Truth and Epistemic Value

> But how can we find the measure of amount-that-is-said? At any rate it is
> there; and our theory must be able to give it expression.
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> – Wittgenstein, *Notebooks*, June 2, 1915

The castle at Dirleton was abandoned more than 300 years ago, but it must have been something in its day. John De Vaux ordered its construction in the year 1240. His father William had given the island of Fidra and the De Vaux castle on it to the monks of Dryburgh Abbey and John needed a replacement family home. Like most castles, the one at Dirleton was sieged and sacked and rebuilt more times than anyone cares to remember. It was the castle's exposed position in the rich farmland of East Lothian, close to the Scottish-English border, that drew so much attention. Today the castle is a ruin, consisting of a large kite-shaped courtyard flanked by buildings on the south and east, fragments of curtain walls and towers, crumbling cellars and stores, and the remains of what was once a formidable moat.

This, anyway, is what the tourist pamphlet they sell at the castle says; I don't know whether all of it is true, but we can imagine that it is. There is nothing about Dirleton or its castle in the *Encyclopedia Britannica*, although Edward I of England once stayed here, and Cromwell himself sacked the place and had its defenders hanged.

Consider the question: what has more truth in it, the tourist pamphlet or the *Encyclopedia Britannica*? Or to put the question another way, to start to bring its relevance to epistemology into focus: Suppose that each contains nothing but the truth, and that on Monday I learn exactly the content of the tourist pamphlet while you learn exactly the content of the *Encyclopedia Britannica*. Who learns more that Monday?

The answer is obvious: you do of course. The *Encyclopedia Britannica* has much more, vastly more, true content than the tourist pamphlet, as well it should. What kind of encyclopedia would it be if it did not? What is much less obvious is what this is, what it is for the *Encyclopedia Britannica* to contain more truth than the pamphlet. As we shall see, the most natural or salient answer to this question – that the encyclopedia contains more truth than the pamphlet because it contains a

greater number of truths – is ultimately incredible, or at least deserves to be. I will not attempt to say here what it is for the encyclopedia to contain more truth than the pamphlet, or what, in general, more truth is. The goal will rather be to show what it is not.

I will pursue this descriptive question concerning the right way to understand *quantity of truth* because of the central place of truth in epistemology. Moreover, I will argue that a better understanding of this descriptive issue has the potential to reshape significant aspects of epistemology. To foreshadow that discussion, and give some indication of why an accurate account of the quantitative dimension of truth is important to epistemology, consider how common it is, within epistemology, to invoke the notion of acquiring truth, or of acquiring truth while avoiding error. Remarks of the following sort are abundantly familiar:

> Alston: "[O]ur basic cognitive aim is to come into possession of as much truth as possible and to avoid false beliefs." (1982, 7)

> Goldman: "A very plausible set of [cognitive] goals are the oft-cited aims of believing the truth—as much truth as possible—and avoiding error." (1980, 32)

> Sosa: "An intellectual virtue is a quality bound to help maximize one's surplus of truth over error." (1985, 227)

> Moser: "I have suggested that epistemic justification is essentially related to the cognitive goal of truth….We aim both to avoid as much error as we can and to obtain as much truth as we can." (1985, 5)

> Pritchard: "We want to maximise truth." (2014, 123)

> Lehrer: "What is intellectual virtue? It is a virtue that aims at an intellectual goal. What might that be? To obtain truth and avoid error in one's intellectual endeavors." (2000, 210)

> Quine: "For me normative epistemology is a branch of engineering. It is the technology of truth-seeking…it is a matter of efficacy for an ulterior end, truth." (1986, 664–665)

There are small differences in expression, but the central idea in each case is that of believing more truth (or of believing more truth and less falsehood). The notion of believing more truth also features in epistemology less explicitly, via the notion of knowing more or of having more knowledge. Consider for example these recent remarks by Paulina Sliwa, made in the course of defending reductionist approaches to understanding:

> Better understanding is simply a matter of more knowledge. Differences in understanding… are explained by differences in how much the agent knows about the matter at hand. And this difference, in turn, is a difference in the *content* of what is known. A reductionist account of understanding can thus accommodate the natural thought that understanding comes in

degrees: understanding comes in different degrees because what is known comes in different amounts. And so, it can explain why it's so natural to describe the epistemic asymmetry between parent and child in terms of a difference in understanding. Since the parent knows more…he understands better. (2015, 69, italics in original)[1]

Here there is no explicit mention of more or less truth. But what would more knowledge be other than knowledge of more truth or of more of what is true? If there is such a thing – if it is possible to believe more or less truth – then there is such a thing as a quantity of truth, and it makes sense for us to find out what that is. We know the Encyclopaedia Britannica contains more truth than the pamphlet; that is not at issue. What we don't know, what, I think, we do not even have any remotely plausible theories concerning, is what this is, or what this amounts to. Hence insofar as the notion of getting more truth, or of increasing the truth one believes, or of maximizing the truth matter to epistemology, so too ought to matter the question of what this is.

