

# **EXPOSING FAKE LOGIC**

**Avi Sion, Ph.D.**

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Proudly self-published by Avi Sion,  
Geneva, Switzerland.

1<sup>st</sup> ed. 2018, 2<sup>nd</sup> ed. 2019.

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**Library Cataloguing Information:**

Sion, Avi

**Exposing Fake Logic**

No index, no bibliography

ISBN-13: 978-1986199155

## **Abstract**

*Exposing Fake Logic* by Avi Sion is a collection of essays written after publication of his book *A Fortiori Logic*, in which he critically responds to derivative work by other authors who claim to know better. This is more than just polemics; but allows further clarifications of a fortiori logic and of general logic.

This collection includes essays on: a fortiori argument (in general and in Judaism); Luis Duarte D'Almeida; Mahmoud Zeraatpishe; Michael Avraham (et al.); an anonymous reviewer of *BDD* (a Bar Ilan University journal); and self-publishing. None of these essays were previously published in print, although most of them were posted online.

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## FOREWORD

*Exposing Fake Logic* is composed of essays written after publication in 2013 of my work *A Fortiori Logic*, the product of major original research work spanning years. The core essays were written in reply to specific claims or counterclaims regarding a fortiori logic put forward by four different writers in response to, or as a consequence of, my said major study.

The essays in the present volume are new material, never previously published in book form (although most were posted online in scattered websites of mine over time). The first chapter (1) is not a polemical essay like the others<sup>1</sup>; but is included here to allow the reader to get a basic acquaintance with a fortiori logic before reading the four core chapters (2-5), which relate mainly to this subject. These core chapters, it should be stressed, should not be approached as mere personal disputations; they contain many valuable lessons in logic – that is really their main point. The last chapter (6) is intended as a defense of self-publishing (in reply to people who view other-publishing as essential to doctrinal credibility<sup>2</sup>).

What is ‘fake logic’? This is more than just erroneous logic, due to *ignorance and/or incompetence*; it is logical theory or practice involving *dishonesty* of some sort at some stage. The dishonesty may be (a) the driving force of the logic put forward, a more or less conscious attempt at manipulation; or it may be (b) manifest *ex post facto*, when the author of it refuses to admit error when it is pointed out and refuses

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<sup>1</sup> Although, chapter 1 is the center of attention in chapter 5.

<sup>2</sup> Chapter 6 was originally intended as an appendix to chapter 2.

to retract his (or her) claims. In such cases, the logician concerned may be termed a ‘fake logician’, even if some of his work may also contain some valid and even valuable claims. The fake logician is someone who has not fully assimilated the objective, scientific dimension of logic studies; he thinks logic is something malleable at will, which he can put at the service of his personal or ideological purposes.

Fake logic is, simply put, sophistry. Someone who writes stupidly or sloppily on logic can be characterized as a ‘bad logician’; this is something unfortunate, but not inexcusable, since error is human. However, someone who, for whatever personal or ideological motives, consciously or subconsciously, makes claims concerning theoretical or practical logic which he or she knows or suspects to be false – such a person deserves to be hotly reproved and publicly labeled as a fake. For, surely, logic is a sacred intellectual enterprise, on which the cognitive efficacy and improvement of mankind greatly depends. Of course, bad and fake logicians are legion, and each one of them is fake in his or her signature ways.

Many people falsely present themselves as knowledgeable in logical matters. I come across their products often, in print and on the web. Some are dead already; some are still among us. Some have been teaching their falsehoods with impunity for years; some are novices, starting their fake logic careers with hubris. Some are famous or highly placed in academia; some are unknown to the public at large or to specialists. But all of these have in common this: *they do not erect Truth as their highest standard of value.* They are willing to lie a bit, or a lot, to attain their ends. Their end may be to get an article published in a journal, or to get a job in a university, or to get a higher paid post therein, or to be admired by their colleagues or students, or to become more broadly known. Or their end may be to defend their religious or political prejudices.

Logic is not something of casual interest or a means to crass ends; it is a serious study essential to maximizing cognitive accuracy in whatever field one chooses to visit. Because logic is the science of the rational and empirical means to truth, anyone who does not place Truth as their central intellectual aim is bound to sooner or later arrive at falsehood, instead. The good and honest logician is always careful to focus on being truthful, on getting as close as possible to the truth of the matter at hand. If he is unsure, he is not ashamed to say so. Such an investigator has the ideally scientific spirit, the stainless spirit of a judge who cannot be moved by any considerations other than the facts and the logic of the case under consideration.

As already pointed out, the dividing line between a bad and a fake logician is not always clear. Is a claim made in mere error, or is it *agenda-driven* in some way? To my mind, for example, David Hume was definitely a fake logician, someone with the mean intent to invalidate human knowledge and incapacitate people. What about his disciple, Immanuel Kant? That he was a bad logician is evident; but did he mean well, or did he have nefarious ends? Not always easy to say. John Stuart Mill's theory of causation was inaccurate and inadequate in many ways; but there is little doubt in my mind that his intentions were good. Bertrand Russell made important errors in relation to class logic; but these only qualified him as a bad logician. On the other hand, some of his skeptical writings on causation and other subjects qualified him as a fake logician, because they proceeded from self-conceit and herd mentality.

So, we must admit the issue is not always cut and dried. As regards the four writers examined in the present volume, let me say this. I classify them as fake logicians because I view their formal or doctrinal errors as due to moral failures.

- This one (Luis Duarte D’Almeida) takes credit for work he has not done and has not fully mastered; and then spins logical fantasies to give the impression that he knows what he is doing.
- Another (Mahmoud Zeraatpishe) engages in deceitful claims and apologetics in a vain attempt to give credence to his primitive religion.
- Yet another (Michael Avraham) is skeptical of objective logic; and so, imagines that any arbitrary argument can be tailored to look valid.
- That one (the Anonymous reviewer of Bar Ilan’s BDD journal) thinks that his blind religious faith is credibly defended if he obstructs publication of material that puts any of its dogmas in doubt; if he cannot rebut criticism, he simply censors it.

These four pseudo-logicians engage in very different fake ways, but all have in common that they do not really understand logic, and when they are reprovved for their factual or technical errors, or for their moral deficiencies, they do not acknowledge them. *They do not publicly admit their mistakes*, no matter how glaring they are shown up to be. This shows that they are not fundamentally scientific-minded researchers; but charlatans driven by personal ambition or by some dogma or other.

The four fake logicians here challenged are by far not the most important contemporary fake logicians. The first two are apparently university professors; but I wonder how they got to be that. The other two are presumably academics; but I do not know at what level. All four are admittedly minor characters in the field of logic research. So, it can be argued that I have chosen easy prey and did not have the guts to take on bigger fish. However, the simple truth is this: I did not choose them; they chose me!

These are people who were foolish enough make some negative comment or comments about my work, so as to

make their ideas seem superior to mine. So, I was duty bound to take the time to show up their ignorance, incompetence and dishonesty. They attacked me; so, I defended myself and hit back. However, the purpose of this book is not to settle scores, but (as with all my books) to teach aspects of logic. I can better teach something new and interesting, if I know the mistakes people are making. Even if the people here dealt with are marginal, they are very much – as I show in my critiques – illustrative of the spirit of the times in the field of logic.

As already mentioned, erroneous and dishonest logicians are legion, and their errors and dishonesties are very varied. It is therefore impossible for one man to rebut them all, in detail or even just with passing comments. Pseudologicians are, unfortunately, a cultural phenomenon of the present day, the post-modern era of Western culture. Logic, like philosophy, is a field that attracts second-rate talent in droves. Because many of the people in academe are themselves ignorant and incompetent, they do not weed out newcomers who are just as bad or worse, either because they are simply intellectually unequipped for the task, or because they fear to reveal their own manifold shortcomings.

Similarly, publishers of journals or books, or rather their gatekeepers – the reviewers who effectively decide which of the papers or books submitted to them are fit for publication – publish the work of many fake logicians, simply because they do not know any better. If it looks more or less coherent, and nothing seemingly untoward (by their standards) is said in them, they let it pass. They cannot spot bad work if they do not know the subject that well. Indeed, they might refuse good work, if it looks too unfamiliar to them. This is especially true in the fields of logic and philosophy, where “conventional wisdom” reigns supreme.

The four fake logicians dealt with in the present volume should be looked upon as examples; they are certainly not intended as an exhaustive listing or even as special cases. Moreover, note, the present volume is not a ‘thematic compilation’ from my past works. I have written many essays exposing sophistry and sophists in the past, notably in my *A Fortiori Logic*. See for instances my essays there on Alexander Samely, Andrew Schumann, and Hubert Marraud, to name only three. Here, I only include essays written by me *after* publication of that large-scale study.

Looking at the polemical essays in the present volume (viz. chapters 2-6), as I prepare it for publication, I must admit that there is quite a bit of tension in parts of them. But, to repeat, conflict is not their essence, not their *raison d’être*. *What the reader should especially focus on is the valuable lessons in logic that the controversies give occasion to.* I personally take no pleasure in criticism; but if I have to do it, I do it. Someone has to do such dirty work, occasionally; one cannot let all pretentious people get away with their faking and misleading.

# 1. A FORTIORI ARGUMENT, IN GENERAL AND IN JUDAISM

*This chapter<sup>3</sup> first details the formal relationships and distinctions between purely a fortiori argument, a crescendo argument (which refers to proportional a fortiori argument), pro rata argument, and qualitative and quantitative analogy. These various forms of argument are often confused, so it is well to clearly describe and explain them. These general findings are then used to formally analyze the debate between R. Tarfon and the Sages in Mishna Baba Qama 2:5, in the course of which the important dayo (sufficiency) principle is introduced. Thereafter, the Gemara's take on this Mishnaic passage (in the Babylonian Talmud, Baba Qama 25a-b) is looked at.*

## 1. Formalization of a fortiori argument

Based on close analysis of a large number of Biblical and Talmudic examples (some known to Jewish tradition and some newly identified by me), as well as examples from everyday discourse, I discovered and proposed in my 1995 book *Judaic Logic: A Formal Analysis of Biblical, Talmudic and Rabbinic Logic*, a detailed description and explanation of (purely) a fortiori argument. In my later, 2013, book, *A Fortiori Logic: Innovations, History and*

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<sup>3</sup> This essay was first put together in 2014, mostly by verbatim excerpts from my book *A Fortiori Logic* published a few months earlier. It was slightly edited and expanded in 2019, notably by including the lines relating to qualitative analogy (which I had left out before to save space), and adding some new comments relating to the *dayo* principle and the section on rabbinic hermeneutic principles.

*Assessments* (hereinafter, *A Fortiori Logic*), I considerably deepened and broadened the analysis of such argument – validating it more precisely and including ‘proportional’ variants of it (a crescendo argument), among other things.

The expression ‘*a fortiori (ratione)*’ is of Latin origin, meaning ‘with stronger (reason)’. Although we often speak of ‘*the a fortiori argument*’ as if there is only one form of it, such reasoning has in fact many forms, which however are easily seen to comprise one family. In the present paper, we will only draw attention to some of these forms, labeled ‘copulative’ because the items they concern are terms (rather than theses).

An *a fortiori* argument consists of three propositions called the major premise, the minor premise and the conclusion. Such an argument comprises four items, which are here always symbolized in the same way. The four items are called the major, the minor, the middle and the subsidiary; and the chosen symbols for them are respectively P, Q, R and S<sup>4</sup>.

The four valid moods of concern to us here (those copulative in form) are the following.

a. The **positive subjectal** {+s} mood:

P is more R than (or as much R as) Q (is R),

and Q is R enough to be S;

therefore, all the more (or equally), P is R enough to be S.

Notice that the valid inference goes ‘from minor to major’; that is, from the minor term (Q) to the major one (P);

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<sup>4</sup> Notice that the symbols R and S, respectively, happen to match the words “Range” (the middle item always refers to a range) and Subsidiary. P is always the major term, wherever placed, and Q is always the minor term.

meaning: from the minor term as subject of ‘R enough to be S’ in the minor premise, to the major term as subject of same in the conclusion. Any attempt to go from major to minor in the same way (i.e. positively) would be invalid inference.

b. The **negative subjectal** {–s} mood:

P is more R than (or as much R as) Q (is R),

yet P is R *not* enough to be S;

therefore, all the more (or equally), Q is R *not* enough to be S.

Notice that the valid inference goes ‘from major to minor’; that is, from the major term (P) to the minor one (Q); meaning: from the major term as subject of ‘R not enough to be S’ in the minor premise, to the minor term as subject of same in the conclusion. Any attempt to go from minor to major in the same way (i.e. negatively) would be invalid inference.

For examples: granted that Jack (P) can run faster (R) than Jill (Q), it follows that: if Jill can run fast enough to cover one mile in under 15 minutes (S), then surely so can Jack; and if he can’t, then neither can she. Needless to say, the conditions are presumed identical in both cases; we are talking of the same course, in the same weather, in good health, and so on. If different conditions are intended, the argument may not function correctly; in such case, an objection to it can logically be raised.

c. The **positive predicatal** {+p} mood:

More (or as much) R is required to be P than (as) to be Q,

and S is R enough to be P;

therefore, all the more (or equally), S is R enough to be Q.

Notice that the valid inference goes ‘from major to minor’; that is, from the major term (P) to the minor one (Q);

meaning: from the major term as predicate of ‘S is R enough to be’ in the minor premise, to the minor term as predicate of same in the conclusion. Any attempt to go from minor to major in the same way (i.e. positively) would be invalid inference.

d. The **negative predicatal**  $\{-p\}$  mood:

More (or as much) R is required to be P than (as) to be Q,

yet S is R *not* enough to be Q;

therefore, all the more (or equally), S is R *not* enough to be P.

Notice that the valid inference goes ‘from minor to major’; that is, from the minor term (Q) to the major one (P); meaning: from the minor term as predicate of ‘S is R not enough to be’ in the minor premise, to the major term as predicate of same in the conclusion. Any attempt to go from major to minor in the same way (i.e. negatively) would be invalid inference.

For examples: granted that it takes more strength (R) to lift 50 kilos (P) than 30 (Q): if someone (S) is strong enough to lift 50 kilos, then surely he can lift 30; and if he can’t lift 30, then he can’t lift 50. Needless to say, the conditions are presumed identical in both cases; we are talking of the same handle, on the same day, in good health, and so on. If different conditions are intended, the argument may not function correctly; in such case, an objection to it can logically be raised.

Note that in all four of the above moods, the a fortiori argument is stated categorically only if there are no underlying conditions. Obviously, if there are conditions they ought to be specified, or at least we must ensure they are the same throughout the argument.

Thus, to summarize, there are four valid moods of copulative a fortiori argument: two subjectal moods, in

which the major and minor terms (P and Q) are the logical *subjects* of the three propositions concerned, while the subsidiary term (S) is a predicate; and two predicatal moods, in which the major and minor terms (P and Q) are the logical *predicates* of the three propositions concerned, while the subsidiary term (S) is a subject. Note well that these two sets of forms, the subjectal and the predicatal, are not interchangeable.

The middle term (R), however, is a predicate in both premises and in the conclusion of *all* the moods, note well. In subjectal moods it is a predicate of the major and minor terms (P and Q); in the predicatal moods it is a predicate of unspecified subjects in the major premise and a predicate of the subsidiary term (S) in the minor premise and conclusion, the subsidiary term being one instance of the unspecified subject-matter of the major premise.

The major premise is always positive, though it differs in form in subjectal and predicatal arguments. In each of these types, there are two variants: in one, the minor premise and conclusion are positive; and in the other, they are negative. The positive and negative versions in each case are obviously closely related – the minor premise of the one is the negation of the conclusion of the other, and vice versa; that is, each can be used as a *reductio ad absurdum* for the other.

The difference between subjectal and predicatal moods is called a difference of *structure*. The difference between positive and negative moods is called a difference of *polarity*. The difference between moods that go “from minor to major” (i.e. from the minor term in the minor premise to the major term in the conclusion) and those that go “from major to minor” (i.e. from the major term in the minor premise to the minor term in the conclusion) is called a difference of *orientation*.

Sometimes this difference of direction is stated in Latin, as “*a minori ad majus*” and “*a majori ad minus*”. In Hebrew, it is stated as “*mi-qal le-chomer*” and “*mi-chomer le-qal*”<sup>5</sup>. Note that the “from” term may be the minor or major and occurs in the minor premise; and the “to” term is accordingly the major or minor, respectively, and occurs in the conclusion. Notice the variations in orientation in accord with the structure and polarity involved.

In sum, these four valid moods are effectively four distinct figures (and not merely moods) of a fortiori argument, since the placement of their terms differs significantly in each case. This is clearly seen in the following table:

Figure/mood	+s	–s	+p	–p
major premise	PQR	PQR	RPQ	RPQ
minor premise	QRS	PRS	SRP	SRQ
conclusion	PRS	QRS	SRQ	SRP

The positive subjectal mood may be viewed as the prototype of all a fortiori argument, because of its relative simplicity. Many accounts of a fortiori argument tend to mention only this mood; or rather, examples thereof. Nevertheless, this does not mean that the other three copulative moods, or indeed their implicational analogues, can be ignored. They are distinct movements of thought that merit separate attention.

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<sup>5</sup> The Hebrew distinction of orientation may be historically later than Talmudic – I have not found out exactly when and by whom it was introduced in Judaism.

If we look at usage statistics, we find this assertion clearly confirmed<sup>6</sup>. Thus, in the Tanakh (the Jewish Bible), of the 46 a fortiori arguments found, 14 are +s, 13 are –s, 15 are +p and 4 are –p. Again, in the Mishna (the basis of Talmudic law), of the 46 cases found, 32 are +s, 12 are –s, 1 is +p and 1 is –p. Of the 15 cases found in Plato’s works, 9 are +s, 1 is –s, none is +p and 5 are –p. Of the 80 cases found in Aristotle’s works, 50 are +s, 22 are –s, 5 are +p and 3 are –p.

## 2. Validation of a fortiori argument

Validation of an argument means to demonstrate its validity. An argument is ‘valid’ if, given its premises, its conclusion logically follows. Otherwise, if the putative conclusion does not follow from the given premises, and more so if its denial follows from them, the argument is ‘invalid’. If the putative conclusion is merely not implied by the given premises, it is called a *non sequitur* (Latin for ‘it does not follow’); in such case, the contradictory of the putative conclusion is logically as compatible with the given premises as the putative conclusion is. If a contrary or the contradictory of the putative conclusion is positively implied by the given premises, the putative conclusion is called an absurdity (lit. ‘unsound’) or more precisely an antinomy (adj. antinomic, lit. ‘against the laws’ of thought).

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<sup>6</sup> Note that in these statistics I lump implicational arguments with copulative ones, for simplicity’s sake. See appendices 1, 2 and 4 in *A Fortiori Logic* for more details on these findings. Regarding the two Talmuds, see appendix 3; and regarding other world literature, ancient and more recent, see appendix 5.

The validity of an argument does not guarantee that its conclusion is true, not well. An argument may be valid even if its premises and conclusion are in fact false. Likewise, the invalidity of an argument does not guarantee that its conclusion is false. An argument may be invalid even if its premises and conclusion are in fact (separately) true. The validity (or invalidity) of an argument refers to the logical *process*, i.e. to the claim that a set of premises of this kind formally implies (or does not imply) a conclusion of that kind.

A *material a fortiori* argument may be validated simply by showing that it can be credibly cast into any one of the valid moods listed above. If it cannot be fitted into one of these (or any other) valid moods, it is invalid – or at least, it is not an a fortiori argument. The validations of *the forms* of a fortiori argument may be carried out as we will now expound. Invalid forms are forms that cannot be similarly validated. Obviously, material arguments can also be so validated; but the quick way is, as just stated, to credibly cast them into one of the valid forms. Once the forms are validated by logical science, the material cases that fit into them are universally and forever thereafter also validated.

One way to prove the validity of a new form of deduction is through the intermediary of another, better known, form of deduction. Such derivation is called ‘reduction’. ‘Direct’ reduction is achieved by means of conversions or similar immediate inferences. If the premises of the tested argument imply those of an argument already accepted as valid, and the conclusion of the latter implies that of the former, then the tested argument is shown to be equally valid. ‘Indirect’ reduction, also known as reduction *ad absurdum*, on the other hand, proceeds by demonstrating that denial of the tested conclusion is inconsistent with some already validated process of reasoning.

The validation procedures for a fortiori argument are based on analysis of the meanings of the propositions involved in such argument, i.e. on *reduction* of these more complex forms to simpler forms more studied and better understood by logicians. This work can be presented briefly as follows:

- **Positive subjectal** a fortiori argument validation:

The major premise, “P is more R than (or as much R as) Q is,” means:

P is R, i.e. P is to a certain measure or degree R (say, Rp);

Q is R, i.e. Q is to a certain measure or degree R (say, Rq);

and Rp is greater than (or equal to) Rq (whence: Rp implies Rq<sup>7</sup>).

The minor premise, “Q is R enough to be S,” means:

Q is to a certain measure or degree R (Rq);

whatever is at least to a certain measure or degree R (say, Rs) is S and

whatever is not at least to that measure or degree R (i.e. is not Rs) is not S;<sup>8</sup>

and Rq is greater than or equal to Rs.

The *conclusion* “P is R enough to be S,” is composed of four clauses:

P is to a certain measure or degree R (say, Rp);

whatever is at least to a certain measure or degree R (say, Rs), is S;

<sup>7</sup> This implication is intended in the sense that a larger number implies every smaller number. For example, if I have \$5, then I obviously have \$3; 5 includes 3, and 3 does not exclude 5.

<sup>8</sup> More briefly put: ‘If and only if something is Rs or more, then it is S’, which can be expressed still more briefly as: ‘Iff  $\geq$  Rs, then S’.

whatever is not at least to that measure or degree R  
(i.e. is not  $R_s$ ), is not S;

and  $R_p$  is greater than (or equal to)  $R_s$ .

The four components of this conclusion are obtained as follows: the first from the major premise, the second and third from the minor premise, and the fourth from the tabulated quantitative argument (see below) which is drawn from both premises. Here, note well, the “enough R” condition of the conclusion (implied in its second and third components) comes from the minor premise, because it concerns the subsidiary term (S). Here, then, the crucial threshold value of R is  $R_s$ , i.e. the minimum value of R needed to be S; knowing that  $R_q$  equals or exceeds  $R_s$ , we can predict that  $R_p$  does so too.

- **Positive predicatal** a fortiori argument validation:

The major premise, “More (or as much) R is required to be P than to be Q,” means:

Only what is at least to a certain measure or degree R  
(say,  $R_p$ ) is P;

only what is at least to a certain measure or degree R  
(say,  $R_q$ ) is Q;

and  $R_p$  is greater than (or equal to)  $R_q$  (whence:  $R_p$   
implies  $R_q$ <sup>9</sup>).

The minor premise, “S is R enough to be P,” means:

S is to a certain measure or degree R (say,  $R_s$ );

whatever is at least to a certain measure or degree R  
( $R_p$ ) is P, and

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<sup>9</sup> Again, this implication is intended in the sense that a larger number implies every smaller number.

whatever is not at least to that measure or degree R  
(i.e. is not  $R_p$ ) is not P;<sup>10</sup>

and  $R_s$  is greater than or equal to  $R_p$ .

The *conclusion* “S is R enough to be Q,” is composed of four clauses:

S is to a certain measure or degree R (say,  $R_s$ );

whatever is at least to a certain measure or degree R  
(say,  $R_q$ ), is Q;

whatever is not at least to that measure or degree R  
(i.e. is not  $R_q$ ), is not Q;

and  $R_s$  is greater than (or equal to)  $R_q$ .

The four components of this conclusion are obtained as follows: the first from the minor premise, the second and third from the major premise, and the fourth from the tabulated quantitative argument (see below) which is drawn from both premises. Here, note well, the “enough R” condition of the conclusion (implied in its second and third components) comes from the major premise, because it concerns the minor term (Q). Here, then, the crucial threshold value of R is  $R_q$ , i.e. the minimum value of R needed to be Q; knowing that  $R_p$  equals or exceeds  $R_q$ , we can predict that  $R_s$  does so too.

Note that in both the above moods, the conclusion of the a fortiori argument comes solely and entirely from the two premises together (not separately). It is true that the premises contain more information than the conclusion does; but that only means that not all the information in them is used. This does not signify redundancies in the premises, because their form is essential to intuitive human

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<sup>10</sup> More briefly put: ‘If  $R \geq R_p$ , then P’.

understanding of the argument, whose conclusion has similar form to the minor premise.

As regards, the corresponding **negative moods**, they are most easily validated by *reductio ad absurdum*. There is no pressing need to interpret their negative propositions. We say: suppose the putative conclusion is denied, then combining such denial with the same major premise we would obtain a denial of the given minor premise; this being absurd, the putative conclusion must be valid.

It is important to grasp the intent of the word “**enough**” (or “sufficiently”) in the minor premises and conclusions above detailed. These tell us that the subject has whatever amount of R it takes to merit the predicate; i.e. that the subject has at least the amount of R *required for* the predicate. The word “enough” informs us that there is a **threshold value of R** *as of and above which* the subject *indeed has* the predicate, but anywhere *before which* the subject *does not have* the predicate; the R-value of the subject is then specified as falling on the required side of the known threshold.

Note also that ‘The subject is R enough to have the predicate’ implies ‘The subject has the predicate’ provided R is indeed *by itself* enough for the predication. If R is in fact only *part of* a set of conditions necessary for the predicate, then factor R cannot be truthfully said to be ‘enough’ for the predication – or, if it happens to be proposed as ‘enough’ for the predication, the remaining required factors must at least be tacitly intended.<sup>11</sup>

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<sup>11</sup> To give an example of this important issue: suppose membership in an exclusive club depends on one’s age, level of income and maybe other criteria. In that event, one might well say, “this man is old enough but not rich enough to be admitted” – and here, obviously, the man being old ‘enough’ does not imply he will be admitted, although he may be put on a waiting list until he gets rich ‘enough’ too. Thus, in

It is also important to notice the utility of the threshold condition, i.e. the implication of the minor premise that there is a threshold value of R which has to be reached or surpassed before the subject can accede to a certain predicate, i.e. that *not all* values of R fit the bill. If *all* values of R were sufficient for the predication, then we could easily deduce the desired conclusion by mere syllogism.

In the case of positive subjectal argument, we would say: given (hypothetically) that all R are S, then since P is R (implied by the major premise), it follows (even without recourse to the 'Q is S' implied by the minor premise) that P is S (desired conclusion). In the case of positive predicatal argument, we would say: given (hypothetically) that all R are Q, then since all P are R (implied by the major premise requirement) and S is P (implied by the minor premise), it follows that S is R and thence that S is Q (desired conclusion).

Clearly, in both these eventualities the argument would be *merely syllogistic*, and not at all function like an a fortiori argument. Thus, the threshold condition is *essential* to the formation of a genuine a fortiori argument; it is not something that can be ignored or discarded. Many people think that a fortiori argument can be formulated without this crucial condition, but that is a grave error on their part.

