dogmatist”, i.e., someone who thinks that reason and reason alone may know everything? Krailsheimer suggests we should look to Descartes, presumably the positive Descartes of Meditations II through VI [Krailsheimer, A., 1980, p.22. See also Gouhier, H., 1985, p. 175]. It would be appropriate for Pascal to regard Descartes as the archetypal dogmatist in much the same way as he regards Montaigne as the archetypal sceptic [Krailsheimer, A., 1980, p. 28]. Certainly if we look to the Cartesian texts Pascal is believed to have read, particularly the Meditations, we may understand how he could have formed an impression of Descartes as the archetypal dogmatist [See LeGuern, M., 1970, p.85].

The following paragraphs show how Pascal could very plausibly – though somewhat imprecisely -- interpret Descartes in this way. They attest to Descartes’ conviction that, in principle, unaided reason could know everything. This conviction is

founded on Descartes' proof in Meditation VI that the material world exists. By proving through reason alone that the material world exists Descartes demonstrates that, in principle, there is nothing that unaided reason cannot know.

Descartes begins the sixth Meditation by announcing that “[n]othing further now remains but to inquire whether material things exist.” [AT VII, 71]. We know from Chapter One (at 1.2) that the dream scenario and evil genius hypothesis of Meditations I and II caused Descartes to reject the uniform veracity of the opinions he forms on the basis of his senses. Descartes quickly reviews those arguments in Meditation VI and arrives at his mature and considered view regarding the ideas he receives from his senses [AT VII, 77]. He decides that he does not think he “should doubt all his senses universally” anymore. Descartes next considers that there are several, variously purposed faculties within him; i.e. within his thinking nature: “[I] find in myself faculties employing modes of thinking peculiar to themselves, to wit, the faculties of imagination and sensing” [AT VII, 78]. This is nothing new; Descartes has already mentioned that he has these faculties of imagination and sensing within him in Meditation II [AT VII, 28]. Descartes then applies his rule that whatever two things he clearly and distinctly perceives as different are in fact two different things [AT VII, 78]. This he does by first remarking that “[he] can easily conceive [him]self clearly and distinctly as a complete being [without conceiving of the faculties of imagination and sensing]” [Meditation VI, AT VII, 78]. “[O]n the other hand,” he continues, “[these faculties] cannot so be conceived apart from me, that is without an intelligent substance in which they reside” . In other words, there is an *asymmetry* here: Descartes can exist without the faculties of imagination and sensing but not conversely. He notices this asymmetry himself, for he

then uses it to “infer that [these faculties of imagination and sensing] are [distinct] from me” [AT VII, 78-79]. Descartes is arguing that since in the “clear and distinct conception” of the faculties of imagination and sensing he detects no element of “intellection”, and since he is only a thinking thing, it follows that these faculties cannot be an intrinsic part of him, the thing whose nature is only to think [Meditation II, AT VII, 25, AT VII, 27]. Likewise, Descartes tells us “[t]here is [also] in me a certain passive faculty of sensing, that is of receiving and recognizing the ideas of sensible things, but”, he adds, “this [passive faculty of sensing] would be useless to me if there were not either in me or in some other thing another active faculty capable of forming and producing these ideas.” However, “this active faculty [of forming and producing ideas] cannot exist in me inasmuch as I am a thing that thinks” because that faculty “does not presuppose thought”, and because “ideas are often produced in me without my contributing in any way to [them], and often even against my will” says Descartes. Now this observation that he makes of himself; namely, that some of his ideas come to him without his consent, may be used to show that it must be something outside of him that forces these ideas on him. Indeed, Descartes decides that “it is thus necessarily the case that the [active] faculty [that forms and produces these ideas] resides in some substance different from me”. Having argued that these ideas must be formed and produced outside of him, Descartes decides that there are only two possible types of source exterior to him for these ideas. “[T]his [source] substance” he posits, “is either a body, that is, a corporeal nature ... or it is God Himself, or some other [more noble] creature.” The way Descartes reaches this last disjunction is partially suppressed, but it seems to work like this: Whatever is producing the ideas of material or corporeal objects in him must have at least as much

reality as the ideas it produces – “[What is] produced by this faculty [formally] or eminently contain[s] [all the reality which is objectively in the ideas]”, as Descartes himself puts it -- it being impossible for the greater to arise from the lesser [AT VII, 79; Meditation III, AT VII, 49]. The only candidates, then, for a source substance that contains as much reality as the idea of the material world it generates would be either the material world itself, or something “nobler” than the material world, presumably God, whose independent existence Descartes had proved in Meditations III and V [AT VII, 45 and AT VII, 67]. But Descartes does not think that God is the source of his involuntary ideas of corporeal objects. The reason that Descartes thinks that neither God nor some creature of God exterior to Descartes is producing these ideas in him is this: “[S]ince [God] has given me no faculty to recognize that this is the case, but, on the contrary, a very great inclination to believe that they are conveyed to me by corporeal objects,” Descartes explains, “I do not see how he could be defended from the accusation of deceit if these ideas were produced by causes other than corporeal objects.” [AT VII, 79-80]. Since God is no deceiver, “we must allow that corporeal things exist.” [AT VII, 79-80].

Though Descartes does not say so himself, the force of this proof that the world exists is surely this: If Descartes can deduce the existence of the material world from his own existence and the existence of God, then surely he can deduce the existence of *everything* from a few simple premises. Stephen Menn puts it well when he writes that “Descartes believed that he could construct a universal science out of a few simple truths which were naturally contained in every human mind, and which needed only to be made explicit and developed into a systematic body of knowledge” [Menn, S., 1993, p. 539]. Or as Descartes himself puts it in the second book of the Discourse on Method, “[T]here

can be nothing so remote that we cannot reach it, nor so recondite that we cannot discover it [deducing it from long chains of reasoning]" [AT VI, 19]. One might object that this is only a proof of the existence of the *material* world based on a few simple rational premises, and that it leaves the existence of non-material things unproven by reason. But then Descartes had already proved the existence of such non-material things as his own ego (or soul), God, and mathematical objects earlier in the Meditations based on a few simple premises [AT VII, 25; AT VII, 67; AT VII, 65-66]. The result is that, as far as the ontology of the Meditations is concerned, he has proven the existence of everything, both material and immaterial, based only on a few simple rational premises. That is to say the "Meditations argue that from [a] knowledge of God and the soul a knowledge of bodies can indeed be derived" [Menn, S., 1993, p. 549]. Therefore, at least in principle, the existence of everything can be deduced from a few simple premises. As Menn puts it: "The Meditations on First Philosophy ... are intended to give the reader that knowledge which, in Descartes' mature opinion, is the foundational science from which the whole system of science can be derived" [Menn, S., 1993, p.549. See also Mortimer, E., 1959, p. 201].

Now it may be true that Descartes thinks that the human mind is too limited for it to be able to carry out the proofs for all states of affairs based only on a few simple premises, and that only the infinite mind of God can do so. Certain supernatural things (revealed truth, the infinite, and divine purpose) are accessible to God's mind alone [Principles of Philosophy, I, 25, 26, and 28, AT IX-2, 36-37]. Moreover, Bernard Williams proposes that the limitations of the human mind make it so that it is only the "scientific, theoretical, and organized" domains of knowledge that man may deduce from

a few simple, rational premises [Williams, B., 1978, p. 60]. All other natural things are left to investigation through the senses. But if not in practice then at least *in principle* Descartes believes that man can make the deduction from a few simple, rational premises to all scientifically relevant states of affairs, or that is what Meditation VI clearly implies. As I said, Descartes may not say this anywhere in his writings, but it is implied in them, and it is certainly easy to see how Pascal would have derived it from what he read in the Meditations.

We know that what Pascal distrusted in Descartes' philosophy was Descartes' drive to know everything by reason. At L63#553 Pascal makes a note to himself that he must "[w]rite against those who deepen [approfondissent] the sciences too much, [namely,] Descartes" [translation mine]. Pascal called this rationalistic impulse of Descartes' "composer la machine" because it worked by imposing rational, mechanistic structures on all phenomena, beyond the limits of reason's applicability [L63 #84 and Brunschvicg, L., 1944, pp.162-163]. This imposition of reason on all phenomena was something Pascal twice called useless and uncertain, and even, on one occasion, painful [L63 #887 and L63 #84]. If Pascal saw Descartes as the archetypal dogmatist, and if Pascal rejected Descartes' philosophy for its claim to be able to know everything by reason, then we may reasonably infer that what Pascal rejected in dogmatism was its claim to be able to know everything, not its opposition to scepticism. That is to say, Pascal rejected dogmatism in its third everything-can-be-known sense, not its first, anti-sceptical sense. When Pascal attacks the dogmatists he is not attacking them for opposing scepticism, for, as we saw in Chapter One (at 1.2), Pascal agrees with the dogmatist inasmuch as he too opposes the sceptics. Rather, he attacks the dogmatists for assuming

that they can have knowledge of everything. It is the dogmatic confidence in the power of human knowledge in Descartes' positive philosophy that offends Pascal and that is why he attacks it. But on what grounds does Pascal attack dogmatism in this second sense? What arguments does he have against it? These questions will be the subject of subsequent sections (viz., 2.4 and 2.5).

2.3 Reason and the Heart

Pascal has two arguments against dogmatism, corresponding to the two epistemological faculties he recognizes, reason and the heart. The concepts of knowledge by reason and knowledge by the heart are essential to understanding these arguments against dogmatism, so we need to pause now to consider what Pascal means by reason and the heart.

Although Pascal gives no explicit definition of reason, a tolerably clear idea of what he means by it may be derived from contexts in which he appeals to it. At L63 #512, Pascal says that the operations of reason (the “progression of reasoning” [progrès de raisonnement] as he calls it) do not proceed the way the heart (here called “l'esprit de finesse”) does by “see[ing things] at a glance”. Instead, he says reason proceeds by “giv[ing] an orderly demonstration [démontrer par ordre]” of its intended conclusions “as in mathematics” by “arguing from [known] principle[s] [raisonner par principe]” and avoiding “argu[ing] falsely from known principles [principes connus]” [L63 #512 and L63#751]. The essence of reason's operation, then, is “to begin with definitions [and] principles” and then “go rapidly and deeply [into their] consequences” [L63 #512 and L63#511]. Thus, according to Pascal, reason analyses existing material (definitions and principles) in a logical, systematic way, to produce what he calls orderly demonstrations.

Pascal's Art of Persuasion provides some further details about what definitions and principles he counts as suitable material for analysis: they are either the perfectly self-evident terms and propositions (which he here calls "axioms") of a proof, or else propositions proven using only the perfectly self-evident terms and propositions of a previous proof [TMW, p. 406]. One will know if a proposition has been proven by a previous proof, of course, but to discern terms and propositions that are perfectly self-evident in themselves Pascal suggests a criterion. If a term or proposition is so clear that it could not be made clearer by defining it (in the case of terms) or proving it (in the case of propositions), then one has found terms and propositions sufficiently self-evident to take as primitive terms and principles: "Not to define anything that is so well known in itself that we have no clearer terms with which to define it" and "Not to prove anything that is so self-evident that we have nothing clearer by which to prove it" [TMW, pp. 405-406]. In the case of primitive terms at least Pascal provides some examples. In On the Geometrical Mind Pascal points out that the words "space", "time", "motion", "number", "equality", "man", "light", and "being" are all terms "a clearer understanding [of which we may not] gain through [all our explanations]" [TMW, pp. 425-426].

If On the Geometrical Mind and the Art of Persuasion together do not give enough detail of how Pascal intends reasoning to arise out of primitive terms and principles, we may use Antoine Arnauld's Logic or Art of Thinking to reconstruct what Pascal would have wanted to say on this subject. Arnauld had Pascal's assistance in writing the Logic, and so, in the absence of clearer evidence from Pascal himself, we may use Arnauld's Logic as a probable guide to common views about reasoning held at Port-Royal where Pascal and Arnauld were prominent figures [Steinmann, J., 1965, p.89].

Following the structure of Arnauld's Logic we may propose that Pascal intended the primitive terms (corresponding to what Arnauld calls ideas) to be put together to form propositions (judgements, as Arnauld calls them). Propositions become premises when they are put together in pairs in the standard syllogistic mode to make a demonstration of a third proposition, the conclusion. All three propositions together form a syllogism. This forming of syllogisms is the process of reasoning, as Arnauld calls it [Arnauld, A., 1996, Introduction to Bk. I, pp. 23-24]. If the propositions are true and are properly put together, they produce knowledge by a process of analysis. Analysis works if the reasoning procedure is valid and its premises are true. "[W]e can judge the validity or invalidity of every syllogism ... by this single principle", Arnauld explains, "[that] one of the two propositions [viz., the major premise] must contain the conclusion, and the other [viz., the minor premise] must show that it contains it" [Arnauld, A., 1996, Bk. III, Ch. 11, p.165]. In other words, "one of the two propositions [that are the premises of the syllogism] must contain the conclusion, and the other must show that it contains it" [Arnauld, A., 1996, Bk. III, Ch. 11, p.165]. Analysis only works if the premises contain the conclusion, for, if they do not, then no valid syllogism can deduce the conclusion from them. It is therefore necessary that the premises of a syllogism be jointly more general than the conclusion that follows from them. (Equal generality is ruled out on pragmatic grounds because premises that "contain [the conclusion] explicitly and in the same terms ... would not differ from it in any way and so would not help make [the conclusion] clearer") [Arnauld, A., 1996, Bk. III, Ch. 10, p.163]. For reasoning to work, then, a conclusion must always be deduced from principles more general than itself.

Judging by Arnauld's Logic, Pascal would admit two main kinds of reasoning, deduction and induction. Deduction, which we have just been discussing, starts in principles and definitions and deduces particular facts from them by the process of analysis. Induction operates inversely, beginning in particular facts gathered through the senses and building up from them to general principles. Whether one deduces it or induces it, one will reach the same conclusion either way -- induction and deduction lead to the same truth, though by going in opposite directions. Arnauld says induction and deduction "differ only as the road by which we ascend from a valley to a mountain differs from the road by which we descend the mountain to the valley" [Arnauld, A., 1996, Bk. IV, Ch. 4, p.238]. If deduction begins in intuitively and immediately grasping principles and definitions, induction begins in the senses: "For there are two general paths that lead us to believe that something is true ... [namely,] having recognized and examined the truth either by the senses or by [deductive] reason"[Arnauld, A., 1996, Bk. IV, Ch.12, p.260].

The noticeable shortcoming of reason that emerges is that it does not provide its own material; viz., the principles and definitions that it analyses in syllogisms, or the sensory information of particulars it aggregates in induction. Since it does not supply these principles, definitions, and sensory information for itself, it must get them from the heart, for that is the only alternative. Scholars have long agreed that reason and the heart are the basic options in Pascal's epistemology and Pascal himself makes the point that knowledge comes in only two kinds, from these two main faculties, at L63 #110 [See also Droz., E., 1886, p. 108; Mortimer E., 1959, p.207; Marciszewski, W., 1980, p. 156; Norman, B., 1988, p.43].

“[N]ature has refused us the gift [bien] [of knowing everything by instinct and feeling, but] all other [forms of] knowledge can be acquired only by reasoning.”

In others words, what knowledge there is comes either “by reasoning” or from “instinct and feeling” (i.e. the heart). So if reason will have the material it needs for either of its modes of operation, deduction or induction, and if it cannot produce that material for itself, reason must rely on the heart for that material. We will return to the topic of reason’s dependence on the heart in Chapter Three (See 3.3.3 and 3.6).

Pascal often quotes Psalms 118:36 --“Incline cor meum, Domine”. (“Incline my heart, o God”)-- when he mentions the heart [L63 #821, L63 #380, and L63 #382]. Its meaning at Psalms 118:36 is something like the seat of feeling or passion, and it retains that resonance elsewhere in Pascal (e.g. L63 #298). But in Pascal’s hands, this term, “the heart”, and its cognate, “knowledge by the heart”, takes on a cluster of meanings beyond the traditional, metaphorical meaning of the seat of the passions. Other words with which Pascal associates the heart are: instinct and principles [L63 #110 and #155]; intuition [L63 #110] ; inclination [L63 #821] ; habit [L63 #821] ; feeling, [le sentiment], both in the sense of the passions and sensations [L63 #821 and #751] ; faith [L63 #821] ; belief [L63 #380 and #382] ; and even nature [L63 #821]. These are the keys terms of his epistemology of the heart. But I shall defer until the next (and final) chapter the more detailed discussion that will be required to see why, in Pascal’s eyes, these instinctive beliefs of the heart qualify as knowledge (See 3.3.3).

Before moving to Pascal’s two arguments against dogmatism, I should consider an objection that arises from the account I have given of reason and the heart as very

distinct, if not independent, parts of Pascal's epistemology. Hervé Pasqua argues that the heart and reason cannot be fully separate faculties in Pascal's epistemology because they complement rather than oppose or destroy each other. For example, Pasqua says that faith, which Pascal defines in terms of the heart ("That is what faith is: God perceived by the heart"), does not oppose or destroy reason: "[L]a raison ne s'oppose pas à la foi et la foi ne détruit pas la raison" [L63 #424 and Pasqua, H., 1997, p.382]⁴. At worst, he says, they differ from each other by degree not in kind [Pasqua, H., 1997, p. 393]. There is some truth to what Pasqua says. As we have seen, reason needs the heart, and so must co-operate with it to some extent. But Pasqua's view is perhaps inattentive to those passages where Pascal speaks of the heart and reason as separate and sometimes warring faculties. At L63#298, for example, Pascal quite explicitly says that the heart and the intellect, the faculty of reason, have different orders. He adds that trying to get the one order to do the work proper to the other order would be absurd. And at L63 #621 Pascal writes that "[there is a civil war in man between reason and the passions ... [S]ince [man] has both [reason and passions] he cannot be free from [internal] war for he can only be at peace with the one if he is at war with the other". Since we know the passions to be one of the elements of the heart, we may take L63 #621 to mean that reason and the heart (in the species of the passions) are always warring with each other. Pasqua does not explain these passages, but the explanation seems obvious enough: reason and the heart are separate faculties that, though often co-operative, are also always in tension.

⁴ "Reason is not opposed to faith and faith does not destroy reason" (my translation).

2.4 *The First Argument against Dogmatism – Infinite Regress*

Pascal's first argument against dogmatism revolves around showing that it is not possible to know first principles by reason. If the dogmatist, who alleges that everything can be known by reason, cannot know first principles by reason, then his dogmatism is thereby refuted. As we saw above at 2.3, for Pascal, as for Arnauld, reason has only two operations, induction and deduction. Induction, that is, generalizing from particular instances to universal truths, cannot be used to know first principles. First principles (such as the axioms of geometry) have infinite applications – there are infinitely many particular instantiations of them (e.g. all triangles are particular instances of plane figures having internal angles equal to two right angles). To be able to arrive at first principles by induction one would have to examine all the infinite particular cases of them (e.g. examine all triangles). Since it is impossible to examine all the members of any infinite set, and since induction would require it, induction cannot arrive at first principles. And so reason cannot know first principles by induction. The rest of Pascal's argument against the dogmatist proceeds as a reductio ad absurdum. Since Pascal's aim is to show that dogmatism is false and since dogmatism takes for granted that reason can know everything, employing a reductio against dogmatism means assuming for the sake of argument that reason is self-sufficient. Pascal tries to imagine just such a kind of reason in On Geometrical Demonstration. There he tries to imagine a "method of demonstration" (i.e. a kind of reason) "still more eminent and complete" than the deductive method of demonstration geometry uses. This ideal and imaginary method would "define all [its] terms and [prove] all [its] propositions" [TMW, p.422].

“Certainly this method would be beautiful, [Pascal admits], but it is absolutely impossible. For it is evident that the first terms we wished to prove would presuppose others for their explication, and that similarly the first propositions we wished to prove would suppose others that preceded them.” [TMW, p.424].

Hence Pascal says that an infinite regress would result. Thus if every proposition that figures in a demonstration itself needed to be demonstrated, none could be demonstrated. This is the futile task that Émile Boutroux aptly calls “remonter des conséquences au principe”, when principles are forever fleeing from us [Boutroux, E., 1900, p.185]⁵.

We do have certain and decisive demonstrations (e.g. proofs in geometry), however, so there must be a beginning to the process of explication and demonstration somewhere -- the backwards succession of principles and demonstrations cannot be endless. Since there is no endless backwards succession of principles and demonstrations, then either the need that every proposition concluding a demonstration be deduced from some principles or the demand that all propositions be demonstrated must go unmet. We know from Arnauld that it is essential to deductive reason that every conclusion of a syllogism (that is, a demonstrated proposition) be deduced from principles that are more general than itself [Arnauld, A., 1996, Bk. III, Ch. 11, p.165]. So following Arnauld’s account of deductive reason, we must accept that every demonstrated proposition be deduced from principles, and therefore reject the idea that every proposition be demonstrated. Rejecting the latter demand involves allowing some undemonstrated propositions to play a role in demonstrations. Such undemonstrated propositions are called *first principles* [TMW, p.424].

⁵ “Ascending from consequences to the principle” (my translation).

The deductive method of demonstration such as we already have it in geometry has these first principles and so “does not define everything and does not prove everything” [TMW, p.424]. It is, therefore, something less than the impractical ideal Pascal tries to imagine here. The deductive method succeeds in practice where the ideal method fails because the deductive method lets some things (viz., first principles) go undemonstrated. It lets those undemonstrated elements (carefully chosen to be maximally clear and obvious just as they are) then act as the foundations upon which other things (viz., theorems) may be demonstrated. When Ernest Mortimer writes that “[Pascal] had always been ... irked by the fact that geometry did not start from scratch; it had to be given a start in the form of initial propositions which could not be proved and had to be accepted” he misses the irony of Pascal’s “beautiful but absolutely impossible” imaginary ideal [Mortimer, E., 1959, p. 208]. Far from being “irked” by the fact that geometry, and knowledge generally, have to begin with undemonstrated first principles, Pascal understands that it is natural that proofs should begin this way: He who thinks that “everything can be proved know[s] nothing about proof” [L63 #170]. As Pascal well knows, what would be truly irksome would be to try to do without indemonstrable principles, to embark on the impossible and useless task of trying to prove everything by reason. Trying to prove everything by reason could drive one mad, in fact: “Anyone who chooses to follow reason alone would have proved himself mad” [L63 #44].

From this argument in On Geometrical Demonstration, Pascal’s refutation of dogmatism may be deduced. For, if reason cannot prove first principles, then there are some things that the dogmatist would like to know by reason, but cannot. The reductio assumption that reason can know everything must therefore be false. And this means that

the dogmatic project of knowing everything by reason (either induction or deduction) is impossible. Therefore, dogmatism is refuted. It should be noted that Pascal's argument against the dogmatist is not new. A shorter version of it may be found in Aristotle's Posterior Analytics [Bk. 1, Ch. III, 72b20-24]. But it is effective and Pascal rightly recognizes its application in his own day against a resurgent dogmatism.

If one construes reason so that it includes what one learns through clear and distinct perception, one might object that this argument does not yet refute dogmatism, for reason (in this expanded sense) may still know everything through clear and distinct perception, it being far from obvious that an infinite regress would ensue from trying to know everything through perception. But this objection will not work against Pascal. Clear and distinct perception must be one of two things, the intuitive and immediate grasping of first principles or sensory perception. By Pascal's definition of reason, though, both intuitively and immediately grasping first principles and sensory perception belong to the province of the heart, not the reason, as we saw above at 2.3 [L63 #110 and #751]. If one accepts the meaning of the term "reason" as Pascal understands it, one cannot avoid his conclusion that reason cannot know everything, and with it his conclusion that dogmatism is refuted.

It should also be noted that the argument from infinite regress in On Geometrical Demonstration is not a proof of the existence of first principles against those that maintain that there are no principles at all, namely the sceptics. Pascal's infinite regress argument should not be mistaken for an attempt to prove that, contrary to sceptical claims, some principles of knowledge must exist because first principles must exist or there would be an infinite regress. For, taken this way, this argument could not work

against the sceptics. Sceptics do not accept the premise on which it is based: they do not grant the premise that there is some knowledge, so they cannot accept an argument that because there is some knowledge there must be first principles. Therefore this argument cannot be a refutation of scepticism. It is rather the proof that, given that there is some knowledge (a premise that all but the sceptics will grant), there must be some first (i.e. indemonstrable) principles. So it is rather an argument against *dogmatism*, inasmuch as dogmatism assumes that (in principle at least) all things are demonstrable when it declares itself “en état de tout prouver” –in a position to prove everything [Droz., E., 1886, p.167, translation mine].

2.5 *The Second Argument against Dogmatism – Truths Unjustifiable by Reason*

Pascal’s second argument against dogmatism is to name some things that are not susceptible of proof by means of reason. If it is impossible to prove certain things by reason, then that means that the dogmatists are wrong to think that everything may be known by reason. But what sort of thing can Pascal point to as not being susceptible of proof?

Pascal gives examples of the sort of thing he thinks cannot be proved by reason at L63 #821. After having exclaimed at the small number of things that reason can prove, he asks “Who has ever proved that there will be a day tomorrow or that we will die [qu’il sera demain jour et que nous mourrons]?” And what, he adds, is more *generally believed* than that there will be a day tomorrow and that we will die? The sense of these questions is that, despite the fact that *no one* has ever proved that there will be a day tomorrow and that all people are mortal, everyone believes them just the same. They are instilled in

men, not by reason – “the faculty which produces conviction” – but by the only other epistemological faculty; viz., the heart. Human mortality and the succession of days are things known by the heart, not known by reason. This extends the list of things known by the heart, i.e., those first principles one cannot doubt. In Chapter One, section 2 we saw that they included such principles as one’s own existence, one’s own conscious state (waking or sleeping, in pain or not in pain), one’s current activities (doubting or not doubting), the three-dimensionality of space, the passage of time, and the movement of objects. [L63 #131, L63 #149, and L63 #110]. Now they also include knowing human mortality and knowing that there will be a day tomorrow. What is of particular interest to us is Pascal’s certainty that no one has ever proved (for example) that there will be a day tomorrow and that all people are mortal. On what grounds does Pascal believe so certainly that no one has ever proved these first principles?

One way that Pascal can be sure that no one has ever proved these first principles is if Pascal has some reason to believe that proving them would be *impossible*. If proving them is impossible, then it follows necessarily that no one has ever proved them. As Ernest Mortimer suggests, one plausible theory why proving such things would be impossible has to do with the problem of induction [Mortimer, E., 1959, p. 207]. The problem lies in the fact that, despite all the detail that we may accumulate to prove a given conclusion, that cumulative detail still does not amount to the definitive proof of that conclusion.