In this paper, I will deepen and extend the broad line of argument introduced in Treanor 2013. There the focus was on how to make sense of the extent of a person's knowledge, and on a widely endorsed argument regarding the aim of belief that rests on an undefended and hidden assumption concerning this question. That paper, however, construes more knowledge as a matter of more true belief (or more true belief that meets the right normative standard, e.g., justification), which doesn't adequately separate questions about the nature of belief from questions about the nature of what is believed. In the current paper, the focus will shift from mental representation to the truths that minds represent. Framing the issue this way will let us set aside questions about belief and focus more narrowly on truth or truths, which is appropriate given the central place of veritism in epistemology. I will try to show that what is at stake for epistemology is not merely a widely endorsed argument concerning the aim of belief, but the intelligibility of a picture of the quantitative dimension of truth that is pervasive across epistemology. We appeal to the notion of more and less truth and so should want to know what that is. But we also have an implicit picture of the quantitative dimension of truth that corresponds to the one I will discredit in this paper, and that implicit picture informs or underpins the most prominent normative views in epistemology.

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[1] Sliwa's focus is on understanding why, but see Kelp 2015 for a similar reductive proposal regarding understanding phenomena that appeals to the notion of more and less knowledge.

Or so I shall argue. For now, let us return to the encyclopedia and the pamphlet. My task will be to explore a possibility that I have elsewhere expressed scepticism towards[2], namely whether a decompositional approach to truths, which has a storied history, can vindicate the implicit picture I aim to discredit.

Some answers to the question of what it is for the encyclopedia to contain more truth than the pamphlet would tempt no one, but warrant a brief glance because doing so will reveal two problems that any satisfactory account would have to avoid. Consider the proposal that the *Encyclopedia Britannica* contains more truth because it has more pages than the tourist pamphlet, or because it weighs more. These answers are wrong in two ways: First, because although the encyclopedia does have more pages than the tourist pamphlet and does weigh more, this is merely contingent, even if we hold the content of each fixed. The true content of each could be expressed in as many or as few pages, or with as much or as little heft, as you please, at least with the right technology. Second, and more subtly, these sorts of answers fail because even if there were a mapping between amount of true content and number of pages or collective heft, the number of pages or the heft would follow from the amount of true content, not the other way around. One could read off the amount of true content from the number of pages or the heft, but that wouldn't be *what it is* for there to be that amount of true content.

Both problems affect other less immediately implausible proposals. One might think that the *Encyclopedia Britannica* has more true content in virtue of having more (many more) true sentences. After all, the tourist pamphlet has just 37, whereas the *Encyclopedia Britannica* has many tens of thousands. But this will not work, since the true content of the pamphlet and of the encyclopedia could be rewritten as arbitrarily many true sentences, as long as one threw style to the wind. The *Encyclopedia Britannica*, for example, could be published as one long grotesque sentence; yet if it were, we would not be tempted in the least to think the tourist pamphlet, with its 37 true sentences, has 37 times as much truth in it. Similarly, the true content of each could be expressed using a

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[2] See Treanor 2014, which points to the complexity of natural language as raising a problem for the trivial truths argument as it is standardly presented. That paper expresses skepticism about whether ordinary, everyday truths decompose into some number of atomic truths, but does not explore the issue.

radically different number of words than were in fact used: the tourist pamphlet, for instance, could have said not that "the castle was a medieval fortress" but that "the castle was an x", where 'x' here stands for a specification in at least some minimum degree of detail of what a fortress is and what distinguishes fortresses that are medieval from fortresses that are not. Moreover, if there are upper and lower bounds on the number of words that could have been used to express the content of the pamphlet and of the encyclopedia, those bounds seem to be imposed by, rather than to determine, how much content each contains.

We might hope to avoid both problems by appealing to a privileged vocabulary in which the true content the pamphlet contains and the true content the encyclopedia contains could be rewritten with what we might think of as perfect explicitness. In this vocabulary, for instance, there would be no word – no single word – for bachelorhood, since to say that someone is a bachelor is to say not merely one thing about him, but several. It can easily look otherwise. Consider Pope Francis. One way to express the truth that Francis is a bachelor is by using the English phrase 'Francis is a bachelor'. That makes it look as if what is true is one truth, no more and no less. But another way to express the same truth is by using the English sentence 'Francis is adult and Francis is male and Francis is unmarried'. Doing that, however, makes it look as if there are three truths there, not merely one. Moreover, there is something it is to be adult, something it is to be male, and something it is to be unmarried, something that in each case consists in the instantiation of various other properties and relations.[3] The analysis could continue, one might think, 'all the way down'. The privileged vocabulary we are imagining is one that would express the truth that Francis is a bachelor, and any other truth, in a way that reveals exactly how many truths that truth consists in.