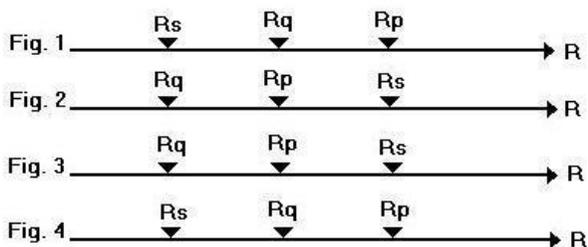
What transpires in the above analysis is that the middle term (R) of copulative argument is *its essential element*. Because the middle term R underlies the three other terms (the major term P, the minor term Q, and the subsidiary term S), we can say that a fortiori argument is principally

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common discourse, the word 'enough' may not signify full sufficiency but merely a tendency towards it. But in the present treatise, we intend the word 'enough' in its strict sense.

about it, and only incidentally about them. The middle term is the core or center of gravity of the whole argument; it is the common ground and intermediary of the three other terms.

What a fortiori argument does is to relate together *three values of the middle term R* (here symbolized by  $R_p$ ,  $R_q$  and  $R_s$ ) found in relation to the other three terms and thus representing them. The middle term of a fortiori argument is always something that varies quantitatively, in measure or degree – and the argument constitutes a comparison and hierarchical ordering of its different values (which are given in relation to the three other terms). The truth of all this can be easily seen with reference to the following diagram, where quantities of R on the right are greater than quantities of R on the left.



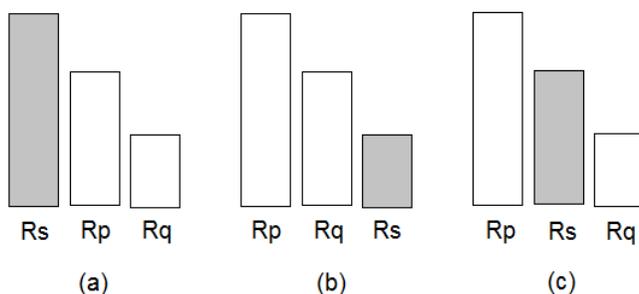
The a fortiori argument orders items P, Q, S, according to their position in a common continuum R

That, then, is the essence of a fortiori argument: it is a comparison between the various quantities (measures or degrees) of the middle term that are copulatively involved in the other three terms (as subjects or predicates, as the case may be). We can thus present the quantitative core of the validations very simply as follows, with reference to the comparative propositions implied in the premises and conclusions. Here, as always,  $\geq$  means ‘is greater than or equal to’ and  $<$  means ‘is less than’:

Structure	Subjectal or antecedental		Predicatal or consequential	
	positive	negative	positive	negative
Major premise	$R_p \geq R_q$	$R_p \geq R_q$	$R_p \geq R_q$	$R_p \geq R_q$
Minor premise	$R_q \geq R_s$	$R_p < R_s$	$R_s \geq R_p$	$R_s < R_q$
Conclusion	$S_o, R_p \geq R_s$	$S_o, R_q < R_s$	$S_o, R_s \geq R_q$	$S_o, R_s < R_p$

Note that the egalitarian positive subjectal (or antecedental) conclusion  $R_p = R_s$  can only be drawn from the premises  $R_p = R_q$  and  $R_q = R_s$ . Likewise, the egalitarian positive predicatal (or consequential) conclusion  $R_s = R_q$  can only be drawn from the premises  $R_s = R_p$  and  $R_p = R_q$ . In all other positive arguments, the conclusions would be  $R_p > R_s$  or  $R_s > R_q$  (as the case may be), even if one of the premises concerned involves an equation. It follows that the egalitarian negative argument of subjectal form has premises  $R_p \geq R_q$  and  $R_p \neq R_s$  and conclusion  $R_q \neq R_s$ ; while that of predicatal form has premises  $R_p \geq R_q$  and  $R_s \neq R_q$  and conclusion  $R_s \neq R_p$ .

Another way to illustrate the quantitative aspect of a fortiori argument is by means of bar charts, as in the diagram below. Given that  $R_p$  is greater than (or equal to)  $R_q$ , there are three possible positions for  $R_s$ : in (a)  $R_s$  is greater than (or equal to)  $R_p$  and therefore than (or to)  $R_q$ ; in (b)  $R_s$  is smaller than (or equal to)  $R_q$  and therefore than (or to)  $R_p$ ; and in (c)  $R_s$  is in between  $R_p$  and  $R_q$ , in which case no conclusion can be drawn. Chart (a) can be used to illustrate the positive predicatal and negative subjectal moods, and chart (b) the positive subjectal and negative predicatal moods, while chart (c) can be used to explain invalid arguments.



We have thus formally and indubitably demonstrated all the said moods of a fortiori argument to be valid. As regards *invalid* a fortiori arguments, the following can be said. If the major item  $P$  is not identical in the major premise and in the minor premise or conclusion (so that there are effectively two major items), and/or if the minor item  $Q$  is not identical in the major premise and in the minor premise or conclusion (so that there are effectively two minor items), and/or if the middle item  $R$  is not identical in the major premise, the minor premise and the conclusion (so that there are effectively two or three middle items), and/or if the subsidiary item  $S$  is not identical in the minor premise and the conclusion (so that there are effectively two subsidiary items) – in any such cases, there is illicit process. Needless to say, “identical” here refers to identity *not only in the words used, but also in their intentions*; we are sometimes able to formulate two terms in such a way as to make them seem the same superficially, although in fact they are not the same deeper down.

Likewise, if an item or a proposition is negative where it should be positive or vice versa – here again, we have fallacious reasoning. Although all such deviations from the established norms are obviously invalid, since we cannot formally validate them, they are often tried by people in practice, so it is worth keeping them in mind.

**Qualitative analogy.** Many people confuse purely a fortiori argument with qualitative analogy. It is important to clearly see the differences between these argument forms. Analogy may be qualitative or quantitative. Qualitative analogical argument, like pure a fortiori argument, consists of four terms, which we may label P, Q, R, S, and refer to as the major, minor, middle and subsidiary terms as before, although here without implying that the major term is greater in any way than the minor. The argument may then take one of the following four (copulative) forms:

a. The **positive subjectal** mood. *Given that subject P is similar to subject Q with respect to predicate R, and that Q is S, it follows that P is S.* We may analyze this argument step by step as follows:

Major premise: P and Q are alike in that both of them have R.

This implies both ‘P is R’ and ‘Q is R’, and is implied by them together.

Minor premise: Q is S.

The term S may of course be any predicate; although in legalistic reasoning, it is usually a legal predicate, like ‘imperative’, ‘forbidden’, ‘permitted’, or ‘exempted’.

Intermediate conclusion and further premise: All R are S.

This proposition is obtained from the preceding two as follows. Given that Q is S and Q is R, it follows by a substitutive third figure syllogism that there is an R which is S, i.e. that ‘some R are S’. This particular conclusion is then *generalized* to ‘All R are S’, provided of course we have no counter-evidence. If we can, from whatever source, adduce evidence that some R (other than Q) are *not* S, then of course we cannot logically claim that all R are S. Thus, this stage of the argument by analogy is partly deductive and partly inductive.

Final conclusion: P is S.

This conclusion is derived syllogistically from All R are S and P is R.

If the middle term R is known and specified, the analogy between P and Q will be characterized as ‘complex’; if R is unknown, or vaguely known but unspecified, the analogy between P and Q will be characterized as ‘simple’. In *complex analogy*, the middle term R is clearly present; but in *simple analogy*, it is tacit. In complex analogy, the similarity between P and Q is indirectly established, being manifestly due to their having some known feature R in common; whereas in simple analogy, the similarity between them is effectively directly intuited, and R is merely some indefinite thing assumed to underlie it, so that in the absence of additional information we are content define it as ‘whatever it is that P and Q have in common’.

Needless to say, the above argument would be equally valid going from P to Q. I have here presented it as going from Q to P to facilitate comparison and contrast to a *fortiori* argument. Note in passing that we could similarly validate an argument with a negative major premise. Given that ‘P is *dissimilar* to Q with respect to R’ (i.e. say, P is R but Q is not R), then since ‘Q is S’, there is an S which is not R, whence by generalization No S is R, and this together with P is R implies that ‘P is not S’.

Positive subjectal qualitative analogical argument has, then, in brief the following form: Given that P and Q are alike in having R, and that Q is S, it follows that P is S. The validation of this argument is given in our above analysis of it. What we see there is that the argument as a whole is *not entirely deductive, but partly inductive*, since the general proposition ‘All R are S’ that it depends on is obtained by generalization.

Thus, it may well happen that, given the same major premise, we find (empirically or through some other

reasoning process) that Q is S but P is not S. This just tells us that the generalization to ‘All R are S’ was in this case not appropriate – it does not put analogical argument as such in doubt. Such cases might be characterized as ‘denials of analogy’ or ‘disanalogies’. Note also that if ‘All R are S’ is already given, so that the said generalization is not needed, then the argument as a whole is not analogical, but entirely syllogistic; i.e. it is: All R are S and P is R, therefore P is S. Thus, analogy as such is inherently inductive. And obviously, simple analogy is more inductive than complex analogy, since less is clearly known and sure in the former than in the latter.

The above, prototypical mood was positive subjectal. Let us now consider the other possible forms of analogical argument.

b. The **negative subjectal** mood. *Given that subject P is similar to subject Q with respect to predicate R, and that P is not S, it follows that Q is not S.*

This mood follows from the positive mood by *reductio ad absurdum*: given the major premise, if Q were S, then P would be S; but P is not S is a given; therefore, Q is not S. This argument is of course just as inductive as the one it is derived from; it is not deductive.

c. The **positive predicatal** mood. *Given that predicate P is similar to predicate Q in relation to subject R, and that S is P, it follows that S is Q.* We may analyze this argument step by step as follows:

Major premise: P and Q are alike in that R has both of them.

This implies both ‘R is P’ and ‘R is Q’, and is implied by them together.

Minor premise: S is P.

Intermediate conclusion and further premise: S is R.

This proposition is obtained from the preceding two as follows. Given that R is P, it follows by conversion that

there is a P which is R, i.e. that ‘some P are R’, which is then *generalized* to ‘all P are R’, provided of course we have no counter-evidence. If we can, from whatever source, adduce evidence that some P are *not* R, then of course we cannot logically claim that all P are R. Next, using this generality, i.e. ‘all P are R’, coupled with the minor premise ‘S is P’, we infer through first figure syllogism that ‘S is R’. Clearly, here again, this stage of the argument by analogy is partly deductive and partly inductive.

Final conclusion: S is Q.

This conclusion is derived syllogistically from R is Q and S is R.

Note that the generalized proposition here concerns the major and middle terms, whereas in the preceding case it concerned the middle and subsidiary terms. Needless to say, this argument would be equally valid going from Q to P. I have here presented it as going from P to Q to facilitate comparison and contrast to a *fortiori* argument.

d. The **negative predicatal** mood. *Given that predicate P is similar to predicate Q in relation to subject R, and that S is not Q, it follows that S is not P.*

This mood follows from the positive mood by *reductio ad absurdum*: given the major premise, if S were P, then S would be Q; but S is not Q is a given; therefore, S is not P. This argument is of course just as inductive as the one it is derived from; it is not deductive.

It is clear from the above presentation why purely a *fortiori* argument and qualitative analogical argument cannot be equated, even though they superficially might seem the same. The former is unidirectional (except in egalitarian cases) and deductive, whereas the latter is bidirectional and more inductive. Moreover, neither should be confused with syllogistic argument, though some such inference is involved in both.

### 3. Arguments involving proportionality

A fortiori argument as above described and explained refers more specifically to *purely* a fortiori argument. In such argument, notice, the subsidiary term S is *exactly the same* in the minor premise and in the conclusion. However, it is important to realize that there is another class of a fortiori argument, which we shall refer to as a *crescendo* argument, in which the subsidiary term S is *greater or lesser* in the minor premise and in the conclusion. Both types are a fortiori argument, and both are often used in practice; but whereas the former type is ‘non-proportional’, the latter type is ‘proportional’.

**A crescendo argument.** In purely a fortiori argument, there are only four terms, namely P, Q, R and S; whereas, in a crescendo argument, there are effectively five terms, namely P, Q, R and S1 and S2, where S1 and S2 signify two *different degrees or measures* of S, somewhat ‘proportional’ to P and Q (or Q and P, as the case may be) – or more precisely, as we shall see, to Rp and Rq (or Rq and Rp, as the case may be). A crescendo argument also differs from purely a fortiori argument in that it contains (tacitly, if not explicitly) an *additional premise* about proportionality. That is, whereas the ‘non-proportional’ forms of the argument have only two premises (the major and the minor), the ‘proportional’ forms have a third premise (which specifies the proportionality involved).

The following are the four forms of a crescendo argument corresponding to the earlier listed forms of purely a fortiori argument (leaving out egalitarian possibilities, for simplicity):

The **positive subjunctal**, which goes from minor to major:

P is more R than Q (is R) [i.e.  $R_p > R_q$ ]

and Q is R enough [i.e. it is  $R_q$ ] to be S [i.e. it is  $S_q$ ],

and S varies in proportion to R [additional premise of proportionality];

therefore, P is R enough [i.e. it is  $R_p$ ] to be *more than* S [i.e. it is  $S_p$ , which is  $> S_q$ ].

The **negative subjunctal**, which goes from major to minor:

P is more R than Q (is R) [i.e.  $R_p > R_q$ ]

and P is *not* R enough [i.e. it is not  $R_p$ ] to be S [i.e. it is not  $S_p$ ],

and S varies in proportion to R [additional premise of proportionality];

therefore, Q is not R enough [i.e. it is not  $R_q$ ] to be *less than* S [i.e. it is not even  $S_q$ , which is  $< S_p$ ].

The **positive predicatal**, which goes from major to minor:

More R is required to be P than to be Q [i.e.  $R_p > R_q$ ],

and S [i.e.  $S_p$ ] is R enough [i.e. it is  $R_p$ ] to be P,

and R varies in proportion to S [additional premise of proportionality];

therefore, *less than* S [i.e.  $S_q$ , which is  $< S_p$ ] is R enough [i.e. it is  $R_q$ ] to be Q.

The **negative predicatal**, which goes from minor to major:

More R is required to be P than to be Q [i.e.  $R_p > R_q$ ],

and S [i.e.  $S_q$ ] is *not* R enough [i.e. it is not  $R_q$ ] to be Q,

and R varies in proportion to S [additional premise of proportionality];

therefore, *more than* S [i.e.  $S_p$ , which is  $> S_q$ ] is not R enough [i.e. it is not  $R_p$ ] to be P.

Note the difference in orientation of the additional premise in subjunctal and predicatal arguments (in the former S is

proportional to R, whereas in the latter R is proportional to S). Note well that these premises about proportionality are needed for the respective arguments to be valid; if such additional premise is not applicable in a given case, the a crescendo argument is not valid, even if the purely a fortiori argument is valid. In other words, not all a fortiori arguments are a crescendo arguments – some are purely a fortiori. Many people (for instance, the writer of the Gemara *Baba Qama* 25a) fail to understand this, and think that proportionality is universally applicable. Conversely, many people (for instance, Hyam Maccoby<sup>12</sup>) think that only purely a fortiori argument is valid.

**Pro rata argument.** Argument a crescendo (i.e. ‘proportional’ a fortiori) should not be confused with argument by proportion, which we can refer to as argument *pro rata* (this Latin name being already well established in the English language), this being understood to mean “at the same rate.” Such argument concerns *concomitant variations* between two variables, and may be formulated as follows:

Y varies in proportion to X. Therefore:

given that: if  $X = x$ , then  $Y = y$ ,

it follows that: if  $X = \text{more (or less) than } x$ , then  $Y = \text{more (or less) than } y$ .

An example of it is Aristotle’s statement: “Every good quality of the soul, the higher it is in degree, so much more useful it is” (*Politics* 7:1), which intends the argument: given that a certain quality of the soul is good, it is useful; if it is improved, it is still more useful. In practice, pro rata argument is often expressed in the form: “the more X, the more Y; and (by implication) the less X, the less Y.” Note

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<sup>12</sup> In *The Philosophy of the Talmud*, chapter 14 and appendix A. See my analysis of the relevant passages in *A Fortiori Logic* 22.

that two variants (which mutually imply each other) are possible: one with “more” and one with “less” – that is, the argument *can go either way*, increasing or decreasing the quantities involved.

The statement “Y varies in proportion to X” is not an argument but a mere proposition, reflecting some generalized empirical observations or a more theoretical finding. The pro rata argument includes this proposition as its major premise, but requires an additional minor premise (viz. “if  $X = x$ , then  $Y = y$ ”) to draw the conclusion (“if  $X = \text{more/less than } x$ , then  $Y = \text{more/less than } y$ ”). The conclusion mirrors the minor premise in form, but its content is intentionally different. The quantities involved do not stay the same, but increase or decrease (as the case may be).

Notice that a pro rata argument has no middle term, unlike an a fortiori one. A pro rata argument is thus more akin to apodosis than to syllogism. Its major premise sets a broad principle, of which the minor premise and conclusion are two applications. The argument involved is thus simply inference of one quantity from another within the stated principle. If we found that contrary to expectations X and Y do not vary concomitantly as above implied, we would simply deny the major premise. In other words, this argument is essentially positive in form. A negative mood of it (with the same major premise and denials of the previous conclusion and minor premise) would not make much sense, since its minor premise and conclusion would be in conflict with its major premise.

The above formulas are at least true in cases of *direct* proportionality; in cases of *inverse* proportionality, the language would be: “the more X, the less Y; and (by implication) the less X, the more Y;” and the argument would have the following form:

Y varies in inverse proportion to X. Therefore:

given that: if  $X = x$ , then  $Y = y$ ,

it follows that: if X = more (or less) than x, then Y = less (or more) than y.

And of course, in more scientific contexts, we may have access to a more or less complex mathematical formula – say  $Y = f(X)$ , where  $f$  refers to some function – an equation that allows precise calculation of the proportion involved. In other words, the *validity* of pro rata argument is not always obvious and straightforward, but depends on our having a clear and reliable knowledge of the concomitant variation of the values of the terms X and Y. Given such knowledge, we can logically justify drawing the said conclusions from the said premises. Lacking it, we are in a quandary.

As its name implies, pro rata argument signifies that there is (if only approximately) some constant rate in the relative fluctuations in value of the variables concerned. The variables X and Y may be said to be proportional if  $X/Y =$  a constant, or inversely proportional if  $XY =$  a constant. In the exact sciences, of course, such a constant is a precisely measurable quantity; but in everyday pro rata discourse, the underlying ‘constant’ is usually a vague quantity, perhaps a rough range of possible values.

Proportionality or inverse proportionality as just defined, which can be represented by a straight line graph, and even when the graphical representation is more curved (e.g. exponential), may be characterized as simple. It becomes complex, when there are ups and downs in the relation of the two variables, i.e. when an increase in X may sometimes imply an increase in Y and sometimes a decrease in Y, it is obviously not appropriate to formulate the matter in the way of a standard pro rata argument. In such cases, we would just say: “the values of X and Y can

be correlated in accord with such and such a formula,” and then use the formula to calculate inferred quantities.

Proportionality may be continuous or not. Sometimes, there is proportionality of sorts, but it comes in slices: e.g. from  $X = 0$  to 1,  $Y = k$ ; from  $X = 1$  to 2,  $Y = k + 1$ ; etc. That is, to each range of values for  $X$ , there corresponds a certain value of  $Y$ , and the two quantities go increasing (or decreasing, as the case may be). Such proportionality is compatible with pro rata argument. For this reason, it is wise to put the word ‘proportionality’ in inverted commas, so as to remember that it does not always imply continuity.

Note too that proportionality may be natural or conventional. An example of the latter would be a price list: bus fares for children under 16, \$1; for adults 16+, \$2. However, beware in such case of frequent exceptions or reversals: e.g. unemployed and pensioners, \$1. In such cases, any pro rata argument must be stated conditionally: the bus fares are ‘proportional’ to age, provided the adults are not unemployed or pensioners.

It should also be reminded that proportionality (or its inverse), simple or complex, may or may not be indicative of a causal relation (in the various senses of that term). Two variables may vary concomitantly by virtue of being effects of common causes, in which case we refer to parallelism between them, or the one may cause or be caused by the other. Also, of course, such parallelism or causality may be unconditional or conditional. In such cases as it is unconditional, no more need be said. But in such cases as it is conditional, the condition(s) should ideally be clearly stated, although often they are not.

Pro rata argument may occur in discourse independently of a fortiori argument, or in conjunction with such argument. In any case, it should not be confused with a fortiori argument: they are clearly different forms of reasoning. Pro rata involves only two terms, or more precisely two values

(or more) of two variables; whereas a fortiori involves four distinct terms, which play very different roles in the argument. Pro rata and a fortiori are both analogical arguments of sorts, but the former is much simpler than the latter.

**The validation process.** A crescendo argument can be viewed as a combination of a fortiori argument and pro rata argument. This could be expressed as a formula:

**A crescendo = a fortiori cum pro rata.**

That is, we can divide a crescendo argument in two stages. In the case of positive subjectal argument: first, we draw the purely a fortiori conclusion “P is R enough to be Sq (the original value of S),” and then by means of pro rata reasoning we increase the conclusion to “P is R enough to be Sp (the greater value of S).” The pro rata argument used is:

If, moreover, (for things that are both R and S,) we find that: S varies in proportion to R, then:

knowing from the above minor premise that: if  $R = Rq$ , then  $S = Sq$ ,

it follows in the conclusion that: if  $R = \text{more than } Rq = Rp$ , then  $S = \text{more than } Sq = Sp$ .

Note that this pro rata stage relies not only on information given in the additional premise, but also on information given in the minor premise<sup>13</sup>. Similarly, in the case of

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<sup>13</sup> Note the stipulation “for things that are both R and S.” I have put this precondition in brackets, because it is in fact redundant, since the minor premise of the a fortiori argument implies anyway that not all things that are R are S, but only those things that have a certain threshold value of R or more of it are S. We should not think of S varying with R as a general proposition applicable to all R (implying that all R are S), but remain aware that this concomitant variation occurs specifically in the range of R where the threshold for S has indeed been

positive predicatal argument, first, we draw the purely a fortiori conclusion “Sp (the original value of S) R enough to be Q” and then by means of pro rata reasoning we decrease the conclusion to “Sq (the lesser value of S) R enough to be Q.” Here, the pro rata argument used is:

If, moreover, (for things that are both R and P or Q,) we find that: R varies in proportion to S, then:

knowing from the above minor premise that: if  $S = Sp$ , then  $R = Rp$ ,

it follows in the conclusion that: if  $S = \textit{less than } Sp = Sq$ , then  $R = \textit{less than } Rp = Rq$ .

Here again the pro rata stage relies not only on information given in the additional premise, but also on information given in the minor premise<sup>14</sup>. All this holds assuming, as earlier specified, that the proportionality proposed in the major premise of the pro rata argument is direct and simple.

These validation procedures for the positive moods show clearly that the validity of a crescendo argument depends on both its a fortiori constituent and its pro rata constituent. A crescendo is neither equivalent to the former nor equivalent to the latter, but emerges from the two *together*.

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attained or surpassed (i.e. where the “R enough to be S” condition is indeed satisfied).

<sup>14</sup> Note the stipulation “for things that are both R and P or Q.” I have put this precondition in brackets, because it is in fact redundant, since the major premise of the a fortiori argument implies anyway that not all things that are R are P and not all things that are R are Q, but only those things that have certain threshold values of R or more of it are P or Q. We should not think of R varying with S as a general proposition applicable to all S (implying that all S are R), but remain aware that this concomitant variation occurs (at least) specifically in the range of R where the thresholds for P and Q have indeed been attained or surpassed (i.e. where the “R enough to be P” and “R enough to be Q” conditions are indeed satisfied).

As for the negative moods, they can as usual be validated by *reductio ad absurdum* from the positive moods.

What we have done above is to formally demonstrate that, although drawing a ‘proportional’ conclusion from the premises of a valid a fortiori argument is not unconditionally valid, it is also not unconditionally invalid. Such a conclusion is in principle invalid, but it may exceptionally, under specifiable appropriate conditions, be valid. Formally, all depends on whether a pro rata argument can be truthfully proposed in addition to the purely a fortiori argument. In other words, to draw a valid a crescendo conclusion, the premises of a valid a fortiori argument do not suffice; but if they are combined with the fitting premises of a valid pro rata argument, as above detailed, such a conclusion can indeed be formally justified.

Of course, as with all deduction, even if in a given case the inferential process we propose is ideally of valid form, we must also make sure that the premises it involves are indeed true, i.e. that the content of the argument is credibly grounded in fact. Very often, in a crescendo argument, the process is convincing, but the major premise of the implicit pro rata argument is of doubtful truth; this is obviously something to be careful about. Merely declaring a certain proportionality to be true does not make it true – we have to justify all our premises, as well as their logical power to together produce the putative conclusion.

Sometimes, unfortunately, rhetoric comes into play here, and albeit the lack of mathematical proof, the conclusion is made to seem more precise than deductive logic allows. We could at best refer to such conclusions as intuitively reasonable, or as inductive hypotheses, partly but not wholly sustained by the data in the premises; but we must realize and acknowledge that they are not deductive certainties. Otherwise, we would be engaged in misleading

sophistry. Thus, it is important to keep in mind that, while we have shown that a crescendo argument is in principle, i.e. under ideal conditions, valid – it does follow that every a crescendo argument put forward in practice, i.e. in everyday or scientific discourse, is valid. It is potentially valid, but not necessarily actually valid. We have to carefully scrutinize each case.

**Quantitative analogy.** Many people confuse a crescendo argument, which is a special case of a fortiori argument, with quantitative analogy. It is important to clearly see the differences between these argument forms. Analogy may be qualitative or quantitative. The four moods of quantitative analogical argument are as follows:

- a. The **positive subjectal** mood: *Given that subject  $P$  is greater than subject  $Q$  with respect to predicate  $R$ , and that  $Q$  is  $S$  ( $Sq$ ), and that the ratio of  $Sp$  to  $Sq$  is the same as the ratio of  $P$  to  $Q$  (with respect to  $R$ ), it follows that  $P$  is proportionately more  $S$  ( $Sp$ ).*

Note that the additional premise about the ratios being the same is very often tacit, though sometimes explicit. Moreover, very often in practice the ratios are in fact not exactly the same, but only roughly the same. Also, the reference to the ratio of  $P$  to  $Q$  (with respect to  $R$ ) should perhaps be more precisely expressed as the ratio of  $Rp$  to  $Rq$ . Note that this argument effectively has five terms instead of only four (since term  $S$  splits off into two terms,  $Sp$  and  $Sq$ ). Of course, the additional premise about proportionality is usually known by inductive means. It might initially be assumed, and thereafter found to be untrue or open to doubt.

The argument here is, more briefly put: ‘just as  $P > Q$ , so  $Sp > Sq$ ’. We can similarly argue ‘just as  $P < Q$ , so  $Sp < Sq$ ’, or ‘just as  $P = Q$ , so  $Sp = Sq$ ’. In other words, positive subjectal quantitative analogy may as well be from the inferior to the superior (as in the initial case), from the

superior to the inferior, or from equal to equal; it is not restrictive with regard to direction. In this respect, it differs radically from positive subjectal a crescendo argument, which only allows for inference from the inferior to the superior, or from equal to equal, and excludes inference from the superior to the inferior. All this seems obvious intuitively; having validated the qualitative analogy, all we have left to validate here is the idea of ratios, and that is a function of mathematics.