Let us take as an example trying to prove the claim that all people are mortal. One cannot show that all people are mortal by deducing it from the concept of people or person alone – show it “by demonstration”; i.e. by deduction, as Pascal says in the

Preface to the Treatise on the Vacuum [TMW, p.443]. Were this possible, there would be an obvious and inherent contradiction in the statement “some people are immortal” or in the concept of an immortal person. But there is no obvious, inherent contradiction in this statement or this concept, so one cannot prove it deductively. This leaves proving it inductively; by “the general enumeration of all the parts” as Pascal calls it, that is, what we would now call “complete enumeration”. In this case an inductive proof would involve examining all the instances of the concept “people” (individual persons, that is) one at a time to see whether what is predicted of them (namely, that they are all mortal) is true in every case. To show that all people are mortal one would have first to enumerate all people, which is clearly impossible. Even if the enumerator were the last living person and somehow had become certain of that he could not be sure of his own death until it occurred and then he would not be able to enumerate it. Pascal understands this: To make a universal judgement, he writes, “it would not be enough to have seen it in a hundred instances or in a thousand or in any other number however great” [TMW, p.443]. “If there remained a single instance to examine”, he writes, “it alone would suffice” to ruin the universality of the claim. “For in all matters whose proof is by experiment [i.e., is inductive] and not by demonstration,” Pascal explains, “no universal assertion can be made except by the general enumeration of *all* the parts and *all* the different cases” [TMW, p.443, italics mine].

And yet this is not the whole truth. The whole truth is that all people are mortal and, what is more, we all know this and know it for certain, despite our inability to prove it by means of reason, as Pascal himself says at L63 #821 and #110. No one expects anyone, even oneself, to live forever. So what we have in the statement “All people are

mortal” is a case where we are all certain of the truth of a thing, but are totally unable to justify it by reason. Mutatis mutandis, a similar argument may be made that the statement “This day has a successor” is also universally known to be true without there being any way to justify it by reason.

The two statements Pascal chooses as examples of truths unjustifiable by reason are significant also for their practical importance in the lives of those who believe them. It makes a practical difference in people’s lives whether they are mortal and whether this day will have a successor. For example, were I immortal, I would never need to write a will or otherwise prepare my friends and family for my eventual permanent absence. So one cannot discount the truths unjustifiable by reason that Pascal chooses as examples as being meaningless or inconsequential truisms.

One might object that these two examples are not truly *wholly* without justification by reason. After all, there is some evidence in their favour: every person until now has been mortal, and every day until now has had a successor – Doesn’t the weight of all past instances amount to evidence about all future instances as well? For argument’s sake let us grant this, calling the principle that all past instances amount to evidence about all future instances the “principle of induction”. The question then arises, how do we prove the principle of induction? Clearly we cannot deduce all future instances from all past instances, for there is no obvious inherent contradiction in saying that what happened in the past will not happen in the future, or that the future will be different from the past, or even that there will be no future. This leaves trying to prove the principle of induction by the inductive approach we tried to use above. That is, we

could try to accumulate evidence for the principle of induction by looking at past instances where the principle of induction applied and using a preponderance of such instances that to argue that because this principle worked in the past, this principle will apply again in the future. In a word, we could try to argue that because the principle of induction has worked in the past, it will work in the future. The very serious trouble with this approach, though, is that it assumes what it tries to prove inasmuch as it *assumes* the principle of induction to *prove* the principle of induction. This means that the only evidence we could have for the principle of induction includes the principle itself. Since this approach is blatantly circular, it cannot provide any proof. So if we use the problem of induction as the basis for defending Pascal's claim that there exist truths reason cannot prove, we are on solid philosophical ground. Indeed, as we saw in Chapter One, section 1, this is a problem with induction that has been known since ancient times [Sextus Empiricus, 2000, II, xv, 204, p.123]. And of course what Pascal describes here anticipates David Hume's devastating critique of induction [Hume, D., 2000, Section 4, part II, #18-22, pp. 30-33].

As we saw in the analysis of reason above at 2.3, for Pascal (as for Arnauld) reason is either deductive or inductive. Since nothing in the concept "person" precludes there being an immortal person, and since nothing in the concept "day" precludes there being a last day, we cannot deduce the truth of these statements from the concepts involved. Neither can the truth of these statements be had by induction, because of the problem of induction we have just seen. Therefore the truth of these statements cannot be proven by reason (deduction or induction). And this of course entails that dogmatism is false, inasmuch as it means that not everything can be known by reason.

If these sorts of statements, which we indisputably regard as true, cannot be proven by reason, then how are they justified? It would seem that the only options for Pascal are to call them into doubt (as the sceptics do) or to prove them some other way. We saw in Chapter One, section 6 that calling such basic facts (such as one's existence, the passage of time, etc.) into doubt is out of the question for Pascal. This leaves only trying to prove them some other way.

Since these sorts of statements cannot be proven by reason, the only option left to Pascal is to claim that they are known by the heart, which is precisely what he does at L63 #821 and L63 #110. Thus we see that, for Pascal, “[c]’est le coeur ... [qui] est l’instrument essentiel de l’induction”, for without the heart, there are some truths the reason could not know [Strowski, F., 1908, V. 3, p. 292. L63 #423]⁶. In Chapter Three we will consider in greater detail the alternative means of proof of the heart (See 3.4).

2.6 *Classifying Knowledge by the Heart*

We have now seen many different kinds of examples of knowledge by the heart that Pascal mentions in the Pensées. Before going further, it may be appropriate to try to organize and unify what we have seen by classifying the various examples of knowledge by the heart that we have encountered so far.

Let us begin by taking the two examples we have just now been discussing (viz., human mortality and this day having a successor). I think that for Pascal these are both examples of the same kind of knowledge by the heart. We might call this kind of knowledge by the heart *pseudo-inductive*. In the case of both the knowledge that one is

⁶ “It is the heart that is the essential tool of induction” (my translation).

mortal and the knowledge that this day has a successor, it *seems* that one would be able to prove these things by induction, and yet, as we have just discussed in the case of this day having a successor, qualities inherent in the knowledge that this day has a successor make it impossible to prove by induction.

Other examples of knowledge by the heart we have seen so far, e.g. “I exist”, “I am not dreaming”, etc., do not seem to have any inductive quality to them in Pascal’s writings, and so likely belong to another category of knowledge by the heart. This second category (the examples of which we encountered examining L63 #131 in Chapter One, section 2) might be called *self-conscious* knowledge by the heart inasmuch as all its examples refer to being aware of oneself in some state (like the state of existence or wakefulness). It is not surprising that Pascal should set aside a whole category of knowledge by the heart to self-conscious knowledge, given his view that the self is always central in human consciousness. The self “make[s] itself the centre of everything” as he writes at L63 #597, and it is consistent with that selfishness that the foundations of all knowledge (i.e. knowledge by the heart) would include knowledge of oneself.

Other examples we have seen so far of Pascal’s knowledge by the heart are knowledge of the existence of space, time, and movement [L63 #110]. Here too we find in Pascal’s repeated mentions of these examples no suggestion that this knowledge might be produced by successive experience. So they are not pseudo-inductive. Since knowledge of the existence of space, time, and movement obviously has nothing to do with self-consciousness either, these examples must constitute their own separate category of knowledge by the heart, for surely these differences mean they do not all belong to the same category. Because these examples pertain to the knowledge one has of

the fundamental concepts of physics, we might call this category *physical* knowledge by the heart.

Also to be included among the categories of the knowledge by the heart are *mathematical* and *religious* knowledge. At L63 #110, Pascal includes the knowledge that “numbers exist and are infinite” along with his examples of physical knowledge by the heart. At L63 #199 Pascal gives the arithmetical principle that, in the whole number system, zero minus any number is zero (i.e. $0-a=0$) as an example of a first principle that is “too obvious for us”. As for religious knowledge, consider L63 #424: “It is the heart which perceives God and not reason. That is what faith is: God perceived by the heart”

With the addition of these last three categories one begins to wonder whether the categories of knowledge by the heart form a heterogeneous or a homogeneous set. Do all these categories of examples have something in common? In Chapter Three, following an analysis of Pascal’s use of “heart” (See 3.3.3), I argue that they *do* have something in common. For the moment it is enough to say that the examples Pascal gives of knowledge by the heart form a *coherent* set. That it *is* coherent emerges in refuting an objection that there is something *incoherent* in Pascal’s grouping all non-rational elements of his epistemology together.

2.7 Answering Terence Penelhum’s Objections

The brief survey of Pascal’s “heart” given above at 2.3 places all non-rational elements of epistemology in one faculty, the heart. This means that, for Pascal, both religious belief and the common sense preconditions of life we met in the last chapter (e.g. “I exist” and “I am not dreaming”) and in this chapter (e.g. “This day has a

successor” and “All men are mortal”) are made to exist on the same epistemological plane. The advantage this has for constructing Pascal’s Apology for the Christian Religion is clear: by “import[ing] or extend[ing] the operation of le coeur from the grasp of heavenly things to the study of the natural world” Pascal can afford religious belief the same protection that beliefs that are the preconditions for life have; namely, they need not be amenable to rational proof to be true [Mortimer, E., 1959, p. 209]. But Terence Penelhum has some important objections to the coherence of this Pascalian concept of the heart precisely because it sets these very different elements so close together. His objections appear in his article “Scepticism and Fideism”. This article considers the history of the relationship between scepticism and religious belief, beginning with Martin Luther and ending with David Hume. Penelhum’s review of the history of this relationship leads him to question the possibility of scepticism being used to protect faith (as in the case of Montaigne’s Apology for Raymond Sebond). In the course of this review, Penelhum considers Pascal’s own peculiar contribution to answering scepticism with faith [Penelhum, T., 1983, pp. 302-311]. Penelhum admires Pascal’s recognition that scepticism unwittingly does faith a service by undercutting reason’s power to establish articles of faith [Penelhum, T., 1983, p. 308]. Penelhum also seriously considers Pascal’s “doctrine of the heart” by which Pascal in turn rejects scepticism. By “doctrine of the heart” Penelhum means Pascal’s idea that it is precisely because we know first principles (faith, common sense, etc.) by the heart and not by reason that they are immune to sceptical attacks [Penelhum, T., 1983, p.310]. But Penelhum ultimately rejects Pascal’s “doctrine of the heart” because of the following objections he makes to it.

Penelhum objects that “any simple assimilation of common sense and faith” such as we find in the collection of things Pascal says are known by the heart encounters three major difficulties [Penelhum, T., 1983, p.310]. First, Penelhum points out that this assimilation is awkward because, if it is true that the Christian faith finds support from being associated with the preconditions of intelligent human life (“common sense” as Penelhum calls it), then many other, *mutually exclusive* faiths will find support in that association too. Since presumably only one faith can prevail, the rest must be excluded. So if this assimilation of faith and common sense “proves anything, it proves too much”, because it would seem to offer justification of all faiths at once, even though at most one can be right [Penelhum, T., 1983, p.310]. Second, Penelhum points out that there is a serious disanalogy between common sense and faith, inasmuch as everyone agrees on the principles of common sense (hence the “common” in common sense), while doubt and disagreement are rampant in matters of faith. This disanalogy “demands explanation” says Penelhum, and it is no good trying to explain it by “insist[ing] that only in the religious case does our nature have a vested interest in doubt” [Penelhum, T., 1983, p.310]. Perhaps Penelhum means that since doubt is the enemy of faith, one would expect the nature of a religious person to *prevent*, not *promote* him doubting. One cannot know: Penelhum does not explain. Third, Penelhum points out another disanalogy between what he calls common sense (or “preconditions of intelligent human life” as I have called them here) and faith. “[F]aith”, Penelhum observes, “is a state which it requires persistent efforts of attention and will to sustain” [Penelhum, T., 1983 p.310]. The “convictions of common sense” meanwhile come on us so easily that it takes “comparable efforts of sceptical reflection” to dislodge them [Penelhum, T., 1983, p.310]. Put succinctly,

common sense is easy, but faith is hard. Like the last disanalogy, this disanalogy would make it difficult to believe that the preconditions of life that I have identified in Pascal and the faith of which Pascal speaks belong to the same group of things, viz., things known by the heart. These three objections together suggest that either I have erred in interpreting Pascal as putting them in that one group, or that Pascal himself has erred in putting them in that one group.

There are good Pascalian answers to all of Penelhum's objections, though. The first objection, that mutually exclusive faiths may all be proven true by their association with common sense, where surely only one can be true, fails to take into account Pascal's method of isolating the true faith. Pascal's method of isolating the true faith is to look at the miracles, prophecies, and history that are associated with a particular faith, and then, judging from these, decide which faith is most credible. "Miracles distinguish between things that are in doubt" writes Pascal, and so do "[p]rophecies with [their] fulfilment" in the history of a church or faith [L63 #901 and #240]. Ideally, they will vindicate one faith (for Pascal, the Christian faith) as having "a history of truth" [L63 #776]. This is Pascal's strategy for proving the truth of the Christian religion: the proof of its truth lies in the numerous miracles described in the Bible and in the obvious prophecies in which that book abounds that make precise reference to the coming of Jesus Christ [Boutroux, E., 1900, p. 181. See also Miel, J., 1969, p. 152]. Pascal's association of common sense and faith is not meant to vindicate a *particular* faith, but *faith as such*; Pascal's idea seems to be that vindicating faith *per se* is the first step in vindicating a particular faith (the Christian faith). This is the first step –showing that faith in itself is as acceptable as the principles of common sense because, like the principles of common sense, faith too is

true though it is not based in reason. Once he has made this first step, he can look to the miracles, prophecies, and histories of various faiths to determine which of these faiths is the right one. Demonstrating that faith is an acceptable element of human life (despite its being extra-rational) is only part of the process of demonstrating that one particular faith is the only fully acceptable one; it is not the whole process. Since associating faith and common sense is not the whole process of demonstrating which faith is the true one, it cannot be said that this part of the process -- associating faith and common sense -- somehow demonstrates the truth of all faiths, for, by itself, this first part of the process does not even purport to demonstrate that so much as one of them is true. That is not the function of this first part of the process. And so no contradiction between mutually exclusive faiths arises as a consequence of Pascal's association of faith and common sense. By way of corroboration, it will be seen that Pascal employs this two-step approach in the Wager Argument [L63 #418]. The Wager is not meant to convince Pascal's reader to believe in the *Christian* God, but to believe in "some God capable of supplying an infinite good" [Golding, J.L., 1994, p.137]. Once the Wager has convinced its reader to believe that, "the other parts of the Pensées [remain] to show that belief in the Christian God is superior to other versions of theism" [Golding, J.L., 1994, p.137]. (We will consider the Wager Argument in detail in Chapter Three. See 3.4.5).

The second objection, that the principles of common sense are universal and uncontroversial where faith is divisive and disputed, is an attempt to show that religious propositions and common sense propositions are completely heterogeneous. To be fair, in some respects religious principles and common sense *are* heterogeneous: No one would say that assenting to propositions of common sense necessitates assenting to any

particular religious propositions, or even any religious propositions at all. But on the other hand, claiming that religious and common sense propositions are *completely* heterogeneous does not express Pascal's thought, for it fails to take Pascal's view of fallen human nature into account. For Pascal, human nature was corrupted by original sin:

“If man had never been corrupted [by original sin], he would, in his innocence, confidently enjoy both truth and felicity. But, unhappy as we are ... we have an idea of happiness but cannot attain it [and] an image of the truth but possess only falsehood ...[N]ature is such that it points everywhere to a God who has been lost, both within man and outside him, and to a corrupt nature.” [L63 #131 and L63 #471]

Human nature, in other words, was grossly (though not entirely) perverted by original sin. It was so perverted, in fact, that though it sees what is right (the “image of truth”) it fails to choose what is right, and so stays mired in unhappiness. And so, though people are only happy in God, they remain opposed to God [L63 #399]. This is the account of human nature Pascal derives from the Bible: The Old Testament relates how man, the creation of a perfect God and possessor of many perfections himself, rebelled against his creator; and it relates how, as a consequence, man fell from his state of innocence, and communicated his corrupt nature to all his descendants [Boutroux, E., 1900, p. 176. See also Miel, J., 1969, pp.133-134 and Laporte, J., 1950, pp. 14-15]. This much knowledge about fallen human nature can account for the division men have in matters of faith: men are shown the true faith and the happiness that following it will bring, but their corrupt natures cause them to reject it and oppose those few people who do accept it. And it is only because of the Fall that men prefer acting out their own selfish desires to obeying the will of their Creator [Miel, J., 1969, p. 170]. In rejecting God and the happiness that following His true faith will bring, men opt instead for their own

individual, immediate self-interest. According to Pascal, the self “make[s] itself the centre of everything” [L63 #597 and #978]. So fallen human nature can account for the division men have in matters of faith. To meet Penelhum’s second objection, though, one has also to explain why if there is division in matters of faith, there is none in matters of common sense. Fallen human nature explains this too. By rejecting God and the happiness true faith engenders, men make their own individual, immediate self-interest their guiding principle. This is the selfishness that makes individual men make themselves “the centre of everything” [L63 #597]. The explanation is that it is more immediately in its self-interest for human nature to accept the principles of common sense than it is for it to accept the truths of faith: We saw in the last chapter (viz., at 1.2) that without a belief in certain commonplace facts (e.g. “I exist”, “I am in pain”, “I am awake”) human life would be impossible. Although Pascal does marvel at how people who do not believe in God can exist (“This negligence in a matter which concerns themselves [and] their eternal [destiny]... astounds and appals me: it seems monstrous to me”), he nowhere says that without a belief in God human life is impossible [L63 #427]. But also as we saw in the last chapter (at 1.2), Pascal *does* make belief in God a precondition for humans to have life *after* death. To his mind, it is both in man’s self-interest to believe in the principles of common sense *and* in God, but that, obviously, the beliefs that sustain men in *this* life are of greater immediate concern than those that ensure his supernatural life once this natural life is over. In his fallen state, man cannot recognize that it is ultimately much more in his interest to worry about surviving into the next life than surviving in this life, and so he mistakenly places far more importance on the beliefs that are preconditions to this life (common sense) than those that are a

precondition to the next life (the articles of the true faith). This mistaken emphasis on this life over the next causes men to converge much more readily on the principles that sustain this life, than the principles of faith that would have man transcend it. This convergence causes men to be much less foolishly divided and disharmonious with regard to the principles of common sense than the articles of faith. And this convergence in turn explains why there is a disanalogy between the universality and harmony that men exhibit in matters of common sense as opposed to the division and conflict they exhibit in matters of faith.

Penelhum's third objection (that common sense is easy while faith is hard) permits a two-part response. The first part of the response is to question his assumption that faith is uniformly difficult to maintain. It is true that sometimes, in the Wager argument, for example, Pascal speaks of one acquiring faith with special effort. If "[y]ou want to find faith but you do not know the way", he writes, "learn from those who were once[like] you" [L63 #418]. "Follow the way by which they began", he explains, by "behav[ing] as if [you] did believe, by taking holy water, by having masses said, and so on, ...[t]hat will make you believe naturally" [L63 #418]. But Pascal addresses this advice to someone who is trying to come to faith from a state of unbelief; there is no implication that it applies to one who already has faith and who is trying to maintain it. He does not say that the same special effort is needed in both cases. Rather, Pascal's view seems to be that, if one has faith, the effort one needs to maintain it *lessens* as one continues in it, as though it becomes easier through practice. Pascal's God, after all, is one who "makes [the faithful] incapable of having any other end but him" by inclining their hearts towards him [L63 #449]. One assumes that, once one's heart is so inclined, it

is easy to make the leap of faith to God. Conversely, it is only the heart of the “unjust and unreasonable” man that perceives the sacramental requirements of the Catholic Church, for example, as burdensome [L63 #978]. “Can anything milder and more charitable [than these sacramental requirements] be imagined?” Pascal asks, “And yet, such is man’s corruption that he finds even this [mild] law harsh” [L63 #978].

In the second part of the response, again man’s fallen nature may be used to explain that, in his corrupt state, man perversely prefers those principles that keep him in his current condition to those that would lift him to a better one. The principles of common sense are what allow man to make his way in the natural world, where he is now, and so he is always more retentive of them than he is of the faith that would help him in the supernatural world, where he is supposed to go in the future. This is why it is so much easier to shake his faith than it is to get him to doubt his common sense. There is not the essential difference that Penelhum alleges between faith and common sense, but merely an *accidental* difference that arises from the perverted perception of a corrupt human nature. In Pascal’s theology “the human mind [is] incapable of correctly processing reality” because Original Sin affects the structure of the mind [Wetsel, D., 1994, p. 381]. Penelhum’s third objection is right inasmuch as it attests that men perceive a difference in the importance of common sense over faith. But Penelhum is wrong to assume that that difference in treatment is founded on a real difference in the natures of faith and common sense – it may be based instead on a mistake that man’s fallen nature disposes him to make. Men treat faith differently (viz., as being less important to their happiness) based on a mistake. So there is no real grounds upon which to object that faith

and common sense are so disanalogous that they should not both belong to the same epistemological plane to which they do in Pascal's epistemology.

All together, then, Penelhum's three objections will not prevent Pascal from holding that the heart's widely variegated role in natural human epistemology is unified nevertheless. Fortunat Strowski puts it well when he observes that the heart's role is "le même partout: qu'il crée le sens commun, qu'il crée les principes géométriques, qu'il crée l'amour, qu'il crée la foi" [Strowski, F., 1908, V. 3, p. 292]⁷.

2.8 *Closing Summary*

Pascal's rejection of dogmatism has to do with the dogmatist's assertion of the power of reason to know everything. He has two arguments against the possibility of reason knowing everything. The first is that reason cannot know everything because trying to know everything would result in an infinite regress. Reason operates by analysing general propositions to gain specific knowledge. Deducing the more specific from the more general obviously has to stop somewhere (viz., in maximally clear, undemonstrated propositions and undefined terms). There are propositions which reason cannot prove and terms it cannot define, therefore, and therefore reason cannot know all things. The second argument is that there are some propositions (e.g. "All people are mortal") that everyone knows are certainly true, but which cannot be proven by reason, owing to their inaccessibility to either deduction or induction. Together, these two arguments show that dogmatism is false and hence, "impuissant", powerless [Droz, E., 1886, p.170].

Chapter Three: Pascal's Epistemology

In Chapter One we examined Pascal's refutation of scepticism. In Chapter Two we examined his refutation of dogmatism. If Pascal rejects scepticism on the one hand and dogmatism on the other, what view is he left defending? If rejecting scepticism and dogmatism is Pascal's negative epistemology, what is his *positive* epistemology? Specifically, what does knowledge mean for Pascal? How does one know anything, according to him? Given the importance of the know by reason/ know by the heart distinction in Pascal's refutation of both scepticism and dogmatism, one would naturally expect that Pascal's positive epistemology also involves reason and the heart, but what in particular does it involve?

L63 #110 is the locus classicus of the know-by-reason/ know-by-the-heart distinction. It reads:

"We know the truth not only through our reason but also through our heart. It is through the latter that we know first principles, and reason, which has nothing to do with it, tries in vain to refute them. The sceptics have no other object than that, and they work at it to no purpose. We know that we are not dreaming, but, however unable we may be to prove it by reason, our inability proves nothing but the weakness of our reason, and not the uncertainty of all our knowledge. For knowledge of first principles, like space, time, motion, and number, is as solid as any derived through reason, and it is on such knowledge, coming from the heart and instinct, that reason has to depend and base all its arguments. The heart feels [sent] that there are three spatial dimensions and that there is an infinite series of numbers, and reason goes on to demonstrate that there are no two square numbers of which one is double the other. Principles are felt [se sentent], propositions are proved, and both with certainty though by different means."

When at the end Pascal says that both knowledge by reason and knowledge by the heart achieve certainty, though by different means, he links the concepts of knowledge and certainty. Indeed, his epistemology turns crucially on this knowledge-certainty link.

Before examining his epistemology's historical background, we will need to make clear some definitions of knowledge and certainty.

3.1 *Some Definitions*

In epistemology there is a traditional or “standard” analysis of knowledge on which “[a]mong philosophers, from Plato to the present, there has been more or less complete consensus” [Williams, M., 2001, p.16]. According to this traditional analysis, we say that a subject, S, knows a proposition, p, if and only if

- (1) p is true;
- (2) S believes that p; and
- (3) S is justified in believing that p

The condition that knowledge be true excludes error. Since “to know” is a success verb, “false knowledge”, knowledge that fails to know, is a plain contradiction in terms. If, for example, it turned out that something I said I knew was false, we would rather say that I only thought I knew, than that I knew it and it was false or that I knew it falsely. In earlier centuries a higher requirement was usually taken for granted. The claim to know a proposition, p, was taken to mean not only that p was true, but that it was *metaphysically certain* [Williams, M., 2001, pp38-40]. In other words, S could only know that p only if p cannot possibly be untrue. This heightened requirement is called “infallibilism” (We will say more about infallibilism shortly).

Also on this account, knowledge is assumed to imply belief, thus excluding the possibility that someone might be said to know something on which he holds no views.

Beliefs naturally come in degrees. A subject, S, may barely, moderately, or absolutely believe that p. Since all known propositions are believed to some degree, a

proposition must be believed at least barely to qualify as something a subject, S, knows.

Distinctions between degrees of belief, however basic, will not be necessary in what follows. For our purpose all beliefs may be assumed to be of a single degree.

Finally, there is the justification a proposition enjoys. A proposition is justified if and only if it is either (a) self-evident; or (b) a non-trivial consequence of a proposition that is already known. An example of (a) is the axiom “The equals of equals are equal” which is justified by its self-evidence. An example of (b) is the proposition “The book is in the house” which is justified by a derivation from two propositions I know: (1) “The book is in the box”; and (2) “the box is in the house”¹. Also, it should be noted that the norms of reasoning by which such derivation occurs may be set as strictly or loosely as needed to admit all and only what we intuitively consider to be knowledge.

The requirement that justifications be non-trivial means that logical equivalents do not count as justification. The fact that $\text{not-not-P} = \text{P}$ does not mean that not-not-P justifies P. Not-not-P merely *says the same thing as* P, and repeating a proposition, P, is obviously no *justification* of P. This is why, in the definition of justification above, justification is only possible for non-self-evident propositions in cases where one derives

¹ My knowledge that there is a letter for me in the mailbox as derived from my roommate having told me so may be offered as a counterexample to this analysis of justification. My knowledge that there is a letter for me in the mailbox is not justified by its self-evidence, and “There is a letter for me in the mailbox” is not a consequence of the proposition “My roommate told me there was a letter for me in the mailbox”. We may circumvent this counterexample by adding that (b) may be satisfied by including suppressed premises in the derivation. “There is a letter for me in the mailbox” may not follow from “My roommate told me there was a letter for me in the mailbox” alone, but together with the suppressed premise “My roommate always tells the truth about the letters in the mailbox”, “There is a letter for me in the mailbox” would follow from my roommate having told me so.

one proposition from another proposition *non-trivially*, according to usual norms of reasoning². Tautologies, which are all self-evident, are said to be self-justifying.

With these definitions in place, we may proceed to the historical background of Pascal's epistemology necessary to understanding it and its historical significance.