The idea of such a language, and the decompositional picture of language and reality that it involves, has a noble pedigree. Here, for example, is Susan Stebbing speaking to the British Academy in 1933:

> A directional analysis of a sentence 'S' consists of a set of steps such that (i) each step results in a sentence (to be called a 'resultant') which is such that this sentence reveals more clearly the multiplicity of the fact (expressed both by 'S' and by the resultant) so that the resultant shows more clearly the structure of the fact expressed; and if the analysis were completed,

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[3] If names have a descriptive component, then the compression occurs not just in the predicate but in the subject as well.

the *final* resultant would have the same multiplicity as the fact expressed by 'S' and by the resultant at each step. Thus the final resultant would reveal the form, the elements and the mode of their combination….The set of simple facts terminating a directional analysis I call *basic facts*. (81-82)

Stebbing was but one of many philosophers in the first half of the 20th century who endorsed some form of logical atomism, to use Russell's term. The immediate inspiration was Wittgenstein, who had insisted in the *Tractatus* that "It is obvious that in the analysis of propositions we must come to elementary propositions, which consist of names in immediate combination" (4.221), that "there is one and only one complete analysis of the proposition" (3.25), that "the simplest proposition, the elementary proposition, asserts the existence of an atomic fact" (4.21), and that "propositions are truth-functions of elementary propositions" (5). Moreover, as the quotation that opens this paper illustrates, he had earlier recognised that a theory of *what is said* must make sense of *how much is said*, and the Tractarian picture, whatever its flaws, aspired to do that. The roots of this decompositional picture of language or thought are older than Wittgenstein, however, reaching back at least to the British Empiricists. As Locke put the central insight:

> all our complex Ideas are ultimately resolvable into simple Ideas, of which they are compounded, and originally made up, though perhaps their immediate Ingredients, as I may so say, are also complex Ideas. (*Essay*, II, xxii, 9)

He offers as an example a partial decompositional analysis of the idea *lie*, and then says:

> I think I need not go any further in the analysis of that complex idea we call a lie: what I have said is enough to show that it is made up of simple ideas. And it could not be but an offensive tediousness to my reader, to trouble him with a more minute enumeration of every particular simple idea that goes to this complex one; which, from what has been said, he cannot but be able to make out to himself. The same may be done in all our complex ideas whatsoever; which, however compounded and decompounded, may at last be resolved into simple ideas, which are all the materials of knowledge or thought we have, or can have." (*Essay*, II, xxii, 9)

There are significant differences between these various forms of atomism, their motivations, and their prospects. But in each case the central idea is that of a structured, compositional hierarchy at the bottom level of which is something close to the privileged vocabulary we imagined above. That Francis is a bachelor is true, and indeed, in a manner of speaking, is one truth or one fact. But on this picture it is also, at bottom, many truths or facts in combination. To know, on this picture, how much is true when it is true that Francis is a bachelor, one would need to count truths or facts not

dressed in the cloth of natural language, but as they are beneath that, at some bottom level, where their shining multiplicity is revealed.

If we could rewrite the pamphlet and the encyclopedia in atomic sentences of such a vocabulary, there would be a one-to-one mapping between language and reality. As long as we were careful to excise redundancy, we could then count how many sentences the rewritten pamphlet and the rewritten encyclopedia each contain and know the real size of the truth that they express. This is because we would know how many truths each contained *and* because there would be an appropriate explanatory connection between cardinality at the level of the final decomposition and at the lowest level of the reality that truth is about. We would therefore avoid the problem that so long as we are talking or thinking in natural language, the relation between what we say and the number of sentences we use to say it is contingent and variable. Moreover, because true atomic sentences in the privileged vocabulary would reflect without distortion the ultimate ontology of the reality they concern, the proposed reduction of amount of true content to number of true sentences would be explanatory rather than arbitrary. The truth expressed by, for example, the encyclopaedia, would not be the size it is because it was expressed in just these many atomic sentences; to say only that would be to ignore an explanatory burden. Rather, the truth expressed by the encyclopedia would be the size it is because it says that just these many objects instantiate just these many simple properties, and to say that is to say a certain amount about the world. One counts true atomic sentences on this picture not because they are where the buck stops, so to speak, but because they stand in a one to one correspondence to where the buck stops, that is, to the fundamental level of reality wherein atomic objects bear atomic properties. This aspect of the proposal would dissolve the problem that one would not provide an *account* of what it is for something to contain some amount of truth merely by pointing to a mapping between amount of truth and number of linguistic items of some language (e.g., true sentences).