As regards negation of the major premise, here, we can deal with it very simply as follows. 'P is *not* greater than Q with respect to R' can be restated as 'P is either lesser than or equal to Q with respect to R'; therefore, given that Q is Sq and that  $Sp:Sq = P:Q$  (or  $Rp:Rq$ ), it follows that P is Sp, where  $Sp < \text{or} = Sq$ . In other words, when the major premise is negative, we resort to two positive quantitative analogies in its stead.

- b. The **negative subjectal** mood: *Given that subject P is greater than subject Q with respect to predicate R, and that P is not S (Sp), and that the ratio of Sp to Sq is the same as the ratio of P to Q (with respect to R), it follows that Q is not proportionately less S (Sq).*

This mood can be validated by *reductio ad absurdum* to the positive one. Both the major premise (viz. that  $P > Q$ , with respect to R) and the additional premise about proportionality (viz. that  $Sp:Sq = Rp:Rq$ ) remain unchanged. What has 'changed' is that the minor premise of the negative mood is the denial of the conclusion of the positive mood, and the conclusion of the negative mood is the denial of the minor premise of the positive mood. Note that here instead of 'not more S (Sp)' and 'not S (Sq)', I have put 'not S (Sp)' and 'not less S (Sq)'; this is done only to preserve the normal order of thought – it does not affect the argument as such. Here again, needless to say, though the mood shown is based on  $P > Q$ , it can easily be

reformulated with  $P < Q$  or  $P = Q$ ; this only affects the conclusion's magnitude (making  $Sq$  mean 'more S' or 'equally S' as appropriate).

- c. The **positive predicatal** mood: *Given that predicate P is greater than predicate Q in relation to subject R, and that a certain amount of S ( $Sp$ ) is P, and that the ratio of  $Sp$  to  $Sq$  is the same as the ratio of P to Q (in relation to R), it follows that a proportionately lesser amount of S ( $Sq$ ) is Q.*

Here, the argument is essentially that 'just as  $P > Q$ , so  $Sp > Sq$ ', i.e. that the amounts of subject S (viz.  $Sp$  and  $Sq$ ) in the minor premise and conclusion differ in accord with the amounts of predicates P and Q (in relation to R). Or maybe we should say that subject R differs in magnitude or degree when its predicate is P ( $Rp$ ) and when its predicate is Q ( $Rq$ ), and that subject S differs accordingly (i.e.  $Sp$  and  $Sq$  differ in the same ratio as  $Rp$  to  $Rq$ ). This is again an inductive argument; and it would be equally valid in the forms 'just as  $P < Q$ , so  $Sp < Sq$ ', or 'just as  $P = Q$ , so  $Sp = Sq$ '.

- d. The **negative predicatal** mood: *Given that predicate P is greater than predicate Q in relation to subject R, and that a certain amount of S ( $Sq$ ) is not Q, and that the ratio of  $Sp$  to  $Sq$  is the same as the ratio of P to Q (in relation to R), it follows that a proportionately greater amount of S ( $Sp$ ) is not P.*

This mood can be validated by *reductio ad absurdum* to the positive one. That is, given the same major premise and additional premise about proportionality, we would say: since the lesser amount of S ( $Sq$ ) is not Q, it must be that the greater amount of S ( $Sp$ ) is not P. Here again, if the major premise has  $P < Q$  or  $P = Q$  instead of  $P > Q$ , the conclusion follows suit (i.e.  $Sp <$  or  $=$  instead of  $> Sq$ ).

As regards comparison and contrast between quantitative analogy and a crescendo argument, the following need be

said. The major premises are the same in both. But the minor premises and conclusions obviously differ, insofar as in quantitative analogy there is no idea of a threshold value of the middle term as there is in a fortiori argument. This explains why the ‘proportionality’ is bidirectional in quantitative analogical argument (inference is always possible both from minor to major and from major to minor); whereas it is clearly unidirectional in a fortiori argument (inference is only possible from minor to major in positive subjectal and negative predicatal argument, and from major to minor in negative subjectal and positive predicatal argument).

Clearly, while qualitative analogy is somewhat comparable to purely a fortiori argument, and quantitative analogy is somewhat comparable to a crescendo argument, these pairs of arguments are still far from logically the same. As can be shown by detailed formal analysis, neither argument can be *reduced* to the other. However, every valid a fortiori argument incidentally *implies* a corresponding argument by analogy involving less information and certainty (even if, of course, there is in practice no point in resorting to such implication, given an a fortiori argument, since it is better in all respects).

#### **4. A few words on the history**

There are 5 instances of *qal vachomer* (a fortiori) argument in the Torah (the five books of Moses); and at least another 41 instances in the Nakh (the rest of the Jewish Bible). There 46 instances of the argument in the Mishna, and hundreds more appear in the Gemara and other literature of Talmudic times. (The Mishna is the prime treatise of Judaic jurisprudence, compiled c. 200 CE after some 200 years of discussion of Torah law; this in turn forms the basis of the two Talmuds. The Gemara is essentially a collection of

commentaries on the Mishna, given in the Jerusalem Talmud, compiled in c. 400 CE, and in the Babylonian Talmud, compiled in c. 600 CE.)

Clearly, Judaism has from its inception resorted to a *fortiori* argument (and indeed, in its many varieties). Although the argument is pretty universal, being also found in Greek and Roman discourse, and later in Christian and Islamic discourse, and even in faraway Indian and Chinese discourse, it is evident that its presence in Jewish discourse is independent.

One proof of this is that the early rabbis, never made an effort to formally analyze the argument, only using it intuitively; whereas Greek and Roman sources, including Aristotle<sup>15</sup> and Cicero<sup>16</sup>, tried to expose and discuss the argument in relatively general terms. If the rabbis had studied these authors' works, they would surely have said more about the argument. The rabbis were content to merely name the argument, albeit somewhat descriptively (as having to do with *qal*-leniency and *chomer*-stringency), without further ado.

Nevertheless, they mastered this form of reasoning very well in practice (with a few notable exceptions); and they resorted to it very often. There were, to be sure, much later, many attempts by Jewish commentators to clarify and explain a *fortiori* argument in more formal terms. The most outstanding of these attempts was that of R. Moshe Chaim Luzzatto (the Ramchal, 1707-1746), who listed in his *The*

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<sup>15</sup> See his *Rhetoric* 2:23 and *Topics* 2:10, 3:6. See my analysis of these relevant passages in *A Fortiori Logic* 6.1.

<sup>16</sup> See his *Topics*, §23. 68-71. See my analysis of these relevant passages in *A Fortiori Logic* 6.5.

*Book of Logic*<sup>17</sup> four moods corresponding to the positive and negative, subjectal and predicatal moods of purely a fortiori argument – without, however, mentioning the threshold condition needed for validation, and therefore without effective validation.

The history of a fortiori argument is a fascinating topic, which I try to deal with in my book *A Fortiori Logic* in considerable detail, but we cannot say more about it in the present paper. Here, I will be content to very briefly analyze the most important occurrence of a fortiori argument in the Mishna (namely, Baba Qama 2:5), and still more briefly discuss the Gemara take on the latter (in Baba Qama, 25a-b). This Mishna is important due to its introduction of **the *dayo* (sufficiency) principle**, which is thereafter often used in Talmudic discourse.

## 5. Mishna Baba Qama 2:5

The said Mishna reports a debate between the Sages (*hachakhamim*) and R. Tarfon on the concrete issue of the financial liability of the owner of an ox which causes damages by goring on private property. The Sages consider that the owner must pay for only half the damages, whereas R. Tarfon advocates payment for all the damages. The Sages, though unnamed, were probably important rabbis such as R. Eleazar b. Azariah, R. Ishmael b. Elisha, R. Akiva, and R. Jose haGelili; and R. Tarfon was certainly their equal in status. The Mishna states<sup>18</sup>:

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<sup>17</sup> See chapter 14 of that work. See my analysis of the relevant passages in *A Fortiori Logic* 9.10.

<sup>18</sup> The extracts from the Talmud quoted here were found on the Internet at: [www.halakhah.com/pdf/nezikin/Baba\\_Kama.pdf](http://www.halakhah.com/pdf/nezikin/Baba_Kama.pdf). I have made minor modifications to the text, such as changing the spelling of

“R. Tarfon there upon said to them: seeing that, while the law was lenient to tooth and foot in the case of public ground allowing total exemption, it was nevertheless strict with them regarding [damage done on] the plaintiff's premises where it imposed payment in full, in the case of horn, where the law was strict regarding [damage done on] public ground imposing at least the payment of half damages, does it not stand to reason that we should make it equally strict with reference to the plaintiff's premises so as to require compensation in full?

Their answer was: it is quite sufficient that the law in respect of the thing inferred should be equivalent to that from which it is derived: just as for damage done on public ground the compensation [in the case of horn] is half, so also for damage done on the plaintiff's premises the compensation should not be more than half.

R. Tarfon, however, rejoined: but neither do I infer horn [doing damage on the plaintiff's premises] from horn [doing damage on public ground]; I infer horn from foot: seeing that in the case of public ground the law, though lenient with reference to tooth and foot, is nevertheless strict regarding horn, in the case of the plaintiff's premises, where the law is strict with reference to tooth and foot, does it not stand to reason that we should apply the same strictness to horn?

They, however, still argued: it is quite sufficient if the law in respect of the thing inferred is equivalent to that from which it is derived. Just as for damage done on public ground the compensation [in the case of horn] is

half, so also for damage done on the plaintiff's premises, the compensation should not be more than half.”

Note that only three amounts of compensation for damages are considered as relevant in the present context: nil, half or full; there are no amounts in between or beyond these three, because the Torah never mentions any such other amounts. No punitive charges are anticipated.

(a) Presented briefly, and in a nested manner, R. Tarfon *first argument* may be paraphrased as follows:

If damage by tooth & foot, then:

- if on public grounds, zero compensation, and
- if on private grounds, full compensation.

Likewise, if damage by horn, then:

- if on public grounds, half compensation, and
- if on private grounds, full compensation.

R. Tarfon's first putative conclusion is that there should be full payment for damage on private property. The Sages disagree with him, advocating half payment only, saying “*dayo*—it is enough.”

(b) R. Tarfon then tries another tack, using the same data in a different order. Presented briefly and in a nested manner, this *second argument* reads as follows:

If damage on public grounds, then:

- if by tooth & foot, zero compensation, and
- if by horn, half compensation.

Likewise, if damage on private grounds, then:

- if by tooth & foot, full compensation, and
- if by horn, full compensation.

R. Tarfon's second putative conclusion is again that there should be full payment for damage on private property. The

Sages disagree with him again, advocating half payment only, saying “*dayo*—it is enough.”

Now, the first thing to notice is that R. Tarfon’s two arguments contain the exact same given premises and aim at the exact same conclusion, so that to present them both might seem like mere rhetoric (either to mislead or out of incomprehension). The two sets of four propositions derived from the above two arguments (by removing the nesting) are obviously identical. All he has done is to switch the positions of the terms in the antecedents and transpose premises. The logical outcome seems bound to be the same. However, as we shall soon realize, the ordering of the terms and propositions does make a significant difference. And we shall see precisely why that is so.

To begin with, let me say that these arguments *could well* be interpreted as mere arguments by analogy (ratios). In the first case, he is saying just as half is greater than zero, so ‘greater than half’ must mean full. In the second case, he is saying just as half is greater than zero, so ‘greater than full’ must mean full. (Remember, the discussion revolves around only three values: zero, half or full.) But we shall here assume, as traditionally done, that the arguments are a *fortiori* – it is not unreasonable to do so.

In this perspective, R. Tarfon’s first argument may be depicted as a crescendo, as follows:

Private domain damage (P) implies more legal liability (R) than public domain damage (Q) [as we know by extrapolation from the case of tooth & foot].

For horn, public domain damage (Q) implies legal liability (Rq) enough to make the payment half (Sq).

The payment due (S) is ‘proportional’ to the degree of legal liability (R).

Therefore, for horn, private domain damage (P) implies legal liability (Rp) enough to make the payment full (Sp = more than Sq).

In that case, the Sage's first *dayo* rebuttal seems to intend: no, do not draw a 'proportional' conclusion (full compensation), but only infer the same quantity in conclusion (half compensation). That is, the Sages seem to be rejecting the additional premise about proportionality, and limiting the argument to its purely a fortiori dimension:

Private domain damage (P) implies more legal liability (R) than public domain damage (Q) [as we know by extrapolation from the case of tooth & foot].

For horn, public domain damage (Q) implies legal liability (R) enough to make the payment half (S).

Therefore, for horn, private domain damage (P) implies legal liability (R) enough to make the payment half (S).

This appears to be how R. Tarfon interprets the Sage's remark, because he then proposes an alternative argument, which manifestly does not rely on an additional premise about proportionality, i.e. is like the Sages' counter-argument purely a fortiori, and yet succeeds in reaching the same conclusion of full compensation, viz.:

Horn damage (P) implies more legal liability (R) than tooth & foot damage (Q) [as we know by extrapolation from the case of public domain].

For private domain, tooth & foot damage (Q) implies legal liability (R) enough to make the payment full (S).

Therefore, for private domain, horn damage (P) implies legal liability (R) enough to make the payment full (S).

Even so, the Sages retort *dayo* again, meaning that they do not accept R. Tarfon's conclusion of full compensation and

still advocate only half compensation. This suggests that their first retort was not essentially a preference for purely a fortiori argument as against a crescendo argument, but only incidentally so. But if so, why did they state their *dayo* objection in precisely the same terms both times?

Observe here the great logical skill of R. Tarfon. His initial proposal, as we have seen, was an a crescendo argument that the Sages (for reasons to be determined) limited to purely a fortiori. This time, R. Tarfon takes no chances, as it were, and after judicious reshuffling of the given premises offers an argument which yields the same stringent conclusion whether it is read as a crescendo or as purely a fortiori. A brilliant move! It looks like he has now won the debate; but, surprisingly, the Sages again reject his conclusion and insist on a lighter sentence.

How can this be? For a start, how can R. Tarfon using the exact same data construct two structurally different arguments that yield the same conclusion? And moreover, how can the Sages respond to such structurally different arguments in one and the same language? Both times (reportedly) they say: “it is quite sufficient that the law in respect of the thing inferred should be equivalent to that from which it is derived: just as for damage done on public ground the compensation [in the case of horn] is half, so also for damage done on the plaintiff’s premises the compensation should not be more than half.”

The answer to these questions becomes evident once we notice how the major premises of R. Tarfon’s two arguments are developed. The major premises are based on generalizations. That “Private domain damage *universally* implies more legal liability than public domain damage” is known *by extrapolation from* the specific case of tooth & foot. Similarly, that “Horn damage *universally* implies more legal liability than tooth & foot damage” is known *by extrapolation from* the specific case of public domain. The

generalities are not textually given or deduced – they are induced. The reason why the two arguments are different is that they are based on two different directions of generalization from the same pool of data.

As regards the Sages' two *dayo* statements, the first one cannot concern the generalization leading to the major premise, since the major premise is not based on information about horn damage, but only on information about tooth & foot damage. The Sages' first remark can only concern R. Tarfon's assumption that "The payment due is 'proportional' to the degree of legal liability," because it is precisely this tacit premise which makes the stringent conclusion possible. On the other hand, the Sages' second remark cannot possibly concern an assumption of proportionality in R. Tarfon's second argument, since he makes no such assumption in it, but argues purely a *fortiori*. Therefore, the Sages' second remark must concern the generalization which gives rise to the major premise of R. Tarfon's second argument.

Thus, whereas the Sages' first *dayo* is clearly aimed at inhibiting adoption of the additional premise about proportionality in R. Tarfon's first argument (which is a *crescendo*), their second *dayo* can only be aimed at inhibiting the mental formation of the major premise of R. Tarfon's second argument (which is purely a *fortiori*). Thus, although the language used by the Sages is identical in both cases, the technical impacts of their two statements are very different.

What is the Sages' thinking when they say *dayo*? It is clear that the Sages realize that the premise about proportionality in R. Tarfon's first argument is not *logically* necessary, i.e. it is expendable. It might at first sight seem obvious that compensation for damages should be 'proportional' to the degree of responsibility of the accused; but the Sages effectively say: no, this is just an *ethical* imperative, which

may for higher ethical reasons be circumvented at times. What is at stake here is the principle of ‘**measure for measure**’ (*midah keneged midah*).

Intuitively, it seems just and fair that the punishment meted out should be proportional to the crime committed. But the Sages’ *dayo* implies that this principle of justice and equity, although good, cannot always be put into practice. Specifically, when we try to infer a penalty for a crime from the Torah, we cannot apply proportionality; maybe just because determining the exact amount of proportionality is not an exact science, or perhaps because the transition is man-made and therefore fallible.

Rather than risk sentencing someone to possibly excessive punishment, which would constitute a great personal sin for any judge, the Sages wisely stick to the lesser amount specified in the Torah for a lesser crime. It is this higher ethical consideration – the preemption of *excessive* punishment – which allows the Sages to block application of the ‘measure for measure’ rule, while not denying its truth in principle. The *dayo* principle, then, is essentially that the penalty given in the Torah for a lesser crime should *not* be increased for a greater crime not mentioned in the Torah.

Once this principle (the *dayo*) is understood, based on the Sages’ reaction to R. Tarfon’s first argument, it can equally well – indeed, all the more – be applied to R. Tarfon’s second argument. For, whereas in the first case, the *dayo* principle was able to neutralize the ‘measure for measure’ principle, a high ethical principle we are strongly attached to, in the second case, which does not appeal to the ‘measure for measure’ principle, the *dayo* principle is used to block a mere generalization – an inductive act, which may well for a large variety of reasons be interdicted.

This then, briefly exposed, is the thrust of our Mishna, Baba Qama 2:5, which is surprisingly (it should be

stressed) the only place in the whole Mishna document where the *dayo* principle is actually used (let alone discussed). Note well: out of 46 Mishnaic a fortiori arguments, *only* the above mentioned two by R. Tarfon are subjected to the *dayo* limitation. It is only in the later Gemara debates that the *dayo* principle begins to be widely applied (exactly how often, needs still to be determined).

It should be pointed out here, too, that the *dayo* principle is not mentioned in the lists of hermeneutic principles (*midot*) attributed to Hillel and R. Ishmael. They mention the *qal vachomer* argument as the first rule of rabbinic interpretation, but do not mention the usually associated *dayo* principle. This is also surprising. In truth (or at least in my opinion), the *dayo* principle could ultimately be applied to any similar form of quantitative reasoning. There is no reason to limit its application to a fortiori argument, as traditionally suggested, even if it emerged historically in that specific context.

Indeed, the two arguments of R. Tarfon could equally well have been read as quantitative analogies, and the *dayo* principle would still have emerged from the Sage's two objections to prevent proportional penalties. But if so, if indeed the *dayo* principle is not intrinsically exclusively connected to a fortiori argument, it should have appeared as an independent rule in the said rabbinical lists. It is surely an important principle, which is also found in the jurisprudence of other nations. So, there are some unanswered questions.

## **6. Gemara Baba Qama 25a-b**

Now, one would have expected all that has been said above concerning Mishna Baba Qama 2:5, our analysis of the *qal vachomer* arguments involved and of the *dayo* principle, to

have been said in a Gemara commentary on this passage. But, no; surprisingly, nothing of the sort appears in it. Instead, we find the Babylonian Talmud embarking on a set of relatively irrelevant investigations and making some very doubtful claims. We cannot here deal with them all in detail, but the following analysis provides a sample. The Gemara opens with this comment<sup>19</sup>:

“Does R. Tarfon really ignore the principle of *dayo*? Is not *dayo* of Biblical origin? As taught: How does the rule of *qal vachomer* work? And the Lord said unto Moses: ‘If her father had but spit in her face, should she not be ashamed seven days?’ How much the more so then in the case of divine [reproof] should she be ashamed fourteen days? Yet the number of days remains seven, for it is sufficient if the law in respect of the thing inferred be equivalent to that from which it is derived!”

In this passage, the Gemara author (who is anonymous) suggests that, even though the Mishna makes it seem as if R. Tarfon did not know the *dayo* principle formulated by the Sages, in fact R. Tarfon couldn’t have been unaware of the principle because it is of Torah origin. To prove the latter claim, the Gemara adduces a *baraita* (a Tannaic statement not part of the Mishna) according to which the argument in Numbers 12:14-15 is a *qal vachomer* one, whose natural conclusion is fourteen days of shaming, which number is cut back to seven days by application of the *dayo* principle.

Notice in passing how the *baraita*’s question “How does the rule of *qal vachomer* work?” is put in general terms,

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Source already cited.

implying that the answer to it is that *qal vachomer* argument is intrinsically proportional (i.e. a crescendo). This is, of course, absurd – as purely a fortiori argument is very common in the Tanakh and in the Mishna, and even in the Gemara! In the Tanakh, only 6 out of 46 (13%) of the a fortiori arguments are a crescendo; in the Mishna, only 10 of 46 (22%) are so.

The reason why this passage was specifically focused on by the Gemara should be obvious. This is *the only* a fortiori argument in the whole Tanakh that is both spoken by God and has to do with inferring a penalty for a specific crime. None of the other four a fortiori arguments in the Torah are spoken by God. And of the nine other a fortiori arguments in the Tanakh spoken by God, two (Jer. 25:29 and 49:12) do concern punishment for sins but not specifically enough to guide legal judgment. Clearly, the Mishna BQ 2:5 could only be grounded in the Torah through Numbers 12:14-15. Now, this Torah passage reads<sup>20</sup>:

“14. If her father had but spit in her face, should she not hide in shame seven days? Let her be shut up without the camp seven days, and after that she shall be brought in again. 15. And Miriam was shut up without the camp seven days; and the people journeyed not till she was brought in again.”

However, to my mind, the simple reading (*pshat*) of this Biblical passage, or more specifically of v. 14, is the following *pure* (i.e. non-proportional) a fortiori argument. Note in passing that it is positive subjectal, going from minor to major.

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From *Soncino Chumash*.

Causing Divine disapproval (P) is a greater offense (R) than causing paternal disapproval (Q).

Causing paternal disapproval (Q) is offensive (R) enough to merit isolation for seven days (S).

Therefore, causing Divine disapproval (P) is offensive (R) enough to merit isolation for seven days (S).

We could, to be sure, alternatively construe the argument as *a crescendo* (i.e. as proportional a fortiori), even though there is *no mention or hint* in the source text of any quantity other than seven days. To do that, we need to add a premise about proportionality – which is easy enough to do, given the intuitive ethical principle of ‘measure for measure’. The argument would then be:

Causing Divine disapproval (P) is a greater offense (R) than causing paternal disapproval (Q).

Causing paternal disapproval (Q) is offensive (R) enough to merit isolation for seven days (Sq).

The penalty (S) varies in proportion to the offense (R).

Therefore, causing Divine disapproval (P) is offensive (R) enough to merit isolation for fourteen days (Sp).

We can in this way claim, as the Gemara does, that the penalty in the case of Divine disapproval was limited to only seven days with reference to the *dayo* principle. This scenario is conceivable, but far from obvious, since as already shown the source text can be simply read as purely a fortiori argument. The insertion of the additional premise about proportionality is, however, reasonable – we would naturally expect a greater penalty for offending God than for offending one’s father. So, the Gemara’s thesis that the *dayo* principle must have been tacitly applied by God, since

the final conclusion given in the Torah is only seven days, has some credibility.

However, it should be noted that the *dayo* principle used here is not exactly identical to that used in the Mishna under discussion. In the Mishna, the *dayo* principle serves to limit the penalty for a greater crime which is not mentioned in the Torah to the specific penalty for the lesser crime which is mentioned in the Torah. In the Mishna, then, the source of information is a Torah law, whereas the conclusion is about something not directly addressed by the Torah. And, as we saw, the motive behind this restriction seems to be the limit or fallibility of human judgment.

On the other hand, in the Num. 12:14 passage, the source of information is the idea that offending one's father merits seven days isolation – which is not a Torah law, but rather apparently a mere intuition, if not an actual custom – and the conclusion is a Divine fiat. No human judgment is called upon here. So, the analogy between the Num. 12:14 example and the Mishna example is not perfect; it is surely a bit forced. It cannot strictly be said that God was applying the Mishnaic *dayo* principle when he showed Miriam leniency in limiting her punishment to seven days.

Another important disanalogy to note is that, as we have seen, the Mishnaic *dayo* principle has (at least) two formal expressions. In relation to the first argument of R. Tarfon, conceived as a crescendo, the Sages' *dayo* served to block the additional premise about proportionality; whereas in relation to the second argument of R. Tarfon, conceived as purely a fortiori, the Sages' *dayo* served to block the initial generalization leading to the major premise. Clearly, while the presumed *dayo* application in Num. 12:14 might be compared to the Sages' first *dayo*, it bears no resemblance to the Sages' second *dayo*!

Indeed, search as we might in the Gemara (BQ 25a-b) commentary relative to our Mishna (BQ 2:5), we will find

no evidence that its author is at all aware of the existence of two quite distinct arguments by R. Tarfon in the Mishna, which imply two quite distinct *dayo* retorts by the Sages. It seems that the Gemara's author, like many distracted commentators after him, only focused on the first argument, and paid no attention to the second. Thus, while the Gemara may have demonstrated that the Sages' first *dayo* was "of Biblical origin," it did not demonstrate that the Sages' second *dayo* was so. Even if the second *dayo* may ex post facto be argued to be somewhat implicit in the first, this is not actually pointed out in the Gemara.

As far as I could tell, it is only much later in Jewish history that rabbinical commentators realized that the *dayo* principle has two expressions. In rabbinical parlance, the first *dayo* by the Sages applies "at the end of the law" (*al sof hadin*), whereas the second *dayo* by them applies "at the beginning of the law" (*al techelet hadin*)<sup>21</sup>. I have not managed to find out who and when, and in what precise context, this distinction and terminology were first introduced. This is an important historical question that requires further research.

I have not to date found any evidence that the distinction between the two types of *dayo* was consciously and explicitly made in literature of Talmudic times. My guess is that this discovery came centuries later, probably thanks to a Tosafist commentator (though it might have been earlier or later). However, not knowing in what precise commentary, and therefore in what discursive context, the differentiation actually occurred, I cannot tell whether it referred to specifically to the Mishna Baba Qama 2:5 or perhaps arose with some other specific example in mind.

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See *Encyclopedia Talmudit*, article on the *dayo* principle.

Judging by the vagueness of the terminology that is used by rabbinical commentators today (“at the end,” “at the beginning”), it seems unlikely that the original or subsequent commentators, even if they grasped the application of the distinction in BQ 2:5, fully understood its exact nature (i.e. that the first *dayo* blocked assumption of proportionality, whereas the second *dayo* blocked an initial generalization). I believe such exact understanding can only proceed from my above detailed analysis, which is original.

I have here focused on only one or two of the issues that the Gemara (BQ 25a-b) commentary raises. Many more serious criticisms of it can be made. Unfortunately, I do not have the space here to bring them to bear. The interested reader will find them in my book, *A Fortiori Logic*. Suffices for us to note here, in conclusion, how big a role a fortiori logic plays in Jewish hermeneutics and jurisprudence, and how important it is to have a clear idea of the theoretical aspects of a fortiori argument if we are to fully understand – and independently assess – rabbinical legal discussions.