3.2 *Knowledge in the Seventeenth Century*

It was in Plato's Meno that the traditional analysis of knowledge was first laid out. There Socrates distinguishes knowledge (episteme) from true opinion (doxa) by saying that unlike opinion that just happens to be true, knowledge relies on justification [98a]. This gives knowledge the advantage over true opinion: Opinion is only sometimes reliable, it being only sometimes true, like the guessed-at directions of an ignorant guide [97a-97b]. It is arguable that, for Plato, the only knowable objects are ideal ones, such as numbers and other mathematical elements (e.g. axioms and geometrical forms) [e.g. Republic 511c].

But for Pascal, a New Physicist, limitation to the ideas of mathematics could not be sufficient. Pascal wanted to know about how sounds are generated and propagated; about air pressure and water pressure; about how clock gears work; about how pendulums swing and about how balls roll, etc. He, like many of his early modern

² Pascal seems to have been aware of the powerlessness of logical equivalents to explain anything. In On Geometrical Demonstration Pascal attacks Père Etienne Noël's attempt to define light as "the property of luminous bodies" [Pascal, B., Thoughts and Minor Works, 1938, (hereafter simply TMW), pp. 425-426]. Of this attempted definition Pascal writes: "There are some people who go so far as the absurdity of trying to explain a word by using the word itself." Pascal's remark is directed at question-begging definitions, but surely this remark also means that logical equivalents, which just repeat the same word as explicans and explicandum, are to his mind absurd explanations.

contemporaries, wanted to extend knowledge beyond mathematics into the sensible, material world. He knew the predictive successes of the New Physics (e.g. Kepler's laws of planetary motion), so he knew *that* knowledge was possible beyond mathematics. But *how* was this knowledge of the sensible, material world possible? In some areas of the new physics (e.g. the motion of the planets), one could succeed in knowing the sensible, material world precisely because one could use ancient mathematics as its model. (In the case of his laws, Kepler applied the ancient elliptical geometry of Apollonius to the motion of the planets) [Eves, H., 1981, V.2, p. 223. See also Dunham, W., 1991, p.117]. But these were special cases where physics and mathematics overlapped such that the ancients' knowledge of the latter could be used to generate knowledge of the former. Indeed, by Pascal's time, Galileo had already said that nature is a book written in the language of mathematics [Drake, S., 1957, pp. 237-238]. But what Galileo meant was that it was written in the language of *ancient* mathematics, for that is the only kind of mathematics the early Renaissance physicists knew. But what about the general case where there is no ancient mathematical model to guide one?

The trouble was that beyond those areas to which ancient mathematics readily applied, the "high sciences" of astronomy, optics, and mechanics, knowledge in the "low sciences" (e.g. chemistry, geology, and medicine) seemed to be possible only through induction, i.e., through accumulated sensory experience [Hacking, I., 1975, pp. 23, 25-26]. (Determining the cause of a disease, for example, is largely a matter of accumulated sensory experience, viz., seeing that people who drink repeatedly from a polluted well contract cholera). This was a problem because, following in Plato's tradition, "knowledge" as Pascal and his contemporaries understood it still meant that a

candidate for knowledge had to be metaphysically certain. For example, Pascal's contemporary, Thomas Hobbes, writes in the Leviathan (1651) that real science "is certain and infallible" [Hobbes, T., 1839, V.3, p.37, Part One, Ch. 5]. In the Meditations, Descartes, too, linked knowledge with certainty when he insisted, as William Goodhue says, "that there could be only one true kind of knowledge, certain knowledge" [Goodhue, W.W., 1969, p.16]. In Meditation II, for example, Descartes writes,

"I shall withdraw [from all that I formerly learned] all that might even in a small degree be invalidated ... in order that there may be nothing at all left [in my knowledge] beyond what is absolutely certain" [AT VII, 25]

As Ian Hacking writes, "Galileo [and his chief contemporaries, e.g. Hobbes and Descartes] long[ed] for absolute demonstration ... [They sought] true axioms and real notions that [would] ultimately produce knowledge and not opinion." [Hacking, I., 1975, pp. 26-27]. In conceiving of knowledge as requiring metaphysical certainty, Hobbes and Descartes had accepted a centuries-old Platonic legacy called "infallibilism" that has only been challenged relatively recently [See Williams, M., 2001, pp. 38-40]. But accumulated sensory experience could not produce this certainty because to them, as for Plato, certainty meant metaphysical certainty, i.e., logically necessary truths, like those of mathematics, which are strictly universal (the equivalent of "true in all possible worlds", in the idiom of modal logic). A universal statement is a statement that refers to an entire class of objects, and a universal truth is a universal statement that is true for the entire class of objects to which it refers. "All swans are white", though false, is an example of a universal statement, because it refers to the entire class of swans; "All matter is convertible to energy" is a universal truth because it is true of the entire class of objects to which it refers. Because accumulated sensory experience of an infinite, unending

universe is never complete, it is always possible that, however much experience one has accumulated, one will discover counterexamples to universal statements about it.

To take an example Pascal himself considers, accumulated sensory experience cannot achieve certainty about spatial three-dimensionality [L63 #110]³. If space were finite, accumulated sensory experience could determine whether all regions of space were three-dimensional – it would merely be a matter of accumulating sensory experience about all regions of space to see whether in fact they were all three-dimensional. But since space is infinite, there are always more regions of space than one can know through accumulated sensory experience. Therefore one can never have grounds for coming to a universal conclusion about spatial three-dimensionality, because one will always have to leave some region of space out of one's sensory experience. The best one can manage is a *general*, not a universal conclusion about spatial three-dimensionality. For example, one may say that, *in all the regions of space with which one is familiar through sensory experience*, space is three-dimensional. But of course no amount of accumulated sensory experience, however vast, will turn a *general* into a *universal* truth (as we heard Pascal say in Chapter Two, section 5) [TMW, p. 443].

The first step to finding certainty in the material, sensible world was to admit a lower standard of certainty that would not be so exclusive. Thus, for example, we find at this time the distinction between metaphysical and moral certainty in Descartes'

Principles of Philosophy (Part IV, art. 205 and 206):

³ Pascal's claim at L63 #110 that we have knowledge of spatial three-dimensionality cannot be discounted as a one-time-only, throw-away remark. At the very beginning of L63 #418, too, Pascal mentions almost exactly the same list of examples of knowledge by the heart that he gives at L63 #110 "Our soul is cast into a body where it finds number, time, dimensions...."

“I will distinguish here [between] two kinds of certainty. The first is called moral [certainty] , that is to say it is sufficient to regulate our mores, or large enough for things for which we have no custom of doubting related to the conduct of life, even though, we know that it could happen that, absolutely speaking, they may be false... The other kind of certainty [viz., metaphysical certainty] is when we think that there is no possibility that something could be other than we judge it to be ...” [AT IX-II, 323-324].

The usefulness of this distinction to the new science was plain: If the low sciences could not achieve one kind of certainty (metaphysical certainty), perhaps they could achieve the other (moral certainty).

Moral certainty demanded only that a proposition be useful in regulating human customs, not that it represent logically necessary truth, and so one did not have to show that all possible counterexamples were excluded in order for a proposition to enjoy some kind of certainty, namely moral certainty. This second certainty was less demanding, but still it excluded sensory knowledge, for still there was the problem of achieving universal truth in cases where accumulated sensory experience would never be complete; namely, in cases where the subject matter was inexhaustible. Though perhaps it is not so important in the regulation of human customs, such universal knowledge is critically important in the sciences, whose laws are supposed to be true at all times in all parts of the universe. Newton’s law of universal gravitation, for example, is meant to apply not only to those areas of human experience regulated by custom, but in perpetuity to all matter everywhere in the universe. Moral certainty was therefore simply not sufficient for the scientific purposes for which Pascal and his contemporaries worked. A standard of certainty appropriate for propositions of sensory experience of universal reference was needed.

Although there is evidence that Antoine Arnauld, Pascal's Port-Royal colleague, accepted the distinction between moral and metaphysical certainty, Pascal himself never used it [Arnauld, A., 1996, Bk. IV, Ch.15, p.270]. As we can see at L63 #110, Pascal had his own distinction between knowledge by reason, knowledge by the heart, and their "different means" to certainty to work with. To understand how Pascal approached the problem of finding certainty in propositions of sensory experience of universal reference (and indeed, to understand his epistemology generally) we need to understand what he meant by "knowledge" and "certainty".

3.3 *Pascal on Knowledge and Certainty*

3.3.1. Analysis of "Knowledge"

The Latin root of "connaître" is cognoscere, meaning "to learn, inquire, understand". It is itself composed of two words "co", from "cum", meaning "with", and "gnoscere" meaning "to know", or (because of the "-scere" ending indicating a progressive action), "to come to know" [Dictionnaire Historique de la Langue Française, 1992, V.1, entry "connaître"]. The Latin root of "savoir" is sapere, meaning in the first instance "to taste" or "to savour", but, by a derivative metaphor, "to be wise" in the second instance [Dictionnaire Historique de la Langue Française, 1992, V.2, entry "savoir"].

There are 444 uses of "know" in all its forms in the Pensées (340 instances of forms of "connaître" and "connaissance" and 104 instances of verb and noun forms of "savoir") in over 47 of its fragments (e.g. L63 #72, L63 #110, L63 #114, L63 #119, L63

#122, L63 #136, L63 #190, L63 #191, L63 #198, L63 #199, L63 #338, L63 #417, L63 #421, L63 #446, L63 #545, L63 #933, L63 #978, etc.).

“Know” has the following senses in the Pensées:

- (1) as a verb, “to be aware of someone or something”, or, as the noun “knowledge”, “the awareness of someone or something”. It appears in this sense in 348 of 444 total uses.
- (2) as a verb, “to be aware of as true, certain, or factual”, or, as a noun, “awareness of as true, certain, or factual”. It appears in this sense in 28 of 444 total uses.
- (3) as a verb, “to recognize someone or something through previous experience”, or, as a noun, “the recognition of someone or something through experience”. It appears in this sense in 12 of 444 total uses.
- (4) as a verb, “to be able to”, “to possess some skill, art, or technique” ; i.e. (as a noun) know-how. It appears in this sense in 8 of 444 total uses.

The remaining 48 uses of “know” in the Pensées are divided among the following senses:

- (5) as a verb, “to recognize the identity of someone or something”
- (6) as a verb, “to have or acquire the understanding of something or of some technique through instruction”

and as the noun, “knowledge” in the following additional senses:

- (1) “a result or product of knowing” (i.e. a result or product of any one of the 6 senses of “know” as a verb just listed)
- (2) “deep and extensive learning”
- (3) “the cumulative culture of humanity”

Pascal’s usage of “know” in senses (1)-(3) (i.e. in its most common uses) is conventional, as may be seen from a comparison with contemporary dictionaries. In his Dictionnaire Universel (1690), Antoine Furetière defines “connaissance” in the first instance as awareness, very much in the manner of “know” in sense (1): “Connaissance se dit généralement de toutes les choses qui ont passé par notre esprit” and he gives the example “Beaucoup de gens parlent des choses qui ne sont point de leur connaissance” – “Many people speak of things of which they have no knowledge” [Furetière, A., 1690,

entry “connaissance”]⁴. By this he means that many people (foolishly) speak of things of which they are totally ignorant, and so, substituting awareness for knowledge, this means “Many people speak of things of which they are not at all aware”. Furetière says nothing about “know” in sense (2), to be aware of something as true, factual, or certain, but another near contemporary of Pascal’s does: In his Dictionnaire Français (1683) Pierre Richelet defines “connaître” as “Apercevoir, voir, distinguer quelque chose par le moien de la vue” [Richelet, P., 1994, entry “connaître”]⁵. Richelet uses the sentence “Je connais fort bien que cette toile n’est pas blanche” as his example of “connaître”, which suggests that this visual discernment he speaks of means seeing things as they truly are: the cloth is not truly white (--Perhaps it is covered in dirt--) and the person of the example is aware that it is not truly white; hence he *knows* that it is not white. Finally, returning to Furetière, his dictionary defines “connaissance” in the second instance as “Idée qu’on s’empreinte autrefois dans l’esprit, et qui s’y représente quand l’objet [la] rappelle” and he gives the sentence “J’ai quelque idée d’avoir vu ailleurs cet homme-là; il faut que je me rappelle ma connaissance” as an example⁶. This clearly corresponds to “know” in sense (3), “to be familiar with through previous experience” inasmuch as recalling having seen a man before by seeing him again makes one familiar with him through previously having seen him; i.e. previously having had a visual experience of him. Richelet concurs with Furetière, defining “connaissance” in the second instance as “Personne qu’on connaît familièrement ... [ou] avec qui on a été familier ... [ou] qu’on a veuë autrefois”

⁴ The first sentence reads “Knowledge generally names everything that passes through our mind” (my translation).

⁵ “To perceive, to see, or to discern something by means of sight” (my translation).

⁶ “The idea that we previously impress upon our mind, and which presents itself there when the object recalls it” and “I have some idea that I have seen that man elsewhere; it is necessary that I recollect my knowledge [of him]” (my translations).

[Richelet, P., 1994, entry “connaissance”]⁷.

Because we will need to use both words as instances of “know” in what follows, it is important to note here that “savoir” and “connaître” were synonyms in the seventeenth century even as they are today. (Le Petit Robert gives “savoir” as the first sense of “connaître”) [Le Petit Robert, 2003, entry “savoir”]. Broadly speaking, then, as now, “connaître” and “savoir” do the same semantic work, although they divide its various chores differently [See also Furetière, A., 1683, entry “connaître”].

Pascal was unexceptional in treating “savoir” and “connaître” as synonyms. For example, at L63 #170 Pascal states the basis for his rejection of scepticism, dogmatism, and religious superstition:

“One must know [Il faut savoir] when it is right to doubt, to affirm, to submit ... Some men run counter to these three principles, either affirming that everything can be proved, because they know nothing about proof [manque de se connaître en démonstration] or doubting everything, because they do not know when to submit [manque de savoir où il faut se soumettre], or always submitting, because they do not know when judgement is called for [manque de savoir où il faut juger].”

In Pascal’s day as in our own, the possible meanings of “know” in English are covered by both the French words “connaître” and “savoir” in ways that are sometimes difficult to reflect in English.

We may now examine Pascal’s uses of “know” in its several senses.

The distinguishing feature of “know” in sense (1), “to be aware of someone or something”, is a contrast with *a lack of* knowledge. L63 #308 typifies “know” in sense (1). This is the famous fragment in which Pascal sets out the “three orders” of life: the

⁷ “Someone whom we know closely or with whom we were familiar or that we have previously seen” (my translation).

body, the mind, and charity. Describing the difference between the orders of bodies and minds, Pascal writes,

“All bodies, the firmament, the stars, the earth and its kingdoms are not worth the least of minds, for [mind] knows [connaît] them all and itself too, while bodies [know] nothing [les corps, rien].”

This dualistic point recurs in the Pensées. At L63 #114 Pascal writes about what distinguishes man in the material world, namely, self-consciousness. This self-consciousness gives man a greatness that “arises insofar as he knows himself [se connaît] to be wretched.” By contrast, “a tree does not know [ne se connaît] itself to be wretched”. Pascal’s recurring point is that consciousness, and especially *self*-consciousness, distinguishes those who have it (namely, people) from the material world (e.g. the sky, the earth, buildings, trees, etc.). The level of consciousness needed to distinguish thinking beings from trees and the earth is fairly low: simple awareness is enough to distinguish things with minds, like men, from things without minds, like trees. The word that Pascal uses for distinguishing the simple awareness of minds from the lack of awareness in material bodies at L63 #308 and L63 #114 is connaître, to know, and by this contrasting usage we can see that that word has “awareness” as one of its meanings. (For a more banal case of “know” in sense (1), see L63 #978 where Pascal describes a prince who is not aware [n’en saura rien] that he is the laughing stock of all Europe).

“Know” in sense (2), “to be aware of as a certainty, a truth, or a fact”, is similar to “know” in sense (1) inasmuch as both are defined by awareness. One might expect that the two senses would always be confused, but at least a few cases of “know” in sense (2) are clear in Pascal’s writings. For “know” in sense (2) is distinguished by the use of *justification* to establish that what one is aware of is a certainty, a truth, or a fact. For example, there is Pascal’s description of the nuns of Port-Royal:

“These women are astonished to be told that they are on the road to perdition ... [The nuns of Port-Royal] know [savent] that [this] is false ... [because] God loads them with his favours. One would have to be out of one’s mind to conclude from this that they are on the road to perdition.” [L63 #902]

The religious community of Port-Royal was effectively condemned by Pope Alexander VII in 1657 when he issued a Bull denouncing their founding document, the Augustinus by Cornelius Jansen, as heretical [See the Oxford Dictionary of the Christian Church, 1957, entries “Jansen, Cornelius Otto” and “Jansenism”]. It followed from the condemnation of this founding document that all religious associated with it were also heretical, and so were damned -- “on the road to perdition”, as Pascal says. This condemnation was astonishing to the religious of Port-Royal, for they had recently been favoured with (what seemed to them) a miracle from God. A young girl (Pascal’s niece, in fact) had been cured of a persistent ocular sore by the application of the Holy Thorn, a sacred relic that happened to be housed at Port-Royal at the time [See Shiokawa, T., 1977, pp.76-116 a full and critical account of the “Miracle of the Holy Thorn”]. From the time of the Apostles, the power to perform miracles was seen as a sign of God’s favour (e.g. Acts 4: 8-21). A little less than a hundred years before Pascal, in the early days of the Protestant Reformation, Catholics demanded that the Reformers produce miracles as proof of God’s favour for their new ideas. When the Reformers did not oblige these demands, the Catholics felt the Reformers had been refuted. (Thus Erasmus could mock Luther’s followers for “bringing forth [as new doctrine] what common opinion counts as more than paradoxes” without so much as “cur[ing] even a lame horse!”) [Erasmus, D., 1969, p.45. See also Marius, R., 1974, p.182]. Since miracles were seen in that time as a sign of God’s favour, the religious of Port-Royal understood that they were in God’s favour, and so not at all in danger of perdition. Consequently, the nuns of Port-Royal

knew that it was false that they were “on the road to perdition”. To say the same thing conversely, the nuns *were aware of the truth or the fact* that they were not damned. We can tell that the nuns are more than *simply aware* that they are not truly condemned because of their power to *justify* what they believe to be true: God does not bless with miracles those whom he condemns to hell; the nuns of Port-Royal have been blessed by a miracle (viz., the Miracle of the Holy Thorn); therefore, the nuns of Port-Royal have not been condemned to hell. This argument justifies the nuns’ awareness of their non-condemnation as a truth or fact, and so they may justifiably be said to be aware of its truth; i.e. to know it in a deeper sense than “know” in sense (1). This deeper sense is “know” in sense (2), awareness plus justification, and it is the sense of “know” that is given by the traditional analysis of “knowledge” at the beginning of this chapter (at 3.1). All three elements of the traditional analysis appear in this example: (1) it is *true* that the nuns are not on the road to perdition (Pascal takes this as granted); (2) the nuns *believe* that they are not on the road to perdition (Recall that Pascal says the nuns are “astonished to be told” that they are on the road to perdition. Their astonishment shows that they believed the opposite of what they were told); and (3) the nuns are *justified* in believing that they are not on the road to perdition (by the argument showing God’s favour in the Miracle of the Holy Thorn). There is even a kind of infallibilism in the use of “know” here, for Pascal counts it as *unthinkable*; intellectually, if not logically impossible that anyone should deny the conclusion that the nuns are not damned given the preceding argument: “One would have to be *out of one’s mind* to conclude from this that [these nuns] are on the road to perdition”, as he says [Italics mine].

We can see that Pascal's use of "know" in sense (2) conforms to the criteria for its proper use first set out by Plato because, like Plato, Pascal understands that knowledge depends on justification to distinguish it from opinion. At the end of the Art of Persuasion, Pascal makes a comparison between two people who have memorized the entire contents of a certain book. One person "understands [the book] in such a way that he knows all its principles" [TMW, p. 407]. The other person knows no such thing, only the same "dead words" of the text that his counterpart has also learned. "Will anyone really believe that these two people who have read and memorized the same book know it equally well [?]", Pascal asks. We would say that although both men know the book equally well, only one (the second man) *understands* it. But had he used Plato's words, not ours, Pascal would have said that the person who knows the book without knowing its principles has only *right opinion* about its contents, while the person who knows both it and its principles has *knowledge* of its contents. This is why, Pascal says, "we must not judge a man's [mental] capacity [merely] by the excellence of an observation we have heard him make" [TMW, p. 408]. Instead, he says, "we should penetrate the mind it comes from" and "find if he speaks by memory or by happy chance". For the knowledge the person who makes the observation has depends on "how that thought is lodged in its author". If he does not truly know *why* what he is saying is true, upon examination he will "disavow it on the spot ... [and] fall into another thoroughly common and ridiculous [opinion]." Much like Plato's example of the magical statues of Daedalus that move at will unless fastened in place, Pascal's man has not fastened his opinion (however right it may be) to a justification [Meno 97d ff]. Because his opinion is not "tethered" by

justification, Pascal's man can easily be made unsteady in his conviction of the truth of his opinion.

"Know" in sense (3), meaning "to be familiar with through previous experience", is easily identified by its context. For example, at L63 #403 Pascal mentions the Old Testament patriarchs King Solomon and Job in connection with their familiarity with the misery of the human condition:

"Solomon and Job have known [ont connu] ... man's wretchedness, one [viz., Solomon] the happiest, the other [viz., Job] the unhappiest of men; on knowing by experience [connaissant ... par experience] the vanity of pleasure, and the other [knowing by experience] the reality of afflictions."

Pascal as much as says that Job and Solomon know the wretchedness of the human condition because they are familiar with it from their previous experiences, for, here he writes that "[ils] connaiss[ent] ... par experience la vanité des plaisirs ... [et] la réalité des maux." Even if Pascal had not actually used the phrase "know *by experience*", the context would have made it clear that by "know" he means "familiarity through experience." Why? Solomon and Job are Biblical figures so generally recognizable for their experiences (of pleasure in the case of Solomon; of pain in the case of Job) that their very names are proverbial for experiences of pleasure and pain; e.g., "the treasures of King Solomon" and "the trials of Job". Had Pascal not mentioned their previous experience of pleasure and pain, but simply said that Solomon had known pleasure, and Job, pain, everyone could still be safely assumed to understand that Solomon and Job had known pleasure and pain; i.e. were familiar with pleasure and pain, from their previous experiences of them.

“Know” in sense (4), “to be able” or “to possess some skill, art, or technique” – in short, “know-how” -- is very easily detected because in this usage savoir is always immediately followed by a verb in the infinitive (e.g. savoir faire). (Although it is possible to use “connaître” to mean “know” in sense (4), as in “connaître comment faire quelque chose”, to know how to do something, it so happens that Pascal never uses “connaître” in this sense, only “savoir”). One example of “know” in sense (4) is L63 #55, where Pascal compares the attempt to stir the emotions of a human being to playing an especially complicated “strange, shifting, and changeable” musical organ. Because of a difference in degree of difficulty of the two “organs”, the skill of playing on the musical organ cannot be transferred to “playing on” the metaphorical human organ: “Those who only know how to play [savent toucher] an ordinary organ would never be in tune on this [metaphorical, human] one”, Pascal alleges. We may be sure that “know” is here meant in the sense of “to be able” because of the characteristic use of savoir immediately followed by a verb in the infinitive (viz., “toucher”). Substitution confirms this reading. Replacing “know how to play” in this sentence with “to be able to play” yields the sentence “Those who *are* only *able to play* an ordinary organ would never be in tune on this one” which is obviously a very good paraphrase of the original “Those who only know how to play an ordinary organ would never be in tune on this one.”

The remaining uses of “know” in the Pensées are cases of the other assorted senses of “know” not mentioned thus far. I will briefly discuss just one of these –viz., the idiomatic expression “to know by heart” meaning “to have memorized” --as a sample of the whole. In his Dictionnaire Français, (1683), Pierre Richelet writes that one of the meanings of “coeur” is “Mémoire. Savoir par coeur” which shows that “savoir par coeur”

was already an idiomatic expression meaning memorization in seventeenth century French [Richelet. P.. 1994. entrv “coeur”]⁸. In the *Pensées*, this expression appears at L63 #436 where Pascal discusses pagan books, and Homer’s *Iliad* in particular, by way of comparing them to the Bible. Pascal writes,

“Homer composed a tale, offered and accepted as such ... He never meant to write history about [Troy and Agamemnon] but only a diversion... [But] everyone learns [*apprend*] and talks about it [viz., the *Iliad*]; it is something that has to be known [*il la faut savoir*], and everyone knows it off by heart [*chacun la sait par coeur*].”

The first “know” in the last sentence (“[the *Iliad*] is something that has to be known”) is likely “know” in the sense of “to be familiar with through experience”, referring in this instance to an experience of *previous instruction* because of the reference to learning [*apprendre*] earlier in the sentence. The second use of “know” (in the sentence fragment “[E]veryone knows it off by heart”) is in the sense of the idiomatic expression for memorization. Since repetition tends to deepen or intensify a meaning, the second “know” in this sentence at L63 #436 (the “know” in “everyone knows it off by heart”) would therefore likely refer to a deeper or more intense experience of previous instruction, suggestive of memorization, which follows naturally from intense instruction.

3.3.2. Analysis of “Certainty”

“Certain” is from *certus*, a deformation of the Latin *cernus*, from *cernere*, meaning “to decide”, and so its perfect passive participle, *cernus*, means “decided” [*Dictionnaire Historique de la Langue Française*, 1992, V.1, entry “certain”]. “Sure” is from the Latin *securus*, which was originally the separate Latin words *se*, meaning

⁸ “Memory. To know by heart” (my translation).

“apart”, and cura, meaning “care”, so together meaning “apart [from] care” or, more colloquially, “worry-free”, and hence “safe” [*Dictionnaire Historique de la Langue Française*, 1992, V.2, entry “sûr”].

Pascal uses the words “certain” [certain], “certainty” [certitude], “sure” [sûr], “surely” [sûrement], “uncertain” [incertain], and “uncertainty” [incertitude] a total of 154 times in 32 fragments in the Pensées (e.g. L63 #26, L63 #28, L63 #33, L63 #101, L63 #110, L63 #122, L63 #154, L63 #189, L63 #329, L63 #367, L63 #401, L63 #482, L63 #748, etc.). For Pascal, the word “certain” and its cognates have three adjectival meanings:

- (1) the equivalent of “a”, “any”, “some”, or “a particular something”. It appears in this sense in 20 of 154 total uses. This sense of the word is clearly irrelevant to epistemology and so will be totally ignored in what follows.
- (2) “infallible”, “unfailing”, or “unmistakable”. It appears in this sense 64 of 154 total uses.
- (3) “indubitable” or “doubtless”. It appears in this sense in 25 of 154 total uses.

The word “sûr” and its cognates have three adjectival meanings:

- (1) “safe”, “stable”, or “secure”. It appears in this sense in 18 of 154 total uses.
- (2) “infallible”, “unfailing”, or “unmistakable”. It appears in this sense in 14 of 154 total uses.
- (3) “indubitable” or “doubtless”. It appears in this sense in 13 of 154 total uses.