This idea of a logically perfect language, as Russell put it,[4] is a beautiful vision, but it asks too much. It is wildly speculative to think that there are simple objects, simple properties, and a

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[4] "In a logically perfect language the words in a proposition would correspond one by one with the components of the corresponding fact, with the exception of such words as 'or', 'not', 'if', 'then', which have a

semantic foundation of ordinary language that consists in vocabulary that predicates such

properties of such objects. Those are characters in a creation myth invented to explain what we do

not understand.[5] I will not try to argue this point, as I think it would be widely, perhaps universally,

accepted. However language works, it is not by hierarchical descent, and whether there be simple

objects and properties is not something that follows from our capacity for meaningful or truth-apt

talk. Moreover, even if there are such objects, properties, and corresponding vocabulary, it is

implausible that the sentences of the tourist pamphlet and the *Encyclopedia Britannica* could be

rewritten in that vocabulary – not without loss but without addition. The tourist pamphlet says the

castle is made of sandstone. It does not say – not explicitly, of course, but not even implicitly, that

is, it is not part of the truth contained in the pamphlet – the *full truth* concerning what sandstone is.

That is something we might hope one day to discover and represent in English sentences, if time

and talent allow. It is not already there in our language as we speak it.

There is an elegant passage from Thomas Reid that illustrates both the promise and problem.

Reid writes:

> [T]he proposition is more or less comprehensive, according as the predicate is. Thus, when I
> say that this seal is gold, by this single proposition I affirm of it all the properties which that
> metal is known to have. When I say of any man that he is a mathematician, this appellation
> comprehends all the attributes that belong to him as an animal, as a man, and as one who has
> studied mathematics. When I say that the orbit of the planet Mercury is an ellipsis, I thereby
> affirm of that orbit all the properties which Apollonius and other geometricians have
> discovered, or may discover, of that species of figure.….
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> It is by means of such extensive and comprehensive propositions, that human knowledge
> is condensed, as it were, into a size adapted to the capacity of the human mind, with greater
> addition to its beauty, and without any diminutions of its distinctness and perspicuity.
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> General propositions in science may be compared to the seed of a planet, which,
> according to some philosophers, has not only the whole future plant inclosed within it, but
> the seeds of that plant, and the plants that shall spring from them through all future
> generations.

But the similitude falls short in this respect, that time and accidents, not in our power, must concur to disclose the contents of the seed, and bring them into our view; whereas the contents of a general proposition may be brought forth, ripened, and exposed to view at our pleasure, and in an instant.

Thus the wisdom of ages, and the most sublime theorems of science, may be laid up, like an Iliad in a nut-shell, and transmitted to future generations. And this noble purpose of language can only be accomplished by means of general words annexed to the divisions and subdivisions of things. (Of Abstraction, I)

Reid vacillates here between taking a predicate to compress *all that is known or that has been discovered* about a property, and taking it to compress *all that is true or discoverable* about a property. Let us set this vacillation aside. What Reid gets right is that natural language compresses information – and thank heavens it does. A single word – in his examples, 'gold', 'mathematician', 'ellipsis' – predicated of an object, says a whole lot about it.[6] What Reid gets wrong is that the extent of this compression is obvious and that the compression can be easily and quickly reversed.

At this point we have the following two claims: First, that it is deeply credible, perhaps even obviously true, that the *Encyclopedia Britannica* contains more truth than the tourist pamphlet. Second, that this is not a matter of the tourist pamphlet containing fewer pages, weighing less, having fewer true English sentences printed in it, having fewer words, or being such that its true content would be expressed in fewer words or sentences of some privileged vocabulary. Let me clarify both claims. First, to say it is deeply credible, perhaps even obviously true, that the *Encyclopedia Britannica* contains more truth is to say that it can be taken as a starting point that an adequate theory has to make sense of. Second, to say that the content of the pamphlet and the encyclopedia could not be rewritten, even in principle, in a privileged vocabulary that reveals the true size of the truth expressed is not to make any positive claim about the ultimate structure of the states of affairs, understood as worldly entities, involving Dirleton Castle or the varied subject matter of the *Encyclopedia Britannica*. The claim is rather that the English sentences that compose the pamphlet and the encyclopedia cannot be translated into a language that consists of simple terms

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[6] Here is how Locke put the same point and the attendant gratitude: "What a number of different ideas are by this means [using one word for a complex idea] wrapped up in one short sound, and how much of our time and breath is thereby saved, any one will see, who will but take the pains to enumerate all the ideas that either 'reprieve' or 'appeal' stand for; and instead of either of those names, use a periphrasis, to make any one understand their meaning." (*Essay*, II, XXII, 7)

predicating simple properties of simple objects. Wherever truth and being meet, it is not in so dark and secret a place.

The preceding discussion has focused on the question of whether we can make sense of the idea of genuinely atomic truths, understood as the sorts of things the counting of which would yield a non-arbitrary measure on truth or true content. Let us suppose those arguments fail and that counting of some fully decomposed truths does work in those cases. Would it work in all cases? In other words, would it be merely a tool to use in a limited range of cases, or would it *answer* the question of what it is to contain more truth? To resolve this, let's consider not the tourist brochure and the *Encyclopedia Britannica*, but what I will call their alethic complements.[7] The alethic complement of the tourist brochure is something that contains or expresses every truth that it does not. The alethic complement of the *Encyclopedia Britannica* contains or expresses every truth that it does not. The relation of being an alethic complement is symmetric and a pair of alethic complements is a complete description of the world.