## **7. Some rabbinical hermeneutic principles**

It is interesting to relate some of the above discussion to some of the rabbinical hermeneutic principles (*midot*), notably those listed by Hillel the Elder, R. Ishmael ben Elisha and R. Eliezer ben Jose ha-Gelili, which date from Mishnaic times. These principles are intended to facilitate or guide interpretation of Biblical texts, especially with a view to formulating religious, political and civil laws.

The first rule of R. Ishmael<sup>22</sup>, the principle of *kal vachomer*, clearly refers to a fortiori argument. As we have mentioned, apart from the descriptive name, there is very little formal analysis of this form of reasoning in Mishnaic or Talmudic literature, although some attempts at more detailed analysis do appear in later rabbinic discourse. The *dayo* (sufficiency) principle is usually considered as a tacit component of the *kal vachomer* principle; but, as we have seen, this need not be the case in practice.

The second rule of R. Ishmael, the principle of *gezerah shavah*, which is based on the terms having some Biblical wording or intent in common, may be said to constitute simple analogy. This is because (evident) same wording, or (assumed) same ‘intent’ of different wordings, do not provide a sufficiently explicit predicate (R) in common to the subjects compared (P and Q). Words are explicit, but they are incidental to what they verbalize; therefore, the assumption that the Torah intends them as significant enough to justify an inference is open to debate<sup>23</sup>. The same can be said of the twelfth rule of R. Ishmael, which refers to contextual inferences (*meinyano*, *misofa*, and the like): such reasoning is simple analogy.

However, the third rule of R. Ishmael, the principle of *binyan av*, falls squarely under the heading of complex analogy. In fact, our above description of complex analogy is an exact description of *binyan av* reasoning. When the

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<sup>22</sup> Given at the beginning of the *Sifra* (a halakhic midrash).

<sup>23</sup> In other words, the traditional Judaic belief (or dogma) that names are part of the nature of the things they name, if not their very essence, is – as far as formal logic is concerned – only a theory. There is nothing obvious or axiomatic about it. It is a hypothesis that must remain open to scrutiny and testing like any other. Modern linguistics would deny this hypothesis in view of the demonstrable fact that all languages, including Hebrew, have evolved over time.

rabbis want to extend the scope of a Torah law (S), they show that some new subject (P) has some feature (R) in common with the Torah-given subject (Q), and assuming that this feature is *the reason for* the law (this assumption constitutes a generalization, even if it superficially may seem to be a direct insight), they carry the law over from the given case to the unspecified case.

## 2. LUIS DUARTE D'ALMEIDA

### 1. A second-hand conception

The subject of a fortiori argument is treated, mainly with legal perspectives, in a 2017 paper by Luis Duarte D'Almeida (henceforth, D'Almeida)<sup>24</sup> called *Arguing a fortiori*<sup>25</sup>. This is a pretentious essay, with few if any novel thoughts, and many egregious displays of ignorance and fallacious reasoning. Precisely for that reason, it is interesting to examine, as a case study in logical hubris. One might think that an essay replete with dishonesty, errors and omissions, and sophistry, is not worth writing about and reading about; but the fact is that much of value can be learned from such a study.

As we shall see, the author, D'Almeida, draws a great deal of his ideas and terminology from my 2013 work *A Fortiori Logic* (2013) (henceforth, AFL), without duly acknowledging his intellectual debts; such dishonesty is of course morally reprehensible, and needs to be publicly exposed. Moreover, in his treatment of a fortiori argument, he makes serious errors and ignores some important aspects of the subject, due to lack of understanding and

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<sup>24</sup> A Professor of Jurisprudence (and Director of Equality & Diversity, whatever that entails) at the U. of Edinburgh Law School. I was amazed to discover this; I thought, reading his essay, he might be a novice lecturer trying desperately to make a name for himself.

<sup>25</sup> Published in *The Modern Law Review* (MLR) 2017, 80(2), pp. 202–237. Can be purchased online at: <http://onlinelibrary.wiley.com/doi/10.1111/1468-2230.12252/full>. The author is a Reader in Jurisprudence at the Edinburgh School of Law, University of Edinburgh. The *Modern Law Review* seems to be closely connected to the London School of Economics.

inattention to details. Furthermore, the author shows outstanding logical incompetence, when he eventually attempts to formulate and prove ideas which are truly his own. The present critique patiently details the essay's many deficiencies.

Starting his analysis of a fortiori argument by adopting the example "*He does not touch cider; he will certainly refuse whisky*" (p. 204)<sup>26</sup> as representative, D'Almeida's proposed formal description of such argument is as follows<sup>27</sup>:

"(1) There is a point T in the scale of P such that, for every x, if x meets T, then x is Q.

(2) a meets T.

(3) b ranks higher than a on the scale of P.<sup>28</sup>

Therefore (from (2) and (3)),

(4) b meets T.

Therefore (from (1) and (4)),

(5) b is Q" (p. 208).

The illustration he gives for it is<sup>29</sup>:

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<sup>26</sup> Which he takes, after a small modification, from David Daube in (his citation) 'Rabbinic Methods of Interpretation and Hellenistic Rhetoric' (1949) 22 Hebrew Union College Annual 239, 254.

<sup>27</sup> I have left out his italics on symbols, and have changed his numbering from Roman to Arabic numerals.

<sup>28</sup> Note that although D'Almeida does not at this stage mention the possibility of egalitarian or *a pari* a fortiori argument, he does so later, on pp. 236-7. There, premise (3) takes the form: "a and b are equally ranked on the scale of P."

<sup>29</sup> Notice that the way he formulates his example does not exactly match the way he formulates his form. Granting the form to be the correct formulation, his conclusion should have been: "then whisky

“(1) There is a point T in the scale of alcohol content such that if a beverage meets T, then our friend will refuse it.

(2) Cider meets T.

(3) Whisky ranks higher than cider on the scale of alcohol content.

Therefore (from (2) and (3)),

(4) Whisky meets T.

Therefore (from (1) and (4)),

(5) Our friend will refuse whisky” (p. 205).<sup>30</sup>

He declares that: “Any instance of this pattern will be a deductively valid argument” (p. 207); and I largely agree, since it contains two known deductive processes, namely a quantitative inference (a quantity greater than a second quantity which is greater than a third quantity must be greater than that third quantity) and a positive apodosis (*modus ponens*: given that an antecedent implies a consequent, if the antecedent is realized, then the consequent is realized). This formula can be put more succinctly as follows, if we interpret “meets” as meaning “is equal to or greater than”:

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will be refused by our friend” (b is Q). Such sloppiness can result in error. See next footnote.

<sup>30</sup> Actually, as I will show further on, this interpretation by D’Almeida of the example drawn from Daube that he chose at the outset as representative is formally inaccurate. For the time being, I deal with his account at face value, and leave this issue of appropriateness for later treatment. Suffice to say that such an error by D’Almeida, at the very start of his analysis of a fortiori argument, puts his logical knowhow in doubt.

If  $a \geq T$  (2) and  $b > a$  (3), then  $b > T$  (4);  
 and  $x \geq T$  implies  $x$  is  $Q$  (1),  
 and  $b$  is an  $x$  and so fits  $x \geq T$ ;  
 therefore,  $b$  is  $Q$  (5).

Note that I have added a clarifying sentence, “and  $b$  is an  $x$  and so fits  $x \geq T$ ,” which is left tacit in D’Almeida’s formulation. The above described argument-form corresponds to what I have called **positive subjectal** a fortiori argument<sup>31</sup>. D’Almeida himself ‘kindly’ admits it in a footnote in the 5<sup>th</sup>-6<sup>th</sup> pages of his essay (n. 8, pp. 206-7):

“This intermediate inference—the inference from (ii) and (iii) to (iv)—bears some structural similarity to what Sion isolates as one (complete) valid pattern of a fortiori argument: he calls it the ‘positive subjectal mood’ of the ‘copulative’ a fortiori argument—he also calls it the ‘paradigm of a fortiori argument’—and renders it as ‘P is more R than (or as much R as) Q (is R); and Q is R enough to be S; therefore, all the more (or equally), P is R enough to be S.’ See A. Sion, *A Fortiori Logic: Innovations, History and Assessments* (Geneva: Avi Sion, 2013) 10-11, 117.”<sup>32</sup>

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<sup>31</sup> Already in my 1995 book, *Judaic Logic*.

<sup>32</sup> It is not clear from the page numbers D’Almeida gives just which edition of AFL he is using. To avoid all ambiguity in this respect, I prefer to refer to my work by means of the chapter and section; e.g. here, chapter 1, section 3.

This is a hint as to where he got his insight into a fortiori argument from: from my work. However, this statement is inaccurate, if not a conscious lie: there is no mere, vague, partial “structural similarity” with my work. As I will presently demonstrate, ***all the constituents of his argument-form are derived from my validation procedure for positive subjectal a fortiori.*** D’Almeida has *only changed the symbols used for the terms, and reshuffled the propositions* involved (leaving out one important clause without explanation). There is nothing wrong with such *rewording and rearranging*; what is wrong is *not giving full credit where credit is due*. Although he tries to project himself as an original thinker, gradually making new discoveries, the truth is he has not innovated in this matter, but merely retransmitted information already written and published by me years before.

I will perform the analysis of D’Almeida’s rendition using my own symbols, which I established as standard in my past works on the subject because of their broad utility. These are: P (for the major term), Q (for the minor term), R (for the middle term) and S (for the subsidiary term). These four symbols correspond (in the present context) respectively to his symbols *b*, *a*, *P* and *Q*; his fifth symbol *T* corresponds to my symbol *Rs*, but he has no symbols for my *Rp* and *Rq*. In AFL 1.3, I present the positive subjectal a fortiori argument as having the following form on the surface, based on everyday use:

P is more R than (or as much R as) Q is (major premise);

and Q is R enough to be S (minor premise);

therefore, P is R enough to be S (conclusion).<sup>33</sup>

Notice the simplicity and directness of this standard format, how it conveys all the needed information in three propositions: a major premise, a minor premise and a conclusion, and how it reflects common a fortiori discourse. Compare this to D’Almeida’s five propositions (plus two explanatory sentences). Apparently, D’Almeida found himself incapable of wrapping his mind around the standard three propositions. Finding the wording too conceptual and direct for his liking, he sought for a more graphic, and more verbose, means of expression – a rationale that he could grasp. But as I will be showing in much detail, this rationale is inadequate and detrimental. Now, looking deeper into the above three propositions, we have:

- *for the major premise:*

P is R, i.e. P is to a certain measure or degree R (say, Rp);

Q is R, i.e. Q is to a certain measure or degree R (say, Rq);

and Rp is greater than (or equal to) Rq (whence: Rp implies Rq<sup>34</sup>).

- *and for the minor premise:*

Q is R, i.e. Q is to a certain measure or degree R (say, Rq);

whatever is at least to a certain measure or degree R (say, Rs), is S, and

<sup>33</sup> In D’Almeida’s terminology, this would read: ‘b’ is more ‘P’ than ‘a’; and ‘a’ is ‘P’ enough to be ‘Q’; therefore, ‘b’ is ‘P’ enough to be ‘Q’.

<sup>34</sup> This implication is intended in the sense that a larger number implies every smaller number. For example, if I have \$5, then I obviously have \$3.

whatever is *not* at least to that measure or degree R (i.e. is not Rs), is *not* S;

and Rq is greater than (or equal to) Rs (whence: Rq implies Rs).

- yielding *the conclusion*:

P is R, i.e. P is to a certain measure or degree R (say, Rp);

whatever is at least to a certain measure or degree R (say, Rs), is S, and

whatever is *not* at least to that measure or degree R (i.e. is not Rs), is *not* S;

and Rp is greater than (or equal to) Rs (whence: Rp implies Rs).

This is validation by direct reduction to more widely studied and understood propositional forms, note. The conclusion has four components; its first component comes from the major premise; the second and third come from the minor premise; and the fourth comes from both premises. Whence, the conclusion logically follows from the given premises.

If we rewrite D'Almeida's formula with my symbols, we obtain the following result, in which **the sources of his formula** in my prior work are made quite evident (shown in bold):

- (1) *There is a point Rs in the scale of R such that what meets Rs is S.*

This corresponds to the second component of my minor premise: **Whatever is Rs or more, is S.**

But note that D'Almeida has ignored third component, the negative clause (which is the exact inverse of the said positive clause): whatever is *not* at least Rs, is *not*

S, perhaps due to his wish to avoid using the summary form: Q is R *enough to* be S (see further down).

(2) *Q meets Rs.*

This corresponds to the first and fourth components of my minor premise: **Q is R (Rq), and Rq is greater than (or equal to) Rs.**

(3) *P ranks higher than Q on the scale of R.*

This corresponds to my whole major premise (its three components), viz.: **P is R (Rp), and Q is R (Rq), and Rp is greater (i.e. more R) than Rq.**

*Therefore (from (2) and (3)),*

(4) *P meets Rs.*

This corresponds to the fourth component of my conclusion, viz.: **Rp is greater than (or equal to) Rs,** which is inferred from the third component of the major premise and the fourth component of the minor premise.

*Therefore (from (1) and (4)),*

(5) *P is S.*

This follows from the first, second and fourth components of my conclusion, **P is R (Rp), and Rp is greater than (or equal to) Rs, and whatever is Rs or more, is S.**

Here again, D'Almeida has ignored the negative clause (the inverse): whatever is *not* at least Rs, is *not* S, and avoided use of the summary form: P is R *enough to* be S, which implies that P is S (see further down).

It is evident from the above detailed analysis that *not only* his propositions (2), (3) and (4) are derived from my treatment, as he kind-of admits, *but also* propositions (1) and (5) are so! His statement (1) “There is a point Rs in the scale of R such that what meets Rs is S” is not semantically different from my “Whatever is at least to a certain measure

or degree R (say,  $R_s$ ) is S;” and his statement (5) “P is S” is explicitly included in my “P is R enough to be S.” as well as implied in the conclusion of my validation procedure. If D’Almeida had not changed the symbols, all this would have been glaring. He changed the symbols, and the language somewhat, I submit, so as to camouflage the derivation of his proposal from my earlier work and avoid having to acknowledge it.

Now, D’Almeida’s formulation may superficially seem more succinct than my validation procedure<sup>35</sup>, mainly because he makes use of a brief but vague expression, “meets.” Let us consider this term, which he does not define anywhere. At first sight, it seems to simply mean “is equal to or greater than.” However, upon reflection one realizes that this is not exactly true. If one examines D’Almeida’s formula more closely, one notices that he muddle-headedly conflates two distinct ideas. Using his symbols, we can say that the terms  $a$  and  $b$  (or any  $x$ ) are subjects in relation to the predicates  $P$  and  $Q$ ; but in that case, we cannot say that  $a$  and  $b$  (or  $x$ ) are comparable to  $T$  on the scale  $P$ ; we can only say that the values of  $P$  corresponding to  $a$  and  $b$  (or  $x$ ) are comparable to  $T$ . In other words, it is not  $a$  and  $b$  that are  $\geq T$ , but  $P_a$  and  $P_b$  that are  $\geq T$ . This fine distinction is missed by D’Almeida, revealing a mind functioning in an approximate manner.

In case this distinction is not clear to some readers, let me repeat it using D’Almeida’s main example. It is not the same to say that cider ( $a$ ) and whisky ( $b$ ) contain more or as much alcohol ( $P$ ) than the measure of alcohol ( $P$ )

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<sup>35</sup> In other parts of the text I also resort to briefer language, e.g. in Table 1.2, I have:  $R_p \geq R_q$ ,  $R_q \geq R_s$ , so,  $R_p \geq R_s$ ; and in Diagram 1.1, I show these relations by way of an illustration. In any case, my standard form is much briefer, and more accurately reflects the way we all in practice express our a fortiori reasoning.

designated by T, and to say that the alcohol-content of cider (Pa) and that of whisky (Pb) are greater or equal to T. This is not hair-splitting, but a significant logical difference that a logician must be careful to reflect in his formula to ensure no mistakes later take place. Thus, the term D’Almeida used, “meets,” was designed to gloss over an ambiguity that he was unable to notice and sort out. To repeat, the expression a or b “meets T” does not mean, as it seems to at first, that a or b is  $\geq T$ , but only that a or b has a *value of P* that is  $\geq$  than the value of P signified by T. In my formulation, note well, the major and minor terms P and Q (my symbols) are clearly distinguished from the values of the middle term (R) corresponding to them, labeled Rp and Rq respectively.

Now, consider the order in which D’Almeida has placed the premises in his formula: (1) and (2) from my minor premise, and (3) from my major premise. That is, he has put the minor premise before the major. Chronologically, he claims, (2) and (3) should come first, yielding (4); then (4) together with (1) yield (5). Yet, he has placed (1) in very first place, apparently to stress its importance. Why? If he is thinking in terms of logical priority, why has he not accordingly placed (3) before (2)? Surely, in the first leg of his argument, (3) is the major premise and (2) is the minor premise, and (4) is their conclusion. So, D’Almeida cannot claim to be ordering the premises either chronologically or logically. It seems obvious, then, that he placed (1) at the start of his formula in order to conceal its origin in my minor premise; i.e. he moved it to first place to make the argument as a whole *look* different from mine.

Notice also that D’Almeida’s formula does not explicitly tell us that (using his symbols) “a is Q,” although he does realize this later, numbering this proposition (2a) and pointing out that it is inferable from (1) and (2). He is evidently a bit surprised by this finding, saying: “interestingly, the claim in (2a) was the single one that the

arguer had actually made explicit;” and he goes on to argue that:

“That single claim ... provided the basis for our interpretative reconstruction of the further premises we take the arguer to be implicitly relying on ... but once we have unpacked these premises into the conjunction of (1), (2), and (3), the claim in (2a) no longer needs to be spelled out as a part of the argument in order for the inference to run. In a sense, then, the argument as originally stated included none of its crucial premises” (p. 206).

He is here referring to his main example, the cider-and-whisky argument. What he is saying is, of course, balderdash – mere ex post facto *rationalization*. The fact remains that his model of a fortiori argument lacks the very premise that it set off to explain, which is unheard of in formal logic. According to him, although most people who engage in a fortiori argument use the proposition “a is Q” as their foremost premise (very often mentioning it alone), it is merely an *incidental* implication of the ‘true’ a fortiori argument, and not an effective part of the argument. It is a historical *accident* that people speak thus, not something inherent to a fortiori reasoning. This may be characterized as adapting reality to theory, instead of theory to reality.

In my corresponding standard form, which is built on extensive empirical studies, on the other hand, this proposition, viz. (using my symbols) ‘Q is S’, is explicitly embedded in the minor premise ‘Q is R enough to be S’, and is implied in the validation procedure in the first and second components of that premise.

Moreover, D’Almeida makes a big show (p. 205 and on) of discovering and introducing the concept of a *threshold*, but this concept is clearly presented and repeatedly

emphasized in my earlier work. For instance, in AFL 1.1, I write:

Evidently, the clause “R enough to be” in positive moods, or “R not enough to be,” in negative moods, even if it is not explicitly stated in the minor premise and conclusion, is absolutely essential to a fortiori argument. If there is no intended threshold of R to be attained or surpassed in order for S to be predicated of or to be subject to the major and minor terms, there is no operative a fortiori argument (though there might be some other thought-process, such as mere analogy). This is evident from the fact that, without this crucial clause, we simply cannot validate the argument. Keep that well in mind.

As regards the negative clause, “whatever is *not* at least Rs, is *not* S,” D’Almeida consciously or unconsciously dispenses with it. He certainly does not acknowledge it or explain why he ignores it<sup>36</sup>. Let us here consider what the logical utility of this missing clause is and how important it is. The negative clause complements the positive clause “whatever is at least Rs, is S;” it is its full inverse. The positive clause tells us that all items that are equal to or greater than Rs are implied to be S; the proposed general negative clause informs us additionally that all items that are lesser than Rs are implied not to be S.

- a) Given only the positive clause, we could not exclude the possibility that *all* items lesser than Rs are also S.

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<sup>36</sup> As I do clearly in AFL 1.3, I have to confess that: “in my book *Judaic Logic*, I did not specify the third component, which is the inverse of the second component. I did not at the time realize the significance for a fortiori argument of this negative component, i.e. how essential it is to such argument; so this is an important new finding here.” However, since D’Almeida only refers to my AFL, he cannot claim my earlier work as an excuse for his leaving this clause out.

Logically, the positive clause would remain true even if no items lesser than Rs were not S. In that event, the conclusion drawn would be syllogistic instead of a fortiori, merely the application of a generality to a particular subsumed under it. The argument would be: since all items are S, it follows that this item (the subject of the conclusion) is S. For this reason, at least, if Rs is to be a *threshold*, i.e. a boundary between opposites, at least the negative clause “*Some* things that are R, but less than Rs, are not S” must be specified. However, this is not the whole story.

- b) The concept of a threshold is not essentially exclusive. There may be ups and downs along the same continuum, and therefore *more than one* threshold in it. In that event, the positive clause “whatever is at least Rs, is S” would remain true, and the putative conclusion from it (this item is S) would remain valid, but the concept of *sufficiency* inherent to a fortiori argument would be missing. The argument would be logically valid, but not truly of an a fortiori type. Sufficiency suggest here that nothing less<sup>37</sup> than the specified threshold will do; i.e. it admits of *only one* threshold. Thus, whereas sufficiency implies threshold, threshold does not imply sufficiency. For this reason, we must specify, not only that “Some things that are R, but less than Rs, are not S” (as above shown), but more generally that “*All* things that are R, but less than Rs, are not S.”

Thus, genuine a fortiori argument requires a *general* negative clause (a full inverse) to complement the positive

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<sup>37</sup> Or ‘more’, as the case may be. In positive subjectal argument, where we argue from minor to major, ‘less’ than the threshold is applicable; but in positive predicatal argument, where we go from major to minor, ‘more’ than the threshold applies.

clause. By itself, the positive clause cannot guarantee that a *fortiori* reasoning is involved. Furthermore, inserting the concept of threshold does not guarantee this; the concept of sufficiency must also be involved. If there are values of R below  $R_s$  that are also S, can we still say that something is R *enough to* be S? No, this phrase loses its force. Yet, as I show repeatedly in AFL, to qualify as a *fortiori*, the argument must include the idea of sufficiency. An inference of sorts would be possible without it, but it would not constitute an a *fortiori* inference in the common sense of the term.<sup>38</sup>

D’Almeida was obviously unaware of the logical significance of this clause, since he chose to discard it (assuming he noticed it in AFL – but how could he miss it? it was present from the beginning). Had he been aware of it, and of its importance, he would have complemented his premise (1) with the *a contrario* hypothetical: “but if x does not meet T, then x is not Q.” Note well that there is no redundancy in stating this information; it is logically required to give T the status of a threshold, and moreover to impose the more demanding idea of sufficiency. To withhold this information is not only sloppy, but inaccurate formalization.

We could draw the conclusion D’Almeida draws (b is Q) without it, but such inference might not constitute a *fortiori* argument. Suppose that ‘x is Q’ were *categorically* true, then the conditional ‘if x meets T, then x is Q’ would still be true, and the conclusion ‘b is Q’ would be valid, but it would not be a *fortiori* but mere syllogistic application (from b is x and x is Q). Suppose now that the *compound*

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<sup>38</sup> In truth, the idea of sufficiency is conveyed not just by the negative clause, but by the positive and negative clauses *both together*. This will become evident in the next section, when we examine D’Almeida’s second form.

*conditional* ‘if x meets T, or x is less than T and between T1 and T2, then x is Q’ were true, then the conditional ‘if x meets T, then x is Q’ would still be true, and the conclusion ‘b is Q’ would be valid, but it would not be genuinely a fortiori because it would lack the idea of a single threshold for applicability (i.e. of sufficiency) which such reasoning involves.

When D’Almeida discusses actual cases, he seems somewhat aware of this issue. For example, referring to Daube’s original example, where the subject is identified as a teetotaler, D’Almeida rightly points out: “if we know that he is a teetotaler, then the fact that he does not touch cider plays no role in the argument: if he is a teetotaler, then it already follows that he will certainly refuse whisky” (p. 204); similarly, with reference to a legal example about ownership, he rightly points out that it is “not a fortiori” (p. 203). Also, his discussion of invalid arguments seems to acknowledge the possibility of ups and downs in the data (pp. 209-10). However, he does not integrate these insights in his formalization; i.e. he fails to include the needed general negative clause.

In his formal treatment, D’Almeida does not realize that in cases where “x is Q” *unconditionally* (as in the teetotaler and ownership examples mentioned above), the propositions “if x meets T, then x is Q” and “if x *does not* meet T, then x *is* Q” are both true. If he had known this logical implication, he would have realized that his premise “if x meets T, then x is Q” is not sufficient to guarantee that the argument is truly a fortiori. This is a *self-contradiction* on his part, since he has admitted (using the example on p. 203) that argument with an unconditional “x is Q” is “not a fortiori.”

Even though D’Almeida does show awareness that the proposition “if x meets T, then x is Q” does not imply the complement “if x does not meet T, then x is not Q” – or, as

he puts it, “x’s meeting the threshold [T] is a sufficient condition of x being Q, not a necessary one” (p. 210), he does not adjust his formula accordingly. He is aware that, given only the positive clause, without meeting T an x might logically still be Q (or might not), but he does not add a preventive clause to his formulation. In other words, he should have made “x’s meeting the threshold [T]” *not only* “a sufficient condition,” *but also* “a necessary one.”

In sum, D’Almeida’s alleged formalization of a fortiori argument *fails to formally exclude* from it, as it should have, eventual cases where all x, whether meeting T or not, are Q. Similarly, it fails to formally exclude, as it should have, occasional cases where an x meeting some other threshold(s), below T, might well be Q. Even though he had access to my formulation of a fortiori argument, which contains the needed negative premise, i.e. (using his symbols) “if x does not meet T, then x is not Q,” he ignores it. For this reason, he is led to claim (see below) that sufficiency is not essential to a fortiori argument. Alternatively, he ignores the needed negative premise *in order to* reject the idea that sufficiency is inherent to a fortiori argument, so as to make his formula distinct from mine.

Note also that some of D’Almeida’s own legal illustrations contain language pointing to sufficiency. Of his thirteen legal examples, four have such linguistic markers: “deemed sufficiently important” (p. 203), “not sufficiently specific” (p. 212), “an insufficient reason for” (p. 212), “appropriate in the case of” (p. 217). Indeed, in *his own* discussions of some legal and non-legal examples, as well as in some more formal contexts, he freely uses the expressions “enough,” “suffice,” and “sufficient” to clarify things. It is difficult to see how a fortiori argument could be made fully explicit and explained without resort to such language.

For instance: “And the thought behind the argument as expressed would seem to be this: if cider, lower in alcohol content as it is, is nevertheless already so high in alcohol content that our friend would refuse it—if it is already too high in alcohol content for our friend to accept it—then surely whisky too is high *enough* in alcohol content that our friend would refuse it” (p- 204). Or again: “but in the law’s view even that stronger reason is not strong or important or weighty *enough* to justify allowing a taxpayer to have a new decision made on the point” (p. 214). (Emphases mine.)<sup>39</sup>

These examples show that D’Almeida resorts to language of sufficiency in practice. Even though he is careful to exclude such language from his formula for a *fortiori* argument, it does not mean that the thought of sufficiency is not intended by him in the background. Nevertheless, it seems clear he does not realize the absolute necessity of the idea of sufficiency, i.e. the idea that a *fortiori* argument involves the thought “enough to” in the minor premise (and thence in the conclusion). He certainly does not try to explicitly include it in his formula. Although he does explicitly acknowledge the idea of a threshold, through his term T, more is needed to formally acknowledge the idea of sufficiency. To do that, he would have to add the above-mentioned negative clause to his formula.