“Certain” and “sure” are partial synonyms, for they share both senses (2) and (3), but only “certain” means “a”, “any” “some” or “a particular something” (“certain” in sense (1)), and only “sure” means “safe”, “stable”, or “secure” (“sûr” in sense (1)).

These meanings for “certain” and “sure” were perfectly conventional in Pascal’s day. We find that Antoine Furetière’s Dictionnaire Universel (1690) defines “certain” in the first instance as “constant, véritable, dont on ne peut point douter”, (“constant, truthful, something which we cannot doubt”), giving as an example the sentence “Toutes

les sciences humaines n'ont rien de certain, excepté la Géométrie" ("None of the human sciences have anything certain in them, Geometry excepted") [Furetière, A., 1690, entry "certain"]. Because of the phrase "dont on ne peut point douter", this definition corresponds roughly to "certain" in sense (3), meaning indubitable, although the example Furetière gives of the certainty of geometry also suggests infallibility, for geometry is infallible. In the second instance, Pierre Richelet is clear about "certain" being sense (1). Of "Certain, certaine" Richelet writes in his Dictionnaire Français (1683) that "ce mot devant un substantif signifie *quelque*" ("Before a substantive term this word means *some*") giving "Il y a de certain principes qui ne s'accordent pas trop avec les véritez de la foi" ("There are certain principles that do not fit too well with the truths of faith") as an example [Richelet, P., 1994, entry "certain"]. Concerning sense (2) of "certain", when Furetière defines the adverbial form of "certain", "certainement", he writes that it means "D'une manière certaine, infaillible" ("In a certain manner, infallible") [Furetière, A., 1690, entry "certainement"]. When we look up how Furetière defines "infaillible", we see he defines it as an adjective meaning "Qui ne se peut tromper, ni être trompé" [Furetière, A., 1690, entry "infaillible"]. Hence "certain" in this third instance obviously corresponds to "certain" in sense (2), meaning unfailing, infallible, or unmistakable, for "infaillible" (French for "infallible") is Furetière's own word and "qui ne se peut tromper, ni être trompé" means "cannot make a mistake or be mistaken". Because we will need to use both words as instances of "certain" in what follows, it is important to discuss the claim that "sûr" and "certain" were partial synonyms in the seventeenth century even as they are today. Pierre Richelet's Dictionnaire Français (1683) will confirm this claim. In the first instance Richelet defines "seur" (an early variant spelling of "sûr") as "certain" and

“certain” in the first instance as “assuré”, where “assured” is a derivative of “sure” [Richelet, P., 1994, entries “certain” and “seur”].

Pascal is unexceptional in his synonymous treatment of “sure” and “certain”. A good example of this synonymous treatment is L63 #154:

“Our life in the world must vary according to these different assumptions: ... if it is certain [*sûr*] we will not be here for long, and uncertain [*incertain*] whether we shall be here even one hour.”

We may begin an examination of the epistemologically significant senses of “certain” that Pascal uses with “certain” in sense (2), meaning “infallible”, “unfailing”, or “unmistakable”. Usage of “certain” in this sense exists in the *Pensées* but it is best exemplified by a passage in *On Geometrical Demonstration*. There Pascal writes that

“[T]he lack of definition [of the basic terms of geometry] is a sign of perfection rather than a fault, because it does not derive from their obscurity, but on the contrary from their extreme obviousness which is such that although they do not produce the conviction of demonstrations, have all of their certainty [*certitude*]” [TMW, pp. 428-430].

We may see from this example that “certain” in sense (2) is marked by a contrast with the possibility of a mistake and failure or a comparison to the impossibility of mistakes or failures. In Chapter Two, section 4 we saw that Pascal argues for the existence of primitive terms and axioms (i.e. (a) terms that are not themselves defined, but which are used to define other terms, and (b) principles that are not themselves proven, but which are used to prove other propositions) on the grounds that if there were no such primitive terms and axioms an infinite regress in terms and axioms would ensue. (e.g. If all terms required definition, then to define a term, A, one would need to use a term, B, but to define B one would need to use another term, C, and so on to infinity). In this passage Pascal considers an apparent deficiency of these undefined primitive terms,

namely that their lack of definition makes their meaning obscure. Pascal counters that their lack of definition derives from how extremely obvious these terms are, not from a lack of clarity. What is more, although the obviousness of such undefined primitive terms (e.g. angle and extension) may not make them as *persuasive* as the conclusions of geometric proofs (which have “the conviction of demonstrations”), Pascal says that these primitive geometric terms *are just as certain* as the conclusions of geometric proofs: in his words, primitive geometric terms “have all of their certainty”. Since the conclusions of geometric proofs are logically necessary consequences of their premises, the certainty to which Pascal refers when he says that primitive geometric terms are just as certain as the conclusions of geometric proofs must be the certainty of logical necessity. What kind of certainty does logical necessity enjoy? Since logically necessary truths, unlike contingent truths, are always true, the kind of certainty to which Pascal refers in this passage from On Geometrical Demonstration is certainty in sense (2), “certain” meaning “infallible”.

There are a few examples of certainty in the sense of infallibility (“certain” or “sûr” in sense (2)) in the Pensées. The best is near the end of L63 #44. Pascal writes,

“Our own interest is another wonderful instrument for blinding us agreeably. The fairest man in the world is not allowed to be judge in his own cause. I know of men who, to avoid danger of partiality in their own favour, have leaned over to the opposite extreme of injustice. The sure way [le moyen sûr] to lose a perfectly just case was to get close relatives to commend it to them.”

In this passage, Pascal explains how self-interest is so well-known as a cause of error that, for the sake of justice, some upright judges will deliberately incline *against* a case brought in their own favour to counteract the tendency of their self-interest to cause them to err. Pascal points out that some unscrupulous person could take advantage of

such an upright judge by having his close relatives tell the upright judge falsely that one side of a case (the side of the case the unscrupulous person secretly wants to *lose*) the upright judge is hearing is actually in his own favour. The upright judge will then incline against that side -- even though, as Pascal says, it is “perfectly just” – and thus the other side (which the unscrupulous person secretly wants to win) will win. Pascal calls this ruse the sure way [*le moyen sûr*] to manipulate such an upright judge, and we see that the sense of certainty “sure” refers to here is infallibility, that is “sûr” in sense (2). Of course, he cannot mean “sure” in the sense of indubitable, (sense (3)), because it is perfectly possible to doubt that this method of manipulation will work. Even if it be granted that this method is infallible, the high pressure involved in manipulating a judge (the penalty for which must be severe) may cause one to doubt that the ruse will come off. And Pascal clearly does not mean that this method of manipulation is sure in the sense of “safe, secure” (sense (1) of “sûr”), because Pascal does not mean that there is no danger in manipulating a judge by this method: There is a danger in undertaking any ruse –namely, that one will get caught. He means rather that this method of manipulation cannot help but work, in other words, that this method of manipulation cannot fail; i.e., that it is sure in the sense of infallible, “sûr” in sense (2).

What is interesting in this case is that Pascal does not mean infallible in the sense of it being *logically necessary* that this method not fail, but that, *as a matter of fact*, this method never fails. For obviously there is no conceptual absurdity in imagining the failure of the method Pascal describes (Suppose the upright judge or someone else finds the ruse out). So “infallible” is here meant in the sense of “unfailing”, not in the sense of “impossible to fail”. This gives us two senses of infallible (“impossible to fail” as we

saw in the case of the passage from On Geometrical Demonstration, and “unfailing” as we see here at L63 #44) and hence two sub-senses of “sûr” in sense (2).

The distinction between “impossible to fail” – which we may call “logical infallibility” – and “unfailing” – which we may call “empirical infallibility” will be important in this chapter for its application to universal statements, so we should say something about it now. An infallible statement is one that is never mistaken, so an infallible universal statement is one that is never mistaken (i.e. never false) about any of the entire class of objects to which it applies: thus, an infallible universal statement is a universal truth, for there is no case where an infallible universal statement is false, meaning that the universal statement is true in all cases to which it applies. Since there are two kinds of infallibility, viz., logical and empirical infallibility, there are two kinds of infallible universal statement or (which is to say the same thing) universal truth, namely, logical universal truths and empirical universal truths. It is a logical universal truth that “A is A”, because it is logically impossible that this statement be false. “All animals with hearts also have kidneys” is an empirical universal truth, because, although there is no logical impossibility in the existence of an animal with a heart but without kidneys, there simply happens to be no such animal. (Notice that both logical and empirical infallibility require that an infallible universal statement be universally true).

One might object to characterizing the type of certainty to which Pascal refers at L63 #44 as *unfailingly* true. An objector might point out that obviously Pascal does not mean that the ruse used to fool the upright judge will work in *absolutely all* cases *without exception*. To name only one possible exception, the ruse clearly cannot work if the judge suddenly *dies* before it can take effect. No matter how clever the ruse, one cannot fool a

dead judge. One might try to respond to this objection by arguing that in the case of the upright judge dying before the ruse has a chance to work, the ruse has not so much failed as it has been *frustrated*. --Surely no one would count it as evidence against the efficacy of this ruse that the one time it was tried its subject suddenly died. We might be inclined to say instead that the ruse had never been *properly tested* as opposed to saying that it had failed. But the objection would still be essentially correct: the ruse is not universally effective, that is, not effective in *absolutely all* cases, but effective only in *all cases within reasonable limits* or *under normal operating conditions*. In this instance adding the qualifiers “within reasonable limits” or “under normal operating conditions” to the universal statement would exclude cases where the judge upon whom the ruse is to be played is for whatever reason incapacitated or otherwise becomes ineligible as a mark for the ruse before the ruse can be completely executed. These qualifiers “within reasonable limits” or “under normal operating conditions” clearly exclude many cases at a stroke and it is not obvious what all the cases they exclude could be –an imaginative person could surely dream up an unprecedented case for these qualifiers to exclude. What is obvious is that these qualifiers will vary in their meaning according to the universal statement they qualify. Whatever their particular meaning in a given application, the function of these qualifier is to allow that a statement be considered universal even though its truth is restricted by the conditions set out by the qualifier; i.e., even though the statement is not universally true in absolutely all cases but only all in those cases to which the qualifier restricts the reference of the statement. (The importance of adding the qualifier “under normal operating conditions” to universal statements will become apparent later in this chapter at 3.4.2).

Returning to the analysis of “certainty”, a clear example of Pascal using “certain” in sense (3), “indubitable” or “doubtless”, appears in the Conversation with de Saci, where Pascal recounts in brief the scepticism of Montaigne. This account of Montaigne’s scepticism shows that “certain” in sense (3) is distinguished by being contrasted with doubt or being compared to knowledge. Pascal describes Montaigne’s scepticism as “pure Pyrrhonism” [pur Pyrrhonien], for Montaigne takes it as his duty to put “all things in a universal doubt [doute universel] ...destroy[ing] insensibly all that passes for the most certain [le plus certain] among men” [TMW, p.390]. We may know what Pascal means when he uses “certain” here by noticing what he opposes to it. If Montaigne destroys “all that passes for the most certain among men” by exposing it to “universal doubt”, then Pascal means that doubt here is opposed to certainty, as though whatever is doubted is not certain. But this opposition is only applicable if “certain” here means “indubitable” for only what is indubitable is threatened by the presence of doubt. Something that is certain in sense (2), “infallible”, is not threatened by the presence of doubt, but only by a counterexample.

The remaining uses of synonyms for “certainty” are instances where “sûr” and its cognates are used to mean “safe” or “secure”, i.e. “sûr” in sense (1). A clear example of “sûr” in sense (1), “safe” or “secure”, is L63 #44 which reads,

“Put the world’s greatest philosopher on a plank that is wider than need be: if there is a precipice below, although his reason may convince him that he is ~~sa~~ [de sa sûreté] his imagination will prevail. Many could not even stand the thought of it without going pale and breaking into a sweat.”

“Sûr” in sense (1) is distinguished by the elimination of some physical danger. There is no question here of “sure” meaning indubitable or infallible. The sense of “sure” that the greatest philosopher in the world (whose great wisdom presumably keeps from

being overwhelmed by his imagination) needs to believe applies to the plank on which he is standing is “sure” in the sense of safe and secure. The philosopher imagines he is in real physical danger for his life, and only physical safety will protect him from that danger – being indubitable or infallible will not.

With the meanings of “knowledge” and “certainty” now set out, we may use these meanings to interpret what Pascal says about knowledge and certainty at L63 #110.

3.3.3. The Senses of “Knowledge” and “Certainty” at L63 #110

In the section of L63 #110 quoted at the very beginning of this chapter, Pascal speaks of the heart’s *knowing* no less than 4 times: “We know the truth ... also through our heart”; “We know we are not dreaming”; “It is through [the heart] that we know first principles ...”; “[K]nowledge of first principles .. com[es] from the heart.” What does Pascal mean by “know” when he speaks of knowledge by the heart?

At L63 #110 Pascal means “know” in sense (2), the awareness of something as a truth or a fact or as a certainty. For Pascal says that “[w]e know the truth ... through our heart” and the only sense of “know” in which truth is an explicit part of the definition is sense (2). The reader will recall that “know” in sense (2) is marked by justification, typically in the form of an implicit or explicit argument, as we saw above at 3.3.1. Pascal recognizes that this is typically the case for “knowledge” in this sense for he writes that “[w]e know [savons] that we are not dreaming [however] unable we may be to prove it rationally [le prouver par raison].” “Know” in sense (2) is the awareness of the truth, in this case, the awareness of the truth that we are not dreaming. But “know” in sense (2) is also knowledge by justification, and, as Pascal admits, reason offers no proof, i.e. rational

justification, for our awareness of the truth that we are not dreaming. Pascal would not have felt the need to append the qualifier “however unable we may be to prove it rationally” in the first clause of this sentence had he not meant the “know” in “We know we are not dreaming ...” in the sense in which one would expect knowledge to be justified by reason. Pascal knows that “know” in sense (2) is identified by the use, implicit or explicit, of rational justification, and he is momentarily embarrassed at the lack of rational justification for the knowledge that he is claiming we have that we are not dreaming. L63 #110 says that the heart is aware of the truth of first principles (i.e. the heart knows the truth of first principles) without being able to justify them with arguments from reason (i.e. by induction and deduction). L63 #110 is thus a declaration of the legitimacy of knowledge by the heart despite this inability to produce arguments from reason: “[K]nowledge of first principles like space, time, motion, and number, is as solid as any derived from reason” and “[First p]rinciples are felt [by the heart], propositions [are] proved [by reason] and both with certainty though by different means.”

If the heart knows first principles in the sense of being aware of their truth, “know” in sense (2), in what sense does Pascal mean “certainty” when at the end of the section quoted from L63 #110 he says that the heart is aware of first principles and reason proves propositions “both with certainty [certitude] though by different means”?

The examples of what reason and the heart know at L63 #110 are the clearest indication that Pascal means “certainty” in the sense of infallibility, the noun form of “certain” in sense (2). In the sentence just before he says that reason and the heart achieve certainty “though by different means”, Pascal gives examples of what reason and the heart know. “The heart feels that there are three spatial dimensions and that there is an

infinite series of numbers, and reason goes on to demonstrate that there are no two square numbers one of which is double the other.”

The selection of a mathematical example for a proposition that reason knows is crucial, for a mathematical proposition (which Euclid proved) such as “there are no two square numbers one of which is double the other” is necessarily true [See Euclid, 1956, V.3, pp. 2-3]. That a proposition is necessarily true means that it is logically impossible to be false, which is to say that it is infallible, as we saw above (in the Analysis of “Certainty”, at 3.3.2). Since Pascal then says in the next sentence that the heart and reason achieve this certainty, and since this certainty, in the case of reason, is certainty in the sense of infallibility, (“certain” in sense (2)), the sense of certainty the heart achieves is therefore also infallibility, “certain” in sense (2).

We saw earlier (again, in the Analysis of “Certainty”, above) that Pascal uses two kinds of infallibility, logical and empirical infallibility. We are now in a position to use these two kinds of infallibility to introduce an important distinction. L63 #110 speaks of reason and the heart achieving certainty by two different means. The example that Pascal gives at L63 #110 of the certainty that reason achieves (viz., that there are no two square numbers one of which is double the other) is an example of a *logically* infallible truth, for it is deduced from principles of mathematics, and so it is logically impossible that it be false. Since deduction and induction are the operations of reason, the means reason uses to achieve certainty must also be induction and deduction, and the certainty that reason achieves is logical infallibility arrived at by deduction and induction. (Because of the problem of induction—see Chapter Two, section 5—induction is not held to be capable of achieving certainty. Feasibly denumerable finite cases where an otherwise essentially

inductive process may lead to certainty are sometimes called instances of complete enumeration). The examples that Pascal gives at L63 #110 of the certainty that the heart achieves (viz., “there is an infinite series of numbers ” and “space is three-dimensional”) are either an *empirically* infallible truth (We have seen that “space is three-dimensional”, though universally true, is not logically necessary) or are not derived by the operations of reason, deduction and induction (e.g. the first principles of mathematics, such as “the number series is infinite”, which cannot be deduced or induced). (It is indeed provable that the natural number series is infinite, but the proof is by *recursion*—i.e., repeatedly applying an operator, e.g. +1, to the result of an operation, e.g.

$1+1(=2)+1(=3)+1(=4)+1(=5)\dots$ etc. --, not by induction or deduction). We may therefore define the kind of certainty that reason achieves, called reason-certainty, as logical infallibility reached by means of either induction (here meaning complete enumeration) or deduction. Heart-certainty may be contra-defined as what is *not* reason-certain: that is, something is heart-certain if and only if (a) it does not achieve logical infallibility, but achieves the other kind of infallibility, viz., empirical infallibility instead; or (b) it achieves logical infallibility but not by means of induction or deduction. (A simpler definition of heart-certainty would be possible if all logical certainties were heart-certain, but some logical certainties, viz., the theorems of mathematics, achieve logical infallibility by deduction, i.e., by being deduced from the axioms of mathematics).

At L63 #110 Pascal says that “Principles are felt [by the heart], propositions [are] proved [by reason], and both with certainty though by different means”, meaning that knowledge by reason and knowledge by the heart both achieve certainty. Putting the

preceding analyses of “knowledge” and “certainty” at L63 #110 together and making the appropriate substitutions, we see more deeply that Pascal is saying is that the justified true belief (“knowledge” in sense (2)) of reason and the heart achieves infallibility (“certain” in sense (2)). Pascal is therefore explicitly subscribing to the infallibilist view of knowledge, which, as we have seen, he shared with his contemporaries Hobbes and Descartes. Since Pascal shares the same infallibilist view of knowledge as his contemporaries, he has to face the problem inherent in infallibilism that his contemporaries faced; namely, the problem of finding certainty in an infinite universe, which we saw earlier. Understood as either logical or empirical infallibility, Pascal shares the understanding of certainty as that which is always, or universally true, for both logical and empirical infallibility demand universal truth, as we have seen. It is the demand that knowledge be universal truth that makes knowing infinite things problematic, for, in default of finding some concept of the subject matter that generates logically necessary truths about it (i.e. deduction from the concept), one cannot otherwise survey the whole of infinity to substantiate universal statements made about it (i.e. make an induction from particular instances).

Since neither induction nor deduction can achieve universal truth in such cases, reason (whose operations are induction and deduction) cannot achieve certainty in such cases. It is knowledge by the heart that achieves certainty in these cases. To understand how knowledge by the heart does this we must begin by understanding what Pascal means by “heart”.

If one looks at the meaning of the word “coeur” in any contemporary dictionary, one will find a host of meanings for “the heart” --Furetière’s Dictionnaire Universel

(1690) gives over ten different meanings for it: e.g., the vital organ; the stomach; courage; the soul; the seat of understanding; the passions; love; the core of something; etc. [Furetière, A., 1690, entry “coeur”. See also Hazelton, R., 1974, pp. 99]. Indeed, Pascal uses “heart” (“coeur” in French) in these conventional senses himself sometimes, as we can see from the 121 times in the Pensées that Pascal uses “coeur”. In the Pensées “coeur” is used in the following senses:

- (1) “the primary organ of the circulatory system of animals”. It appears in this sense 1 time of 121 total use.
- (2) “the seat of the emotions” or “emotions” or some particular emotion (e.g. love). It appears in this sense 44 of 121 total uses.
- (3) “the vital or essential part of a thing”. It appears in this sense in 36 of 121 total uses.
- (4) “the repository of various moral qualities” (e.g. courage, compassion, determination, etc.). It appears in this sense in 18 of 121 total uses.
- (5) “the core or middle of something”. It appears in this sense in 2 of 121 total uses.

There is little connection apparent between these conventional senses of “heart” and the heart of L63 #110. That the use of “heart” at L63 #110 does not fit into any of the 5 senses of “heart” listed above means that here Pascal is using the terms “heart” and “knowledge by the heart” in an idiosyncratic way. Scholars have convincingly suggested that Pascal’s “coeur”, though it bears some slight connection to the conventional meaning (in the senses of the passions, the seat of understanding, and the vital organ) is in fact a technical term peculiar to him: “In Pascal’s hands [the] word [“heart”] takes on a resonance that is quite unique” [Hazelton, R., 1974, p.99]. (Jan Miel and John Cruickshank, too, implicitly recognize the technical use of the term “heart” peculiar to Pascal) [Miel, J., 1969, pp.157-158 and Cruickshank, J., 1983, p. 42-43]. This advances us as far as to be able to say what Pascal’s “heart” is not, and that, whatever it is, it is technical term peculiar to him, but it does not yet tell us what “heart” is.

I follow the scholar Jean Laporte in saying that Pascal's "heart" is the faculty that knows the infinite. As Laporte writes.

"L'infini est [la] pierre d'achoppement à laquelle, par toutes les voies, notre raison se heurte.... [C]elle qui surpasse la raison ... c'est l'infinité... Pascal ... rapporte [cette connaissance de l'infini] au coeur" [Laporte, J., 1950, p.47 and p.49]⁹.

Ernest Mortimer concurs with Laporte: "Something in us [can] reach that realm [of infinite truths the unaided reason cannot know] ... [Pascal] called that something le coeur" [Mortimer, E., 1959, pp. 207-208].

Although Laporte does not make the following argument himself, it is easy to construct an argument why he might analyze the heart as the faculty that knows the infinite. Pascal's epistemology only has the two faculties, and the limitations of reason clearly imply that it could not know the infinite [Carraud, V., 1992, p. 248]. For generally speaking, in order to work, deduction and induction depend on the finitude of their subject matter. Deduction works by analyzing concepts; but if a concept is infinite, one cannot know the whole concept that one is supposed to analyze, thus making any deductions from it impossible from the start. (Mathematicians get around the problem of proving truths about infinite number series – e.g. that there are infinitely many even natural numbers – by using *recursive*, not deductive proofs). Induction works by generalization on the basis of finite samples. But if the sample is infinite one will never be able to generalize over the whole sample, and so one cannot induce to a universal truth about an infinite thing. Pascal understands that reason is limited to finite subject matter

⁹ "The infinite is the stumbling block over which, in all avenues, our reason trips. What surpasses reason is infinity. Pascal commends the knowledge of the infinite to the heart" (my translation).

I am indebted to Laporte for this analysis of the heart [Laporte, J., 1950, p. 127ff et passim].

only when he writes “Reason’s last step is to recognize that there is an infinity of things which are beyond it” [L63 #188]. Antoine Arnauld, Pascal’s Port-Royal colleague, expresses a similar view that the finite human mind cannot understand the infinite:

“Because the mind is finite, it gets lost in and is dazzled by infinity, and remains overwhelmed by the multitude of contrary thoughts that infinity furnishes it.”
[Arnauld, A., 1996, Bk. IV, Ch. 1, p.230]

Laporte’s analysis of “heart” explains why at L63 #110 Pascal says that reason and the heart use *different*, instead of the *same* means to achieve certainty. Reason and the heart achieve certainty by different means because the means reason uses (induction and deduction) cannot operate in cases where the subject matter is infinite. The heart exists precisely to do what reason cannot.

If all infinity were incomprehensible, some perfectly legitimate mathematics (e.g. the mathematics of infinite magnitudes in geometry) would be impossible, so it is important that we be clear about what infinity means. Infinity comes in different kinds, and not all kinds of infinity are impossible for the finite human mind to comprehend. Generally, infinity means limitlessness or surpassing all limits. Classic examples of infinity include infinite extension in space, infinite temporal endurance, and infinity in all positive attributes in God, but the natural number series (1,2,3,4,5, etc.) is the classic example that lends itself best to the distinctions we need to make here. The natural number series may be generated by starting with 1 and recursively adding 1 to its successive sums, $1+1(=2)+1(=3)+1(=4)+1(=5)\dots$ etc. Obviously the natural number series will eventually exceed any numerical limit one lays down, and this property of surpassing any limit is what makes the natural number series infinite. It has been common throughout the history of mathematics to claim that because numbers are

mathematical entities they do not depend on the human mind for their existence –like the rest of mathematics, numbers have an independent existence regulated only by demands of logical necessity. If this claim is correct, then the natural number series is not so much *generated* as it is *discovered* by the human mind. –According to the mathematical Platonist (who makes just this claim), the natural number series *in its entirety* pre-exists the human mind, and the process of recursively adding 1 to successive sums is merely one means by which, little by little, this infinite series is revealed to the human mind.

Described in this way, the idea of an infinite thing existing in its entirety may seem plausible, but there is a problem that this type of infinity wears on its sleeve, viz., that infinity, which we defined as surpassing all limits, could be something entire. For surely surpassing all limits means never existing entirely, but always exceeding whatever measure of entirety one sets. Aristotle recognized the problem inherent in the definition of infinity, and proposed that only *actual* infinity suffered from the problem of being both all-surpassing and complete. Aristotle maintained that so long as one confined oneself to speaking of *potential* infinity, i.e. of infinity as forever proceeding towards, but never achieving completion, infinity was unproblematic (See Physics III, 5-7) [204a8-208a4 and Moore, A.W., 1993, pp. 34-40]. Certainly mathematicians had no reason to worry about the problematical actual infinite interfering in their work: Aristotle said that they had no need to suppose the existence of an actual infinite, but could do their work using the idea of increasing magnitudes *indefinitely* (or as much as one wishes) instead of *infinitely* [207b27ff]. Through the work of Thomas Aquinas, Aristotle's distinction between actual and potential infinity came to dominate philosophical discussion of the concept of infinity through the late Middle Ages and into Early Modernity [Moore, A.W.,

1993, p. 48-56]. Thus when we hear Arnauld complain of the “dazzling contrary thoughts” inherent in infinity he likely means the dazzling contrary thoughts inherent in the *actual* infinite –the *potentially* infinite was known to be not similarly prone. The finite human mind would not need help handling the potentially, only the actually infinite. Some infinite concepts are inherently actual infinities, i.e. by nature both complete and limitless; e.g. God (who is both perfect and limitless), the whole of infinite space, the whole of eternity, and the set of all numbers. Such concepts are intrinsically incomprehensible.