The alethic complement of the tourist pamphlet contains a vast amount of truth – just think of all the truth, about any topic whatsoever, that the tourist brochure leaves out. The truth contained in the alethic complement of the *Encyclopedia Britannica* is also vast, as well-researched and comprehensive an encyclopedia as it is. Yet the truth contained in the alethic complement of the *Encyclopedia Britannica* is not quite so vast as the truth contained in the alethic complement of the tourist pamphlet. This is more or less the claim we started with, given what an alethic complement is: there is more truth in the *Encyclopedia Britannica* than in the tourist pamphlet. But if there is any number of truths at all, then it is an infinite number, presumably a very large infinity. So the two alethic complements each contain infinitely many truths – and importantly and most plausibly, the same order of infinity. So we have a difference in how much truth each contains without any difference in the cardinality of the truths that each contains.

It is worth highlighting a parallel between the argument I have just given and an existing, although underappreciated, argument in metaphysics and philosophy of language. The parallel

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[7] See Treanor 2013, p 581 for a substantially identical argument, one that appeals to epistemic rather than alethic complements.

illuminates how the question of what more and less truth is, and therefore the epistemological significance of this question, is entangled with foundational issues in metaphysics and philosophy of language. These are not connections that we can explore now, but let's plant a flag to mark the spot.

Recall the argument just given that appeals to alethic complements. Now consider the following argument offered by David Vander Laan, concerning whether similarity between possible worlds can be understood by appeal to the cardinality of classes of propositions. First, Vander Laan sketches the view of similarity that he will challenge:

> Let us call the first way of analysing similarity the cardinality method. The idea is simply that the smaller the cardinality of the class of propositions on which the two worlds differ, the more similar they are to each other. (Two worlds *differ* on a proposition whenever the proposition is true in one of them, but not in the other…) The maximum of similarity is the minimum of difference, i.e., two worlds that differ on no propositions are maximally similar. They are, in fact, identical….A world differing from the actual on four score propositions will be more similar to the actual world than one differing on a countable infinity of propositions, which in turn will be more similar than a world differing on continuum-many propositions. Worlds that differ from the actual world by the same number of propositions will be equally similar to it. (272-273)

The cardinality-of-propositions account of similarity he sketches is in close kinship with the cardinality or counting picture of what more truth is. On the picture Vander Laan describes, two worlds are perfectly similar when every proposition that is true in the first world is true in the second and vice versa, and similarity decreases as the number of propositions true in one world but not the other increases. This account of similarity is the metaphysical, or worldly, equivalent of the cardinality-of-truths picture of more and less truth, which concerns not the world directly but representation of it. We can see this by thinking not of two possible worlds and the similarity relation that holds between them, but of a possible world and a *book*, or set of propositions, that purports to describe it, and the faithfulness with which the book represents the world. On the cardinality-of-truths account of more and less truth, a book contains the maximum amount of truth, vis-à-vis a world, if and only if every proposition that is true at the world is in the book. As the number of propositions that are true at that world but not in the book increases, the quantity of truth in the book decreases. By the time we reach the *Encyclopedia Britannica* and the lowly pamphlet,

on this account, how much truth it contains is greatly diminished, in proportion to how many propositions true at the actual world are absent from each of them.

What does Vander Laan think of this cardinality-of-propositions account of similarity? His complaint will sound familiar:

> But the cardinality method does not general a notion of similarity that is at all useful in comparing the nearness of possible worlds….the cardinality method would not yield a usable similarity relation because the cardinality of the differences would always be equal to that of all propositions.
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> This… point may be seen as follows. Let us pretend that the class of all propositions has a cardinality, $\varkappa$, and that each of its subclasses has a cardinality as well. Now consider two distinct possible worlds, W and W*, which differ at least on some proposition P. For every proposition Q which W and W* share, there is a distinct proposition on which they differ, viz., Q $\supset$ P. So if $\varkappa_d$ is the cardinality of the class of propositions on which W and W* differ and $\varkappa_s$ that of the class of propositions they share, $\varkappa_s \leq \varkappa_d$. Because W and W* either differ on or share each particular proposition, $\varkappa_s + \varkappa_d = \varkappa$. Finally, since any infinite cardinal added to itself yields itself, $\varkappa_d = \varkappa_d + \varkappa_d \geq \varkappa_s + \varkappa_d = \varkappa$. Clearly $\varkappa_d$ is not greater than $\varkappa$, so $\varkappa_d = \varkappa$. So for any two possible worlds, the cardinality of the class of propositions on which they differ is equal to the cardinality of the class of all propositions.
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> But then the cardinality method evidently fails to distinguish nearby possible worlds from those very unlike the actual world. Each possible world is like any other, as far as this method can tell us. (273)