Adopting a position *inconsistent* with the above-given examples from his own essay, D’Almeida explicitly eschews and disputes the requirement of sufficiency, saying (in footnote 8, again):

“Sion’s formalisations also fail to reflect the fact that *a fortiori* arguments are not—certainly not necessarily—

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<sup>39</sup>

See also examples on pp. 209, 212-3, 216, 220, 221, 225.

arguments for conclusions of the form ‘... is (is not/implies/does not imply) ... enough to be (to imply) ...’ Moreover, the semantics of ‘... is ... enough (or not enough) to be  $x$ ’ does not always licence inferences to ‘... is  $x$ ’; I may be tall enough to be a basketball player, and yet not be one.”

Here again, D’Almeida shows his lack of thorough understanding of the ways of formal logic. The conclusion “P is R enough to be S” is *the maximum inferable from the given premises*. In this conclusion, the sufficiency specification (‘enough to’) can eventually be left unstated, if we happen not to need it in a given context; but if we *do* happen to need it for a subsequent round of reasoning, it is here made available to us by inference. We can conclude more simply “P is S” as he does, and most of us usually do so in common discourse; but we thereby lose some potentially useful information.

On the other hand, in the minor premise the sufficiency clause is a *sine qua non*, if we are to draw the said conclusion (fully, with the ‘enough’ phrasing, or partly, without it); it just cannot be left out. Even if we do not explicitly acknowledge it in our wording, it is an essential factor in the argument at a subconscious level; it makes the argument understandable and credible to us. A fortiori reasoning (in the positive subjectal mood) *must* reflect the pattern: P is more R than (or as much R as) Q, and Q is R *enough to* be S; therefore, P is (R enough to be) S. This pattern is the very essence of such reasoning.

To repeat, D’Almeida’s premise (1), with its positive reference to a threshold, does partly acknowledge sufficiency. Looking at the above analysis of his formula, we can see that this positive hypothetical originated in the minor premise. He has simply moved it to another location. Nevertheless, he has not kept the above-mentioned

negative component of the minor premise, i.e. the inverse of the positive hypothetical. To be sure, the conclusion that he draws, “b is Q,” does logically follow from his premises; but that does not prove that the argument is a fortiori in character. The character of a fortiori is bound up with the notion ‘enough’. Possibly, he did not realize the crucial role it plays<sup>40</sup>.

As regards his objection that “I may be tall enough to be a basketball player, and yet not be one,” he adduces it as proof that if we accept that the form “P is R enough to be S” implies “P is S,” we are wrongly suggesting that a potential (to be S) is an actuality (being S)<sup>41</sup>. But this is not what this implication (from ‘is R enough to be’ to ‘is’) is about. The issue here is what the minor premise states *in a given case*. If it states that the predicate is an actuality, then the conclusion must do the same; and if it states that the predicate is a potentiality, then the conclusion must do the same. Certainly, a fortiori argument as I have presented it does not advocate the inference of an actuality (in the conclusion) from a potentiality (in the minor premise), as he wrongly suggests. Taking D’Almeida’s example, it is certainly true that one cannot infer that a man is a basketball player from the fact that he is tall enough to qualify as one. But no truthful and valid a fortiori argument does that.

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<sup>40</sup> Possibly, too, he was influenced by the desire to distinguish his formula from mine and make his appear original and independent, little realizing that he thus rendered his formula logically inadequate as a representation of a fortiori argument.

<sup>41</sup> Notice his attempt at pedantry, when, instead of just saying “does not imply,” he says “the semantics of ‘... is... enough (or not enough) to be x’ does not always licence inferences to ‘... is x.’” This snobbish language is designed to project that he has deeply studied the semantics of ‘enough’. But he has surely nowhere done so, whereas I have done it in detail in AFL. No wonder his statement is wrong.

If (as in his proposed example) the minor premise is that someone 180 cm tall is tall enough to *actually be* a basketball player (which is unlikely in fact, and so *would not be our minor premise*), then the valid conclusion would be that someone 185 cm tall is tall enough to *actually be* a basketball player (which is unlikely in fact, and so looks like a wrong conclusion). But if the minor premise is that someone 180 cm tall is tall enough to *potentially be* a basketball player (without implying he is one), then the valid conclusion would be that someone 185 cm tall is tall enough to *potentially be* a basketball player (*without implying he is one*). The argument may be formulated either way (i.e. with the general symbol ‘S’ here meaning more specifically either ‘actually S’ or ‘potentially S’), *as factually appropriate in the case at hand*. The conclusion follows the minor premise; it cannot add more information.<sup>42</sup>

In short, this comment by D’Almeida had in fact nothing to do with my presentation of a fortiori argument! It just reveals his own ignorance of logic. As D’Almeida should have reflected, the symbol ‘S’ here used for the predicate (of the minor premise and conclusion) is very broadly intended. It includes any sort of term, descriptive or normative, of any polarity or modality, simple or compound – it is not limited to simple predications of actuality. I say this clearly, and it is anyway standard knowledge in logic (for example, in texts on syllogism). In fact, further on (pp. 207-8), D’Almeida himself insists on this generality of a symbol:

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<sup>42</sup> One can infer a ‘can be’ from an ‘is’, but not vice versa. Similarly, in his main example, the conclusion might either be that the friend would refuse or that he will refuse to drink, depending on the formulation of the minor premise. One can infer a ‘would’ from a ‘will’, but not vice versa.

“we can adopt the following simplified formulation as a way of highlighting the fact that the consequent of the conditional in the first premise of our argument—and so too the conclusion of the argument—is any claim, descriptive or normative, involving the threshold-meeting item: ‘... then x is Q.’ To be clear, the point of my proviso is not merely that the consequent can be either a descriptive or a normative claim. The point, more generally, is that there is no reason to think that the consequent must be a claim in which something is predicated of the threshold-meeting item. All that is necessary is that the consequent involve the threshold-meeting item in some way.”

Thus, not only is his said objection invalid, but he later explicitly disowns it. From this episode, I am forced to conclude that D’Almeida was looking for some contrived way to put down my formulation of a *fortiori* argument, so as to give readers the impression that he has surpassed it. Furthermore, it should be noted that even here, where he makes a show of being aware of a variety of possible predicates, “descriptive or normative,” he is merely vaguely reiterating something that I have long before treated in much greater detail, notably in AFL 4. There, I clearly distinguish between ontical<sup>43</sup>, logical-epistemic, and ethical-legal *a fortiori* arguments, and take into consideration all sorts of possible contents for such forms. Nowhere does he mention this, so as to make it appear to

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<sup>43</sup> The word ‘ontical’ is commonly used nowadays; the equivalent words ‘ontal’ (found, e.g., in the *Enc. Brit.*) and ‘ontic’ (found, e.g., in a *W. Windelband* text) are also sometimes used.

be his own observation. These are not honest ways of doing business.

Adding insult to injury, D’Almeida even has the gall to say (again in footnote 8):

“But Sion’s formalisations are, I think, too crude to do justice to his insights. They are also potentially confusing. In his explanations he sometimes uses a scheme like ‘Rx’ to represent the point on a given continuum R at which a certain *item* x stands—which suggests that ‘x’ is to be taken to be an individual constant—but sometimes he also uses it to represent a relevant threshold on a continuum (for example, a point that *any* item x needs to meet in order to have a certain property)—which would make ‘x’ a variable instead; and as a result he is led to say that an *a fortiori* argument orders *three items* (P, Q, and S), rather than just two, ‘according to their position in a common continuum’ (*ibid*, 21).”

Here, the pretentious novice D’Almeida struts about, daring to call my formalization work “crude” and “potentially confusing.” This is phony criticism by someone who is desperately looking for a pretext for negative judgment, not having found any actual fault in my work. All his criticism is smoke and mirrors to conceal his intellectual debts. He needs to project a critical attitude, so as to make it seem (to others, and maybe also to himself) that he operated by himself, without reference to my work. But as we have seen, his formalizations are directly and exclusively (even if imperfectly) derived from mine; there is nothing novel in them. If my formalizations are ‘crude’, how come he has found it worthwhile to ‘borrow’ them, shamelessly, without so much as a word of thanks, claiming them as his own findings? If they are potentially

confusing, how come he found them so instructive that he learned all that he claims as his own findings from them?

Moreover, D'Almeida has the *chutzpah* to suggest that I am unable to tell the difference between a variable and a constant! Judging by his mention of the symbol  $R_x$ , D'Almeida seems to be referring to the following passage in AFL 1.3:

The positive minor premises and conclusions (labeled “*suffective*” because they concern sufficiency) of copulative arguments have the following four components in common. The symbols X and Y here stand for the symbols P or Q and S as appropriate in each mood; that is, we may have “P is R enough to be S,” “Q is R enough to be S,” “S is R enough to be P,” or “S is R enough to be Q.” A proposition of the form “X is R enough to be Y” means: X is R, i.e. X is to a certain measure or degree R (say,  $R_x$ ); whatever is at least to a certain measure or degree R (say,  $R_y$ ), is Y, and whatever is not at least to that measure or degree R (i.e. is not  $R_y$ ), is not Y; and  $R_x$  is greater than (or equal to)  $R_y$  (whence: “ $R_x$  implies  $R_y$ ”).

I am surprised that D'Almeida found such an easy passage intellectually challenging. Apparently, he is unaware of the idea of a variable of variables, i.e. of *a variable whose values are variables, whose own values (in turn) are constants*.<sup>44</sup>

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<sup>44</sup> Funnily enough, in his footnote 9, he seems to resort to variables of variables. He speaks of the possibility of “more complex forms,” giving as example: “For every x, if x is a D1, then x meets T”; “For every x and every y, if x is a D1, and y is a D2, then y ranks higher than x on the scale of P”; and so on.” However, he does not develop this thought further, so it is difficult to guess exactly what he meant by it.

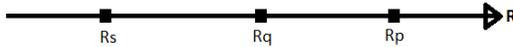
In the quoted passage, I wish to analyze the propositional form I call ‘suffective’ into its simpler constituents, in order to validate a fortiori arguments involving it. I start by pointing out that, in valid a fortiori argument, such propositions arise only in the minor premises and conclusions of positive arguments. This means that we have to analyze four *specific* (copulative) forms, viz.: ‘Q is R enough to be S’ and ‘P is R enough to be S’ (in subjectal argument), and ‘S is R enough to be P’ and ‘S is R enough to be Q’ (in predicatal argument). However, being a lazy guy and not wanting to bore readers to death, I propose to analyze all four forms in one go, by using as *generic* symbols, X for the subject and Y for the predicate. Thus, X stands for Q, P or S, as the case may be, while Y stands for S, P or Q, as the case may be.

Thus, X and Y are here convenient placeholders for the variables P, Q, S, whose values are (obviously) various constants. No misunderstanding is possible as to what I was doing there, since a bit further in the same section I write: “The above general form of suffective proposition will of course concretize in different ways according to the orientation of the copulative a fortiori argument under consideration,” and I go on to present the forms implied in terms of the underlying variables (P, Q, S), instead of the earlier variables of variables (X, Y). Obviously, D’Almeida did not have the patience to read on and learn.

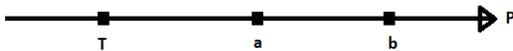
Although it is conceivable that this simple artifice went over D’Almeida’s head, I suspect rather that he was just trying hard to find some flaw in my work, in order to support his fake contention that it is “crude” and “potentially confusing;” I let the reader judge the matter. Moreover, his statement that “as a result” of this alleged confusion between constants and variables I am “led to say” that “an *a fortiori* argument orders *three items* (P, Q and S)” is bizarre, as is his suggestion that a fortiori argument in fact orders “just two items” on the common

continuum. How would my three-item claim follow from the said confusion? He does not explain. As for his two-item claim, it again shows surprising incomprehension on his part of quite simple matters.

First, it is not exactly accurate to say that I order the items P, Q, and S, along R; rather, I order *the values of* R corresponding to them, viz.  $R_p$ ,  $R_q$ , and  $R_s$ , respectively, along R. This is evident from the diagram that I draw in AFL 1.3, which I reproduce below. This diagram tells us that, in the positive subjunctal mood, any item with a value of R at or to the right of threshold  $R_s$  is S; this explains why P, like Q, is subject to the predicate S. It should be added that any item with a value of R to the left of  $R_s$  is not subject to S.



Second, since these three values of the middle term are *equally present* in his formulation of a fortiori argument, as T (for  $R_s$ ), a (for  $R_q$ ) and b (for  $R_p$ ), along the scale P (i/o R)<sup>45</sup>, there is no basis for his rant. As the following illustration shows, there are in fact (as there should be) three items in his own formulation! This diagram tells us that any item with a value of P at or to the right of threshold T is Q; this explains why b, like a, is Q.




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<sup>45</sup> No need to repeat here what I pointed out in detail earlier, that D'Almeida conflates the ideas (using his symbols) of a and Pa, and likewise of b and Pb. That is, he does not distinguish like I do (using my symbols) P from  $R_p$ , and Q from  $R_q$ .

Presumably, for he does not clarify his statement, D'Almeida does not consider threshold T (or perhaps the predicate Q that it opens the door to) to be part of the argument. But the truth is, if T were placed in between the terms a and b, the argument would be invalid (as D'Almeida readily admits on pp. 209-10). And if T were placed higher along P than the other two terms, then the argument would be major-to-minor instead of minor-to-major (as D'Almeida readily admits on pp. 210-11). So, the position of T along P is very significant. The illustration cannot be understood without including T in it. And this has nothing to do with interpretation of symbols as variables or constants – it applies either way. So here again, I suspect that D'Almeida was just *making up* something negative about my work, so as to give naïve readers the impression that he is a critical, independent – and let us put it bluntly, altogether superior – thinker.

I have noticed this is a role commonly played by people new to a subject who want to appear in-the-know and authoritative: they invent unflattering comments about their predecessors' work, so as to place themselves in readers' eyes on relatively higher ground looking down. They hope that this will keep readers from going to the source and judging it for themselves, and of course from seeing the errors in their own shabby presentation by comparison. This is more akin to deliberate calumny than to scientific discourse. In D'Almeida's case, it was very important to keep readers away from my book AFL, because so much of his 'work' is manifestly directly derived from it, and he has glossed over a great deal of important material. He might have gotten away with it if I was already dead; but I am still alive and still quite able to bite back.

To summarize what we have seen thus far: D'Almeida proposes a theory of a fortiori argument in a way that makes him seem like its originator, indeed like a (or the)

pioneer in the field. But as it turns out, his theory is wholly and exclusively derived from my much larger-scale anterior work. Moreover, his proposed formalization is incomplete – he has missed a logically important element (the inverse of the initial hypothetical). He tries to mask the source of his proposal by failing to mention my work prominently and to admit his having learned from it; and by spinning a fantasy critique of my work, which only further reveals the limits of his understanding.

## 2. A second-rate conception

D’Almeida’s conception of a fortiori argument is not only second-hand, but second rate (or third-rate or fourth). Further on (pp. 209-11), D’Almeida tries to broaden his theory by taking into consideration negative terms and relations, and indicating invalid forms. In this context, he presents a “second type” of a fortiori argument, as follows (*italics mine*):

“(1) There is a point T in the scale of P such that, for every x, if x *does not* meet T, then x is Q.

(2) a *does not* meet T.

(3) b ranks *lower* than a on the scale of P.

Therefore (from (2) and (3)),

(4) b *does not* meet T.

Therefore (from (1) and (4)),

(5) b is Q.”

He declares this “a valid inference” (and I largely agree). Having introduced this second form, D’Almeida concludes: “There are therefore two forms of the a fortiori.” He does not say whether there are more possible

forms; so, he seems to be saying that there are *only* two forms. Indeed, he names a section “*The two forms of a fortiori*” (my emphasis). Notice, anyway, what distinguishes this form from the preceding one: in propositions (1), (2) and (4), “x meets T” is replaced by “x does not meet T;” and in (3) b is lower than a (instead of higher) on the scale of P. This formula can be put more succinctly as follows, if we interpret “does not meet” as meaning “is less than”:

If  $a < T$  (2) and  $b < a$  (3), then  $b < T$  (4);  
 and  $x < T$  implies x is Q (1),  
 and b is an x and so fits  $x < T$ ;  
 therefore, b is Q (5).

What is this second argument-form? Since it proceeds from the major term (a) to the minor (b), while these terms are both subjects, it can be taken to correspond to what I have called **negative subjunctal** a fortiori argument. That is, argument of the standard form:

P is more R than (or as much R as) Q (major premise),  
 yet P is R *not* enough to be S (minor premise);  
 therefore, Q is R *not* enough to be S (conclusion).<sup>46</sup>

D’Almeida does not point this out, and here again does not admit outright his debt to my work, although he does point out in his footnote 8 that:

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<sup>46</sup> In D’Almeida’s terminology, this would read: ‘a’ is more ‘P’ than ‘b’; and ‘a’ is ‘P’ not enough to be ‘Q’; therefore, ‘b’ is ‘P’ not enough to be ‘Q’. Note well that in this context D’Almeida defines ‘a’ as greater than ‘b’, whereas in my treatment my P remains greater than my Q.

“Sion distinguishes between ‘copulative’ and ‘implicational’ a fortiori arguments, each of which comes in four moods, in a total of eight different valid patterns. All eight patterns are patterns of two-premise arguments combining four terms (or theses, as the case may be) P, Q, R, S, and all have conclusions of the form ‘... is (is not/implies/does not imply) ... enough to be (to imply).”

To which he adds, ingenuously, as we have seen, “But Sion’s formalisations are, I think, too crude to do justice to his insights,” implying that his rewriting of my discoveries is more accurate. Of my list of four (or eight) moods of a fortiori argument, then, D’Almeida effectively lays claim to only two, the positive subjectal and the negative subjectal. It should also be said in passing that even his observation that the comparative premise is sometimes expressed in reverse form, i.e. with ‘ranks lower’ instead of ‘ranks higher’, is by no means new. I point this out clearly in AFL 1.1: “The major premise may occasionally in practice be converted.”

As I will now demonstrate, it is D’Almeida’s formalizations (not mine) which are too crude to do justice to my insights. In my work, insight and technical progress always go hand in hand, mutually feeding on each other; neither is possible without the other. As we saw in the previous section, I validate the positive subjectal argument by direct reduction to a series of conditional propositions and quantitative comparisons: the constituents found in the premises are used to wholly construct the conclusion, which stamps it as valid. As we also saw, D’Almeida’s first formula is entirely and exclusively derived from this validation process, even if he does not admit it or realize it. We also pointed out there that he failed to mention an important general negative proposition involved in the

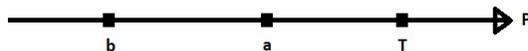
minor premise (and thence in the conclusion), and showed some confusion regarding the terms involved.

What has happened here, in D’Almeida’s second formula, is the opposite: he does effectively mention the said negative clause, but this time fails to mention the complementary positive clause (i.e. the positive inverse of the negative hypothetical). As a result, the unity of the two moods is not formally evident in his scheme, although one can intuitively sense it. Nevertheless, we can say that D’Almeida’s second form could be validated using the exact same set of propositions (listed in the previous section) – which means that his second form is as wholly and exclusively based on my validation process, just as his first form was (even if in this second case, I suspect, he proceeded by analogy from the first formula).

The said ease of validation is due to the fact that positive and negative subjectal arguments are *one and the same argument expressed in two ways and validated in the same single way*. This is the reason that we can (using the standard form) reduce either one *ad absurdum* to the other, note well. Given that P is more R than Q, it follows that (a) if Q is R enough to be S, then P is R enough to be S; *and* that (b) if P is not R enough to be S, then Q is not R enough to be S. The positive and negative arguments are two sides of the same coin. This is evident in the two arguments having the exact same validation process, to repeat. It is for this reason that D’Almeida’s second argument appears as valid *prima facie*.

Now, D’Almeida’s second form can be illustrated as shown below (compare this to the earlier illustration for the

first form), since it tells us that  $b < a < T$  along continuum P, and also tells us that anything less than T is Q<sup>47</sup>.



Put in standard form, this argument would be expressed as follows:

a is more P than b;  
 and a is *not* P enough to be *not-Q*;  
 therefore, b is *not* P enough to be *not-Q*.

Notice the double negation involved; instead of the positive form ‘is P enough to be Q’, we here find the form ‘is not P enough to be not-Q’. The latter is the true meaning of D’Almeida’s positive consequent and conclusion ‘is Q’, although he is not aware of it. If he was aware of it, he would have formulated the consequent and conclusion as ‘is not Q’<sup>48</sup>. In that case, his second form would have been the proper negative parallel of his positive form; i.e. its minor premise and conclusion would have had the form ‘is not P enough to be Q’. Furthermore, there was no point in D’Almeida switching the roles of terms a and b, making b the lesser item (instead of the greater, as in the first form). Even if these choices are not per se harmful, they complicate validation because they obscure the unity of the

<sup>47</sup> Here again, I remind readers that D’Almeida’s symbols a and b are equivocal, referring both to the subjects a and b themselves, and to the values of P corresponding to them (i.e. Pa and Pb).

<sup>48</sup> In his footnote 10, he writes: “It makes no difference that the consequent of the conditional ... and therefore also the conclusion ... is the claim that b is Q. We would have an inference of the exact same kind if the consequent of the conditional in the first premise was instead the claim that b is not Q.” This shows explicitly that he did not realize the formal connection between his two forms.

second form with the first form (i.e. they force us to restate the set of constituents with these arbitrary changes).

Thus, to conclude this issue of validation, D'Almeida's second form can be validated in the exact same way as we validated his first form, but for that we would have to make small changes on one side or the other (to follow or cancel the changes he introduced due to ignorance of the consequences). If his first form had been formulated accurately, with the missing inverse clause "if  $x$  does not meet  $T$ , then  $x$  is not  $Q$ ," he would have immediately seen in it the second form (with predicate  $Q$ ). Alternatively, if his second form had been formulated accurately, with the missing inverse clause "if  $x$  meets  $T$ , then  $x$  is not  $Q$ ," he would have immediately seen in it the first form (with predicate not- $Q$ ). And he should have allowed the relative meanings of symbols  $a$  and  $b$  to remain fixed, either as  $b > a$  or as  $b < a$ , to emphasize the parallelism between the two forms.

However, as we can see, D'Almeida developed his second form intuitively, by analogy to his first form, changing the polarity of some of its elements, without bringing out their exact formal ties. In both forms, he makes the same mistake of leaving out the (negative or positive) inverse of his premise (1); and for this reason, the formal ties between the two forms are invisible to him. Consequently also, his second form is *not* reducible *ad absurdum* to his first form (or vice versa), as it should have been if he had formalized them both properly. Clearly, D'Almeida's understanding of formalization and validation is very limited. That D'Almeida made the choices he made shows that he was not fully aware of what he was doing. He is a tyro, in no way qualified to speak condescendingly of my work. My logical knowhow and methodology are way ahead of his.

Moreover, it should be emphasized that even while D'Almeida's two formulas are valid (but for one

significant omission each, to repeat) as validation processes, they are not *per se* a fortiori arguments. They are, at best (in view of the said flaw), formulas that a fortiori arguments *incidentally imply*; but they do not have the distinctive ‘flavor’ of a fortiori argument. The two usual forms of subjectal argument are (to repeat, briefly put): “P is more R than Q; and Q is R enough to be S, therefore, P is R enough to be S” and “P is more R than Q; and P is not R enough to be S, therefore, Q is not R enough to be S.” These are the forms used (in full or in part) in our everyday discourse – not the more intricate arguments which I articulated for the purpose of logical validation. D’Almeida’s account focuses primarily on the latter subtext, largely ignoring or dismissing the main thrust.

The truth of this contention can readily be seen if we formulate his main (non-legal) example, used by him to illustrate and develop his first form; as a standard positive subjectal a fortiori argument, it would run as follows:

Whisky is more alcoholic than cider;  
and cider is alcoholic enough to be undesirable to this man;  
therefore, whisky is alcoholic enough to be undesirable to this man.

My point is that this argument, more akin to everyday discourse, is quite capable of being *credible by itself*. This is *the true form* of a fortiori argument of this sort. Normally, we do not need to unpack the more complicated reasoning that I have identified as mere *validation procedure* and that D’Almeida has (for the most part) made his own. The a fortiori argument of practice is not to be confused with the theoretical validation process that buttresses it. The validation process is a necessity mainly for logicians, and students of logic, to reduce newer and more complex propositions to simpler ones that are already

well known. But the form used in practice has a life of its own.

The validation procedure is *not a substitute* for the phenomenological argument; it merely seeks to ground the latter in more widely known and better understood logical and mathematical propositional forms. The validation discourse may operate more or less consciously in people's minds, when they think, speak or hear a fortiori arguments; but this background thinking does not replace the primary thought. The validation does not make the commonplace argument it validates redundant; the latter remains the principal and true expression of a fortiori reasoning. This is scientifically evident from examination of hundreds of examples in world literature across history.

D'Almeida did not understand this distinction, which I make quite clear in my work; as a result, he tried to ignore the primary a fortiori argument and equate such argument with the validation procedure. For him, the discursive form, as e.g. in "He does not touch cider; he will certainly refuse whisky," is just an incidental derivative of his more complex form, which he regards as 'true' a fortiori argument. But the reverse is true – the phenomenological form (when fully expressed, as "He is not *so alcohol-loving as to* touch cider; he will certainly refuse whisky") is the 'true' form of a fortiori argument, whereas the validation procedure is only an underlying, subconscious thought, which (to repeat) the logician fishes out to justify it scientifically. As we have seen earlier, D'Almeida reverses the order of things, imagining that we draw the commonplace form from his model form.

Furthermore, if we look at his example, "He does not touch cider; he will certainly refuse whisky," we see that D'Almeida mistakenly interprets this as a *positive subjectal* argument, whereas strictly-speaking it is a *negative predicatal* argument, since the subject common to

the minor premise and conclusion is “he,” while “cider” and “whisky” are (part of) the predicates. Properly interpreted, the argument should run (say): “***This man is not alcoholic enough to drink cider; all the more, he is not alcoholic enough to drink whisky***” (this being the minor premise and conclusion, the unstated major premise being: “One needs to be more alcoholic to drink whisky than to drink cider”). From this we see that D’Almeida is so ignorant of a fortiori logic that he has *misjudged the form of his main example!* He presents himself as an expert; but he makes the most elementary mistake from the very start of his investigation. (Yes, I’m laughing out loud; or at least, chuckling.)

This draws our attention to *a very important omission* in D’Almeida’s theoretical treatment of a fortiori argument. After presenting his second form, D’Almeida rightly remarks (p. 211):

“That there are two forms of a fortiori arguments in law is not exactly a new point. In Continental jurisprudence lawyers and scholars draw a distinction between arguments *a maiore ad minus* (literally, ‘from the greater to the lesser’) and arguments *a minore ad maius* (‘from the lesser to the greater’), which they identify as two species of a fortiori arguments (even though ‘a fortiori’ means, literally, ‘from the stronger’).”