At this point it will be useful to digress briefly to distinguish also between quantitative and qualitative infinity. Quantitative infinity is defined as limitless extension or magnitude in something to which a number (i.e. a quantitative value) may be applied. Space is a classic example of something that is quantitatively infinite. Qualitative infinity is defined as a limitless supply of some quality. Infinite goodness or infinite mercy would be classic examples of qualitative infinity. God is both quantitatively and qualitatively infinite, since he is both infinitely enduring, omnipresent in space, and infinite in mercy (as Pascal himself recognizes at L63 #449: “[T]he God of the Christians ... is a God [of] infinite mercy”).

Returning to how Pascal’s epistemology works, let us grant Laporte’s analysis of the heart as the faculty that knows the infinite. What has knowing the infinite got to do with how the heart achieves infallibility?

It is simply this: According to Pascal and his infallibilist contemporaries, to have knowledge one needs certainty. According to our analysis of Pascal’s use of “certainty”, to have certainty, one needs infallibility. According to the conceptual analysis of

infallibility as applied to universal statements that we saw above (in the Analysis of “Knowledge” at 3.3.1), to have infallibility in universal statements (such as “all space is three-dimensional”) one needs universal truth (logical or empirical universal truth). To have universal truth in cases of infinite subject matter one needs some way of knowing the infinite, viz., the heart.

We can see that knowing the infinite has something to do with knowing a proposition like “Space is three-dimensional”. Space is infinite, so if we want to know that space is three-dimensional, we have somehow to traverse the whole of infinite space checking its dimensionality to justify a conclusion that it is entirely three-dimensional. The remaining question is *how exactly* does the heart do this?

We saw in Chapter Two, section 6 that Pascal divides knowledge by the heart into five categories: mathematical, physical, pseudo-inductive, self-conscious, and religious knowledge by the heart. In four of the five categories of knowledge by the heart, the subject the heart is said to know is obviously an infinite thing (number, space, time, and God) (The fifth subject the heart is said to know, the self, is also related to an infinite thing, but this will be explained later). Pascal does not explicitly say how exactly the heart achieves certainty despite the infinity involved in each of the five categories of knowledge by the heart, but we may reasonably infer what his answer might have been based on key texts. Since knowledge by the heart has only these five categories, we may know how the heart achieves certainty by examining how it does so in each of its five categories.

Pascal’s epistemology emerges in the process of examining how the heart achieves certainty, i.e. infallibility, i.e. universal truth in each of these five categories.

3.4 *How Knowledge by the Heart Achieves Certainty*

3.4.1. How Mathematical Knowledge by the Heart Achieves Certainty

Of course the infinite thing that the heart knows in the mathematical knowledge by the heart is the content of the axioms of mathematics. The example that Pascal gives at L63 #110 of a “principle” (what we would call an axiom) of mathematics that the heart knows is “there is an infinite series of numbers”. For every number, that is, there is another number that is greater: for the number 2 there is another number which is greater, namely 3, and for 3 there is another number which is greater, namely 4, and so on. What this principle does in effect is encapsulate an infinite class in a finite truth, viz., that for any number x , there is always another number y , such that $y > x$. Instead of having a separate axiom about the existence of a successor for each number individually, the heart grasps that this is true for the set of all numbers, states it in a single axiom, and by so doing, knows the quantitatively infinite content of this mathematical axiom.

This specifies what infinite thing the heart must know in order to achieve certainty, but it does not yet say how the heart achieves this certainty. In On Geometrical Demonstration, Pascal writes that “Geometry [is] the art of finding unknown truths [by way of what] is called analysis [analyse]”, adding that what he means by “analysis” has been so well discussed in “all the excellent books that have been written about it” that it is useless to discuss it further [TMW, p.421]. In the seventeenth century, the French word for “geometry” was a metonym for mathematics as a whole (“géométrie”) [Dictionnaire Historique de la Langue Française, V.2, 1992, entry “géométrie”]. As we saw in Chapter Two, section 3, in the seventeenth century, “analysis” was understood

very much as we understand it still, viz., the process of deducing particular facts from general principles and definitions according to logical rules. Particular facts are said to be contained in the general principles from which they are deduced: as Antoine Arnauld says, “[P]remises must contain the conclusion [derived from them]” [Arnauld, A., 1996, Bk. IV, Ch. 10, p.164]. The meaning of “geometry is the art of analysis”, then, is equivalent to “mathematics is the art [--We would say “technique” --] of logically deducing from principles whatever is contained in them”. Thus, for Pascal, statements of mathematics are *analytically* true. The task of describing how mathematical knowledge by the heart achieves certainty thus reduces to the task of connecting analytical truths with certainty. This task is not difficult, for no analytical truth (e.g. “A triangle has three sides”) can be denied without thereby stating a contradiction in terms. If the only way to deny the truth of mathematical knowledge by the heart is to assert a contradiction, then the nature of mathematical truth must be logically necessary truth, for only the denial of logically necessary truths produces contradictions. In the seventeenth century, it was still normal to assume that analytical truth and logically necessary truth are the same thing. Thus, for example, Antoine Arnauld, could define logic, the science of truth, in terms of the *analysis* of ideas: “Logic must examine how words are joined to ideas and ideas to words” [Arnauld, A., 1996, Introduction to Bk. I, p.24]. Since in Pascal’s time all analytical truths are logically necessary truths, and since all logically necessary truths are metaphysically certain, all mathematical knowledge by the heart is metaphysically certain. But because axioms are the *undemonstrated* truths of mathematics, they cannot enjoy reason-certainty, because (a) they cannot be justified by deduction from other propositions (in the uncontroversial sense of trying to demonstrate them would lead to an

infinite regress); and (b) they cannot be arrived at by induction, because their content is quantitatively infinite (e.g. the set of all numbers) and enough experience of the infinite cannot be accumulated to achieve the universal truth that is a condition of certainty. Since the axioms of mathematics are certain (in the sense of being logically infallible) without being arrived at by either induction or deduction, they must instead be heart-certain, according to the definition of heart-certainty given above at 3.3.3.

Exactly how does the heart know these analytical truths that comprise the axioms of mathematics? Does Pascal mean mathematical knowledge by the heart to be known as self-evident truth, or merely as a set of logical primitives arbitrarily drawn up by convention (as Imre Lakatos suggests) [Lakatos, I., 1994, p.122n3]?

There is something to be said for interpreting Pascal as advocating the view of mathematical truths as arbitrary but logically primitive truths. In On Geometrical Demonstration, after all, Pascal allows for nominal definitions to be made in a purely arbitrary way: “[F]or nothing is freer than definition”, as he says [TMW, p.427]. Unfortunately, there is an anachronism in attributing this conventionalist view of mathematics to Pascal: Had they been asked their views of the axioms, “mathematicians of the sixteenth and seventeenth centuries would have maintained that their procedures were based on an intuitive understanding of the notions with which they dealt”, not a set of arbitrary conventions [Kneale, W., and Kneale, M., 1984, p.309]. And there is the more serious objection that Pascal himself conceived of mathematical statements as self-evident truths, not mere conventions. Pascal constantly insists that axioms be *self-evident*, that is, that simply by perceiving them one knows the axioms to be true. Thus in the Art of Persuasion we find him exhorting those who want to be persuasive to “[a]sk only that

perfectly self-evident [évidentes d'elles-mêmes] things be granted as axioms [axiomes]" and to prove "propositions" "using for their proof only [axioms] that are very self-evident [très évidents d'eux-mêmes]" [TMW, 405-406]. And in the Pensées Pascal writes that, "[To the mathematical mind,] principles are obvious [palpables]" [L63 #512].

3.4.2. How Physical Knowledge by the Heart Achieves Certainty

In this chapter we have already met an example of physical knowledge by the heart at L63 #110, namely that the knowledge that space is three-dimensional. L63 #110 lists other examples of knowledge by the heart – e.g., that time passes and that objects move—but rather than consider each example of physical knowledge by the heart individually, let us take the knowledge that space is three-dimensional as representative of the whole category.

We recall that above at 3.2 we saw that it is not by induction, i.e., accumulated sensory experience, that the heart knows that space is three-dimensional. Indeed, we saw that because of the infinity of space such knowledge *cannot* be acquired by induction. Also, the three-dimensionality of space is not logically necessary, and so cannot be acquired by deduction either. An analysis of the concept of space will not yield "three-dimensional". Space might just as easily be two-dimensional (as it is on an Euclidean plane) as three-dimensional, so there is no contradiction implicit in denying the three-dimensionality of space. Since no contradiction is entailed by its denial, there can be no logical necessity to spatial three-dimensionality, for the denial of a logically necessary truth is a contradiction. If neither induction nor deduction can produce knowledge of the three-dimensionality of space, to what other way of knowing spatial three-dimensionality

could Pascal be referring at L63 #110 when he says that the heart knows that space has three dimensions?

For an infallibilist like Pascal, achieving knowledge means first achieving certainty. The key to unlocking how Pascal thinks certainty of spatial three-dimensionality is achieved is to look at L63 #110 again, for there Pascal writes,

“We know the truth not only through our reason but also through our heart...
 The heart *feels* [sent] that *there are three spatial dimensions and that there is an infinite series of numbers* and reason goes on to demonstrate that there are no two square numbers one of which is double the other. Principles are *felt* [se sentent], propositions proved and both with certainty though by different means.” [Italics mine]

Of note here is the pairing and contrast that Pascal makes between the several examples of knowledge he gives in this passage. On the one hand, Pascal has the principles that are felt (by the heart); on the other hand, he has the propositions that are proved by reason. This is just the distinction between knowledge by reason and knowledge by the heart that we have seen all throughout the discussion of Pascal's epistemology. What is significant is that when Pascal wants to name examples of knowledge by the heart here, he puts both the knowledge that space is three-dimensional and the knowledge that the number series is infinite *in the same clause*. By bracketing both “Space is three-dimensional” and “The number series is infinite” Pascal is saying that the way the one achieves certainty in the first case is just the same as the way one achieves certainty in the second case. Now we have seen above (at 3.4.1) that the way the heart achieves certainty in cases of mathematical knowledge by the heart (such as “The number series is infinite”) is by the *self-evidence* of those cases. If the bracketing of “Space is three-dimensional” and “The number series is infinite” means that certainty about one is achieved in the same way it is achieved in the other, and if one achieves

certainty by self-evidence, then the other, too, must achieve certainty through self-evidence.

For Pascal, self-evidence is a legitimate means for the heart to achieve certainty in the case of physical knowledge, because, as we saw in considering mathematical knowledge by the heart, it is by self-evidence that we know the axioms of geometry and mathematical first principles generally. If self-evidence were disallowed as a means to know things as they are, we could not know the truths of mathematics or logic, which we manifestly do know. Since self-evidence is a sufficiently certain basis upon which to found mathematics, and since (as we saw earlier in the case of Galileo and the New Physicists) mathematics is an ideal basis for the physical sciences (--indeed, for knowledge generally), self-evidence should also be a sufficiently certain basis for physical science (one of whose basic certainties is “Space is three-dimensional”, here taken as representative of all physical knowledge).

A problem arises, however. Unlike mathematical knowledge by the heart (which is known by intuition), if “Space is three-dimensional” is self-evident, it is self-evident *to the senses*. (Because of the association of the term “self-evident” with mathematical axioms, normally it would be more appropriate to speak of being *evident* to the senses rather than being *self*-evident to the senses. But precisely because Pascal wants to give sensory knowledge foundations akin to mathematical axioms in their certainty, I will use the more mathematically appropriate “self-evident” in the case of sensory knowledge as well). Consider the following. In Provincial Letter #18 Pascal expounds a theory of how truth is known as a means of defending the Jansenists against the false allegations of Pope Alexander VII in the 1657 bull of condemnation (See 3.3.1 above). According to

Provincial Letter #18, if we want to know by what means the proposition “Space is three-dimensional” is known, we have to decide under whose jurisdiction “Space is three-dimensional” falls, faith, reason, or the senses.

“In what way then, are we to learn the truth of facts? It must be by the eyes, [which] are the legitimate judges of such matters, as reason is the judge of things natural and intelligible and faith of things supernatural and revealed ... [T]hese three principles of our knowledge, the senses [les sens], reason, and faith, have each their separate objects and their own degrees of certainty [certitude]... [W]hatever the proposition may be submitted to our examination, we must first determine its nature to ascertain to which of these three principles it ought to be referred ... [I]f it embrace a point of fact, we must believe the senses...” [TMW, p.163]

Since “Space is three-dimensional” concerns the natural and not the supernatural world, it is not a proposition known by faith. Since (as we saw at the beginning of this section, and at 3.2) the operations of reason (induction and deduction) cannot be used to prove that “Space is three-dimensional”, it is not by reason that “Space is three-dimensional” is known. This leaves only the senses to know the truth of “Space is three-dimensional”. Pascal does not say by which of the five senses (sight, hearing, touch, etc.) the heart knows a given truth, but the context of particular instances of knowledge often makes it clear which of the five he means. Thus, for example, in the case of the knowledge that space is three-dimensional, we may assume that the relevant senses from which this knowledge derives are sight and touch and perhaps, by echo-location, sound, but obviously not by smell or taste.

We need not rely on an analysis of L63 #110 alone as evidence that Pascal could have taken self-evidence to the senses as the heart’s means to achieve certainty in the case of the knowledge that space is three-dimensional. Pascal also expresses his idea that the senses can achieve certainty through self-evidence in a letter placed towards the end

of one of Pascal's scientific works, the New Experiments Concerning the Vacuum. In this letter, Pascal tries to answer Father Noël's opposition to his scientific work on the vacuum. To ensure a fair hearing by his opponent, Pascal opens the letter by laying down some ground rules. Pascal writes:

"The rule is never to make a decisive judgement, affirming or denying a proposition, unless what one affirms or denies satisfies one of the two following conditions: either that of itself it appear so clearly and so distinctly [si clairement et si distinctement] to the senses or to reason [aux sens ou à la raison] according as its subject is one or the other, that the mind cannot doubt its certainty [certitude], and this is what we call a *principle* or *axiom*, as, for example, *if equals be added to equals, the results are equal*; or that it be deduced as an infallible and necessary consequence from which such principles and axioms, upon whose certainty entirely depends that of the consequences correctly drawn from them, ... which not being self-evident [visible] is evidently [évidemment] demonstrated as an infallible consequence of such axioms. Everything satisfying one of these two conditions is certain and true [certain et véritable], and everything satisfying neither is considered doubtful and uncertain." [TMW, pp.365-366]

Before we can see how this passage serves to corroborate L63 #110, it is necessary to clarify Pascal's words "clearly and distinctly". This phrase, "clearly and distinctly", betrays an obvious Cartesian influence, and one might think that by it Pascal means that the criterion of certainty is psychological, viz., a state of mind in which one cannot deny what one clearly and distinctly perceives. But the context makes it clear that what Pascal means is that if, *unlike the axioms and principles of the senses and reason*, a proposition is *not* self-evident, then it must be deduced from self-evident axioms in order to achieve certainty. If Pascal distinguishes propositions satisfying the second condition from those satisfying the first by saying that propositions satisfying the second condition *are not* self-evident, then the implication is that those that satisfy the first condition *are* self-evident. That is, the axioms and principles of the senses and reason (such as "if equals be added to equals the results are equal") appear to the mind clearly and distinctly because *they are self-evident*, for that is what defines these axioms (as opposed to the

propositions derived from them). Since Pascal says that it is clear and distinct appearance to the mind of these judgements that makes them certain, and since their clear and distinct appearance to the mind is due to their self-evidence, we may infer that, for Pascal, it is the self-evidence of these judgements that makes them certain. That is, all that a judgement needs to do to satisfy the first condition is be self-evident.

With this clarification made, what is interesting about this passage for our purpose is the power Pascal ascribes to the senses to achieve certainty through self-evidence. According to this passage, all a judgement requires to be certain is that “it appear so clearly and so distinctly” that “the mind cannot doubt its certainty”, that is, that it be self-evident. It does not matter whether the judgement in question is a principle of mathematics (like “if equals be added to equals the results are equal” which is Euclid’s Common Notion #1) or a statement pertaining to sensory experience (“aux sens ou à la raison”) [Euclid, 1956, V.1, p. 155]. Provided the judgement satisfy the condition of self-evidence (or be deduced from a proposition that satisfies the condition of self-evidence), Pascal considers it “certain and true”. Pascal’s letter at the end of the New Experiments Concerning the Vacuum clears the way for him to take “Space is three-dimensional” as a proposition that is certain by virtue of its self-evidence to the senses.

But how can the senses decide the truth of “Space is three-dimensional”? --Isn’t space infinite? Aren’t the senses limited? Pascal’s idea is that, provided that the senses operate under normal conditions, the senses can judge the dimensional nature of space despite its infinity and despite their limitations in a single self-evident flash. *Immediate*, not *accumulated*, sensory experience of space, makes this universal truth evident to the heart. Pascal’s appeal to the sensory self-evidence of spatial three-dimensionality

therefore resembles G.E. Moore famous appeal to the self-evident existence of his hand – both involve immediate knowledge of a certain, but non-necessary truth [Moore, G.E., 1959, p.146]. (The one difference between Pascal and Moore is that in this case Pascal’s knowledge is of a universal truth (“Space is three-dimensional”) while Moore’s is of a particular truth (“This is a hand”). By being both universal and non-necessary, knowledge by sensory self-evidence thus neatly satisfies the demand that knowledge by the heart be certain (i.e. universal) on the one hand, and distinct from knowledge by reason (induction and deduction) on the other hand. Indeed, the universality of the statement “Space is three-dimensional”, its contingency, and its intended self-evidence suggest that Pascal means it to stand as an *axiom* or *first principle of physical knowledge*, something akin to the first principles of mathematics.

Taking some time now to consider problems that arise in connection with self-evidence to the senses will be useful in the following sections (viz., 3.4.3 and 3.4.4) where self-evidence to the senses recurs.

A serious philosophical concern with attributing to Pascal a theory of self-evidence to the senses arises when one recalls the well-known fact that the senses can deceive. This deception would seem to preclude the heart’s knowledge that space is three-dimensional as certain. –Maybe the senses mislead the heart into thinking that space is three-dimensional when it is in fact two or four-dimensional. As we saw above (in defining reason-and heart-certainty at 3.3.3), certainty requires not just truth, but more precisely, *universal* truth. If the senses mislead, that is, do not reveal universal truth, how can they be certain when applied to the statement “Space is three-dimensional”? –Could the senses not be in danger of facing an exception?

It is here that considerations of the qualifier “under normal operating conditions” in the Analysis of Certainty (at 3.3.2) become useful. At 3.3.2 we saw that the function of the qualifier “under normal operating conditions” is to allow that a statement such as “Space is three-dimensional” be considered universally true even though it is not true in absolutely all cases, but only in all those cases to which the qualifier restricts the reference of the statement. So if we say that, *under normal operating conditions*, the senses perceive that “Space is three-dimensional”, then the fact that under *abnormal conditions* the senses fail to perceive “Space is three-dimensional”, is no longer a threat to the universality with which the senses must perceive the three-dimensionality of space if the heart is to know “Space is three-dimensional” with certainty. All that would be needed is to give some reason why Pascal would think that the senses misperceive the three-dimensionality of space only under abnormal conditions. That reason supplied, he could apply the qualifier “under normal operating conditions only” to the sensory perceptions of the three-dimensionality of space and claim without danger of an exception that the senses could know that space is three-dimensional with certainty.

Pascal could have rightfully presumed that any perception of dimensions higher than three occurs only under abnormal conditions because the prevailing scientific opinion in Pascal’s day was that it was physically impossible that that space have more than three dimensions. Since ancient times it had been accepted that space only has three dimensions (See, for example, Aristotle’s On the Heavens [268a8-12]), but in the second century A.D. Claudius Ptolemy went further and argued that dimensions greater than three were physically impossible. Ptolemy argued that since the maximum number of perpendicular lines that can be physically constructed from any given point is three (as in

the case of the corner of a box), and since space is made up of points, the maximum number of dimensions that can be physically constructed in space must also be three. Therefore spatial dimensions greater than three were physically impossible [Kaku, M., 1994, p.34]. Indeed, Ptolemy's argument set received scientific opinion about the maximum number of physically possible spatial dimensions until the twentieth century when relativistic physics made it convenient to speak of higher dimensions [Pogoda, Z., and Sokolowski, L.M., 1997, pp.860-861]. But even still, there is to this day "a complete absence of relevant experimental data" to support the existence of spatial dimensions higher than three [Pogoda, Z., and Sokolowski, L.M., 1997, p.861]. Working in the seventeenth century, Pascal had no reason to question that the maximum number of physically possible spatial dimensions was three, --that was the prevailing opinion and certainly there was no evidence to the contrary. Presumably, to Pascal's mind, the perception of spatial dimensions higher than three would therefore have meant one of two things: first, (and more probably), that the perception of dimensions greater than three is an hallucination; or second, that the received scientific opinion is somehow wrong. The principle of charity would have Pascal assume that the perception of higher dimensions is not an hallucination. This leaves only assuming that the received scientific opinion is somehow wrong. (Certainly, Pascal was willing to challenge received scientific opinion, as when he rejected the opinion prevalent in his day that nature abhors a vacuum) [Krailsheimer, A., 1980, pp. 20-21]. This assumption, however, would have entailed that the perception of higher dimensions had occurred under abnormal operating conditions. For rejecting received scientific opinion in this case would have meant rejecting Ptolemy's argument, which would in turn mean denying that either perpendicular lines

are drawn 90 degree angles, or that space is made up of points, or that simple logic (upon which Ptolemy's argument is based) works. In order to deny any of these elements of Ptolemy's argument, the operating conditions of the world as we (and Pascal) know and understand it would have to be considerably different than normal, which is to say, they would have had to be *abnormal* operating conditions. Thus the only way one could correctly perceive dimensions greater than three would be to do so under abnormal operating conditions.

Did Pascal think that the senses only deceive under abnormal operating conditions, and that otherwise the senses were certain guides to the truth? There are historical reasons for questioning the plausibility of Pascal's trust in the senses: Seventeenth century philosophy was marked by general doubt in the senses. (Ian Hacking calls the seventeenth century the "heyday of ideas", because "ideas" --mental copies of perceived objects--were invoked to intervene between the object perceived and the perceiving ego [Hacking, I., 1988, p.29]. These ideas were meant to bridge the discrepancy that was supposed to exist naturally between the ego's perceptions --which in themselves are true--and the perceived object). The most prominent seventeenth century proponent of this general doubt in the senses was Descartes, whose scepticism in the first two Meditations made him especially sensitive to the possibility of error (e.g. the case where a square tower looks round when it is seen in the distance) being used to undermine all knowledge [Meditation VI, AT VII, 76]. We know from LeGuern that Pascal read Descartes' account of sensory perceptions being deceitful, so it would not be surprising if Pascal were influenced by this account [LeGuern, M., 1971, p.85].

But, remarkably, unlike Descartes and many of his contemporaries, Pascal did not conclude from those cases where the senses are deceived that the senses should not be trusted in general. Consider this passage from L63 #199:

“Our senses can perceive nothing extreme; too much noise deafens us, too much light dazzles; when we are too far or too close we cannot see properly ... We feel neither extreme heat nor extreme cold ... In a word, extremes are as if they did not exist for us nor we for them; they escape us or we them. Such is our true state.”

Pascal agrees with Descartes that the senses can be deceived (as when we incorrectly see a square tower as round when it is too far away). But this deception is not because the senses are basically unreliable (as Descartes thinks), but because the senses are being considered in extreme cases only, and in extreme cases the senses do mislead. The passage above from L63 #199 leaves us to understand that *when not considered in extreme cases*, the senses are not unreliable at all. A little further on, Pascal affirms that the normal conditions for human experience are not extreme (“[T]he middle station allotted to us is always far from the extremes”), and so, if according to Pascal it is only in extreme cases that the senses mislead, then under normal operating conditions, Pascal may conclude that the senses do not mislead [L63 #199]. Pascal’s epistemology of the heart is thus a kind of *direct realism* inasmuch as Pascal subscribes to the view that operating under normal conditions, the senses (as an instrument of the heart) perceive that X only if X is true¹⁰. Recalling the self-evidence of the axioms in mathematical

¹⁰ Pascal is possibly not the first to espouse direct realism in the history of epistemology. Aristotle may have done so also. For example in *Physics* II, 1 Aristotle writes “*That the world exists it is absurd to prove, for it is obvious...*” [193a3-4]. Whatever precedence Pascal’s direct realism may have had, Pascal was not the *last* to espouse direct realism. In the eighteenth century we find Thomas Reid (e.g.) writing in his *Essay on the Intellectual Powers*, “[M]y senses give me as immediate conviction of what they testify, as my understanding gives of what us commonly called an axiom”, See Beanblossom, R. E., and Lehrer, K., (eds.), 1983, *Essay 2, Part 20*, p.203].

knowledge by the heart (above at the end of 3.4.1), we notice that this direct realism about physical knowledge is simply self-evidence as applied to sensory experience. In both cases, mere perception of X (whether by physical senses, or, in the case of mathematics, the intuition, or “mind’s eye”) is enough to know that X is true.

Pascal could have used several arguments to respond to the general doubt his seventeenth century contemporaries had of the senses. The best argument against the general doubt of the senses is that, if the senses cannot be trusted, there would be no way to determine that the senses cannot be trusted. We can understand this if we take the example of the square tower that looks round in the distance and ask, “How can we be certain that our senses (in this case, sight), have deceived us?” The natural answer is to say that we know the senses have made a mistake in the case of seeing the square tower as round by observing it up close. The trouble with this answer is that it assumes the reliability of sight in one instance (observing the tower up close) to prove the *unreliability* of sight in another instance (the initial observation of the tower in the distance). One sensory experience is being used to test another, that is to say, and this is problematic because either: (1) sensory experiences are unreliable, in which case sensory experience surely cannot be used to test other sensory experiences; or (2) sensory experiences are reliable, in which case one cannot also say that sensory experiences are unreliable. This problem might be characterized broadly as trying to prove that some proposition, X, is uncertain by using in the proof a proposition, Y, that is as uncertain as X is supposed to be. One should rather try to prove that X is uncertain using only propositions in the proof that are all more certain than X. Pascal nowhere explicitly gives this reply to this general doubt in sensory perception, but in the Art of Persuasion he shows that, had he wanted to

criticize the seventeenth century attack on sensory perceptions, he could have availed himself of just this line of argument:

“Rules for Demonstrations, --1. Never to endeavour to demonstrate anything that is so self-evident that we have nothing clearer by which to prove [prouver] it.”
[TMW, p.443]

The word “prove” is significant here, for, as the Dictionnaire Historique de la Langue Française tells us, the ancient meaning of “prouver” in French is “to test” [Dictionnaire Historique de la Langue Française, 1992, V.2, entry “prouver”]. Thus Pascal’s first rule for demonstrations means that we should never test anything that is so self-evident that we have nothing more self-evident to test it with. Applied to sensory perceptions, Pascal’s rule for demonstrations means that we should not try to test a sensory perception with a sensory perception (in the manner of the Cartesian critique of sensory perceptions), because one sensory perception is no more self-evident than another.