The proposal for what amount of truth is that reduces it to a number of truths is akin to the proposal Vander Laan is considering, and fails for the same reason: So long as there is an infinite number of propositions, then as soon as two possible worlds, or two bodies of truth, differ at all, they differ on the same number of propositions.[8]

It is no accident that the cardinality-of-propositions account of world similarity succumbs to the same problem that the cardinality-of-truths account of more and less truth does. The notions of a set of propositions and of a possible world are deeply intertwined. Some people, of course, think a possible world just is a set of propositions meeting certain conditions, those of maximality and consistency. But even those who reject this view almost always think that such a set of propositions perfectly describes a possible world, and that if the world described is the actual world, then one who believes all and only those propositions knows everything there is to know while being wrong

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[8] Readers may have noticed that Vander Laan says "let us pretend that the class of all propositions has a cardinality". He is here alluding to an argument he gave earlier to the conclusion that there is no set of propositions (see also Grim 1984). If one accepts this argument, then one could reach the conclusion quite directly that differences in amount of truth cannot, in general, be given by differences in cardinality. The alethic complements of the encyclopedia and the pamphlet contain different amounts of truth. But the truth that they contain has no cardinality at all. So amount of truth does not reduce to cardinality of truths.

about nothing. The problem of understanding what it is for one world to be more similar to another moves in step with, to use a deliberately vague expression, the problem of understanding what it is for a representation of the world to more fully match the world. The first problem is worldly, concerning a relation that holds between entities. The second problem is at the level of representation, concerning a relation that holds between a representation and what it represents. But they are, or are close to, the same problem.

If we return to the central question we have been considering, that of how to understand quantities of truth, one might at this point think an entirely different approach is called for. Instead of trying to measure how much truth something contains by counting truths, one might look instead to how much difference knowing a body of truth makes to one's practical abilities. On this suggestion, coming to know the truth regarding Dirleton Castle, as captured by the tourist pamphlet, increases one's practical ability to some extent, but not nearly as much as does coming to know the truth in the *Encyclopedia Britannica*. For instance, having read the tourist brochure, and absorbed the information, there are many questions I can answer that I could not answer before. Moreover, if I found myself in the castle's decaying pantry, I would have the ability to find my way to the kitchen, since I know it is just through the archway and a bit to the right. If I were transported back to the 15th century, I would not have to ask where the bathroom is. And I could teach others the same, and a fair bit more. These are real gains. But they are dwarfed by the gains I would have in practical ability if I learned everything that is in the *Encyclopedia Britannica*. In that case, I could navigate an enormous and dizzying array of situations. Can't tell the difference between lace and tatting? I'm your man. Not sure whether quark-gluon plasma behaves as a Fermi liquid? Here, let me help. Interested to know the domain, kingdom, phylum, class, order, family, genus and species for all your household plants and animals? I'll get right on that. On this alternative picture, to measure, so to speak, which contains more truth, and how much each contains, one measures how many practical abilities would be acquired by one who learned that information.

The problem with this line of thought is twofold, however. First, the most plausible way to understand the relationship, in general, between how much truth one possesses and the extent of

one's practical ability is that a person becomes more capable because she comes to possess more truth, rather than the other way around. The reason she can do more is, among other things, because she knows more. It is not that having more truth more consists in being able to do more. I will not try to defend this claim here, since I think there is a more fundamental problem with the proposal we are considering.[9] That is that the proposed account aspires to explain amount of truth by appeal to amount of ability acquired when that truth is learned, but the measurement problem remains. Yes, there is no doubt that your practical ability would expand more in one case than in the other; that much is obvious. But we are no better at understanding how to assess size of practical ability than we are size of true content. We might hope to count, but count what? Where does one ability end and the next begin? We cannot count how many things a person can do unless we already know how to count true propositions, since to have an ability is to be able to make something the case, and for something to be made the case is for a proposition to be made true. In other words, the truth concerning what amount of practical ability is rests on, rather than explicates, the truth concerning what amount of truth is.

Where does all this leave us with regard to understanding what more and less truth are? Between the devil and the deep blue sea, as the saying goes. The devil is the temptation to assume that amount of truth is a matter of the *number* of truths, as expressed in the sentences of either natural language or some privileged, logically perfect language. That idea is alluring on its face but cannot be right. What's left is an unexplored direction in which although what is true can be expressed in sentences, the discreteness and numerosity of sentences does not reflect without distortion the real nature of what is true. This approach does not abandon the idea that what is true has magnitude. It just does not confuse the quantitative structure of the vehicles of truth with the quantitative structure of the truth itself.