And in footnote 11 he adds, among other references:

“see also, outside the jurisprudential context, Sion’s discussion of the difference of orientation between what he identifies as the positive (from major to minor term

or thesis) and the negative (from minor to major term or thesis) moods of a fortiori arguments.”<sup>49</sup>

He thus places his two forms in a larger historical context<sup>50</sup>, his first form being argument ‘from the lesser to the greater,’ and his second ‘from the greater to the lesser’. This is all very well, but it is only part of the truth. Furthermore, he misrepresents my work, and again reveals his ignorance of a fortiori logic, by suggesting that I equate positive moods of a fortiori argument to major-to-minor reasoning and negative ones to minor-to-major reasoning. In fact, this only applies to predicatal arguments; as regards subjectal ones, the reverse is true!

Although most commentators are unaware of it, the expressions minor-to-major and major-to-minor are applicable not only to positive and negative subjectal arguments, respectively, but also to negative and positive **predicatal argument**, respectively (note the reversal in polarities). As I have shown with multiple examples throughout AFL, predicatal argument *occurs often in all discourse*, including legal discourse, and cannot simply be ignored in any theory of a fortiori argument. But it is a fact that most people are only aware of subjectal a fortiori

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<sup>49</sup> Here again, note the negative slant in D’Almeida’s mention of my work: he alleges that my discussion is “outside the jurisprudential context,” deliberately ignoring my analysis of numerous legal principles and examples from the Talmud and from Roman law, and other legal systems. See AFL, Part II and relevant Appendices.

<sup>50</sup> In fact, my AFL includes the most thorough history of a fortiori argument ever attempted. D’Almeida refers to “Continental jurisprudence lawyers and scholars” without even naming them, and ignores more ancient roots. There is not much evidence of in-depth historical study in his essay. What is evident is that he has not taken the trouble to read AFL, but only skimmed through a bit of it.

reasoning, and not (or hardly at all) of predicatal a fortiori reasoning (even as they use it).

D'Almeida apparently also has this blind spot, because, although he presumably has come across this form of argument in my work, he totally ignores it in his work. There is not even a brief mention of predicatal argument in his essay; and he accounts for only two forms of a fortiori argument (the positive and negative subjectal forms) instead of four as I do. Why this important omission, I can only guess. Possibly, he was too lazy to read what I wrote about it. More probably, he read a bit, but did not manage to understand the distinctive workings of predicatal argument, and so found it too difficult to transcribe into his terms; so, he just completely ignored it, not even mentioning it. In any case, as we have seen above, he misinterprets the form of his main example as subjectal, whereas it is in fact predicatal.

It should additionally be mentioned that *two* of the thirteen legal examples that D'Almeida cites in the course of his paper are not subjectal. One (on p. 232-3) is positive predicatal, and one (on p. 212) is negative consequential (i.e. the implicational equivalent of negative predicatal); I analyze these two examples in detail in the next section. He does not notice the different structure of these arguments; notably that the positive predicatal though positive goes from major to minor, and the negative consequential though negative goes from minor to major. These two arguments could conceivably be recast in subjectal form, with judicious informal manipulations; but this would not reflect the ways the arguments were originally stated and intended. This shows that D'Almeida was scientifically rather negligent; to test his hypothesis that the two forms he concocted covered the legal field exhaustively, he

should have at least analyzed all the empirical data at hand<sup>51</sup>.

In AFL, I engage in very detailed studies of this sort, listing, analyzing and classifying *hundreds* of examples from very diverse literary sources. D’Almeida was satisfied with only four applications, a very small sampling. On p. 204 he promises that “the preceding conclusions will be tested against several examples from judicial decisions,” and on p. 212 he boasts that he will be “looking at some examples from actual judicial decisions—not just for illustration purposes, but also as a means of testing whether my proposed schemes do actually capture the arguments” – all this to give his thesis an appearance of scientific rigor. But in reality, he does not conscientiously and systematically test his conceptions. That is why his theory of a fortiori argument remains narrow and superficial.

D’Almeida’s omission of positive and negative predicatal a fortiori argument is a serious matter. Predicatal arguments cannot formally be reduced to subjectal ones, even though positive subjectal and negative predicatal arguments have some features in common (they are both minor-to-major, notably) and negative subjectal and positive predicatal arguments have some features in common (they are both major-to-minor, notably). D’Almeida may have ignored the predicatal forms because he imagined that they were implicit in the subjectal ones; but if so, he was wrong. I examine this issue in great detail in AFL 3.5, under the heading of ‘traduction’, and conclude

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<sup>51</sup> I should add that just because only 2 out of 13 arguments that D’Almeida selected are not subjectal, but predicatal or consequential, it does not follow that this proportion is true of all legal a fortiori arguments. A much larger sample of cases would be needed to estimate the probable proportion in the world at large.

that “mixed traductions (from predicatal forms to subjectal ones, or vice versa) are rather verbal than truly logical.”<sup>52</sup>

I will now, in a concise manner, so as to further demonstrate D’Almeida’s incompetence, show how he *could have* represented predicatal arguments in his characteristic way (though he did not do so himself, to repeat). This will help make their distinctions from subjectal arguments stand out for all to see. The main distinction to note is that whereas in subjectal arguments the minor premise and conclusion have the major and minor terms (P, Q) as *subject* and the subsidiary term (S) as predicate, in predicatal arguments the minor premise and conclusion have the subsidiary term (S) as subject and the major and minor terms (P, Q) as *predicate* (whence the different names I have given to these forms).

The standard positive predicatal a fortiori argument is (with my symbols):

More R is required to be P than to be Q,  
and S is R enough to be P;  
therefore, S is R enough to be Q.

This would in D’Almeida’s perspective be rephrased as (with his symbols):

- (1) There is a point T in the scale of P such that, for every x, if T meets (the level of P needed for) x, then Q is x.

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<sup>52</sup> This is true so long as we only consider whole terms. If terms are subdivided into parts, a formal theory of such traductions is conceivable. This is evident from the fact that in material cases, we are able to informally traduce many arguments. Closer scrutiny shows that this is possible due to subdivision of the terms initially involved. However, even though it has importance, I have personally not gone down that long road, so far.

- (2) T meets b.
- (3) b ranks higher than a on the scale of P.
- Therefore (from (2) and (3)),
- (4) T meets a.
- Therefore (from (1) and (4)),
- (5) Q is a.

The standard negative predicatal a fortiori argument is (with my symbols):

- More R is required to be P than to be Q,
- yet S is R *not* enough to be Q;
- therefore, S is R *not* enough to be P.

This would in D'Almeida's perspective be rephrased as (with his symbols):

- (1) There is a point T in the scale of P such that, for every x, if T *does not* meet (the level of P needed for) x, then Q is x.
- (2) T *does not* meet b.
- (3) b ranks *lower* than a on the scale of P.
- Therefore (from (2) and (3)),
- (4) T *does not* meet a.
- Therefore (from (1) and (4)),
- (5) Q is a.

Thus, we learn from the latter form, D'Almeida should have formulated his main example as follows:

- (1) There is a point T in the scale of alcoholism such that, for every x, if T is below the level of alcoholism needed to drink x, then this man will refuse x.

(2) T is below the alcoholism level needed to drink cider.

(3) Drinking cider ranks lower than drinking whisky on the scale of alcoholism.

Therefore (from (2) and (3)),

(4) T is below the alcoholism level needed to drink whisky.

Therefore (from (1) and (4)),

(5) This man will refuse whisky.

Note that I have deliberately left out the necessary complementary (inverse) clauses, as he would have done. We have thus demonstrated that D'Almeida could well have formulated positive and negative predicatal arguments in the same way as he did positive and negative subjectal arguments, provided he concluded his arguments with "Q is a" instead of "b is Q" – and, of course, adjusted all other features in them as exposed above. That D'Almeida did not do this is, I suggest, due to the comparative difficulties involved in formulating predicatal arguments. He probably found the job too difficult, and so avoided all mention of this topic.

D'Almeida had difficulty assimilating these forms of reasoning, I submit, because his way of expressing a *fortiori* argument is so artificial and awkward. Compare his representations to my standard formulations. Clearly, mine are far more immediately comprehensible and credible, because they better reflect the way people naturally reason a *fortiori*.

The following table lists the four forms of (copulative) a *fortiori* argument very briefly, in a manner akin to D'Almeida's, for purposes of summary and mutual comparison:

Positive subjectal (+s):

If  $a \geq T$  (2) and  $b > a$  (3),  
then  $b > T$  (4);

and  $x \geq T$  implies  $x$  is  $Q$  (1),  
and  $b$  is an  $x$  and so fits  $x$   
 $\geq T$ ;

therefore,  $b$  is  $Q$  (5).

Minor to major,  $b > a > T$ .

Negative subjectal (-s):

If  $a < T$  (2) and  $b < a$  (3),  
then  $b < T$  (4);

and  $x < T$  implies  $x$  is  $Q$   
(1),  
and  $b$  is an  $x$  and so fits  $x <$   
 $T$ ;

therefore,  $b$  is  $Q$  (5).

Major to minor,  $b < a < T$ .

Positive predicatal (+p):

If  $T \geq b$  (2) and  $b > a$  (3),  
then  $T > a$  (4);

and  $T > x$  implies  $Q$  is  $x$   
(1),

and  $a$  is an  $x$  and so fits  $T >$   
 $x$ ;

therefore,  $Q$  is  $a$  (5).

Major to minor,  $T > b > a$ .

Negative predicatal (-p):

If  $T < b$  (2) and  $b < a$  (3),  
then  $T < a$  (4);

and  $T < x$  implies  $Q$  is  $x$   
(1),

and  $a$  is an  $x$  and so fits  $T <$   
 $x$ ;

therefore,  $Q$  is  $a$  (5).

Minor to major,  $T < b < a$ .

Note that my here listing the two predicatal arguments in forms akin to those used by D'Almeida to describe his two subjectal arguments is not intended to give credence to D'Almeida's manner of description (which, as already explained, is incomplete and does not reflect actual usage), but merely to show the limited scope of his understanding. That he did not become aware of and try to formalize predicatal a fortiori argument shows that his grasp of the subject was lacking in depth and breadth. He did not have the patience and intelligence needed to study the matter earnestly and thoroughly, but was content with putting on a show.

Note well, I am not here faulting D'Almeida for not discussing the differences between copulative and **implicational argument**. This is comparatively not so important, and he does at least (as we have seen, in his footnote 8) draw attention to my distinction between these forms. Furthermore, we have already quoted him as saying (on p. 208): "there is no reason to think that the consequent must be a claim in which something is predicated of the threshold-meeting item. All that is necessary is that the consequent involve the threshold-meeting item in some way." We may take this as signifying his awareness and admission that the "consequent" (i.e. the subsidiary item) need not be copulative but may (in certain cases) be implicational.

Even so, we should note that D'Almeida's awareness of this further variety of a fortiori argument was quite informal, a mere observation that he does not attempt to follow up in a formal manner. He could, in fact, have rather easily proposed four implicational arguments, analogous to the above described four copulative arguments, by means of the following changes in wording.

Instead of the clause in his premise (1) that "if x meets T, then x is Q" or "if x does not meet T, then x is Q" (for positive and negative subjectals, respectively), he would have had: "if x implies something that meets T, then x implies Q" or "if x implies something that does not meet T, then x implies Q" (for positive and negative antecedentials, respectively). Likewise, instead of the clause in the premise (1) that "if T meets x, then Q is x" or "if T does not meet x, then Q is x" (for positive and negative predicatals, respectively), he would have had: "if T implies something that meets x, then Q implies x" or "if T implies something that does not meet x, then Q implies x" (for positive and negative consequentials, respectively). The conclusions would have been modified accordingly, *mutatis mutandis*.

That is, instead of “b is Q” or “Q is a,” they would have been “b implies Q” and “Q implies a,” respectively.

Here again, please do not interpret my wording the implicational a fortiori arguments in D’Almeida’s characteristic manner as implying my approval of his approach; to repeat, I regard it as inadequate for various reasons. My purpose here is only to show that D’Almeida’s theory of a fortiori argument is even more limited in scope than it might have been. My purpose is to draw attention to and emphasize D’Almeida’s lack of logical skill and vision in formulating his theory. One would expect such approximation and stunting from a dilettante.

Another glaring and important omission in D’Almeida’s theory of a fortiori argument is **a crescendo argument**. As I show in AFL, many commentators on a fortiori argument have noticed that sometimes people conclude such argument with the exact same predicate, while other times they conclude it with *a quantitatively greater or lesser predicate*. Most researchers have not known how to deal with this issue formally. I solve this problem formally and in great detail (in AFL 2.2-2.3); so, D’Almeida should have known about it if he had read it. However, he seems to have skipped reading this investigation, perhaps out of laziness. No study of a fortiori argument, which does not examine the issue of proportionality, and determine precisely when and why we can draw a proportional conclusion, is credible. Consequently, this omission is a very serious flaw in D’Almeida’s treatment of a fortiori argument. D’Almeida does raise the issue incidentally (on pp. 217-8), by means of a legal example in which the predicate of the conclusion is quantitatively greater than that of the minor premise it apparently follows from. He comments on this unusual inference as follows:

“... the a fortiori argument itself is an argument that justifies applying the same conclusion to the target that applies to the source. ... this does also not rule out, of course, the possibility that the plaintiff was indeed entitled to more than that, even to £100,000 more; it is simply that she would need a separate argument to establish that.”

This comment means that he does not regard a quantitatively increased (or presumably, decreased) conclusion as part of the a fortiori argument, but as something to be established by means of a “separate argument,” without specifying what that additional reasoning might be. His comment is partly right, insofar as he does allow for an augmented conclusion in certain cases (in contrast to many other commentators who tend to reject such a result offhand); but it is merely intuitive, made without formal consideration and follow-up. Instead, he gets sidetracked into the unrelated issue of the strength of an a fortiori conclusion compared to its premises (we shall consider this other issue later on).

Thus, it is evident that D’Almeida did not take the trouble to investigate a crescendo argument. As I show in my study of this topic, a crescendo argument is a special case of a fortiori argument, in which there is an *additional premise* about proportionality. In other words, a crescendo argument is a fortiori argument combined with pro rata argument. People who think ‘a crescendo’ are intending to think ‘a fortiori’ with a flourish. The additional premise takes the purely a fortiori conclusion and adjusts it to fit the demand of proportionality, which is in some cases factually justified. Indeed, where such adjustment is justifiable, and useful, it logically ought to be applied; it is not a matter of choice, not a last resort. This adjustment could be identified with the “separate argument” that D’Almeida intuitively

assumes occurs; but he does not look further into the matter. In any case, see my reading of the example at hand in the next section, when I interpret all of D’Almeida’s legal examples.

D’Almeida also briefly raises the issue of **analogical argument**, close to the end of his essay (on p. 237); but here again he fails to mention my formal study of the subject (in AFL 5.1). Here is what he writes:

“But there also seem to be important dissimilarities between arguments a fortiori and the kinds of argument that both lawyers and theorists normally refer to as ‘analogical’ arguments. One salient difference is that even in fully reconstructed arguments by analogy, the comparison between items—between the source and the target case—does not rely on the identification of any unifying rule specifying their relevant common features. In a fully reconstructed a fortiori inference, on the other hand, the relevant unifying scale does have to be specified in the premises in order for the argument to run. A broader exploration of the contrast, however, I must leave for another day.”

This shows that D’Almeida did not formally investigate the matter as he ought to have, so as to clearly distinguish a fortiori argument from other, yet somewhat comparable, forms of argument. In this case, additionally, his intuitive assessment is wrong. As I show, in properly formulated analogical argument, capable of formal validation, there indeed is a “unifying rule,” and it does need to be identified. As often, he speaks without knowledge, out of hand; and on top of that conceitedly presents himself as the

potential savior in this matter, which feat he, however, “must leave for another day”!<sup>53</sup>

Let us now summarize what we have uncovered in this second section: D’Almeida presents a second form of a fortiori argument resembling the first, except that it contains certain negative elements. When we examine this additional form, we find that it was constructed intuitively, by mere analogy, without any deep understanding of its exact formal relation to the preceding form. This is evident from the formal and symbolic choices made in it. Moreover, the second form, like the first form, lacks important information (namely, the full inverse of the initial hypothetical proposition), and indulges in some ambiguity. Indeed, this omission in both cases explains why D’Almeida made wrong choices in constructing the second form by analogy to the first, and why he failed to see the deeper relation between his two forms.

Furthermore, D’Almeida apparently considers his two-form theory of a fortiori argument to be exhaustive. This is naïve on his part. Even his own selection of legal examples should have empirically alerted him to the fact that there are other forms. He thus fails to realize that a fortiori argument is not always subjectal, but may be predicatal. He does not apparently even notice this form of argument, even though it is treated in detail in my works. Similarly, he does not pay attention to and assimilate my formal research on implicational arguments, a crescendo

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<sup>53</sup> In his footnote 9, D’Almeida writes: “I discuss analogical arguments at length in L. D’Almeida d’Almeida and C. Michelon, ‘The Structure of Arguments by Analogy in Law’ *Argumentation* (2016) at <http://link.springer.com/article/10.1007/s10503-016-9409-3> (last accessed 26 November 2016).” I have not consulted this article, because he does not refer to my formal work on this topic. I assume it is not a conclusive formal logic study, since in the present essay which he wrote later he implies the issues are still open.

arguments and analogical arguments. Consequently, D’Almeida’s awareness and understanding of a fortiori argument remain very limited.

### 3. Examples used

I have been through all thirteen *legal examples* of a fortiori argument that D’Almeida cites, and found them to have the following forms<sup>54</sup>: seven are positive subjectal (pp. 203, 217, 225b, 226a, 226b, 227-8, 229), one of these being a crescendo (p. 217); three are negative subjectal (213-4, 216, 225a); one is subjectal but not fully quoted, so I could not tell whether it is intended as positive or negative (p. 220); one is positive predicatal (p. 232-3); and one is negative consequential (p. 212). D’Almeida explicitly interprets only four of these arguments in terms of his first and second forms (pp. 203, 212, 213-4, 227-8). The following are my interpretations of all thirteen cited arguments, in standard form:

The seven *positive subjectal* (minor to major) a fortiori arguments are:

- Ex. on p. 203: Voting for the form of government (P) is more important (R) than voting for a representative in a legislature (Q). If voting for a representative in a legislature (Q) is important (R) enough that it should be guaranteed to all (S), then voting for the form of government (P) is important (R) enough that it should be guaranteed to all (S). D’Almeida rightly interprets this argument by means of his first form (on p. 230-1).

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<sup>54</sup> I use the suffixes a and b to a page number when there are two examples on the same page.

- Ex. on p. 217: A well-behaving woman whose marriage was happy and contented (P) has more merit than a misbehaving woman whose marriage ended in divorce and dissension (Q). If a misbehaving woman etc. (Q) has merit (R) enough to be awarded a provision of £350K, then a well-behaving woman etc. (P) has merit (R) enough to be awarded a larger provision of (say) £450K. Note that this argument is not purely a fortiori, but *a crescendo*, so that it relies on an additional, though tacit, premise of proportionality, viz.: awards should be proportional to degree of loyalty.
- Ex. on p. 225b: Removing a card index of the employer's customers (P) is more (say) damaging (R) than making or copying a list of his customers (Q). If making or copying a list of the employer's customers (Q) is damaging (R) enough to be a breach of the duty of good faith by the employee (S), then removing a card index of the employer's customers (P) is damaging (R) enough to be a breach of the duty of good faith by the employee (S)<sup>55</sup>.
- Ex. on p. 226a: A steamer has more power to get out of the way than a sailing vessel. If a sailing vessel (Q) has power (R) enough to be legally required to get out of the way of a trawler which is denoting by her lights that she has her trawl down (S), then a steamer (P) has power (R) enough to be legally required to get out of the way of a trawler etc. (S).
- Ex. on p. 226b: The name 'gramophone' by which the article is popularly known (P) is more specific about

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<sup>55</sup> Notice that although the original wording here, viz. "if it is a breach of the duty of good faith for the employee to make or copy a list of the employer's customers," seems to place "breach of duty" before "the employee" (suggesting predicatal reasoning), it in fact has "it" as the subject and "breach of duty etc." as the predicate, and this "it" stands for "the employee" making or copying, etc. (so it is subjectal reasoning).

the article's nature (R) than a laudatory word such as 'perfection' that has become distinctive of the goods of a particular manufacturer (Q). If a laudatory word such as 'perfection' (Q) is specific (R) enough to be disallowed for registration (S), then the name 'gramophone' by which the article is popularly known is specific (R) enough to be disallowed for registration (S).

- Ex. on pp. 227-8: A wooden ship (P) is more endangered by flammable material than a metal ship (Q). If a metal ship (Q) is endangered by flammable material (R) enough by having gasoline drums in its hold (S), then a wooden ship (P) is endangered by flammable material (R) enough by having gasoline drums in its hold (S)<sup>56</sup>. Note that the speaker goes on to put in doubt the argument, by claiming that the ship would be destroyed well before an eventual fire reached the hold; this is effectively a denial of the major premise. But the argument initially stated remains formally valid anyway; and this is what concerns us here. D'Almeida rightly interprets this argument by means of his first form, albeit with certain modifications (on p. 228-9).
- Ex. on p. 229: Larger vehicles (P) are more obstructive standing on the highway (R) than smaller vehicles (Q). If smaller vehicles (Q) are obstructive (R) enough to be restricted by certain regulations (S), then larger vehicles (P) are obstructive (R) enough to be restricted

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<sup>56</sup> Notice that the original wording in this example, "Everything that could be said against these gasoline drums on a steel or iron ship would a fortiori apply to them on a wooden ship," has the metal and wooden ships as subjects and what is "said" or "applied" against the gasoline drums as predicate.

by these same regulations (S)<sup>57</sup>. Note that here again the speaker goes on to put in doubt the argument, by claiming that the regulations referred to were only meant to apply to smaller vehicles; this is again effectively a denial of the major premise. But the argument initially stated remains formally valid anyway; and this is what concerns us here.

The three *negative subjectal* (major to minor) a fortiori arguments are:

- Ex. on pp. 213-4: A point on which there is an issue (P) is more significant (R) than a point on which there is no issue (Q). If a point on which there is an issue (P) is not significant (R) enough to reopen the case (S), then a point on which there is no issue (Q) is not significant (R) enough to reopen the case (S). D’Almeida rightly interprets this argument by means of his second form.
- Ex. on p. 216: A prisoner charged with an offence (P) is in more legal trouble (R) than a prisoner not charged with an offence (Q). If a prisoner charged with an offence (P) is in legal trouble (R) not enough to have his temporary license revoked (S), then a prisoner not charged with an offence (Q) is in legal trouble (R) not enough to have his temporary license revoked (S).
- Ex. on p. 225a: The Court of Session (P) is more high-ranking in the judiciary (R) than civil action in the Sheriff Court (Q). If the Court of Session (P) is not high-ranking (R) enough to review acts and decrees of the Court of Justiciary (S), then a civil action in the

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<sup>57</sup> Here again, although the original wording mentions the restrictions before it does the vehicles, the argument is clearly intended as subjectal, because it speaks of the former being “applicable to” (i.e. predicated of) the latter.

Sheriff Court is not high-ranking (R) enough to review such acts and decrees (S)<sup>58</sup>.

The one *subjectal* a fortiori argument of undetermined polarity is:

- Ex. on p. 220: this example is incompletely detailed, the ruling not being quoted by D’Almeida. The major premise is given: An alien resident who came to the host country as a child or was born there (P) is more connected to it (R) than an alien resident who came to the host country as an adult (Q). This reveals the argument to have been subjectal. But it is not clear from the rest of the citation what the minor premise and conclusion were originally.

The one *positive predicatal* (major to minor) a fortiori argument is:

- Ex. on pp. 232-3: More permissiveness (R) is required to allow for heavy penalties (P) than for light penalties. If the Convention (S) is permissive (R) enough to allow for more stringent penalties (P), then it (S) is permissive (R) enough to allow for more lenient penalties (Q). Note that here again the speaker goes on to put the argument in doubt, by pointing out that the Convention referred to does not in fact necessarily allow for more lenient penalties; this is again effectively a denial of the major premise. But the argument initially stated remains formally valid anyway; and this is what concerns us here.

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<sup>58</sup> Here, although the original wording mentions the “acts and decrees of the Court of Justiciary” before “the Court of Session” and “civil action in the Sheriff Court,” this is only because the speaker is using a grammatically passive voice; in active voice, the latter courts are the subjects of the reviewing of the former acts and decrees. So, the argument is subjectal as shown, and not predicatal.

D'Almeida takes for granted that this example can be put into one of his two forms. I could, by manipulating the terms somewhat, recast this argument as positive subjectal (minor to major): Lenient penalties (P) are more permissible (R) than stringent penalties (Q). If stringent penalties (Q) are permissible (R) enough to be allowed by the Convention (S), then lenient penalties (P) are permissible (R) enough to be allowed by it (S). But the way the argument is originally articulated places the Convention as the subject and the penalties are the predicates:

*“[I]n the area of human rights he who can do more cannot necessarily do less. The [European] Convention [of Human Rights] permits under certain conditions some very serious forms of treatments, such as the death penalty (article 2(1), second sentence), whilst at the same time prohibiting others which by comparison can be regarded as rather mild, for example ‘unlawful’ detention for a brief period (Article 5(1)) or the expulsion of a national (Article 3(1) of Protocol No. 4). The fact that it is possible to inflict on a person one of the first-mentioned forms of treatment cannot authorise his being subjected to one of the second-mentioned, even if he agrees or acquiesces...”*

The opening sentence “he who can do more cannot necessarily do less” is the denial of the a fortiori argument under scrutiny, with “he” standing for the Convention, and “do more” and “do less” standing for the more stringent and more lenient penalties, respectively. Moreover, the last sentence, “The fact that it is... etc.” places the more stringent penalties in

the minor premise and the more lenient ones in the conclusion. All this implies that the a fortiori argument in question, in the speaker's mind, is predicatal. Even if we can in this case reshuffle the argument and fit it into D'Almeida's first form (i.e. in positive subjectal form, as shown), this would be an artificial interpolation. Interpretation of examples should, as much as possible, stick to the given parameters.

The one *negative consequential*<sup>59</sup> (minor to major) a fortiori argument is:

- Ex. on p. 212: More descriptive precision (R) is required to imply that horses satisfy a certain statute (P) than to imply that cows satisfy the same statute (Q). If merely specifying the number of animals (S) is descriptively precise (R) not enough to imply that cows satisfy the statute (Q), then merely specifying the number of animals (S) is descriptively precise (R) not enough to imply that horses satisfy it (P).