A textual problem that arises from “Space is three-dimensional” being self-evident to the senses is this: How can there be one means (viz., self-evidence) by which Pascal intends both mathematical and physical knowledge by the heart to know that that the number series is infinite and that space is three-dimensional, when physical knowledge is known through the senses and mathematical knowledge is known through intuition? Said another way, how can Pascal think that the heart can know “Space is three-dimensional” and “The number series is infinite” *in the same way* when one involves sensory experience and the other does not?

The answer has to do with the meanings of the words “sentiment”, “sentir”, and their cognates in seventeenth century French. In seventeenth century French both intuition (such as the heart has of mathematical principles) and sensation (as of physical

objects) were covered by the same word, “sentiment”, or feeling, and “sentir”, to feel, and their cognates [*Dictionnaire Historique de la Langue Française*, 1992, V.2, entry “sentir”]. Antoine Furetière’s *Dictionnaire Universel* (1690) defines “sentiment” in the first instance as “la première propriété de l’animal d’avoir des organes à recevoir les différents impressions des objets” and as an example Furetière gives the sentence “Le sentiment de la veüe se fait dans l’oeuil, celui de l’ouye à l’oreille”, leaving no doubt sentiment here refers to sensory perceptions¹¹. Similarly, the *Dictionnaire Universel* defines sentir in the first instance as “Excercer l’action des sens, toucher, voir, gouter, flairer, entendre”¹². Furetière includes the sense of “sentir” that refers to intuition: He defines “sentir” in the second instance as “instincts naturels qu’ont des animaux pour prévoir ce qui doit arriver” and gives as his example the tendency of birds to fly low when they sense (“sentent”) rain¹³. By extension, Furetière says that “sentir” is also used in the human context to describe “des connaissances qui viennent de l’esprit et du jugement”¹⁴. Furetière goes on to recognize the other standard meanings of sentiment and sentir, such as emotion or to have an emotion (“Il a de tendres sentiments pour cette Demoiselle, pour dire, il l’aime”)¹⁵. But by defining sentiment in the first instance as sensory perception, and sentir in the second instance as intuition, Furetière signals that these are the pre-eminent meanings of sentiment and sentir in his time.

¹¹ In English, “the first property of animals, to have organs to receive different impressions of objects” and “The feeling of sight is produced in the eye, that of hearing in the ear” (my translations)

¹² “To exercise the operation of the senses, to touch, to see, to taste, to smell, to hear.” (my translation)

¹³ “natural instincts that animals have to foresee what is going to happen.” (my translation)

¹⁴ “knowledge that comes from the mind and from judgement.” (my translation)

¹⁵ “He has tender feelings for this maiden, that is, he loves her.” (my translation)

Pascal is very conventional in his usage of “sentiment” and its cognates to mean both intuition and physical sensation. Pascal uses the noun sentiment 64 times and the related verb, sentir, (in all its conjugations) 54 times in the Pensées. The noun, sentiment, is used in the Pensées in the following senses:

- (1) The faculty of sensation or a sensation of that faculty (e.g. pain, pressure, heat, etc.). It occurs in this sense 11 times.
- (2) The emotional faculty or an emotion of this faculty (e.g. happiness, anger, etc.). It occurs in this sense 39 times.
- (3) Intuition or an intuition (e.g. a feeling of danger). It occurs in this sense 14 times.

The related verb, sentir, in all its forms, has the following senses in the Pensées:

- (1) To have a sensation. It occurs in this sense 19 times.
- (2) To have an emotion. It occurs in this sense 15 times.
- (3) To have an intuition or to intuit. It occurs in this sense 20 times.

Pascal uses the verb “sentir” at L63 #110 to describe how the heart knows both that space is three-dimensional and that numbers are infinite (“The heart *feels* [sent] that there are three spatial dimensions and that there is an infinite series of numbers”). Since Pascal’s usage of “sentir” is conventional, and since the conventional meaning gives both “to have a sensation” and “to have an intuition” as senses of this verb, Pascal can perfectly well use “sentir” at L63 #110 to cover both the self-evidence of mathematical knowledge by the heart, that is known by intuition, and the self-evidence of physical knowledge by the heart that is known by the senses. (We can exclude the senses of “sentiment” and “sentir” that have to do with emotion –the examples at L63 #110 of an infinite number series and three-dimensional space obviously have no emotional content. This leaves only intuition and sensation as possible meanings for “sentiment” at L63 #110). So when at L63 #110 Pascal says that the heart feels that there are three spatial

dimensions, he can perfectly well mean that it is self-evident to the *senses* that people know that space is three-dimensional—he need not mean that it is self-evident the way that the axioms of mathematics are self-evident to the intuition.

We are now in a position to understand how exactly the heart achieves certainty in the case of physical knowledge by the heart. Because we took “Space is three-dimensional” as epitomizing the whole of physical knowledge by the heart at the beginning of this section, understanding how the heart achieves certainty in physical knowledge by the heart reduces to understanding how the heart knows spatial three-dimensionality with certainty. L63 #110 pairs knowledge that space is three-dimensional with knowledge that numbers are infinite, so the basic means the heart uses to know the former with certainty is the same as the means the heart uses to know the latter with certainty: i.e. by self-evidence. Since L63 #110 also says that the heart knows that space is three-dimensional by feeling, and since feeling in the case of “Space is three-dimensional” means physical sensation (as Provincial Letter #18 implies), Pascal means for the heart to know with certainty that space is three-dimensional through self-evidence to the senses. Since we took spatial three-dimensionality as a stand-in for the whole physical knowledge by the heart. The fact that the heart knows spatial three-dimensionality by self-evidence to the senses therefore means that the heart knows physical knowledge by the heart as a whole by self-evidence to the senses.

But with what kind of certainty, reason-certainty or heart-certainty, does the heart know that space is three-dimensional? It cannot be with reason-certainty that the heart knows that space is three-dimensional, for reason-certainty is only possible where induction and deduction, the operations of reason, produce knowledge, and, as we have

seen above, neither induction nor deduction will serve to show that space is three-dimensional. On the other hand, could it be with heart-certainty that the heart knows that space is three-dimensional? Heart-certainty is defined as either (a) logically necessary truth that cannot be produced by reason (like first principles in mathematics cannot) or (b) empirically infallible truth, which is to say, truth that is, as a matter of fact (not as a matter of logical necessity), universal. The fact that “Space is three-dimensional” is not logically necessary precludes the heart’s knowledge that space is three-dimensional counting as heart-certain on condition (a).

We saw above that, for Pascal, the only conditions under which the senses would err in their perception of spatial three-dimensionality would be *abnormal* conditions (e.g. A hallucination of dimensions higher than three that no evidence supports and then-prevailing scientific opinion rejected). In other words, under *normal* conditions, the senses always correctly perceive the three-dimensionality of space. Thus the senses *do* know spatial three-dimensionality universally (with the proviso that the senses operate under normal conditions), and so the senses know spatial three-dimensionality with empirical infallibility. Since empirical infallibility is condition (b) for heart-certainty, that the senses know spatial three-dimensionality with empirical infallibility means that the senses know spatial three-dimensionality with heart-certainty. And since the heart knows spatial three-dimensionality through the senses, the heart knows spatial three-dimensionality with heart-certainty.

To close this section, I should acknowledge that although my claim is that Pascal’s physical knowledge by the heart is self-evidence to the senses, some scholars

have thought that Pascal's knowledge by the heart is an anticipation of Kant's "forms of intuition". Roger Hazelton, for example, writes that

"In several of his notes Pascal gives more than a suggestion of his belief that unless these principles—space, time, number, and the like—are intuited, or felt—seen by the heart, there can be nothing at all to think about. These intuited principles, which Immanuel Kant was later to call 'categories' are what all rational understanding must assume but cannot prove." [Hazelton, R., 1974, p.102]¹⁶

The suggestion implicit in Hazelton's analogy is surely that Pascal's epistemology is idealist in nature in a way akin to Kant's own transcendental idealist epistemology. But this cannot be the correct interpretation of Pascal's epistemology, for an idealist does not say (for example) what Pascal says at L63 #110, namely that we know that space is three-dimensional and that this is certain. Instead the idealist says that it is certain that, *as far as we can know it*, space is three-dimensional. Pascal is a realist and so demands that knowledge be knowledge of the *world*, not merely knowledge of the *world-as-it-appears-to-us*.

3.4.3. How Pseudo-Inductive Knowledge by the Heart Achieves Certainty

In Chapter Two, section 5, we met the two examples of this category of knowledge by the heart that Pascal gives in the Pensées, (based on L63 #821, "there will be a tomorrow [il sera demain jour]" (Literally: "there will be a dawn tomorrow") and "we shall die [nous mourrons]"): "All men are mortal" and "This day has a successor". There we saw also that neither deduction nor induction will work to prove either

¹⁶ See also Laporte, J., 1950, p.115; and Davidson, H.M., 1979, p.85-86. Hazelton says that Kant would call the intuited principles "categories", but Hazelton should rather have said "forms of intuition".

proposition. Deduction will not work to prove either proposition because the idea of “mortality” cannot be deduced from the concept of “man” and the idea of “has a successor” cannot be deduced from the idea of “day”. There is no contradiction in denying either proposition (i.e. there is no contradiction in asserting their negations “Some men are immortal” and “This day has no successor”) and so there is nothing inherent in the concepts involved that logically necessitates their truth. Induction will not work to prove either proposition because verifying them would involve taking into consideration matters which no one can know. For example, in order to prove “All men are mortal”, one would have to wait until one’s own death to be sure that all men (including oneself) were mortal. But by then one would already be dead, and so the inductive proof would be useless. It is thus impossible to prove “All men are mortal” by induction. Mutatis mutandis, a similar argument may be made to show that induction will not work to prove “This day has a successor”. Since neither deduction nor induction will work to prove the contents of pseudo-inductive knowledge by the heart, some other method for proving it must be found, or it cannot count as knowledge.

Uncovering this alternative method of proof is a matter of discovering how knowledge of “All men are mortal” and “This day has a successor” may be had without proof by induction or deduction. To an infallibilist like Pascal, knowledge may only be had if one can achieve certainty, so the avenue to uncovering this alternative method of proof begins by examining how one may be certain of “All men are mortal” and “This day has a successor”.

The means identified in the last section (3.4.2) to achieve the certainty of physical knowledge by the heart may be adapted to explain how the heart achieves

certainty in the case of pseudo-inductive knowledge by the heart: The argument at 3.4.2 was that if self-evidence to the senses achieves certainty about what the senses perceive, (that is, if, under normal circumstances, the senses perceive X only if X is true), and if the heart knows what the senses know, then the heart may have certain knowledge through self-evidence to the senses. (*Self-evidence* is the alternative means of proof the heart uses to know “All men are mortal” and “this day has a successor”). If the senses can self-evidently know that “All men are mortal” and “This day has a successor” (the two examples that Pascal gives of pseudo-inductive knowledge by the heart), then the heart, through self-evidence to the senses, can achieve certain knowledge that “All men are mortal” and “This day has a successor”.

L63 #821 is the passage in which Pascal mentions “All men are mortal” and “This day has a successor” together. It is in L63 #821 that Pascal expresses his idea that it is through self-evidence to the senses that the heart knows pseudo-inductive knowledge by the heart with certainty. “Who ever proved that it will dawn tomorrow, and that we shall die? And what is more widely believed?”, Pascal asks. As we saw above, there are no arguments by reason (either by induction or deduction, the operations of reason) that will prove “All men are mortal” or that “This day has a successor”, and yet, Pascal observes, these two propositions are as widely believed as possible. What then convinces people of the truth of “All men are mortal” and “This day has a successor” if not reason? At first, Pascal considers that it is habit [coutume] that convinces people that all men are mortal, etc.

“[W]e must resort to habit once the mind has seen where truth lies, in order to steep and stain ourselves in that belief which constantly eludes us, for it is too much trouble to have proofs always present before us. We must acquire an easier belief, which is that of habit. With no violence, art, or argument it makes us

believe things, and so inclines all our faculties to this belief... "[L63 #821]

But suddenly, at the invocation of the phrase, "Incline my heart, o God", Pascal realizes that there is a problem with naming habit as the means by which the heart learns that all men are mortal and that this day has a successor. The problem is that habit, like reason, works too slowly in producing conviction to account for the immediacy and surety with which we know these truths. Habit must be inculcated over time, and Pascal wants a belief that is "present" and "always ready" instead. He writes:

"Reason works slowly, looking so often at so many principles, which must always be present that it is constantly nodding or straying because its principles are not present. Feeling [sentiment] does not work like that, *but works instantly*, and is always ready. We must then put our faith in feeling [le sentiment] or it will always be vacillating [elle sera toujours vacillante]." [L63 #821. Italics mine]

L63 #821 is very definite: Pascal's final word is that it is *feeling* that the heart uses to know what reason cannot know in this case, namely, that all men are mortal and that this day has a successor. It is fairly clear that L63 #821 intends for this feeling to be immediate, ("Feeling ...[that] works instantly" as Pascal says). Since this immediacy is contrasted with the slow, principled movement of reason, and since the operations of reason (e.g. deduction) are the only alternative to self-evidence in matters of justification (as we saw at 3.1), L63 #821 implies that this feeling works by *self-evidence*, which is the immediate recognition of truth in the very act of perception, and so is immediate. Also, there is some brief indication in this passage that this feeling produces certainty; for, as Pascal writes, if we do not put our faith in this feeling, our faith will always be vacillating, that is, by implication, unstable or insecure, metaphorically uncertain. Finally, it is important to notice that, though brief, the one reference to the heart at L63 #821 ("Incline my heart, o God"), makes it clear that the beliefs that Pascal mentions here,

namely, “All men are mortal” and “This day has a successor”, are supposed to be self-evidently felt *by the heart*, for it is the heart that Pascal thinks must be “incline[d]” in order that we “believe [these] things”.

But “felt” in which sense? We know from 3.4.2 that the word for feeling here, sentiment, means emotion, intuition, and physical sensation, and it is not clear from L63 #821 alone which of these three senses applies to the means by which the pseudo-inductive knowledge by the heart achieves certainty.

Although at times Pascal may not be completely decisive about which of these three he means, it is clear for the most part that by sentiment he means physical sensation. To take the case of “All men are mortal” first, L63 #427 establishes that the heart’s knowledge of human mortality is through physical sensation. Pascal writes:

“I *see* the terrifying spaces of the universe hemming me in, and I find myself attached to one corner of this vast expanse without knowing why I have been put in this place rather than that, or why the brief span of life allotted to me should be assigned to one moment rather than another of all the eternity which went before me and all that which will come after me. I *see* only infinity on every side, hemming me in like an atom or like the shadow of the fleeting instant. *All I know is that I must soon die*, but what I know least about is this very death which I cannot evade.” [L63 #427. Italics mine]

This passage shows that, for Pascal, a visceral knowledge of human mortality (including one’s own mortality) is patent to all men (including the atheist into whose mouth Pascal puts these words). Although two of sentiment’s conventional meanings, physical sensation (namely, sight) and emotion (particularly, a fear of death) are involved in this passage, it is clear which Pascal thinks is the principal means by which the heart knows human mortality. For here the physical sensation of sight is given as the *cause* of the fear of death. Just by *seeing* the infinite expanses of the universe “on every side” as compared with the finitude of man, the speaker at L63 #427 realizes his own mortality

and consequently fears it. (That L63 #427 refers only to the death of the individual man and not to the death of all men makes no difference. In comparison with the “infinity on every side” of him, both the individual man and the set of all men are obviously equally finite and hence mortal. They both only last but a “fleeting instant” compared to the infinity that hems them both in). Now the principal means by which something is known is indispensable to knowing it. Since causes are indispensable to effects (and not vice versa), and since the cause of knowledge of human mortality as given by L63 #427 is the *sight* of the infinite universe, the principal means by which human mortality is known must be sight. Since sight is a physical sense, the knowledge of human mortality is known principally by means of a physical sensation. Pascal confirms that sight is the principal means to a knowledge of human mortality when, at L63 #434, he compares the human condition to men awaiting a death sentence in prison.

“Imagine a number of men in chains, all under sentence of death, some of whom are each day butchered in the sight of the others; those remaining *see their own condition in that of their fellows*, and looking at each other with grief and despair await their turn. This is an image of the human condition.” [L63 #434. Italics mine]

Taking “This day has a successor” next, we observe that this proposition simply states that time (in units of days) passes. Given that “This day has a successor” merely refers to the passage of time, consider what Pascal says about a knowledge of the passage of time at L63 #534:

“One man says: ‘Two hours ago.’ another says: ‘It is only three quarters of an hour.’ I look at my watch and tell the first: ‘You must be bored,’ and the second ‘You hardly feel the time passing [*Le temps ne vous dure guère*],’ because it is an hour and a half ago.”

It is clear that Pascal has not considered with which sense (sight, hearing, touch, etc.), one feels time passing. And it is clear that Pascal is relativistic about how this feeling of time passing affects different people (One man is fascinated while the other is bored). But it is also clear that the feeling of time passing is a physical sensation, for it is one that can be checked against a watch, much as a feeling of warmth may be checked against a thermometer. (Notice that there is no instrument against which one can check an emotion, such as a feeling of dread, or an intuition, such as “The equals of equals are equal”). Although Pascal does not say with which sense one feels time passing, we can supply some candidates: feeling one’s eyelids grow heavy with sleep, feeling hungry, hearing oneself breath or yawn, etc.

L63 #821 says that “This day has a successor” and “All men are mortal” are self-evidently known by feeling. Since feeling in the cases of “All men are mortal” and “This day has a successor” means physical sensation, and since Pascal’s direct realist theory of sensation has it that (under normal operating conditions), something is not perceived by the senses unless it is true, then “All men are mortal” and “This day has a successor” are true. Since L63 #821 also shows that in this case what is known by feeling (viz., “All men are mortal” and “This day has a successor”) is known by the heart, it follows that the heart knows that “All men are mortal” and that “This day has a successor”, which are the only two examples of pseudo-inductive knowledge Pascal gives. And so it is by self-evidence to the senses that the heart knows pseudo-inductive knowledge by the heart.

But this does not yet show that “All men are mortal” and “This day has a successor” are certain. For, as we defined it at 3.3.3, certainty requires *universal truth*.

Even granting that the senses correctly perceive that it is generally true that men are mortal and that days follow each other in succession, the statements “All men are mortal” and “This day has a successor” have not yet been shown to be *absolutely* universally true, *without exception*. The senses can deceive: --There could be an immortal man. --This could be a day with no successor.

Here, though, the qualifier “under normal operating conditions” (discussed at 3.3.2) again shows its usefulness. That qualifier allows that a statement be considered universal, even though, under *abnormal* conditions, the statement may be false. At 3.3.2 we saw that it is no counterexample to the universality of the efficacy of the ruse played on the upright judge that he die before the ruse is executed because the death of the ruse’s mark is clearly an abnormal condition under which to test the ruse. For similar reasons, it is no counterexample to the universality of the statements “All men are mortal” and “This day has a successor” that there may be an immortal man or a day without successor, *if those would-be counterexamples could only occur under abnormal conditions*.

To take the statement “This day has a successor” first, it is clear that judging a statement by its applicability at the end of time (which is what a day without successor would be) would be to judge it under an abnormal condition. --The end of time is by definition unprecedented, and so the conditions for correctly denying “This day has a successor” must be abnormal.

Second, according to the Christian theology to which Pascal subscribes, the statement that “All men are mortal” could only face a counterexample (viz., the existence of an immortal man) under abnormal conditions. According to that theology (which was described briefly at 2.7), at the Fall, Adam’s nature was changed from immortal to

mortal, and this mortal nature was communicated to all Adam's descendants, i.e., to all men. In other words, mortality became the natural, and hence the *normal* condition of man. If there were to appear an immortal man, his existence would mean that there was some break in the normal transmission of consequences of the Fall. Hence the existence of an immortal man would mean that conditions of human life had changed from normal to abnormal.

With the qualifier "under normal conditions" affixed to the statements "All men are mortal" and "This day has a successor", there is no longer any obstacle to their universal truth, and so they may count as certain.

Indeed, these last considerations help us determine which kind of certainty, reason-certainty or heart-certainty, pseudo-inductive knowledge by the heart achieves. Since, as we saw earlier in this section (and at 2.5), it is impossible to prove pseudo-inductive knowledge by the heart (viz., either "All men are mortal" or "This day has a successor") by either induction (accumulated sensory experience) or deduction (conceptual analysis), it is impossible to justify it by reason. Therefore the certainty that pseudo-inductive knowledge by the heart achieves cannot be reason-certain, for reason-certainty is only possible where the operations of reason (induction and deduction) produce knowledge. Heart-certainty meanwhile demands either (a) logical necessity that cannot be produced by induction or deduction (like the principles of mathematics), or (b) empirical infallibility, that is, universal truth. Pseudo-inductive knowledge by the heart is not logically necessary (we saw above that both "All men are mortal" and "This day has a successor" may be denied without producing a contradiction), so it cannot be heart-certain on condition (a). But with the qualifier "under normal conditions" affixed to the

statements “All men are mortal” and “This day has a successor”, universal truth (within clear limits) may be claimed for both statements without fear of contradiction, and so they may count as empirically infallible, and hence heart-certain on condition (b).

3.4.4 How Self-conscious Knowledge by the Heart Achieves Certainty

In Chapter One, section 2, we met self-conscious knowledge by the heart (e.g. “I exist” and “I am conscious”) in the context of a refutation of scepticism. That we meet it again in the search for certainty in an infinite universe is puzzling. One may well wonder what self-conscious knowledge by the heart can have to do with infinity. Examples of this category of knowledge by the heart involve only self-knowledge, and the self would seem to be a single, unitary thing that is easily known either through introspection or as an object of experience. There doesn’t seem to be any infinite thing or series of things in the self for the heart to know.

Pascal knows that this idea of the self as a single, unitary thing that is easily known is naïve. First, introspection will not lead to self-knowledge of one’s existence or consciousness. Introspection is the attempt to know truths about the self through an analysis of the idea of “self” alone, without reference to one’s experience of the self. But an analysis of “self” will not yield “exists” or “is conscious”. It is perfectly possible that, *taken on their own*, (i.e. without being uttered by any speaker), any or all of the statements of self-conscious knowledge by the heart (e.g. “I exist” or “I am conscious”) might be untrue. There is no logical necessity in any person’s existence, nor is there any logical necessity in any person’s being conscious. For example, I might not have existed or I could be suddenly knocked unconscious. As Pascal writes, “[I]t is possible that I

might never have existed ...I am not a necessary being" [L63 #135]. Since these states of affairs (viz., non-existence, unconsciousness) are all possible; i.e., since there is no contradiction in stating them, there is no analytical truth in any of them, for the denial of an analytical truth is a contradiction. (Of course, *the fact that I say* "I exist" proves that I exist, but *the content of the sentence* "I exist" *alone* does not prove that I exist, and since deduction works by analysing the *content* of a proposition, not its other, formal elements, my existence cannot be deduced from the simple, stand-alone sentence "I exist".) An analysis of "self" will therefore produce none of these statements, and so introspection, which is just this analysis, will not produce them either.

Second, accumulated experience will not lead to self-knowledge. Like the sceptics Sextus Empiricus and Montaigne, Pascal observes the many changes that occur in men, from which Pascal, like these great sceptics, draws the conclusion that "our nature is nothing but continual change" [L63 #520. See also Sextus Empiricus, 2001, I, xvii, 178, pp. 43-45 and Montaigne, M., 1991, Bk. 2, Ch. 12, "An Apology for Raymond Sebond", pp. 679-680]. Pascal undoubtedly exaggerates: our natures obviously require *some* stability for us to be able to identify them as such. Despite his exaggeration, in this remark Pascal correctly observes that people *do* change so much over time as to become almost unrecognizable. Since people change so much over time, how do we know that we have encountered the persistent nature of a man in our accumulated experience of him? Perhaps we have only experienced his changeable qualities, leaving his true self totally unknown. Indeed, Pascal argues that, because the person's qualities will change through time while the person persists, the person and his qualities must be distinct. Pascal discusses this at L63 #688.

“What is the self [le moi]? ...

[W]hat about a person who loves someone for the sake of her beauty: does *he* love *her*? No, for smallpox, which will destroy beauty without destroying the person, will put an end to his love for her. And if someone loves me for my judgement or my memory, do they love me? *me*, myself? No, for I could lose these qualities without losing my self. Where then is this self, if it is neither in the body nor the soul? And how can one love the body or the soul except for the sake of such qualities, which are not what makes up the self, since they are perishable? Would we love the substance of a person’s soul, in the abstract, whatever qualities might be in it? That is not possible, and it would be wrong. Therefore we never love anyone, only qualities.”

Obviously Pascal cannot mean everything in this passage literally. How could Pascal conclude that “we never love anyone” when he begins by imagining a case where, *by his own stipulation*, a man loves a woman? The paradoxical quality of the passage should not distract from its central message, that a person and his or her qualities are distinct. As Pascal points out, personal qualities (virtues and vices as well as physical and mental characteristics) are perishable. Since the person remains even if his personal qualities change (for surely this is implicit in Pascal’s words, “I could lose these qualities without losing myself” above), the person and his qualities are therefore distinct.

This distinction makes it impossible to know anyone, *not even oneself*, through accumulated experience, for if all that is available in experience are a person’s changeable qualities, and if a person is distinct from these qualities, then knowing the persistent nature of a person, his *self*, cannot be accomplished through accumulating experiences of him. So, contrary to the naïve view, the self is *not* easily known: constant change prevents one from even so much as finding the persistent qualities of a person’s “self” in experience, making any statements about it (e.g. “I exist” or “I am conscious”) dubious from the start.

The inability to know the self either by introspection or accumulated experience is particularly difficult to explain given that Pascal insists that we know we exist. In the middle of a passage in which Pascal asserts that man can be made to know and love God, Pascal writes,

“[M]an is naturally capable of love and knowledge. There is no doubt that [man] knows at least that he exists and loves something.” [L63 #149]

If man doubtlessly knows that he exists, how does he know it if not by introspection or accumulated experience? To exacerbate matters, Pascal considers such self-knowledge imperative:

“One must know oneself. Even if that does not help in finding truth, at least it helps in running one’s life, and nothing is more proper” [L63 #72].

To an infallibilist like Pascal, knowing oneself requires that one be certain about self-conscious knowledge, whose basic statements are “I exist” and “I am conscious”. The means of achieving certainty in the case of self-conscious knowledge by the heart is essentially the same as the means of achieving certainty in the previous two categories of knowledge by the heart. The argument at 3.4.2 was that if self-evidence to the senses achieves certainty about what the senses perceive, and if the heart knows what the senses know, then the heart may have certain knowledge through self-evidence to the senses. The argument at 3.4.2 may be adapted and used here: It is *self-evident* to oneself (though not through the senses) that the self exists and is conscious. Since what is self-evident is certainly true (as in the case of the axioms of mathematics), and since the heart is the repository of self-conscious knowledge, the heart knows that the self exists and is conscious with certainty.