Let's return to epistemology. The focus so far has been on issues in metaphysics and the philosophy of language concerning what a quantity of truth is, what it is for one thing to have or

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[9] Notice, though, that what is claimed is not that having an ability consists in propositional knowledge; that would be controversial. Rather, it is merely that it is more plausible to think that how much one knows is a partial ground of how much one can do than it is to think that how much one knows consists in how much one can do. This is a significantly weaker claim.

contain more truth than another. As I emphasized early in the paper, this question matters in part

because much contemporary epistemology appeals to the notion of having or getting more truth.

Hence although it is not an epistemological issue, it is an issue for epistemologists. I want to return

to this line of thought and argue not merely that epistemologists frequently appeal to this notion,

but that they have, almost without exception, an implicit picture of what a quantity of truth is that

matches the picture this paper has debunked. Moreover, that picture has given shape to some of

the most interesting and compelling developments in epistemology.

The cluster of quotations in the introductory pages of this paper gave some sense of how

common and central the notion of more truth is. There has been little explicit theorising in

epistemology regarding what this is, or what it consists in. Nonetheless, it is clear that the implicit

picture at work is the picture on which more truth is simply a greater number of truths.

A first way to see that the implicit picture at work in epistemology is the cardinality-of-truths

model – and to see just how deeply implicit the picture is – is by reflecting on the naturalness of a

recent remark by Jason Baehr:

> Several epistemologists have identified "truth" or true belief as the goal of our epistemic
> states and processes. More specifically, the "epistemic goal" has been identified as the
> acquisition of as much truth or as many true beliefs as possible. (3)

The phrasing here suggests that Baehr thinks that acquiring as much truth as possible is the very

same thing as, or is just another way of talking about, acquiring as many true beliefs as possible. In

other words, what this quotation illustrates is how the "more truth = more truths" picture is not

even recognised as a substantive claim, as a *theory*. By way of comparison, consider what it is for

more people to live in a city now than at some time in the past. It is just for the number of people

living in the city now to be greater than the number of people living in the city at the earlier time.

This is not a *theory* of what it is for there to be more people living in the city now than then, it's just

another way of expressing that. Or to put it another way, there are not two states of affairs here –

one concerning whether there are more people living in the city now, the second concerning

whether the number of people living in the city now is greater – and a dependence relation between

these states of affairs such that the second explains or grounds the first. There is rather just one

state of affairs, the state of affairs of there being more people living there now, that is to say, of the

number of people living there now being greater. The prevailing conception of *more truth* is like this. Those who think that acquiring more truth is a matter of acquiring a greater number of truths, or who think believing more truth is a matter of believing a greater number of truths, don't take themselves to be holding a theory of what it is to acquire more truth or to believe more truth. They think it is just another way of saying the same thing.

This is a sweeping claim that would be hard to establish in a fully satisfying way. Nonetheless, I hope readers will recognise, in their own case and by reflection on the prevalence of the easy movement within epistemology between talk of more truth and talk of more truths,[10] that even the conceptual distinction has not been recognised. Baehr's quotation is a compact illustration of this, but if we look carefully at other examples, we would find the view ubiquitous.

A second way to see that the cardinality-of-truths picture of more truth is the implicit, prevailing conception within epistemology is by reflecting on the widespread, almost automatic acceptance of the trivial truths objection to the claim that truth is the goal of inquiry or the fundamental epistemic good. According to this objection, the goal of inquiry could not be simply to acquire more truth because if that were the case one would as well serve the goal by memorising phone numbers as by pursuing research in physics – better serve, in fact, given how much easier it is to memorise a phone number than to discover or learn a law of nature. As Moser puts the familiar objection:

> It is somewhat implausible to hold that an epistemic agent should aim just to obtain as much truth and avoid as much error as possible. For it is plausible to suppose that some truths are epistemically more important than others….Ideally, it seems an epistemic agent should aim to acquire not just any truths, but the epistemically important truths. (5)

This objection, which is always put forward more as an observation than as a detailed argument, has been almost universally accepted. But it is apt only if the truth that, for example, Smith's phone number is 416-684-0019 is the same amount of truth as the truth that, for example, all ordinary matter in the universe is composed of species of atoms with the same number of protons in their atomic nuclei. Without this assumption, the fact that believing one true proposition is epistemically better than believing another would not be taken to tell us anything about whether inquiry aims at

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[10] This slide is often clear even when the wording isn't explicit, e.g. when Fumerton and Foley treat 'believing as many truths as possible' and 'finding out as much about the world as one can' as synonymous. (55)

getting more truth. Those who give the objection, or who are moved by it, have simply assumed that every proposition, trivial or significant, is the same amount of truth, something like one unit of truth. As Pritchard 2014 puts it, however, when we are asked to compare a trivial truth and a significant truth, and to notice that the significant truth is much more epistemically valuable than the trivial truth:

> there are just two competing true propositions on offer, [but] it does not follow that both propositions offer us an equal amount of truth. A single proposition, after all, can contain compressed within it a whole body of information, and in this sense present us with more truth than a competing proposition which is not so informative, even if both propositions are equally true. (10)

Here we start to see not merely that the conception of more truth that I have sought to discredit is common in philosophy, and that it is deeply implicit, but also that it underpins or informs normative theorising. The trivial truths objection to the claim that truth is the aim of inquiry, or the chief epistemic good, has been enormously influential. Yet it rests on this implicit picture of what more truth is.[11]

This is not the place to explore all the ways that this picture of what more truth is informs contemporary epistemology. But I want to indicate one of the most interesting and powerful ways it has influenced the shape of epistemology. Consider what are known as truth-consequentialist approaches to epistemic normativity. The basic idea is that one identifies some particular epistemic good, in this case truth, and then one construes epistemic normativity by appeal to this good. From this rough starting point there are numerous directions in which a normative epistemic theory can develop. What is relevant is that we notice that if one thinks the epistemic good is more truth (or more truth and less falsehood), and one thinks that epistemic normativity should be understood in a consequentialist or teleological way, by appeal to this good, then one's conception of the quantitative dimension of truth is bound to affect the shape of one's theory.

We need not look far for examples. Perhaps the most prominent truth-consequentialist approach to epistemic normativity is reliabilism, in some form or other. Reliabilism is a broad church and includes not just simple process reliablism but more sophisticated variants such as virtue reliabilism, and extensions of the basic idea such as Goldman's social epistemology veritism,

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[11] I discuss the trivial truths argument in more detail in Treanor 2014.

where the focus is not on individual believers but on society or social groups. They have in common, however, insofar as they are motivated by a truth-consequentialist approach to the foundations of epistemic normativity, that they rest on a conception of what believing more truth and less falsehood is that construes those by appeal to the number of true and false beliefs or to the number of truths and falsehoods believed.

Let's look at two of the most prominent reliabilists, Goldman and Sosa, and at seminal expressions of their views. Suppose, like Goldman, you believe that:

> A very plausible set of [cognitive] goals are the oft-cited aims of believing the truth—as much truth as possible—and avoiding error" (1980, 32)

or that, like Sosa, you believe that:

> An intellectual virtue is a quality bound to help maximize one's surplus of truth over error. (1985, 227)

And suppose, in addition, you think that to believe more truth just is to believe a greater number of truths (and mutatis mutandis for falsehoods). The Goldman and Sosa claims then translate into:

> A very plausible set of [cognitive] goals are the oft-cited aims of believing as many truths, and as few falsehoods, as possible. (Goldman)

and

> An intellectual virtue is a quality bound to help maximize one's surplus of true beliefs over false beliefs. (Sosa)

From either claim it is but a short step to reliablism, or to a theory of epistemic normativity that focuses on and emphasises the importance of reliable belief formation.[12] Reliability, after all, is just a matter of frequency, of the number of truths believed versus the number of falsehoods believed, without regard to content. Moreover, we can't get to reliablism as a normative theory from the good of more truth and less falsehood without this assumption.

The point just made is specifically about reliablism or reliablist approaches. But it is also a general point that holds of any truth-consequentialist approach to epistemic normativity, insofar as

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[12] Alston, for example, makes the move in a single step, saying "Since our basic cognitive aim is to come into possession of as much truth as possible and to avoid false beliefs, it would seem that one's basic intellectual obligation vis-à-vis practices of belief formation would be to do what one can…to see to it that these practices are as *reliable* as possible." [1982, 7, italics his] And Selim Berker writes at times as if no step at all is needed, as when he says "A more accurate name for reliablism is 'truth-conducivism'. The guiding thought behind reliablism is that what makes a belief epistemically justified is its connection to a process…that conduces toward the promotion of true belief and the avoidance of false belief." (363)

it takes as its most basic starting point the good of more truth and less falsehood. As an illustration of this, recall Moser's remark, quoted at the start of the paper, that "epistemic justification is essentially related to the cognitive goal of truth….We aim both to avoid as much error as we can and to obtain as much truth as we can." If Moser is right that justification is essentially related to these goals, then understanding what it is to obtain as much truth and to avoid as much error as we can is essential to understanding what justification is. The descriptive question isn't in addition to the normative question; it is partially prior to it.

It is easy to think that more truth is just a matter of more truths – until we start thinking about it. Then, as I have tried to show in this paper, long hidden and intractable problems appear. If we examine what would have to be true for this account to work, we can see that it is a dead end road. If this is right, then the aim of acquiring as much truth and as little falsehood as possible and the aim of acquiring as many truths and as few falsehoods as possible are distinct. We do not know the shape a truth-consequentialist theory of epistemic normativity would take if it emphasised the former aim instead of, or in addition to, the latter aim. If we want to do the epistemology, however, then we have to do the metaphysics as well – first or at least in tandem.

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