Note that D'Almeida inaccurately interprets this argument by means of his second form. I could, by manipulating the terms somewhat, recast it as negative subjectal (major to minor): Since more precision in description is required of horses than of cows, and both were in this case described in the same way, by mere number, it follows that: the description of the cows (P) was relatively more precise (R) than that of the horses (Q); whence, if the description of the cows (P) was not precise (R) enough to satisfy the statute (S), then the description of the horses Q was not precise (R) enough to satisfy the statute (S). However, so casting the

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<sup>59</sup> Negative consequential is to implicational a fortiori argument what negative predicatal is to copulative such argument.

argument loses the original mood in which it was expressed:

*“The schedule describing the ‘stock’ as ‘2 horses, 4 cows’ is not sufficiently specific to satisfy the statute [section 4 of the Bills of Sale Act, 1882]. In Carpenter v Deen it was held that ‘21 milch cows’ was an insufficient description. By that decision we are bound. Moreover, the cows here are not even described as milch cows. The description is therefore even less specific than in that case. As to the two horses, it follows a fortiori that their description is insufficient, for even Lopes LJ, the dissentient judge in Carpenter v Deen, was of the opinion that, as it was usual to describe horses by their colour, a greater degree of particularity was required in the case of horses than in that of cows. The bill of sale was therefore bad as to the horses and cows.”*

Notice the form of the major premise “a greater degree of particularity was *required* in the case of horses than in that of cows” (my emphasis), which is clearly predicatal (or more precisely, upon reflection, consequential) rather than subjectal (or antecedental); and notice that horses are placed *above* cows in it. This tells us in what mood the judge who uttered the judgment was actually thinking. In the proposed recast version, the cows are (on the contrary) placed above the horses. So, if we want to accurately reflect the judge’s thinking, we must use the consequential form.

The reason I cast all of D’Almeida’s examples in standard forms was to verify if they all fit into his first and second forms, even if he only tested four examples (as already mentioned). As it turned out, this effort was worthwhile,

since it revealed that two of the examples he selected in fact do not fit into his two-form scheme. Another reason I formulated the examples one by one in standard forms was to show how easy it is to follow and believe the arguments in question when they are in such forms. Compare the complications involved in D'Almeida's formulations: his two forms are awkward contraptions that do not match ordinary human *a fortiori* reasoning.

D'Almeida proposes only one non-legal example of a *fortiori* argument, namely the cider and whisky example on p. 204, which he got from Daube, then modified. He uses this as his main illustration, to develop his first form, and again (as we shall see further on) to develop a more elaborate version of it incorporating a literal interpretation of the expression 'a *fortiori*'. Although he returns to this example in many contexts, he nevertheless (as we have seen already) makes significant errors and omissions in his analysis of it. The legal examples he provides for his first form on p. 203 and on pp. 227-8 are apt. He offers no non-legal example of his second form, choosing instead to illustrate it by means of the legal example on p. 212-3, relating to cows and horses, which (as we have just seen) he misinterprets too, and the one on pp. 213-4, which he reads correctly. He provides no illustration for the more elaborate, literally 'a *fortiori*', version of his second form.

One other example D'Almeida mentions, in passing (in footnote 35), is a Talmudic argument mentioned by Hyam Maccobi, described as a 'parodic' *a fortiori* argument. D'Almeida makes no attempt to examine this absurd argument in terms of his own analytical tools, and tell us why it is wrong. He does comment that it "illustrates what can go wrong when there is no (true) premise to be found identifying a scale (and a relevant threshold) against which to compare both source and target;" but he does not pinpoint precisely where the errors lie as he should have. In any event, this rough guess of his is wrong.

He shows no curiosity, and does no further research on the matter, even though the example is shaking – so very shaking, in fact, that the individual who proposed it is said to have been excommunicated for doing so. I deal with this argument in detail in AFL 13.4. I there formulate it as<sup>60</sup>: “Marriage with a married woman’s daughter (P) is more unlawful (R) than marriage with the married woman herself (Q); and marriage with another man’s wife (Q) is unlawful (R) enough to be prohibited (S); therefore, marriage with another man’s wife’s daughter (P) is unlawful (R) enough to be prohibited (S).” I then explain that the argument is indeed technically valid, but still has to be wrong since its conclusion contradicts one of its premises.

The fault lies with the major premise, which has been constructed by generalization from the givens regarding *one’s own* wife (whom one can marry) and daughter (whom one cannot marry) to *all* wives and daughters (i.e. including those other than one’s own). Although the proposition is indeed true for one’s own wife and daughter, it is not true for any other wives or daughters. D’Almeida could not have known this explanation, because he has not studied the ways the premises of a fortiori argument are generated.

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<sup>60</sup> See further details there. My account was based on Moses Mielziner’s citation of the argument (given in *Derech Eretz Rabba*, chapter I) as: “If the marriage with one’s own daughter is prohibited, although the marriage with her mother is permitted, how much more unlawful must it be to marry another married woman’s daughter, since the marriage with her mother, a married woman, is positively prohibited?”

#### **4. With stronger reason, literally?**

Let us now move on and see where D’Almeida’s paper wishes to take us after presenting his two forms of a fortiori argument and analyzing some concrete examples with them.

D’Almeida rightly points out many details concerning a fortiori argument. For instance, that “arguers may leave many crucial elements of their inferences unstated,” and that “some of those elements will occasionally be opaque... even to the arguers themselves,” adding “and that certainly includes the relevant scale” (p. 225). And he rightly argues that theoretical knowledge of a fortiori argument makes it easier to confirm or refute a given a fortiori argument we might encounter (p. 227). While he should be congratulated for such observations, he should also be reproved for giving readers the impression that they are his own, when they are not.

He tries to project himself as an original researcher; but as we shall now show in great detail, when he tries to be genuinely original he fails abysmally. It is like a person who has been painting by numbers (and badly at that) and thinks that this qualifies him for original artwork. D’Almeida asks (as of p. 214) why people use expressions like “a fortiori” or “with stronger reason,” which seem to suggest that the conclusion has literally “greater force” than the premises it is drawn from. This is a good question, which needs to be asked and answered.

He points out that in some cases the argument seems to suggest the possibility that “something be less—or more—allowed than something else,” but rightly rejects this as “nonsensical” and “not to be taken literally,” arguing that “something either is or is not allowed; being allowed is not a matter of degree” (p. 215). I already make this point clearly in AFL 26.3, in response to Stefan Goltzberg’s use of the expression “even more forbidden.” I there say: “Very

often, the subsidiary term allows of no measures or degrees... so that what is said of it in the minor premise is bound to remain the same in the conclusion. For examples, something ‘imperative’ or ‘black’ cannot be more or less so – either it is so or it is not.” D’Almeida here again lays claim to an insight that is not originally his, but mine.

A bit further, quoting Arnold Kunst using the expressions “more illicit” and “less illicit” in his description of a Talmudic principle, D’Almeida tries to look clever by saying sarcastically: “*More* illicit? *Less* illicit?” – as if until now no one realized the absurdity of such statements. Note that I deal in detail, in AFL 8.5, with the Talmudic principle paraphrased by Kunst. The latter seems to be referring to the Mishna *Beitzah*, 5:2, which compares Sabbaths and Festivals, rather than major and minor festivals as he suggests<sup>61</sup>. Furthermore, the original wording is not as Kunst puts it “more illicit” and “less illicit,” but *chayav* (meaning “culpable,” in the Soncino translation) and *kal vachomer* (meaning “how much more” so). And its intent is clearly that what is forbidden on Festivals is forbidden on the Sabbath; and by contraposition, what is permitted on the Sabbath is permitted on Festivals: no difference in degree is implied<sup>62</sup>.

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<sup>61</sup> To my knowledge, there is no principle such as Kunst describes, which infers prohibitions in “major festivals” from those in “minor festivals,” or permissions in the latter from those in the former. The laws of Purim and Hanukkah are unrelated to those of Pesach, Shavuot and Succot. The former, minor festivals were added on to Judaism long after the latter, major festivals; and the laws relating to them are very different.

<sup>62</sup> D’Almeida does not mention my analysis of this Talmudic passage, evidently not having bothered to read it. He prefers to quote Kunst, whom he refers to as a scholar, even though I have shown, in AFL 14.3, that Kunst’s understanding of a fortiori argument was very superficial. This was just name-dropping on D’Almeida’s part, trying to look intellectual; but he bet on the wrong horse.

D’Almeida also rightly (at first, anyway) rejects the idea that the premise might be less “solidly established” than the conclusion drawn from it (p. 216). He also briefly considers a legal example in which the quantity in the putative conclusion is greater than that given in a premise; but in his view such argument, though it includes a *fortiori* reasoning, additionally involves a “separate argument” (p. 217). I have already (in the previous two sections) exposed this example as a crescendo. It is evident that D’Almeida has not studied my past work on a crescendo argument, nor made any attempt to develop the formalities involved by himself; he remains essentially unconscious of this important aspect of a *fortiori* logic throughout his paper.

Nevertheless, D’Almeida does not entirely discount use of suggestive expressions like “a *fortiori*” or “with stronger reason,” as mere “rhetorical flourish” (p. 218). He thinks there is a “sense in which it is perfectly meaningful,” and tries to develop more elaborate argument forms in support of this claim. This is in truth *the climax* of his thesis on a *fortiori*, his one attempt at original thought. As we shall see, it is *bunk*. He does not manage to prove what he set out to prove, nor even make it seem somewhat credible. Worse still, his attempt to do so is on logical principle vain; and moreover, it is developed in a very sophisticated manner.

But before we start our detailed analysis of his proposals, the following **preparatory remarks** are worth making.

I do not know who first coined the Latin expression “*a fortiori ratione*” (with stronger reason). Obviously, someone must have, and the name given such argument stuck and became widely used till this day. Obviously, whoever coined this name consciously or at least subconsciously imagined that the conclusion of such argument was somehow rationally “stronger” (more forceful, more reliable, more cogent) than the premise(s) it was derived from. This idea, that the argument effected

what we might characterize as an ‘*epistemic profit*’, was in fact logically impossible, an error; but he did not realize it, or maybe he was aware of it but just had a taste for hyperbole. Nevertheless, since the *a fortiori ratione* label was coined, many people have taken it literally and assumed it to mean just what it says. Every so often, amateur logicians try to defend the idea and make fools of themselves trying.

Let us briefly look at some of the history of studies on a fortiori argument. **Aristotle** (Greece, 384-322 BCE)<sup>63</sup>, in all probability the first person ever to reflect on such argument, refers to it descriptively, in his *Rhetoric* 2:23(4) as concerning “the more and less”, and in his *Topics* 2:10 as “from greater and less degrees;” in practice, he favors similar neutral wording. Aristotle does discuss and occasionally use a crescendo arguments, and he does sometimes engage in logical-epistemic a fortiori arguments. But he cannot be said to have anywhere suggested that the conclusion of an a fortiori argument can be epistemically “stronger” than the premise(s) it is based on; his wording always suggests epistemic equality if not weakening.

The renowned Roman jurist **Cicero** (106-43 BCE)<sup>64</sup>, in his *Topics* §23, likewise speaks of “the greater” (*maiore*) and “the lesser” (*minori*); and he uses ontical rather than logical-epistemic illustrations of such argument. Interestingly, he nowhere there or elsewhere (so far as I know) uses the Latin expression “*a fortiori ratione*;” and more significantly, he nowhere suggests the said idea of an epistemic gain. Much the same can be said concerning the

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<sup>63</sup> See my detailed treatment of Aristotle’s theory and practice in AFL 6.1 and Appendix 4.2. I there give full quotations and exact statistics.

<sup>64</sup> See AFL 6.5.

3<sup>rd</sup> cent. CE Hellenistic Peripatetic Alexander of Aphrodisias<sup>65</sup>. Similarly, in Judaic logic; although Biblical and Talmudic statements intending a *fortiori* and even a crescendo reasoning are numerous, none of them involve language or commentary indubitably implying epistemic increase<sup>66</sup>.

So, it is not clear who coined the expression “*a fortiori ratiōne*” or first suggested it implies an epistemic gain. It is possible that this idea antedates the expression and led to it; but it is more likely, to my mind, that the expression was first coined rather unconsciously, and later elaborated on by someone. These events may both date from before Cicero, or have arisen in between him and the said Alexander; or again, they may have arisen later, in Christian times. I do not know the exact time line, and it may be too late to determine it. Not that it matters greatly – there is no doubt that the said expression is inaccurate and the idea it suggests logically untenable.

What is sure, also, is that D’Almeida is not the first to advocate, inspired by the said expression, the idea of epistemic gain. For instance, not so long ago (in 2002), Piotr Lenartowicz and Jolanta Koszteyn proposed the following as the “true” *a fortiori* argument: “if it is irrational and non-empirical to doubt that [the minor] Q is S, then it is even more irrational and non-empirical to doubt that [the major] P is S;” and I later showed why their proposal is specious<sup>67</sup>. More recently (in 2012), Hubert Marraud tried to justify a similar idea, and I showed him

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<sup>65</sup> See AFL 6.6.

<sup>66</sup> As regards the Talmudic doctrine of *pirka* (objection) to a *fortiori* arguments, see AFL 13.4. See also, in AFL appendix 2, the rival arguments in Pesahim 6.2 and in Sotah 6.3.

<sup>67</sup> See AFL 24.3.

too to be dead wrong<sup>68</sup>. Evidently, D’Almeida did not take the trouble to read these chapters and others of AFL, which might have dissuaded him from trying the same tomfoolery.

Let us now look more closely at D’Almeida’s specific suggestions. He imagines, using again the cider-and-whisky illustration, a more complex scenario in which: “the claim in (5)” (i.e. the conclusion that the man will refuse whisky) “may be more strongly supported than the claim in (2a)” (i.e. the earlier side-inference that the man will refuse cider). He imagines, to begin with, the following simple scenario (p. 218):

“For it may be the case that our friend, despite his principled stance of refusing beverages that exceed a certain degree of alcohol content, might be willing, on some occasions, to make exceptions to the principle. He will have his reason or reasons for not drinking at least some alcoholic beverages: the reason is, suppose, that beverages with an alcohol content above a certain degree will give him a terrible headache. But he may find himself in a situation in which he will also have reasons for having a drink, and these reasons may outweigh his reasons for not doing it: imagine, for example, that our friend is presented with a newly produced wine by his son, a winemaker, who would really like to know his father’s opinion on how it tastes.”

Let us first look at this simple scenario, before considering the further complications D’Almeida brings to it and the solutions he proposes. In the initial cider-and-whisky illustration, we argue that since cider, which has a lesser

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See AFL 30.3 and 30.5.

alcohol content, was refused (by a certain man), it follows a fortiori that whisky, which has a greater alcohol content, will be refused (by that man). This argument did not tell us whether or not the subject (the man) is a teetotaler; nor did it inform us as to how much alcohol content he would tolerate, assuming he is not a teetotaler.

The man's "principled stance" against alcoholic beverages, we are now told, is probably due to the headaches they can give him as of a certain degree of alcohol content<sup>69</sup>. This added detail by itself does not affect the a fortiori inference from refusal of cider to refusal of whisky, note well. But it does suggest that if an alcoholic beverage did *not* cause him headaches, the man might well accept to drink it. So, it looks like the man is not a teetotaler, i.e. not against alcohol per se; but merely opposed to a certain level of alcohol intake, because of its deleterious effects. This means that there are possible exceptions to his refusal of alcohol: he may well *not*-refuse (i.e. accept) beverages with alcohol levels below the threshold where headaches begin.

Next, additionally, D'Almeida introduces the idea that the man's son might pressure him to taste some of the wine he (the son) produced. If that wine has alcohol content below the threshold as of which the man gets headaches, such indulgence would of course be unproblematic; i.e. the original a fortiori argument would be unaffected<sup>70</sup>. But if the wine is strong enough to cause him a headache, the scenario is radically changed, because he may (say, out of

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<sup>69</sup> Note in passing that D'Almeida mentions "degree" of alcohol content, but not the quantity of beverage with such alcohol content that would cause a headache. It is unlikely, however, that in a real case the quantity absorbed would be irrelevant.

<sup>70</sup> Wine normally has alcohol content at 8-14%, cider at 4-8% and whisky at 40-60% (according to information found in the Internet). Let us here, for the sake of argument, first assume that the wine in question is very dilute (under 8%) and the cider very strong (over 8%).

love for his son) nevertheless accept to drink some of it, even if it is more alcoholic than the cider which he refuses. In that event, we can no longer automatically argue from refusal of a less alcoholic beverage (say, cider) to refusal of a more alcoholic beverage (namely, strong wine). We can still do so *conditionally*, granting that the man is under no pressure taste the strong wine; but if this condition is not met, i.e. if the son *does* ask his father to drink some of his strong wine, the said a fortiori argument can no longer be relied on *at all*. It would perforce result in a wrong conclusion; namely, that he will refuse to drink the strong wine when in fact we are told that he won't refuse to do so. In this situation, the a fortiori argument would need to be completely revised, somehow. How?

Obviously, the middle term (alcohol content or headaches) and the subsidiary term (the man will refuse to drink the beverage) of the original a fortiori argument need to be changed. The issue now *determining* the man's refusal or acceptance of strong wine is no longer alcohol content, or headaches, but the son's wish. We can build a new a fortiori argument as follows, but clearly this argument is very different from the preceding. It has a new middle term (R), viz.: 'importance to the son', and a new subsidiary term (S), viz. 'the man will accept to drink the beverage'.

Strong wine (P) is more important to the son (R) than cider (Q).

If cider (Q) is important to the son (R) enough that his father will accept it (S);

then strong wine (P) is important to the son (R) enough that his father will accept it (S).

In truth, this new a fortiori argument is quite contrived (by me), because it continues to refer to cider. We do not in fact need to *infer* that the father will accept to drink his son's strong wine, because we already know this as *a given* of the new scenario. Thus, all that this new scenario has done

is make the original a fortiori argument (inferring refusal of strong wine from refusal of cider) applicable *if and only if* the son does not ask his father to taste the wine. In the event that the son *does* ask that of his father, there is *no* a fortiori argument, but merely a given proposition, viz. that the father will accept to taste it.

This is the “exception” mentioned in the above scenario. The initially broad “principled stance” that the man will refuse beverages that give him headaches is made more limited, applicable only if the man’s “reasons for having a drink” (namely, his son’s wishes) do not “outweigh” his “reasons for not doing it” (namely, his fears of headaches). In the event that the former reasons do outweigh the latter, he will accept to drink. So far, then, D’Almeida’s attempt to make the logic of a fortiori argument more complicated has failed. Nothing in the scenarios we have seen thus far have yielded a modified form of a fortiori argument.

Vaguely sensing this failure, D’Almeida tries to project a more complex situation (pp. 218-9):

“Now suppose, further, that the higher the alcohol content of the beverage, the more intense our friend’s headache would be, ranging all the way up to almost paralyzing pain. In that case, it seems clear that the higher the degree of alcohol content of a certain beverage, the harder it will be for his reason against drinking it to be outweighed. In other words, the range of reasons that might outweigh his reason for not drinking whisky is narrower than the range of reasons that might outweigh his reason for not drinking cider. But what that means is that our friend has a stronger reason against drinking whisky than against drinking wine; and thus that the conclusion that he would refuse whisky is also stronger, in a sense—harder to defeat—than the conclusion that he would refuse cider.”

In this new scenario, D'Almeida proposes that the headache caused by alcohol is variable; that is, it varies with alcohol content of beverages, so that the more alcohol, the more pain. Before, headaches were flagged by a single threshold along the horizontal line tracking alcohol content. Now, there are two variables, varying concomitantly. We can represent this by means of a two-variable graph, with the vertical dimension tracking pain and the horizontal one tracking alcohol content. The graph itself, however, is still a line, even if now inclined or maybe curved; and the reasoning involved is in fact the same as if the graph were horizontal. What is changed now is simply the position of the threshold. Whereas before the threshold was *any amount of* headache pain (symbol T) now the threshold is *a certain higher degree of* headache pain (symbol U, say). Formally, nothing is different; what is different is the precise cut-off point.

The man's behavior is, we are told, motivated by conflicting interests: he wants to avoid headaches as much as possible, but he also wants to please his son *if* he can stand the pain. So, the issue for him is: *until what point* along the curve is compromise possible? While the man might accept to drink strong wine if his son asks him to, there may be a threshold as of which his son's request will be ignored, because the pain would be "paralyzing." Whisky would seem to be too strong for him to bear, but the son's wine might not be. So, the proposed complication is not as great as it first seems. Thus, contrary to appearances, this new scenario is not radically different from the preceding.

To wit: there is a continuum of values of alcohol content and concomitantly of pain; along this line, there is a new threshold U (unbearable pain) higher than the preceding threshold T (any amount of pain). In the upper range, as of

and above point U, the man would *categorically* refuse any beverage, even if the son wishes otherwise; an a fortiori argument from refusal of one strong beverage to refusal of a still stronger beverage could validly be constructed in this range. In the medium range, between U and T, a similar a fortiori argument could (as before) be formulated *conditionally*, provided the son does not ask his father to drink; but if the son does ask his father to drink, the man would likely accept to do so, albeit the pain involved (and the a fortiori argument would be inapplicable). Finally, in the lower range, below point T, there being no pain, the man is free to accept his son's eventual request without qualms (and no a fortiori argument is needed).

As regards a fortiori logic, then, D'Almeida's new, more complex scenario, is as irrelevant as the preceding, simpler scenario. That is, nothing in either scenario makes a new, more complicated form of a fortiori argument possible or needed. We are still dealing with the same old standard a fortiori argument forms, but applying them selectively, as called for by the projected situations. As above explicated, in some situations, the a fortiori argument is applicable unconditionally; in others, it is applicable only conditionally; in others still, it is inapplicable; and in some, it is not at all relevant.

Notice now that, whereas in the former scenario D'Almeida refers to "reasons" for having a drink or refusing it, in the latter he refers to "range[s] of reasons," so as to make matters look still more complicated.

It seems that D'Almeida's is here trying to develop a calculus of "reasons" for doing or not doing something, but has difficulty formulating it. Let's try and help him do that. For a start, we are told that there are two beverages x and y; x and y both "meet" a threshold T; and y contains more alcohol than x. Next, it appears that the subject ("our friend") has reasons for drinking y (call them Pro-y), and

reasons against drinking  $y$  (call them  $\text{Con-}y$ ); and  $\text{Pro-}y$  may be more or less persuasive than (or equal to)  $\text{Con-}y$ . Similarly, the subject has reasons for drinking  $x$  (call them  $\text{Pro-}x$ ), and reasons against drinking  $x$  (call them  $\text{Con-}x$ ); and  $\text{Pro-}x$  may be more or less persuasive than (or equal to)  $\text{Con-}x$ . Furthermore, let us call  $Ky$  the net result of  $\text{Con-}y$  minus  $\text{Pro-}y$  (or vice versa), and  $Kx$  the net result of  $\text{Con-}x$  minus  $\text{Pro-}x$  (or vice versa); and these two need to be compared.

If, following such comparison, it is found that  $Ky$  “is narrower” (meaning, presumably, overall less persuasive) than  $Kx$ , then – according to D’Almeida – the conclusion (5) may be taken to be “more justified” than the inference (2a). This calculus seems to be what is floating vaguely in D’Almeida’s pedestrian mind. The thought intended is far from clear; but even if the argument can be clarified and formulated in a more scientific manner, does the putative conclusion that this inference is logically “stronger” than that one really follow? Is there here any basis for D’Almeida’s claim that “the conclusion that he would refuse whisky is also stronger, in a sense—harder to defeat—than the conclusion that he would refuse cider.” Surely not.

When dealing with logical inference, however short or long the argument(s) involved, an established principle is that the conclusion can never be more reliable than the premises<sup>71</sup>. In deduction, the conclusion’s reliability is the

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<sup>71</sup> This is an application of what I have called the principle of deduction, or the fifth law of thought. Simply put, it says that we cannot get more information or certainty out of a deductive argument than we put into it. A more extreme statement would be ‘garbage in, garbage out’: if our premises are uninformative or weak, we cannot expect our deductive conclusions to be more informative or stronger. This law of logic can be compared to the law of physics called the second law of

same as that of the least reliable premise, if not less. In induction, the outcome is necessarily less reliable, since a hypothesis is always involved in generalization or adduction. Of course, propositions arrived at by induction can over time increase in reliability, due to more and more evidence (compared to before) being brought to bear on their behalf; but such propositions always remain less reliable compared to the reliability of the evidence (small or large) supporting them.

Of course, if the premises of two distinct arguments have different levels of cogency, whether due to one being inductive and the other deductive, or due to their having premises with different degrees of reliability, then their respective conclusions will also do so, and we can say that one is “stronger” than the other. But this is not the case here. Remember that (2a) is originally deduced by positive apodosis from (1) and (2), while (5) is deduced in the same way from (1) and (4), the latter being deduced from (2) and (3) by quantitative comparison. This means that (2a) and (5) have the premises (1) and (2) *in common*, and are distinguished only by premise (3) which (2a) lacks but (5) has.

Therefore, since all inferential processes involved were deductive (i.e. equally valid, 100% sure), the only possible logical difference that can be postulated in the hope of epistemic gain is that (3) somehow adds some cogency to (5) that is not added to (2a). But this is contrary to reason: an additional premise can diminish cogency (if it carries some inductive doubt) or leave it unaffected (if it is absolutely sure), but it can never increase cogency! No scenario, however complex, can conceivably bypass or

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thermodynamics, which predicts that disorder (entropy) in the material world is bound to increase, overall.

mollify this elementary principle of logic. It can safely be predicted, since (2a) *requires for its deduction less information* than (5) does, that (2a) will always be either more certain than or at least as certain as (5), never less.

Clearly, D’Almeida managed to confuse himself, in his vain pursuit of something logically impossible. The above calculus of “reasons” concerns, rather than logic (as he supposes), psychology and ethics. Its content is not epistemic, but ontical and teleological. Such a calculus would aim to determine what course of action the subject should prefer in given circumstances. We might, of course, construct an a fortiori argument using a comparative major premise like: “the reasons relating to x (P) are more persuasive (R) than the reasons relating to y (Q); the reasons relating to y (Q) are persuasive (R) enough to encourage this man to do so and so (S); therefore, the reasons relating to x (P) are persuasive (R) enough to encourage this man to do so and so (S).” This would be a valid a fortiori argument involving the sort of *terms* that D’Almeida seems to have in mind. But is this sort of a fortiori argument (or maybe another mood) involved in the present case? I do not see it.

Or we might attempt to concoct an a crescendo argument, in which the pro rata additional premise concerns epistemic status<sup>72</sup>. Maybe: “Inference P is based on more reasons (R) than inference Q, and, Q is based on enough reasons (R) to be reliable (S); therefore, P is based on enough reasons (R) to be reliable (S). Given, moreover, that reliability (S) varies in proportion to number of reasons (R), then, since the reasons for P are more numerous than those for Q, the reliability of P is greater than that of Q.” But of course, this is made-to-order, circular reasoning – in fact, the minor

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See AFL 2.3 and 4.2.

premise (and therefore the conclusion), relating reliability (S) to number of reasons (R), would be impossible to establish in practice.

It should be emphasized that the use of the word “reasons” in this context is very misleading. As we have seen, it does not here refer, as D’Almeida evidently thinks it does and wants us to think it does, to items with *objective epistemic significance* in the a fortiori argument at hand, but merely to items perceived by the subject (the man under discussion) as *more or less subjectively significant to his personal decision* to drink or not drink. These are two very different senses of the word “reasons,” and D’Almeida is quite deluded, and evidently trying to also delude us, by this banal *equivocation*.

The term “reasons,” in its primary, epistemological sense, refers to *empirical and/or logical grounds to believe a factual or theoretical claim*: the observations which inductively strengthen or weaken a thesis are “reasons” for believing or disbelieving it; the fact that the thesis is deductively consistent with (if not derived from) one’s wider knowledge context is a “reason” in its favor, while the fact that it is self-contradictory or contradictory to some observation or to one’s current scientific beliefs is a “reason” against it. The “reasons” that D’Almeida here invokes are rational only in the secondary sense used in practical philosophy: here the term refers to values and motives, to *judgments that influence the subject’s choices and will, towards or against some object or course of action*.