An apparent difference in the case of self-conscious knowledge by the heart is that, unlike the cases of physical and pseudo-inductive knowledge by the heart, Pascal does not mention feeling, sentiment, in the relevant passage in the Pensées; viz., L63 #131. Although he does not use the word “feeling”, Pascal nevertheless refers explicitly to a particular feeling, namely, the sensation of pain, in this passage. The reader will recall the context of this part of L63 #131 from Chapter One (1.2): In answer to the sceptic’s universal doubt, Pascal writes,

“What then is a man to do in this [sceptical] state of affairs? Is he to doubt everything, to doubt whether he is awake, whether he is being pinched or burned? Is he to doubt whether he is doubting, to doubt whether he exists?”

We saw in Chapter One, section 7 that this series of questions at L63 #131 indirectly gives a list of equally indubitable basic propositions (“I feel pain”, “I am awake”, “I exist”) that an intelligent human being needs to believe in order to live. (The reader will recall that the indubitability of these propositions (that is, certainty in sense (3)), does not make them infallible (certainty in sense (2))). We saw earlier in this chapter (in sections in 3.4.2 and 3.4.3), that Pascal is a direct realist about sensations. What this means for Pascal epistemologically is that if, for example, one thinks one sees a house, then, under normal operating conditions, it is because one really does see a house. Applied to this passage just quoted at L63 #131, this direct realism means that, if one feels that one is being pinched or burned, it is because one really is being pinched or burned. That is, the pain of being pinched or burned is *self-evident* to the person being pinched or burned. The juxtaposition at L63 #131 of the propositions “I am in pain” with “I exist” and “I am awake” suggest that an argument similar to the direct realist argument

to certify “I am in pain” (because I really am being pinched or burned) should also work to certify “I exist”.

Pascal makes no commitment here to there being any particular sensory experience of one’s own existence or consciousness. – Indeed, it would be implausible to think that there is any special sight, sound, or other physical sensation that alerts one to one’s existence or consciousness. All that the juxtaposition at L63 #131 shows is that there is an analogy between the physical sensation of pain (if one is being pinched or burned) and the knowledge that one exists. Since there is an analogy between the knowledge of one’s existence and a physical sensation, we may treat them as similar in what follows.

We know from L63 #131 and L63 #149 that Pascal thinks that a man knows that he exists¹⁷. Applying the direct realist argument about man’s knowledge that he is in pain to this knowledge that he exists (--which their similarity allows), Pascal can then argue as follows. First, if a man knows he exists, then he is aware that he exists – all of the most common senses in which Pascal uses “to know” (i.e. senses (1) through (3)) demand some level of awareness (See the Analysis of “Knowledge” at 3.3.1). Second, if a man is aware that he exists, then under normal conditions, it is because he really does exist. In that case, we say that the man’s existence is *self-evident* to him, just as (when he is aware of his pain) his pain is self-evident to him. (*Mutatis mutandis*, a similar argument can be made for a man’s consciousness).

¹⁷ Here again there is an anticipation of Thomas Reid’s realism in Pascal. In the Essay on the Intellectual Powers of Man, Reid writes, “Every man has an immediate and irresistible conviction [of] his present existence...” [Beanblossom, R., and Lehrer, K., 1983, Essay I, Part II, p.154]

In self-conscious knowledge by the heart, the mistake in trying to use either deduction (in this case, introspection) or induction (here meaning accumulated sensory experience of the self) is in trying to do *mediately* and *deliberately* what is done *immediately* and *naturally*, “without violence, art, or argument” as Pascal says at L63 #821. We feel the pain of being pinched or burned and we immediately and naturally know that we are being pinched or burned; similarly, we are aware of our existence and immediately and naturally know that we exist—bringing induction and deduction in to do this job confuses this immediate and natural knowledge of the self, and moreover fails to produce this knowledge, as we saw in the opening paragraphs of this section. As Pascal writes, “[I]t is not through the proud activity of our reason but through its simple submission that we can really know ourselves” [L63 #131].

The argument adapted from 3.4.2 is that if it is self-evident that the self exists, is conscious, etc., and if what is self-evident is certainly true, then the knowledge that one exists and is conscious, is certainly true. Since the heart is the repository of self-conscious knowledge, the heart knows that the self exists and is conscious with certainty.

We have just seen how at L63 #131 the existence of the self, its consciousness, etc. is known self-evidently in a manner similar to the self-evident sensory awareness of pain. But what shows that the heart is the repository of self-conscious knowledge?

There is one mention of the heart at the very end of L63 #131 and it involves self-knowledge. Pascal is describing the deep theological truths of human nature: (1) that in his original state and in the state of grace man shares in God’s divinity and “is exalted above the whole of nature”; and (2) that in his current state of corruption and sin, man is like an animal. These “fundamental facts” of human nature, Pascal tells us, cannot be

known “through the proud activity of our reason”; rather it is only through reason’s “simple submission that we can really *know ourselves*”[L63 #131. Italics mine]. To substantiate his claim that these two truths really are part of Christian theology, Pascal supplies some quotations from the Latin bible, the last of which is “I said in my heart [Dixi in corde meo] concerning the estate of the sons of men...” This quotation is a reference to Ecclesiastes 3:18, where the Philosopher says that he knows that men die like the animals, which means that this quotation is an example of Pascal’s second theological truth, viz., that man is like an animal. Thus the theological truth about man that Pascal counts as self-knowledge is known *in the heart* of the Philosopher. Since Ecclesiastes is speaking as Everyman, what he says about the knowledge he has in his heart (about men being like animals), is meant to be true for everyone: Everyone is supposed to be able to find this sad knowledge about man in his heart. In other words, everyone is supposed to be able to know this of himself in his heart --Pascal locates this theological self-knowledge is in the heart. Since Pascal locates theological self-knowledge in the heart, and since, theological self-knowledge is presumably important only if it is conjoined with knowledge that one exists and is conscious (--If one does not even know one exists, one cannot be expected to worry about one’s theological nature--), then we may assume that he would also locate knowledge of one’s existence and consciousness (i.e., self-conscious knowledge) in the heart as well.

Taken together, these elements produce an argument for the certainty of Pascal’s self-conscious knowledge by the heart. As the analogy with pain at L63 #131 implies, it is self-evident that the self exists and is conscious. Since what is self-evident is certainly

true, and since the heart is the repository of self-conscious knowledge, the heart knows that the self exists and is conscious with certainty.

That the existence and consciousness of Pascal's self is to be understood as self-evident propositions determines the kind of certainty which the self-conscious knowledge by the heart enjoys. We saw above that statements regarding the existence of the self and its conscious state are not logically necessary, for all such statements are conceivably false – a denial of the content of any such statement leads to no contradiction. The lack of logical necessity for statements of the self-conscious knowledge by the automatically rules out the possibility that they be reason-certain, for a proposition can only be reason-certain if it is logically necessary. But the self-conscious knowledge by the heart *can* be heart-certain, for heart-certainty demands only that a proposition be empirically infallible, which is to say universally true. Restricted to propositions that are self-evident in a manner akin to propositions self-evidently known through the senses, propositions concerning the self are empirically infallible. What makes thinking "I exist" infallibly true is the fact that one could not think one exists unless one exists – non-existent things presumably do not think. Similarly, one could not think one is conscious unless one were conscious, for, again, unconscious things presumably do not think. This is not to attribute a Cartesian argument for one's own existence to Pascal –As I read him, Pascal's tack is strictly to say that one's own existence is self-evident to one, where Descartes' argument is to infer non-syllogistically the subject's existence from the subject's thinking. At best, the Cartesian argument is ancillary to Pascal's inasmuch as "if one thinks one exists, one exists" shows that "I exist" (if it is thought by someone) is *universally* true, not that "I exist" is true in the first place –self-evidence alone does that. (The reader will recall a

more detailed comparison of Pascal's and Descartes' positions from Chapter One, section 7). All that pointing out the impossibility of thinking one exists when one does not exist serves to do is to show that it is universally (and hence infallibly) true that if one thinks one exists, one exists. Since "if one thinks one exists, one exists" is universally true, "I exist" is infallibly true (if thought by someone), even if it is not logically necessary, and so it, and all the other statements of the knowledge by the heart (e.g. "I am conscious") are heart-certain.

We opened this section wondering what knowledge of the self has to do with the heart knowing infinity. Superficially, self-conscious knowledge by the heart would seem to have nothing to do with infinity. The self, the individual person, is a single thing –there is no endless series of things for the heart to grasp in the existence of the self. This part of the observation of the self relative to infinity is quite right – there is no *quantitative* infinity involved in self-conscious knowledge by the heart. But there is a connection between the self and God, who is of course both quantitatively and qualitatively infinite (quantitatively infinite in that God is everywhere, at all times; qualitatively infinite in all other immeasurable positive attributes, like goodness). Pascal himself makes the connection between an infinite God and self-conscious knowledge by the heart:

"[Some people] say: 'Withdraw into yourself, that is where you will find peace.' And that is not true.

Others say: 'Go outside: look for happiness in some diversion.' And that is not true: we may fall sick.

Happiness is neither outside us nor inside us: it is in God, both outside and inside us." [L63 #407]

The corruption of the self due to Original Sin prevents man from finding salvation (that is, ultimate happiness) within himself, thereby undercutting the suggestion to seek happiness in the self. But illness may likewise prevent man from seeking happiness

outside himself in diversions, such as hunting or gambling, for such diversions require the basic health of their participants. If man cannot make his happiness out of either his own inner or outer resources, where is he to find happiness? In God, Pascal answers, God who is outside man due to the alienation of Original Sin, but, critically, who is also still inside man, because of man's pre-lapsarian nature: "[M]an in the state of his creation, or in the state of grace, is exalted above the whole of nature, made like unto God and sharing in his divinity" [L63 #131]. Pascal expands on the relationship between the self in a state of grace and the infinity of God at L63 #449:

"God [fills] the soul and heart of those whom he possesses: he is a God who makes [Christians] inwardly aware of their wretchedness and his infinite mercy: who unites himself with them in the depths of their soul."

The inference we may make based on L63 #407 and L63 #449 taken together is straightforward: God is infinite; man has God within him; therefore, through self-knowledge, man comes to know the infinite. Man is notoriously limited in all his physical attributes, ("Why have limits been set upon my knowledge, my height, my life..." as Pascal says at L63 #194), so he is not capable of *quantitative* infinity. The infinity of God that man finds in himself must therefore refer to *qualitative* infinity, particularly God's moral qualities, such as God's infinite mercy. It is the qualitative infinity that exists in the self (i.e. that capacity that man has within him to know God's infinite mercy and imitate it himself) that makes it necessary that the heart, and not the reason, know the self.

"The[re is an] infinite distance between mind and charity ... Out of all bodies together we could not succeed in creating one little thought ... Out of all bodies and minds [together] we could not extract one impulse of true charity." [L63 #308. See also L63 #298 where Pascal names St. Paul as an example of a man who exhibits this charity]

3.4.5. How Religious Knowledge by the Heart Achieves Certainty

God is the infinite thing whose existence the heart must know in order to achieve certainty in religious knowledge by the heart.

For Pascal, religious knowledge by the heart depends on a knowledge of God because salvation, the whole point of religion (at least its whole point in the practical minds that Pascal sought to convert in his projected Apology for the Christian Religion), depends on God. “There is no doubt that there can be nothing good without a knowledge of God,” Pascal writes, “[so much so] that ... ultimate happiness [i.e. salvation] lies in knowing him with certainty” [L63 #432]. And Pascal writes “[M]an without God is totally ignorant and inescapably unhappy ... God alone is man’s true good” [L63 #75 and L63 #148]. But essential as this knowledge of God is, it is also problematic. For Pascal’s God is an actually infinite thing, and therefore is impossible for finite human minds to know directly, as we saw above at 3.3.3.

Traditional metaphysical arguments (e.g. the cosmological and ontological arguments) have purported to make God’s existence knowable – why can’t Pascal rely on them for knowledge of God?

Pascal writes that the

“metaphysical proofs for the existence of God are so remote from human reasoning and so involved that they make little impact, and, even if they did help some people it would only be for the moment during which they watched the demonstration, because an hour later they would be afraid they had made a mistake” [L63 #190]

If these metaphysical arguments for God’s existence work, they do so at least in part by a conceptual analysis of the idea of God: God is defined as the first principle (in

the case of the version of the cosmological argument to which Pascal arguably refers at L63 #449, a “first truth” – See below) or as that than which no greater can be thought (in the case of the ontological argument) and from such definitions God’s existence is deduced. (The cosmological argument also turns on the impossibility of an infinite regress in principles, but it does depend on a definition of God as first principle)¹⁸.

To Pascal’s mind what makes the cosmological and ontological arguments for God’s existence doubtful is that these arguments prove the wrong thing. What Pascal wants is a proof of the existence of a God who can save men from their sinful wretchedness and its consequent damnation. All that the cosmological argument proves is that there is a first principle. All that the ontological argument proves is that there is a being such that a greater being cannot be conceived. Neither argument says anything about this principle or being saving mankind or even being at all involved in the destiny of mankind. It is against just such an abstract idea of God that Pascal writes “ I shall not undertake here to prove by reasons from nature [the] existence of God ... because such

¹⁸It is at least *arguable* that at L63 #449 Pascal is referring to a version of the cosmological argument. First, the context of the passage cited is Pascal’s refusal to try to prove God’s existence “by reasons from nature” [prouver par des raisons naturelles], so Pascal’s reference is to a proof or an argument. There are only a handful of valid arguments for God’s existence, so a reference to an *argument* instantly improves the chances that L63 #449 refers to the cosmological argument. Second, the argument to which Pascal refers is “from nature”, in this case meaning an argument derived from the natural world (which contains all created things, such as the numbers and the elements to which Pascal proceeds to refer). The cosmological argument turns on the existence of the natural world inasmuch as it invokes God’s existence to explain the existence of the natural world as its cause, or (as Pascal says) its author. Finally, Pascal refers to a relationship of *dependence* between the “proportion of numbers” and a “first truth” in which they subsist, and which we call “God”. This again suggests the cosmological argument because among the three main arguments for God’s existence (the ontological, cosmological, and deistic arguments) only the cosmological argument refers to a relationship of dependence (viz., between creation and creator).

knowledge, without Christ, is useless and sterile.” [L63 #449] Why is such knowledge useless and sterile? Pascal’s answer is that

“[e]ven if someone were convinced that the proportions between numbers were immaterial, eternal truths, depending on a first truth in which they subsist, called God, I should not consider that he had made much progress towards his salvation. The Christian’s God does not consist merely of a God who is the author of mathematical truths and the order of the elements ... [T]he God of the Christians is a God of love and consolation: he is a God who fills the soul and heart of those whom he possesses: he is a God who makes them inwardly aware of their wretchedness and his infinite mercy: who unites himself with them in the depths of their soul.”

There is no mention of this Christian God in either the ontological or cosmological arguments, much less a proof of his existence. One may call the First Principle or That Than which No Greater Can be Thought “God” but, as Pascal says, an hour later one will be afraid one has made a mistake in affixing that name. What makes the ontological and cosmological arguments useless is that they may not have proven precisely what we need them to prove, but something else entirely. (As we will see shortly, the Wager Argument is not similarly susceptible because the God in whom the Wager Argument exhorts one to believe is precisely a God who can offer salvation – what the Wager Argument promises is “an infinity of infinitely happy life” in God– and L63 #449 makes it clear that what is important in the Christian God is the power and inclination to save men “ [In] his infinite mercy [God] unites himself with them [Christians] in the depths of their soul and fills it with [joy]”).

If metaphysical arguments will not produce knowledge of God, why can’t Pascal achieve knowledge of God by inducing God’s existence as Creator from the obvious design of creation? The trouble with this argument (normally called the “argument from design”, but also “the deistic argument”) is that it, too, is ineffective. Although it is

intended to convince “those in whom [the] light [of faith] has gone out” it will only work on those who believe in God, for it is only if one already believes in God that one can see the design of nature as God’s creation [L63 #781]. But, ironically, if one already believes in God, one does not need to look to the design of nature to be convinced of God’s existence. Thus the argument from design is useless for convincing believers and unbelievers alike.

A further complication to the power to know God directly is Pascal’s doctrine of the Hidden God. According to this doctrine, God hides himself from the world. The locus classicus for biblical expression of the doctrine of the Hidden God is the passage “Verily thou art a God that hidest thyself” from the book of Isaiah [Isaiah 45:15, L63 #781]. (We know that Pascal takes this passage seriously because he quotes it reverentially several times) [See also L63 #242 and #921].

According to the doctrine of the Hidden God, God is not the passive object of a search that never succeeds. Rather God is *actively eluding* those who might seek him by “blinding their eyes”. This sounds cruel, but it is done because there are those people whose search for God is insincere and who do not deserve to find their quarry so quickly. “We know well enough how people in this frame of mind behave”, Pascal writes,

“They think they have made great efforts to learn [of God’s existence] when they have spent a few hours reading some books of the Bible, and have questioned some ecclesiastic about the truths of the faith. After that, they boast that they have sought [God] without success in books and among men.” [L63 #427]

Keeping himself hidden from the eyes of some men is God’s way of teaching them their basic wretchedness, that other part of humanity’s dual nature (In Pascal’s own words, human beings are simultaneously “the glory and refuse of the universe”)[L63

#131]. Pascal's rationale for this doctrine is debatable, but for our purpose this doctrine of the Hidden God has an unequivocal drawback: Since God hides himself, his existence cannot be known by his self-evidence.

Since neither the traditional metaphysical nor the deistic arguments for God's existence nor self-evidence are effective ways for the heart to achieve knowledge of God, Pascal must propose his own way to know God. Famously, what he invents for that purpose is the Wager Argument, whose locus in the *Pensées* is L63 #418.

"Let us examine the point", says Pascal, opening the main part of L63 #418, "Either God exists, or he does not exist. But to which side shall we be inclined?" The task of the Wager Argument (as is well-known) is to convince its reader to opt for belief in God. The part of the fragment concerned with the Wager Argument proper opens by frankly facing the question Pascal wisely suspects his reader is asking himself. If the problems with traditional arguments for God's existence (mentioned just above) mean that "[r]eason can determine nothing" in this great question, the reader is left uncertain how to choose between affirming or denying God's existence. Pascal's reader may thus be led readily into a wager approach to proving God's existence, for his basic uncertainty may be compared to a bet made on a coin toss. At first this new approach does not seem to offer any insight into how one should bet, either for or against God's existence: for if "[r]eason cannot make you choose either, or defend either position", then there is an error in making "any choice [for] he who calls heads and he who calls [tails] are equally at fault: the right thing is not to wager at all." But it is not making a choice one way or the other that is erroneous. "[Y]ou must wager", Pascal tells his reader, all of a sudden, "There is no choice; you are committed [*embarqué*]" . One may wonder why one is

suddenly committed. Since a contemporary dictionary (Pierre Richelet's Dictionnaire Français from 1683) gives the second sense of the French word, embarqué, as to have committed oneself to something, a mistaken translation cannot be blamed for the apparent suddenness of Pascal's announcement of the reader's commitment to wager (in its first sense, "embarquer" means simply to embark, to get on a ship) [Richelet, P., 1994, entry "embarquer"]. And the fact that "embarquer" appears nowhere else in the Pensées in any form means that we cannot further probe Pascal's text for clues as to any idiosyncratic meaning he may have for it. The reason for this sudden announcement "You must wager" may be that it does not matter whether one is risk prone, risk neutral, or risk averse --the option of not wagering at all is excluded by the very fact of being a living, conscious person. Here is an important, unstated premise of the Wager Argument: a person's practices determine his beliefs. If one lives a religious life, one is or will become religious; if one lives an atheistic life, one is or will become an atheist. Since one is alive, one will already be committed to certain practices, and these practices bespeak one's beliefs, whether for or against the existence of God. So there is no escaping having beliefs in the question of God's existence. I suggest that, for Pascal, a person's life makes those beliefs plain, and so Pascal can refer to them all of a sudden because these beliefs have always been there in the living, conscious person from the beginning of Pascal's exchange with him over the existence of God.

Pascal evaluates a betting strategy that will optimize the reader's eternal spiritual interests much as he might analyse the best way to bet to maximize his financial interests. At stake in this wager on belief in God is the wagerer's happiness in this life. Pascal continues:

“Let us assess the gain and loss by supposing ‘Heads God exists’. Let us compare the two cases; if you win, you win everything; if you lose, you lose nothing. Don’t hesitate then: wager that he does exist.”

This is the part of the Wager Argument that modern decision theorists call *the argument from dominance* [Hacking, I., 2001, pp. 119]. In this part of the Wager Argument Pascal imagines what would happen if his reader bets that God exists, and does all the things that would go along with believing in God’s existence; e.g., going to church, praying, giving alms, etc. On the one hand, if one believes that God exists, and it turns out that God exists, then one wins eternal happiness (“an infinity of infinitely happy life” as Pascal calls it) in the afterlife as a reward for one’s belief [L63 #418]. If, on the other hand, one bets that God exists, believes in him, goes to church, gives alms, etc., and it turns out that he does not exist, then, Pascal implies, one does not really lose anything, because in that case there is no afterlife, and one’s activities in this life are neither rewarded nor punished in the next. It therefore costs one nothing to believe in God (i.e. bet that he exists) and have one’s belief disappointed. Pascal does not mention it, but the converse should surely also be considered in this decision. If God exists, but one does not believe in him, then surely that disbelief will be punished with eternal damnation (See L63 #748: “[The] hope for salvation ... is counterbalanced by the fear of hell”). Meanwhile, if God does not exist, and one does not bother to believe in him, then all one really gains by this decision is the satisfaction that one was right not to believe. But this is moot because by then one is already dead. In other words, the best that can result from choosing to believe in God is eternal happiness; the worst that can happen is one would pay the cost of believing in a God who does not exist, which Pascal figures at zero: “[I]n the end you will realize that you have wagered on something certain and infinite for

which you have paid nothing" [L63 #418]. On this sort of cost-benefit risk analysis, it would seem that the sensible thing to do is to believe that God exists, since on that bet, one risks the least in the hope of winning the greatest reward.

Pascal imagines his reader objecting that the belief that God exists is the only correct bet *given the preceding risk analysis*. But what if one element of that risk analysis were improperly evaluated? Specifically, what if the *cost* of placing the bet that God exists were higher than anticipated? "That [risk analysis] is fine" his reader says, "Yes, I must make a bet; but perhaps I am staking too much." To place his bet that God exists, there is a certain payment Pascal's reader has to make. He must start acting as though God exists, which may mean giving up his profligacy, and assuming the life of the God-fearing person and all that it entails (e.g. prayer, giving alms, going to church, etc.). This would mean sacrificing a certain amount of happiness and freedom in this life for happiness in the next life. The problem Pascal's reader faces, then, is to find a way to assess the value of what he is staking against the value of what he may win, and at unknown odds.

Pascal has at his disposal just such a way of assessing stakes versus rewards at any odds in the concept of *mathematical expectation*, which he introduced in the Treatise on the Arithmetic Triangle [TMW, pp. 460-462. See Harrington, T.M., 1982, pp. 143-144]. Mathematical expectation equals the probability of winning a given prize times the value of that prize. To take an example, were I to have a fifty percent chance of winning two hundred dollars, my mathematical expectation would be to win one hundred dollars. This figure (viz., one hundred dollars, my mathematical expectation) may then be used to help me decide how much I should be willing to stake in order to win the stated prize

(viz., two hundred dollars). The rule for deciding is simple: One should always be willing to bet *less than* or *as much as* but never *more than* one's mathematical expectation to win the given prize. So in this case, I should be unwilling to pay more than one hundred dollars to win the prize of two hundred dollars. I say "*should* be willing to bet". Of course this "should" supposes that one *wants* to place a bet—normally, there is no categorical imperative that one place any bet. However, since Pascal believes that the very fact of being a living, conscious person commits one to certain practices, and since he further believes that those practices commit one to a belief in either God's existence or non-existence, there is no choice here: one must place a bet as a consequence of simply being a living, conscious person with practices that commit one to one belief or the other.

Pascal's first attempt to apply mathematical expectation to this case depends on the analogy to the coin toss. There is a kind of sense to this inasmuch as "God exists" and "God does not exist" exhaust the theological possibilities in exactly the same way that heads and tails exhaust the possibilities of a coin toss. (The possibility—which Pascal does not countenance --that there are *many* gods may be covered by re-phrasing this dichotomy as "There exists *at least* one God" and "There exists *not so much as* one God". Since these two new possibilities similarly exclude each other and exhaust the theological possibilities, they too suit a comparison with a coin toss). If the uncertainty of deciding whether or not to believe in God is in fact like the uncertainty of a coin toss, ("Heads God exists, tails God does not exist"), then the probability of God's existence should be set at fifty percent, the same probability one has in winning a coin toss. Since the probability is fifty percent, and the stakes are substantially the same (minus only the finite cost of renouncing some worldly pleasures), there is no substantial advantage to

betting one way or the other, except that the expected rewards for either bet are different. If one bets that there is no God, one may expect fifty percent of zero, for there is no reward for betting that God does not exist. But if one bets that there is a God, one may expect fifty percent of an infinite value, viz., eternal happiness. Fifty percent of an infinite value is still infinite, for infinity times any positive finite number is still infinity -- and that beats any finite value (let alone a zero value) one may expect for betting that God does not exist. Since the mathematical expectations of betting that God exists substantially outweighs betting that God does not exist, one should therefore again bet that God exists. This is what modern decision theorists call *the argument from expectation* [Hacking, I., 2001, p. 121].

But suppose one is unwilling to grant that it is exactly as unsure that God does not exist as it is that he does. What if one thinks that it is vastly more unlikely that God exists than that he does not? Remarkably, Pascal's Wager Argument is designed to convince even such a doubter to bet that God exists. In his second attempt to set odds and weigh costs, Pascal sets the probability of there being a God as conservatively as he can; viz., at one over infinity ($1/\infty$) -- Were he to rate the odds any lower (viz., at zero), he would rule the possibility of God existing out all together. He then considers that the value of the given reward is "an infinity of infinitely happy life", i.e., a prize of infinite value. Since the chance of winning is one over infinity, and since the given prize is infinite, when multiplied, the two infinities cancel each other out, and the number one is the result (i.e., $1/\infty * \infty = 1$) [Cf. Boutroux, E., 1900, p.179; Wetsel, D, 1994, pp.256-257; and Davis, S., 1991, p.29]. Pascal interprets this result to mean that one should be willing to bet any finite thing (such as one's life) to have a chance to get the promised infinite reward, no

matter how low that chance may be. Modern decision theorists call this *the argument from dominating expectation* [Hacking, I., 2001, pp.122-123]. Pascal summarizes it fairly neatly when he writes, “[I]n this game you can win an infinity of infinitely happy life... [W]hat you are staking is finite ... [And] there is not an infinity of chances of losing against the chance of winning ... [So] there is no room for hesitation: you must stake everything.” There is some obscurity in the phrase “there is not an infinity of chances of losing against the chance of winning” for it seems as though Pascal is making a retraction by denying that the assessment of the chance of winning is $1/\infty$ as stated in the argument. But what Pascal may be saying is that, realistically, the chance of winning is likely *better* than $1/\infty$ --the assumption that it was absolutely as low as possible is admittedly a little far-fetched. Since even on that unrealistic, one-in-infinity assessment of the probability of winning it was still advisable to bet that God exists, one should be that much more well-advised to bet that God exists given a slightly more realistic assessment of the probability of God’s existence. This obscurity aside, this sentence marks the conclusion of these three parts of the Wager Argument.

The consequence of all three parts of the Wager Argument (viz., the argument from dominance, the argument from expectation, and the argument from dominating expectation) is that if one wants to win salvation, believing in God (as opposed to not believing in God) is the better course of action to take. The three parts of the Wager Argument then put Pascal in a position at the end of L63 #418 to counsel his reader how best to acquire a belief in God:

“You want to be cured of unbelief and you ask for the remedy ... [There] are people who know the road you wish to follow, who have been cured of the affliction of which you wish to be cured: follow the way by which they began. They behaved just as if they did believe, taking holy water, having masses said,

and so on. That will make you believe quite naturally ...

I tell you that [by believing in God] you will gain even in this life, and that at every step you take along this road you will see that your gain is so certain [certitude] and your risk so negligible that in the end you will realize that you have wagered on something certain [certainne] and infinite for which you have paid nothing. ”

Together, (1) the three parts of the Wager Argument, (2) the desire Pascal assumes his reader has to be saved, and (3) the concluding counsel to acquire a belief in God constitute what used to be called a “practical syllogism”. First discussed by Aristotle (in Nicomachean Ethics 1112b16-17 and De Motu Animalium 701a18-22), the practical syllogism works in cases of means-end deliberation where one wishes to know which means one should use to achieve a given desired end [Dahl, N.O, 1984, pp. 26-34 and Clarke, D.S., 1985, p.3]. Once the best course of action to achieve the desired end is determined, the conclusion of the practical syllogism is either a normative or imperative proposition saying in effect that one who desires this end should adopt such-and-such best course of action (as in “You should do such-and-such” or, more directly, “Do such-and-such!”). L63 #418 gives us precisely such a practical syllogism: the desire of the reader to be saved sets the desired end; the three parts of the Wager Argument determine which course of action best achieves this end (viz., belief in God); and the concluding counsel on how to acquire that belief, taken together, are implicitly the exhortation “Believe in God!”. Through the activities of belief that the practical syllogism of L63 #418 counsels, the heart of the wagerer will come to the knowledge of an infinite thing (viz., God) that makes for one’s salvation.

Some might object to the multiplication of an infinitesimal probability and infinite happiness on the grounds that the multiplier and the multiplicand are different in kind

(probability is a quantity, while happiness is a quality) and so cannot be multiplied. It may make sense to speak of only one in an infinite number of chances, but, because happiness is not a quantity, it does not make sense to speak of infinite “happinesses”.

This is not a serious objection because both multiplier and multiplicand can be expressed in the same quantitative way. *Anything* for which one may pay to have a chance to win and to which a probability of winning may be assigned, can, according to Pascal’s definition of mathematical expectation, be given a quantitative value. For if $x \cdot y = z$, where x is the value of the prize, y the probability of winning it, and z how much one should at maximum be willing to pay to have a chance to win it, $x = z/y$. If y and z are quantitative values, it does not matter what x is, quantity or quality, its quantitative value is given by $x = z/y$. There is then no difference in kind between multiplier and multiplicand and they may be compared according to Pascal’s specifications and with his results.

More seriously John Elster has recently objected to the mathematically imprudent handling of infinitesimals (i.e. $1/\infty$) in Pascal’s multiplication of infinity by $1/\infty$ [Elster, J, 2003, p.65]. Elster points out that, in Pascal’s day, not so much as a mathematical definition of infinitesimals had been given. As Elster acknowledges in a footnote, such a definition was eventually developed in the twentieth century (by Abraham Robinson in his work on infinitesimals), but since it was not available in Pascal’s time, Pascal could not multiply infinitesimals by other quantities in the Wager Argument without their products also being undefined [Robinson, A., 1966, p.56]. And so, Elster claims, the part of the Wager Argument that relies on multiplying infinitesimals (i.e. the argument from dominating expectation) suffers from a lack of definition for its terms: Without a

definition of infinitesimals, Elster writes, “it makes no sense to ask if the product of this infinitesimally small number [viz., the chance of God existing] and the infinitely large value of eternal life is greater than some finite loss [viz., the cost of wagering]” [Elster, J., 2003, p.65].

My reply to this objection is that a mathematical concept, whether defined or undefined, is either useful or useless. If, as Elster admits, the concept of infinitesimals was ultimately defined (by Abraham Robinson), then it was a mathematically useful concept even before it was defined. Pascal might not have known how to express the idea of infinitesimals in a definition, but that does not mean that the argument in which he used them was mathematically useless. It merely means that it took until the twentieth century to properly interpret Pascal’s argument so that it would not suffer from a lack of definition. Modern mathematics clears up his argument just as modern medicine diagnoses diseases that hitherto remained undiagnosed.

In fact, the logic of the Wager Argument is flawless. In all of its parts –the argument from dominance, expectation and dominating expectation –Pascal always argues exactly the way a modern decision theorist would demand he argue. As Ian Hacking puts it “Pascal raised the logically relevant questions”, and “Pascal’s logic is sound”, so much so that to this day “decision theorists [use] the [Wager] arguments [Pascal] invented” [Hacking, I., 1975, p. 69 and Hacking, I., 2001, p.123]. The fact that Pascal’s Wager Argument conforms to the logic of modern decision theory undercuts purely formal objections to his argument for God’s existence. The Wager Argument is a perfectly *valid* way of arguing for God’s existence. However, we cannot accept all the premises of the Wager Argument. In particular, the partition of possible outcomes for

deciding for or against God's existence is suspect: "The most dubious premise [of the Wager Argument] is the partition, with its concomitant assignment of utilities. [Either] God is (and belief in Him brings salvation), or, God is not, (and non-believers who have heard the Word are damned)" [Hacking, I., 1975, p.69]. Although no actual world religion countenances such a possibility, it is theoretically possible that there exists a backwards God ("The Perverse Master" as Michael Martin calls him) who damns those who believe in him and saves those who do not [Martin, M., 1983, p. 59. See also Wetsel, D., 1994, p. 254]. Since the idea is far-fetched, Pascal may be excused for doing nothing to exclude this theoretical possibility. But Pascal also does nothing to substantiate his premise that participating in the sacraments, "having masses said, taking holy water, etc." will win salvation. For it is not a far-fetched idea that God is as some Protestants describe him, namely, apt to damn those who engage in the idolatry and witchcraft that, to their minds, masses and holy water represent. As Hacking says,

"Few non-believers [i.e. non-Catholics] now can suppose that Pascal's partition exhausts the possibilities. If we allow just one further alternative, namely the thesis of some fundamentalist sects, that Jehovah damns all who toy with 'holy water and sacraments', then the Catholic strategy no longer dominates."
[Hacking, I., 1975, p. 67]

(As an early example of this dissident attitude, see Roland Bainton's Here I Stand: A Life of Martin Luther. Bainton quotes a young Wittenberg student writing to his mother in 1523 to say that he had learned from Dr. Luther that "[S]acred salt and holy water [are] all [the] devil's tomfoolery") [Bainton, R.H., 1950, p.239]. If we allow that God might not approve of what the wagerer does to win salvation, then the decision to believe in God (and so do all that believers do, have masses said, take holy water,

etc.), no longer necessarily leads to the best outcome¹⁹. And so one can no longer recommend this decision as clearly dominating the decision not to believe in God. Since in all parts of the Wager Argument Pascal makes the assumption that deciding to believe in God will lead to salvation, and since we cannot accept the universal truth of this assumption, the *soundness* of the Wager Argument as a whole is put in question. The conclusion to believe in God is made infirm.

If the Wager Argument fails to draw a true conclusion, then it fails to produce knowledge, for truth is a necessary condition of knowledge. If the Wager Argument fails to produce knowledge, what way is left for Pascal to achieve certainty in religious knowledge by the heart?

Whole sections of the Pensées are devoted to proving the truth of the Christian religion in ways other than the Wager Argument, particularly by way of reference to miracles believers experience or perform, to prophecies fulfilled, and to uncanny Biblical coincidences (called “figures”) [Boutroux, E., 1900, p. 181]. The trouble with these proofs by “miracles, prophecies, and figures” is that, like the deistic argument, to work they too rely on a pre-existing belief in their audience. At L63 #570, for example, Pascal

¹⁹ Pascal has to recommend *some* religious practice or another as leading to salvation or else he will have no advice to give the wagerer. But couldn't Pascal simply say, “Do whatever religious practices as will lead you to salvation, be they Catholic, Protestant, or other” and leave the details of those practices up to the wagerer to discover for himself?

This will not work precisely because the Protestants whose God condemns the taking of holy water, and participating in sacraments might well also reject the assumption that there is *anything at all* the wagerer can do to win salvation. The founding tenet of the Protestant Reformation, after all, is that men's good deeds, however one defines them, are thoroughly corrupt and cannot win salvation. Protestants have always reminded Catholics that, in Christianity, salvation is rather something God *grants*, than something men *earn* [Atkinson, J., 1968, pp.76-77]. The possibility that there is nothing one can do to win salvation means that the decision to believe in God no longer dominates the other decisions the wagerer may make, and so the Wager Argument to believe in God no longer convinces.

points to a number of intriguing similarities between Joseph in the Old Testament and Jesus in the New. Pascal's reader is invited to consider how these similarities could have arisen if there were not a God who arranged the events of their lives such that Joseph would pre-figure Jesus. But in order to get so far as to consider how else these similarities could have arisen except by the design of God, one has first to believe what the Old and New Testaments say. But if one already believes in the Bible, then arguments from figures are unnecessary, because one is already convinced. If one does not already believe in the Bible (say, one thinks that tales told about Joseph were doctored by subsequent Christian biblical editors), then such comparisons, however striking, will not convince. And of course this problem applies to everything the Bible relates: miracles, prophecies, and figures.

With both the Wager Argument and the proofs by miracles, prophecies, and figures refuted, is there any way left for Pascal to achieve certainty in religious knowledge by the heart?

The only way left is for God to directly implant grace as a feeling in the heart of the believer, an avenue to certainty that Pascal sometimes mentions: "God inclines the hearts of those whom he loves – [both] of him who loves him, [and] him whom he loves" [L63 #382]. To judge by history since Pascal's time, this way for religious knowledge to achieve certainty has enjoyed the greatest popularity. Theologians of subsequent centuries (e.g. F.D.E. Schleiermacher, Paul Tillich, et al.) have sought to ground knowledge of God in a grace that is manifest in the feelings of the believer [Macquarrie, J., 1965, pp. 31-42]. This grounding of religion in a grace manifest as the feelings of the believer was also Pascal's personal religious experience, after all.

According to the Memorial –Pascal’s own record of his intense but purely subjective religious experience--, there is a kind of knowledge of God that is both certain and is achieved through feeling [L63 #913]. On the 23rd November, 1654, Pascal had what is called a “mystical experience” – a kind of spontaneous trance or hallucination –in which he felt God revealed himself directly to him [Steinmann, J., 1965, p. 83]. His description of this experience, though brief, is fairly involved: he expresses his remorse for his sins, his faith in God, Jesus Christ, and the Gospel, his renunciation of the world, and his desire to be united with God in eternity. For our purpose, the most significant part of the Memorial is its opening words:

“FIRE.

God of Abraham, God of Isaac, God of Jacob,
not of philosophers and scholars.

Certainty [certitude], Certainty, Feeling [sentiment], Joy, Peace” [L63 #913].

The opening word, “FIRE”, may be a metaphor for the brilliant intensity of Pascal’s mystical experience. But there is also a connection with the Memorial’s opening reference to fire and the words “God of Abraham, Isaac, and Jacob” for these are the words with which God makes himself known when he appears to Moses in a burning bush (Ex 3:6). In his own mystical experience, Pascal has also had (what he believes is) a direct revelation from God in which God has made himself known to him personally, as he did to Moses; and, though this knowledge came to Pascal through feelings [sentiments] of joy and peace, not the metaphysical arguments “of philosophers and scholars”, it nevertheless came to him with *certainty* [certitude], as he says. It is not important which kind of certainty (sense (2), “infallibility”, or sense (3), “indubitability”) this is (although the reference to Jesus’ moment of doubt on the cross later in the Memorial --“My God, why hast thou forsaken me?” (Mt. 27:46)—suggests

that Pascal's certainty here is meant in sense (3) because it is a triumph over doubt).

What is important is that, according to the Memorial, there is a kind of knowledge of God that is both certain and is achieved through feeling, a species of heart-knowledge, not through metaphysical arguments, the tools of reason.

Since Pascal had his mystical experience four years before he conceived the Pensées (which was begun in 1658), the certain feeling Pascal had of God's existence is unaffected by the failure of any part of that book (viz., the Wager Argument or the arguments from miracles, prophecies and figures) to lead to a knowledge of God. For him personally, the real grounds for the certainty of religious knowledge by the heart were feelings, particularly emotions of joy and peace.

The trouble with using the feelings (meaning emotions) God implants directly in the heart of the believer to achieve certainty in the case of religious knowledge is that this kind of certainty is neither reason-certainty nor heart-certainty. Reason-certainty and heart-certainty both refer to the universal truth of objective states of affairs, independent of the emotions of the believer, i.e. his subjective states. One's emotions only reflect the degree of belief one person in a certain proposition (in this case the proposition that God exists), not any truth that that belief enjoys independent of that one person. Unlike a physical sensation (e.g. that one is in pain), one's emotions alone do not under any condition imply that what one feels is true, let alone certain. Pascal's direct realism about sensations means that if I feel pain, it is because under normal conditions I am in pain. But his direct realism about sensations does not commit him to thinking that if I only have a feeling (meaning an emotion) that X is true, it is because it is true. Therefore,

alone among the five categories of knowledge by the heart and despite Pascal's efforts to the contrary, this one category of knowledge by the heart fails to achieve certainty.

3.5 How can Knowledge by the Heart Count as Knowledge given that Justification is Required for Knowledge?

If we grant the preceding arguments, then for the most part (excepting the religious category) the heart achieves certainty. This implies that knowledge by the heart is also true, for whatever is certain is true. We saw in Chapter One that knowledge by the heart is universally believed – even the sceptics, who try to doubt it, ultimately believe it, as Pascal says at L63 #110 (See 1.3). We therefore know that knowledge by the heart has satisfied two of the three conditions of the traditional analysis of knowledge, for it is true and believed. In other words, knowledge by the heart would count as knowledge, except that it lacks justification by induction or deduction. What else can the heart offer as justification? What business has Pascal got calling knowledge by the heart *knowledge* if he cannot offer some alternative justification?

Over the course of considering how the various categories of knowledge by the heart achieve certainty we have seen that, in each category, induction and deduction, the operations of reason, have been unable to help achieve certainty. To summarize briefly:

In the case of mathematical knowledge by the heart, induction is no help because it cannot verify an infinity of truths about the infinity of numbers by accumulating sensory experience about them. Deduction is also unhelpful achieving certainty in this category because the axioms of mathematics are first principles, and so cannot be

deduced from anything (in the familiar and uncontroversial sense of incurring an infinite regress were one to try to prove first principles).

In the case of physical knowledge by the heart we saw that induction is no help because sensory experience cannot investigate all regions of infinite space. But since a conceptual analysis of “space” also does not reveal what one wants to know about space, and since deduction works by conceptual analysis, it too is unhelpful in achieving certainty in this category of knowledge by the heart.

In Chapter Two, section 5 we saw that pseudo-inductive knowledge by the heart is also unassisted by induction and deduction. On the one hand, the peculiar nature of the classes of “man” and “day” prevent induction from finding the universal truth that is necessary to establish the certainty of “All men are mortal” and “This day has a successor.” (E.g., I cannot know that all men are mortal until I myself am dead, when it is too late). On the other hand, a conceptual analysis of “man” and “day” does not yield either “are mortal” or “has a successor” for either concept, and so these predicates cannot be deduced from them. So together, induction and deduction fail to achieve certainty in this category of knowledge by the heart.

In the case of self-conscious knowledge by the heart, where the self is known self-evidently (i.e., immediately), accumulated sensory experience cannot even *find* the self, much less draw the universal conclusions about it necessary for establishing certainty by induction. Also, an analysis of “self” will not yield “exists” or “is conscious”, so deduction, too, is unable to achieve certainty in this category of knowledge by the heart.

Finally, deducing God’s existence does not work because such deductions trade on a definition of God as First Cause or That Than Which No Greater can be Thought.

Deducing the existence of a God so defined does not prove the existence of God defined by his involvement in human salvation, which is the proof wanted and expected. But inducing God's existence from the design of the world is also not possible, because it is only if one already believes in God that one thinks that one's accumulated sensory experience of the world has a design. But if one already believes in God, all proof of his existence is unnecessary. If one does not believe in God, it does not matter how much sensory experience of the world one accumulates: no amount of it will ever add up to a proof of God's existence. So in the case of religious knowledge by the heart, as well, induction and deduction are powerless to achieve certainty.

The conclusion to be drawn from this summary is that induction and deduction, i.e. reason, do not achieve certainty in any of the categories of knowledge by the heart. What is remarkable about Pascal's position is that, despite the powerlessness of induction and deduction to achieve certainty in any of these categories, for the most part certainty is achieved just the same. With the exception of religious knowledge by the heart which fails to achieve any kind of certainty, certainty is achieved by means other than deduction and induction (namely, by self-evidence), and this alternate means constitutes the justification needed for each of the categories of the heart to qualify as knowledge.

Pascal's point seems to be that there is justification beyond justification by reason, and that therefore there is knowledge beyond knowledge by reason, namely, knowledge by the heart. By identifying the knowledge by the heart Pascal is trying to find a place in knowledge for those propositions that are not demonstrated by either induction or deduction, but by another means. Just because knowledge by the heart is distinguished from knowledge by reason does not mean that knowledge by the heart lacks justification.

It means only that the justification is by means that are neither deduction nor induction, viz., justification by self-evidence.

(This theory of Pascal's epistemology incidentally illuminates what Pascal may have been thinking when he wrote that "[t]he heart has its reasons that the reason does not know" [L63 #423]. According to the preceding theory of Pascal's epistemology (by which theory Pascal is said to show that there is knowledge beyond knowledge by reason), this famous epigram says that knowledge by the heart has means of justification beyond deduction and induction, the operations of reason.)

Recall that, on Plato's account of knowledge, one either knows a thing or one has an opinion about it, and that justification is what distinguishes knowledge from opinion. The content of the various categories of knowledge by the heart does not constitute knowledge in the same way as knowledge by reason does – by deduction or induction, but they still deserve better than to be rejected as mere *opinion*. Trying to avoid Plato's dichotomy of knowledge and opinion, Pascal uncovers an intermediary between knowledge by reason and opinion called *knowledge by the heart*. In a word, Pascal is trying to expand the traditional analysis of knowledge (justified, true belief) in order to include propositions whose truth is not proved by reason but which nevertheless deserve to count as some kind of knowledge because they are proved in another way. Pierre Fermat, Pascal's correspondent and long-distance collaborator in the invention of probability theory, said that the significance of his mathematical work involved disproving the idea that the Ancients knew everything [Fermat, P., 1894, V. II, p.436]. It is fitting that in Pascal's various examples of knowledge by the heart we see something which from Plato onwards most philosophers overlooked; viz., things which really should

be classified as knowledge, but which the Platonic concept of knowledge does not accommodate.

3.6 Pascal's Epistemology

The overall picture of Pascal's epistemology that emerges from the preceding sections is this: There are two epistemological faculties for Pascal, knowledge by the heart and knowledge by reason. Knowledge by reason achieves certainty by induction and deduction (See Chapter Two, section 3). Knowledge by the heart knows the infinite and its general means for doing so with certainty is through self-evidence.

Knowledge by reason depends on knowledge by the heart. The senses accumulate experiences of the world. Their certainty guaranteed by self-evidence, these individual sensory experiences when accumulated make inductions, which allow for generalizations to be made about the world. Together with self-evident truths of mathematics, these inductive generalizations form the universals from which deductions about the world are made. If the senses were not certified by their self-evidence to the heart; if space were not reliably uniformly three-dimensional; if time did not regularly and inexorably advance; etc. the inductions from which generalizations are made would be unreliable at best. For without knowledge by the heart no universal truths would emerge out of the stream of experiences the senses accumulate. If these inductions were unreliable, there could be no certainty in deduction either (for that is where the universals from which deductions are made derive) and the sciences that depend on these deductions would also be uncertain.

Since we depend on mathematics and sense perceptions for truth about the world, sound deductions must derive from either the axioms of mathematics or from

generalizations based on sensory experience, i.e. induction. In either case, deduction must rely on the knowledge by the heart, for, as we have seen, the axioms of mathematics are known by the heart, and sensory experience is certified by its self-evidence to the heart. Since induction also relies on sensory experience for the accumulation of universal knowledge of particulars, and since sensory experience depends on self-evidence to the heart for its certainty, both deduction and induction rely on the knowledge by the heart. Since deduction and induction are the only operations of reason, and since they both rely on the knowledge by the heart, reason relies on the knowledge by the heart. This may be what Pascal means when he says that reason must rely on the heart and base all its arguments upon it [L63 #110].

3.7 Pascal's Contribution to the History of Epistemology

In Chapter One, section 5, we saw that in the Conversation with de Saci Pascal rejects philosophy in favour of religion [TMW, p.390]. It is surprising, then, that Pascal has any contributions to make to philosophy, but three contributions that he makes to epistemology in particular have come out over the course of this last chapter.

(a) Perhaps the most obvious contribution that Pascal makes to the history of epistemology is his anticipation of direct realism. In this chapter we have seen how Pascal's epistemological ideas express direct realism –for example, in Pascal's account of how it is known that space is three-dimensional. Scholars (e.g. Jean Khalfa and Leszek Kolakowski) have occasionally dismissed Pascal as having either no positive epistemology or even no epistemology at all: "Pascal's theory of knowledge is a 'negative epistemology': it constantly tells us what knowledge cannot be" and "[For

Pascal] there is no epistemology at all” [Khalifa, J., 2003, p.124; and Kolakowski, L., 1995, p.192]. But if Pascal’s epistemology is a direct realist epistemology (such as was possibly espoused by Aristotle before him and was definitely espoused by Thomas Reid after him), surely Pascal’s epistemology cannot be dismissed without also discounting the epistemology of those other philosophers (such as Aristotle and Reid) who propounded a direct realist epistemology, something no scholar would do. To this day, in fact, direct realist epistemology continues to interest working epistemologists (See, for example, Alvin Plantinga’s 1993 book Warrant and Proper Function).

(b) By introducing probability theory into science Pascal expanded what we mean by knowledge. Most of what we now count as knowledge (e.g. knowledge of the physical sciences) would not have counted as knowledge for Plato, for what we now know in the physical sciences is simply accumulated data of the senses to which a mathematical rule is eventually fitted within a certain statistical tolerance. According to Plato, since our physical sciences do not provide logically necessary (i.e. metaphysically certain) knowledge, they would at best count as opinion; indeed, their derivation from sensory experience might consign them to an even lower epistemological class.

It is true that, by Pascal’s time, Galileo had already written that nature “is a book written in the language of mathematics” and that contemporary scientists were making inroads in the application of *classical* (meaning Ancient Greek) mathematics to the natural world [Drake, S., 1957, p. 237-238]. But this application of classical mathematics to nature was limited to only a few areas of investigation, such as astronomy, optics, and mechanics –the so-called high sciences. The innovation that made it possible to apply mathematics to the so-called low sciences, and so expand the areas in which mathematics

could be applied, was the invention of probability theory, a kind of *post-classical* mathematics. Probability theory is essentially a kind of mathematical method for extrapolating the whole of a set of data from a part of the set [Dunham, W., 1994, pp 18-19]. As we have seen, the problem of induction hampered induction in cases where sets of particulars are infinite (i.e. perpetually incomplete), and so investigation of the infinite world by induction was also impeded. But helped by probability theory, induction could now make an incomplete series of observations of a given phenomenon represent the complete set with almost as much certainty as deduction from first principles could. Within certain statistical limits, the gap between general and universal truth was bridged. Probability theory thus allowed the low sciences to approximate the metaphysical certainty that formerly belonged exclusively to the high sciences. Since they could now approximate certainty by use of mathematics (albeit a *new kind* of mathematics), these low sciences could pretend to knowledge, and so rise to legitimacy in the scientific community.

This surely must count, albeit indirectly, as a contribution Pascal makes to epistemology inasmuch as what epistemologists consider as their field was enlarged by his work.

(c) The Wager Argument and the proofs from “miracles, prophecies and figures” may have failed to achieve more than mere subjective certainty. But by associating religious knowledge by the heart with other categories of knowledge that also lack justification by reason, Pascal makes religious knowledge as legitimate as the other categories of knowledge by the heart. For, although mathematical, physical, pseudo-inductive, and self-conscious knowledge by the heart all deserve to count as knowledge, they also all

lack justification by reason, just as religious knowledge by the heart lacks justification by reason. Ensuring that discussion (if not proof) of the knowledge of God always remains a legitimate part of epistemology must surely count as a contribution to epistemology.

3.8 *Closing Summary*

Pascal accepts the infallibilist version of the traditional account of knowledge as justified, certain belief, but he interprets this account unconventionally. Like his contemporary, Descartes, Pascal allows that certainty mean more than just metaphysical certainty – Pascal discovers a second kind of certainty, which we here call heart-certainty, as opposed to the metaphysical certainty that reason produces (here called reason-certainty). In addition to this, his own innovation is to expand what counts as justification beyond justification by reason; that is, beyond induction and deduction. Despite the powerlessness of induction and deduction to achieve certainty in the categories of knowledge by the heart, Pascal finds other ways (e.g. self-evidence or the Wager Argument) for the heart to achieve certainty that are neither induction nor deduction. By finding ways other than induction and deduction for knowledge to achieve certainty, Pascal opened new areas of knowledge up to the scientist to explore and set out new examples of knowledge for the epistemologist to explain.

Appendix:

Concordance between the L. Lafuma 1963 edition and the P. Sellier edition of the Pensées.

L63	S
1-382	37-414
383-417	2-36
418-503	680-738
504-508	672-679
509-514	669-671
515-829	452-668
830-912	419-451
913	742
914-917	744-746
918-920	748-751
921-931	752-759
932	758
933-935	761-762
936	751
937-948	763-769
949	415
950-952	787-788
953	417
954-967	789-800
968	416
969-972	801-804
973	698
974	771
975-976	739-740
977	786
978	743
979	747
980	760
981-982	770
983	805
984	781
985-991	806-812
992	782
993	813

Reprinted from A.J. Krailsheimer's translation of Pascal, B., Pensées, (Toronto: Penguin Books Canada Ltd., 1995) p. xxxi

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