“Reasons” in the primary sense refers to *de dicto* causes of a doctrinal conclusion, whereas in the secondary sense it refers to *de re* causes of a physical or mental outcome. The former refers to procedural issues: it concerns knowing, the knowledge-acquisition process; the latter refers to resulting substantive issues: it concerns being, having, doing. These

are quite distinct cognitive phenomena, albeit use of the same word for both. D'Almeida's attempt to prove epistemic gain conflates these two senses of the term "reasons," whether out of ignorance and unintelligence or out of dishonesty.

Note also D'Almeida's use of ambiguous relational terms like "range of reasons," "capable of countervailing," "in favour of," "narrower," which show how vaguely he conceives even the calculus of "reasons" that his thesis depends on. What is a "range of reasons"? Does this simply mean a set of reasons, or is some sort of more complex quantitative comparison between the reasons intended? In what sense is one such range of reasons "narrower" than another? Is it simply an issue of the number of reasons, or are the reasons to be weighted somehow? What does "countervailing... in favor of" mean? Does this refer to a mere quantitative superiority, or to a causal relation of some sort? These unasked and unanswered questions testify to the fuzziness of D'Almeida's thinking processes.

In conclusion, then, the scenarios projected by D'Almeida in defense of his epistemic profit hypothesis do not logically support it. He thinks that by spinning a sufficiently complicated tale, he can make us believe in his punch line – but the whole thing is manifestly a figment of his imagination. If we carefully dissect each element of his thinking, we can clearly see that none of his attempts work. And indeed, to repeat, it is inconceivable that any attempt would work.

**D'Almeida's attempt at proof** is nothing less than comical. It consists in adding on a premise (6) to his earlier scheme (comprising propositions (1) to (5), thanks to which a new conclusion (7) can be drawn (pp. 219-20):

“(6) For any two beverages  $x$  and  $y$ , if both  $x$  and  $y$  meet  $T$ , and if  $y$  ranks higher on the scale of alcohol content

than  $x$ , then the range of reasons capable of countervailing the reason(s)-in-favour-of-our-friend-refusing- $y$  given by the fact that  $y$ -has-the-degree-of-alcohol-content-that-it-does is narrower than the range of reasons capable of countervailing the reason(s)-in-favour- of-our-friend-refusing- $x$  given by the fact that  $x$ -has-the-degree of- alcohol-content-that-it-does.

Therefore ... (7) The range of reasons capable of countervailing the reason(s)-in-favour-of our-friend-refusing-whisky given by the fact that whisky-has-the-degree of-alcohol-content-that-it-does is narrower than the range of reasons capable of countervailing the reason(s)-in-favour-of-our-friend-refusing-cider given by the fact that cider-has-the-degree-of-alcohol-content-that-it does.”

I do not want to ridicule D’Almeida (not too much, anyway), but surely the above formulation can be characterized as very vaguely put and quite confusing! This is like talking with one’s mouth full. He is lumping too many things together into a single proposition. No one reasons that way, with propositions as convoluted and opaque, for the simple reason that such cognitive behavior is bound to result in errors. He resorts to multiple hyphenation because he does not know how to articulate his thought with clarity and precision: how to cut it up into smaller units and then bind them together logically.

He tries to defend his presentation by saying: “despite its complex-looking formulation [it] is stating a simple point.” His purpose is stated explicitly as: “to establish not merely the conclusion that our friend would refuse whisky—that is the claim in (5)—but also the further claim that that conclusion is ‘all the more’ justified, or that it follows ‘even more strongly’ from the relevant premises.” But his means to that end are far from explicit and far from

credible. He certainly does not manage to demonstrate that inference (5) can conceivably be epistemically “stronger” than inference (2a).

His claim of epistemic gain is too roughly conceived. He does not manage to fully concretize what he has in mind and effectively convince others. A lesson one quickly learns when engaged in formal logic research is that something that seems conceivable or reasonable at first glance may turn out, upon much closer scrutiny, to be inconceivable or unreasonable. Experience teaches that the mere fact that one has a thought, does not guarantee that the thought is worth something. One has to keep digging into the thought until it is absolutely clear and certain before granting it cogency. One should not be fooled by tantalizing appearances. One should avoid vague or approximate thinking. It is no use hoping that no one will notice the deficiencies and one will get away with it. Someone is sure to eventually see through an incompetent attempt.

D’Almeida does offer a validation process of sorts for his argument (by means of successive intermediary inferences: “Therefore (from (1) and (2))” ... “Therefore (from (2) and (3))” ... “Therefore (from (1) and (4))” ... “Therefore (from (2), (3)—which together imply (4)—and (6))”). Note that logically missing here, in between (6) and (7), is a statement that cider and whisky are beverages, and therefore qualify as x and y; but this is not so important. What matters is that D’Almeida *nowhere actually validates* the idea of epistemic gain which is his actual thesis. All he validates, at best (in truth, as shown below, not even that), is the outcome of the calculus of so-called “reasons” that he vaguely projects – the rest is his gross *misinterpretation* of what that means or implies. Therefore, D’Almeida’s validation process is not logic but crass sophistry.

It should be seen and stressed that the add-ons (6) and (7) constitute *a setup*. That is, D’Almeida has deliberately designed the additional premise (6) in such a way that conclusion (7) is bound to follow when the variables *x* and *y* are replaced with the terms *cider* and *whisky*. There is no additional reasoning involved; no reasoning that is tied to the preceding *a fortiori* argument (i.e. to propositions (1) to (5)) and yet amplifies it in a significant way. Premise (6) is a stand-alone thesis with variables *x* and *y*, and (7) is an application of this same stand-alone thesis with the specific terms *cider* and *whisky*. The only reasoning involved is simply, then, applying a given general rule to particular terms given as subsumed under it by the clause “if both *x* and *y* meet *T*, and if *y* ranks higher on the scale of alcohol content than *x*, then....”

To be sure, the antecedent of (6) does contain elements of the preceding *a fortiori* argument, namely (2) “*x* meets *T*,” and (3) “*y* ranks higher than *x* on the scale of alcohol content,” and their joint implication (4) “*y* meets *T*,” but the antecedent of (6) does not contain premise (1) and therefore does not imply conclusion (5). The consequent of (6) also contains indirect references to the *a fortiori* argument, implying that the subject may refuse to drink *y* (“our friend refusing *y*”) and that *y* has some alcohol content (“*y* has the degree of alcohol content that it does”); this also makes it look connected to the *a fortiori* argument, since the latter has similar implications from (5) (“Our friend will refuse *y*”) and from (3) (“Whisky ranks ... on the scale of alcohol content”).

Nevertheless, despite these partial references to the *a fortiori* argument, proposition (6) cannot be said to have any significant logical tie to it. The crucial elements about two “ranges of reasons,” with one “narrower than” the other – these are totally without connection to the *a fortiori* argument. They are just his say-so. The only link they have is to be sought in D’Almeida’s imagination and his will that

they be linked. He obviously thinks that his vague “reasons” calculus is relevant, but he does not in any way demonstrate this claim. Making a claim does not constitute proof that the claim is justified.

It follows that the if–then proposition in (6) is a sham; it is custom-made to rig the desired result. It is, obviously, retro-engineered from (7), so as to create the illusion that (7) is a conclusion, a thesis with proof. But (7) is clearly a fabrication, a thesis without proof. The antecedent clause in (6) is inserted to point us to the preceding a fortiori argument, to make it seem relevant to the present attempted expansion (i.e. propositions (6) and (7)), but the consequent clause in (6), viz. “then the range of reasons [etc.],” bears no logical relation to it – it is just, to repeat, his arbitrary say-so. The added premise (6) injects D’Almeida’s vaguely thought out “reasons” calculus out of nowhere; it is not demonstrated in any serious manner. Therefore, (7) is a *foregone conclusion*; i.e. not the conclusion of an argumentative process, but a manipulated and quite spurious result. It begs the question.

In other words, ***one could put any thesis one wants to in its place, and similarly obtain the programmed result!*** E.g. one could equally well say “is wider” instead of “is narrower” in propositions (6) and (7). Or even: (6) For any two beverages x and y, if both x and y meet T, and if y ranks higher on the scale of alcohol content than x, then Mickey Mouse’s addiction to y makes him fatter than Donald Duck’s addiction to x; therefore, (7) Mickey Mouse’s addiction to whisky makes him fatter than Donald Duck’s addiction to cider. This shows how utterly contrived and laughable D’Almeida’s argument is. Anything goes, since the hypothetical in premise (6) is a *non-sequitur*, i.e. since its antecedent and consequent are not logically connected.

If propositions (6) and (7) are in this way carefully deconstructed, it becomes evident that they cannot be claimed to prove the main thesis that conclusion (5) is, or even just can be, literally stronger than (2a), even if we accepted his claim that the “reasons” involved are of epistemic significance, which (for reasons already put forward) we of course do not and cannot accept. The use of long hyphenated terms in his additional propositions is not the main problem, note well; even with simpler and clearer terms, these propositions would be useless and misleading. The main problem is their logical disconnection from the a fortiori argument (i.e. (1) to (5)). D’Almeida’s development of the idea of epistemic gain is manifestly riddled with fallacies, amazingly numerous fallacies.

Nevertheless, the long, hyphenated terms do play an important *psychological* role in making D’Almeida’s arguments pass, in that people reading propositions (6) and (7) get mentally caught up in trying to make sense of those terms, and finding them too complicated soon give up trying to understand them, and then naïvely assume that the propositions (6) and (7) containing them must mean something intelligent and must be logically credible, since their author believed in them and the editors and publishers gave them a pass. I do not suppose that D’Almeida consciously willed to deceive; but I do think that he was at least subconsciously willing to deceive. Such intellectual negligence cannot be entirely innocent; the author must have been at some level aware of his deceit, but he assumed he would get away with it.

It should be mentioned that D’Almeida does not consider that a fortiori argument is always intended by speakers to entail an epistemic gain. As he puts it: “the claim that the conclusion about the target of an a fortiori inference is ‘more strongly’ supported than the parallel conclusion about its source, appears to be a claim only typically rather than necessarily made by whoever gives an a fortiori

argument”<sup>73</sup>. The difference, he claims, is due to “elements that are characteristic but not essential components of a fortiori inferences” (p. 222). What are these elements? Apparently, the caveat “and there are no defeating considerations” inserted in his premises (1) and (4), and the additional premise (6) (p. 223).

This reflection arises when D’Almeida belatedly becomes aware of a contradiction in his scenario, between the initial given that the man wants to avoid overly alcoholic drinks and his later supposition that the man might accept such drinks anyway, and tries to fix the problem by rewriting his initial premise in conditional form, with the proviso that “there are no defeating considerations” (p. 221). This takes him into a discussion of “defeasible conditionals,” and he affirms the need for “a rider of some sort specifying that no exceptions are present” if we are “to draw deductively valid inferences” (p. 222). But this assessment by D’Almeida is inappropriate for two reasons.

First, as I explained earlier, when the man is actually influenced by his son’s request to taste his wine, the a fortiori argument is in fact nullified, and instead what is operative is the given proposition that he will accept to drink. This is true both in the simpler scenario where the man’s fear is any headache pain and in the more complex

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<sup>73</sup> This claim by D’Almeida, viz. that a fortiori argument is not always intended to entail epistemic gain, creates an ambiguity. Is he saying that his alleged “reasons” calculus is (a) always applicable but not always applied? Or is he saying that it is (b) not always applicable? If he opts for (a), why does he not say so openly, and instead refers to customary behavior? If he opts for (b), he should clarify under what precise conditions it is not applicable. In either case, the reference to unspecified “defeating considerations” does not resolve this issue. Presumably, if such considerations come into play, they defeat not only the a fortiori argument itself, but also the reasons calculus applied to it. But can the reasons calculus be defeated independently of the a fortiori argument? This is a question that D’Almeida leaves unanswered.

scenario where the man's fear is unbearable headache pain, as we have seen. So, the a fortiori argument as such cannot be claimed to contain a modifying caveat within it – the caveat is logically outside it<sup>74</sup>. An a fortiori argument properly formulated always has deductive force; it cannot rightly be qualified as “defeasible,” assuming its premises are true. The appeal by D’Almeida to the notion of “defeasible” arguments is merely an attempt to gloss over the inadequacies in his project by pseudo-intellectual double-talk.

Second, one cannot in formal logic research construct an argument using such vague riders as “and there are no defeating considerations” or “all other things being equal.” That is an admission from the start that one has not managed to formulate a complete argument capable of formal validation. It is inexactitude and uncertainty masquerading as precision and decision. The situations that D’Almeida describes hypothetically can be assimilated under formal logic, but only in the way I have detailed earlier on, in my preparatory remarks. His attempt to do it in another way just reveals his limited understanding of the issues at hand.

Despite D’Almeida’s above moderating remark about epistemic gain being typical but not necessary, which suggests his add-ons are in practice applicable to most but not all concrete cases, my contention remains in force that epistemic gain is logically inapplicable, ever, no matter what he or other people imagine. Note also that he not only fails to properly formulate and validate his thesis, but he

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<sup>74</sup> D’Almeida does, on p. 222, observe that some people would raise this objection, and he admits that “there is some truth to this view;” but he opts (without here giving precise reasons) to ignore the objection and to insert the said vague caveat into his argument anyway. I explain in the next paragraph why this is a bad choice.

tries to defend it by mendacious means. He imagines that it suffices for him to say the following, to make his proposal credible (p. 220):

“I think this third inferential step, or something like it, is what we need to bring out in order to make sense of the idea that the conclusion that is drawn in an a fortiori argument about the target of the inference is a conclusion that follows ‘even more so’ from the relevant premises than does the parallel conclusion about the source.”

Notice the escape hatch: “or something like it” – meaning, he knows deep inside that his introduction of propositions (6) and (7) is vague and incredible, but he hopes somebody else will come up with a more precise and convincing proposal in support of his charade.

Thus far, D’Almeida has functioned on a *largely informal* level, developing his thesis in terms of the cider-and-whisky example (plus some symbols, namely T, x and y). But further on, he tries to get *more formal*, rewording the above-mentioned two additional propositions in more general terms (with added symbols P and Q), as follows (p. 223):

“(6) For every x and every y, if both x and y meet T, and if y ranks higher than x on the scale of P, then the range of reasons capable of countervailing the reason(s)-in-favour-of-y-being-Q given by the fact that y-has-P-to-the-degree-that-it-does is narrower than the range of reasons capable of countervailing the reason(s)-in-favour-of-x-being-Q given by the fact that x-has-P-to-the-degree-that-it-does.

Therefore... (7) The range of reasons capable of countervailing the reason(s)-in-favour-of b-being-Q given by the fact-that-b-has-P-to-the-degree-that-it-does is narrower than the range of reasons capable of countervailing the reason(s)- in-favour-of-a-being-Q given by the fact that a-has-P-to-the-degree that-it-does.”

What this alleged “formalization” does, practically, is *further conceal* the non-epistemic real meaning of the term “reasons” used in the initial scenario. In the more informal presentation, the real meaning is more discernible, because we still have in mind the narrative on which it is based, i.e. the story of a man in relation to alcoholic drinks. But in this relatively formal presentation, there is no longer a background narrative that reveals the actual meaning of the term. Effectively, and without any logical warrant, D’Almeida has generalized his presentation from non-epistemic “reasons” to epistemic ones. This extrapolation is fallacious because these two sets of “reasons” are fundamentally different, as we have seen.

Note in passing that he further on (on pp. 223-4) develops by analogy a similar set of add-ons for his second form of a fortiori argument, i.e. for the form concerned with “not meeting” the threshold. This, needless to say, is as much a faux argument as the previous, positive form.

In his summing up, D’Almeida pleads (p. 233):

“My goal in this section has been to illustrate the illuminating power of the argument schemes articulated and explained in the previous sections; and to deflate the possible objection that to engage with those schemes is to bring in a degree of complexity that hinders rather than helps our understanding and assessment of real instances of a fortiori arguments as they are deployed in

judicial decisions. I hope to have shown that the schemes are not merely very helpful, but indeed necessary for the proper analysis of such real arguments.”

I would retort, without malicious intent, that his approach to a fortiori argument is indeed more befuddling than necessary. My standard forms are much simpler and more accurate representations of a fortiori argument. Why use a bad imitation when you can use the real thing? Why travel with a sick horse when a healthy one is available?

I earlier contended, on the basis of comparisons of D’Almeida’s formulas for a fortiori argument to my earlier findings, that his treatment was entirely and exclusively derived from mine, even if in an imperfect manner. It could not be a fortuitous independent discovery, since he admits having access to my work. If anyone still had any doubts as to whether he independently developed propositions (1) to (5), it should now be clear to them, from the above analysis of propositions (6) and (7), that he lacked the logical understanding and skills to do so.

Evidently, though he can express thoughts he learned from others, he cannot formulate and validate thoughts of his own. The moment he tries to branch off on his own into unexplored territory, he gets woefully lost. His flaky treatment of the idea of epistemic profit is absolute proof of his logical incompetence. D’Almeida is indubitably not an original logician, not someone who has mastered the fine art of formal logic research. Certainly, he deserves some praise for showing interest in a fortiori logic and trying to break new ground; but trying is not the same as succeeding. He has, plainly, contributed exactly zilch to this field.

## 5. A Peter Keating performance

D’Almeida’s overall performance reminds me of the character of Peter Keating in Ayn Rand’s celebrated novel, *The Fountainhead*, which I read in my teens and found quite inspiring. This fictional character typifies the “second-hander,” a person without much creative capacity of his own, who snitches ideas and products (in his case, in the field of architecture) from the genuine innovator, the “first-hander” (in the novel, embodied by Howard Roark). Keating is a second-rate architect, whose building plans are cut-and-paste jobs from the work of other architects, who nevertheless has much success and adulation from his peers, simply because his peers are just as lacking in vision and judgment as he is.

As we have seen, in his 2017 paper *Arguing a fortiori* D’Almeida shamelessly pretends to discover and expose two of the forms of a fortiori argument, even though all that he presents is already to be found explicitly in my 2013 work *A Fortiori Logic* (and in fact, even long before that, in my 1995 work *Judaic Logic*), and even while he reluctantly admits, in a mere footnote, being peripherally aware of my work. Throughout his essay, he comes on as an original and independent logic researcher, who slowly but surely works his way to new and important findings. He presents his work as a pioneering effort in the field of a fortiori logic, even though there is almost nothing new in it, and many errors and omissions besides. He never acknowledges his intellectual debts to my work.

In this way, D’Almeida steals and takes credit for the ideas and products emerging my many years of study, research and reflection on the subject. Even if he does not use the exact same wording and symbols, so as to avoid textual plagiarism, this still constitutes plagiarism of ideas. Possibly, what we have here is not someone engaged in conscious, systematic misappropriation, but someone who

has skimmed through one or two of chapters of my work – which is very broad in scope, detailed and thorough – and gleaned a few bits and pieces of it, comprehensible to his limited intelligence, then put them in wording he feels more comfortable with, and fantasied himself as their originator. Maybe it was just an ego-trip; but this is still reprehensible.

The one idea that D’Almeida did not snatch from me, but can claim full authorship for (for all I care), is his notion that the conclusion of an a fortiori argument is (or can be) literally ‘stronger’ epistemically than its premises (or more precisely, than an earlier side-effect of them). This notion, which I have labeled (for brevity’s sake) ‘epistemic gain’, is contrary to a universal logical principle. D’Almeida blithely ignores this established principle and attempts to prove his position by introducing various complications into his a fortiori scheme. As I have shown in great detail (in the previous section), his attempt to demonstrate epistemic gain is filled with sophistry of various sorts, and therefore totally incredible. If proof was needed that D’Almeida was intellectually incapable of producing his two basic forms of a fortiori argument without reference to my work, his multi-fallacious attempt to demonstrate epistemic gain provides that proof.

Let me make clear: I consider that there is nothing wrong with passing on the findings of other people. This is what I write for – to increase and spread knowledge. I want the knowledge passed on, and make it freely available. My motive is entirely benevolent – I am not in this business for fame or fortune. It is out of sincere compassion for the surprising ignorance of many people in the fields of logic and philosophy that I have devoted many years of my life to research and writing on these subjects, and a lot of my money and time propagating my findings. But I insist on being correctly cited, so as to ensure that people get acquainted with the original doctrine, rather than an ersatz

derivative of it. What I resent here is not D’Almeida using my work, but his glaring failure to mention that it is mine. I am not flattered by his imitation, because it is done in a dishonest and disrespectful manner.

All he needed to do was to clearly say, at the very start of his essay, something like: “I am indebted to Avi Sion’s work on the formalization of a fortiori argument, which inspired me to apply it to the contemporary legal field.” This is what honest people do. This is the honorable thing to do. In that case, I would simply have examined, and criticized or praised, his work with regard to accuracy and completeness, or eventual truly new ideas. But he chose the ignoble path, the Peter Keating path. It appears that he thought he would get away with it, because my work is self-published. This is suggested by his strange statement in footnote 8: “In this striking (and self-published) book, which includes, among other things, a minute study of the topic, Sion....” Why “and self-published,” I ask?

It seems that D’Almeida is one of those people who think that if a book is “self-published” – no matter how “striking” it is and how “minute” a study it constitutes, it has no social or legal standing. To him, self-published implies ‘*not given a stamp of approval by some authority*’ and therefore ‘*not really existing, not needing to be duly acknowledged*’. Although an alleged legal expert, he evidently thinks that a self-published author is one from whom one can freely ‘borrow’ without earning public disapproval or breaching copyright laws. This is, of course, an attitude typical of the second-hander. D’Almeida evidently thinks that the reliability and authority of a book comes not from its inner credibility and value, but from the approval of some

anonymous ‘reviewers’ hired by some known ‘editor’ or ‘publisher’<sup>75</sup>.

But to my mind, “peer review” is a massive scam: if the “peers” themselves happen to know no better, or be no more intelligent, how can they spot his sources or errors? If they can be fooled by fake work, of what use are they? That is why I have generally avoided resort to ‘other-publishing’. How can people who happen to know less, or to be less intelligent, judge the work of people who in fact know more?

In the present case, if the reviewers hired by The Modern Law Review were knowledgeable and skillful in the field of a fortiori logic, they would surely have spotted D’Almeida’s dishonesty, errors and omissions, and sophistry. Since they did not, but okayed publication of the article *Arguing a fortiori* as is, we must infer that they were not knowledgeable or skillful, but themselves fakes putting on an act. Yet, they were trusted and charged with the task of review and selection by The Modern Law Review’s editors and publishers! Over the years, I have found this to be often the case, that the blind lead the blind.

At the foot of D’Almeida’s paper’s first page, he grandiloquently writes: “For helpful comments and discussion, I am grateful to...,” listing the names of eight people (not me among them), plus “the Edinburgh Legal Theory Research Group,” “audiences in Oxford and Lisbon,” and “the two anonymous reviewers for The Modern Law Review.” From this we are supposed to infer his great humility and openness, and at the same time the stamp of approval of many presumably prestigious persons and institutions. Again, this is typical second-hander

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<sup>75</sup> For more on this topic, see my essay ‘Self-publishing and Other-publishing’, published as chapter 6 in the present volume.

behavior. Such people live in a bubble, divorced from reality.

To further emphasize his independence and originality, D’Almeida belittles my work by mentioning it only late in his essay, and only briefly and in passing in a mere footnote, in the way of an afterthought of minor significance. And even then, as we have seen, he has the gall to engage in fake criticism and in condescension of my work, which only serve to highlight the limits of his logical acumen. It is worth noting that he never once wrote to me with humble questions or even arrogant criticisms, before publication; and he never announced the completion and publishing of his essay to me (someone whom he does, after all, mention and criticize). All his writing and criticism was done surreptitiously, behind my back, as is to be expected of someone engaged in intellectual theft and calumny.

I am not, of course, saying that there should be no criticism. Criticism is, of course, welcome – indeed, it is *the condition precedent* of intellectual progress. But criticism must be aimed at real technical or doctrinal faults, and be the outcome of more intense research and insight than that which is being criticized. To fabricate imaginary faults, to engage in spin and innuendo, so as to seem superior – that is what is reprehensible. The true intellectual has a solemn respect for reality; for him or her, thought is not an instrument of manipulation.

Throughout D’Almeida’s essay, we find the use of language suggesting new discovery by him. At the very start, in his Abstract and again in his Introduction, he claims that a fortiori arguments are till now “not well understood” and “have not drawn much attention,” and he postures as the one who will “make some progress” and “bring out the form” of such arguments:

“But how exactly are they distinct, and why are they important? That is less clear. Despite their popularity, a fortiori arguments are not well understood and have not drawn much attention from legal theorists. I try in this paper to make some progress on the topic. I will be pursuing two goals. The first is to bring out the form of a fortiori arguments, articulating those assumptions that, though typically left unstated, are necessary elements of arguments of this kind” (p. 202).

This is *imposture*, since there is already a published work (my AFL), some 700 A4 pages long, treating the subject of a fortiori argument in painstaking detail, both on the formal level and in a historical-critical perspective (including scholarly account and assessment of some 30 theories on the subject). He knows about it, even if he has obviously not read it all, but maybe only a few pages here and there of it; and as we have seen, he heavily draws from it, even if incompetently; yet, he does not duly acknowledge it, so as to project a false image of his work as needed and innovative.

I can cite many more phrases or sentences designed to project an image of innovation in process: “So let us start by trying to identify its elements and structure;” “In order to begin to make sense of the argument” (p. 204). “Now in identifying this assumption... we have singled out what I will call a ‘scalar’ property: a property... that something can have either more or less of. And we have also made clear that there is a relevant threshold in the scale;” “What seems to be going on in the argument is that...;” “Here is a first attempt at reconstructing...;” “This will need to be refined, but it puts us on the right path...” (p. 205). “I said that our reconstructive work is not yet finished—there may be more to the ... argument than we have uncovered so far;” “we can try to begin to isolate the form of this

argument: the common form, that is, of arguments like this. What should we say? Here is a first, half-way attempt” (p. 206). “But as I said, we have more to uncover” (p.208). “Our discussion so far has revealed three simple but important features of the a fortiori” (p. 209). “a means of testing whether my proposed schemes do actually capture the arguments” (p. 212).

And to top it all, in his conclusion (p. 237), D’Almeida boasts, misleadingly:

“... very little scholarly attention has been paid so far to inferences of this kind, which have remained considerably obscure to legal practitioners and theorists alike. This paper was an attempt to remedy this state of affairs. I have sought to bring out the distinctive form of a fortiori inferences, and to show how an awareness of their structural features can assist us in assessing real instances of the argument for both logical validity and substantive soundness.”

The claims that there has been “very little scholarly attention paid so far” to a fortiori arguments, and that they have “remained considerably obscure to ... theorists,” is of course a barefaced lie. It is intended to suggest that D’Almeida has broken new theoretical ground. But as we have seen, he has not. It is also intended to suggest that he is a scholar, capable of telling scholarship from its absence. But his behavior throughout his essay has demonstrated that he is the very antithesis of a scholar; he has no idea what real scholarship is: his appropriation of someone else’s ideas (mine) without due acknowledgment; his failure to fully read and assimilate a major work (AFL) before he tries to criticize it; his use of phony criticism to keep readers at bay from the source of his ideas – these are all so much evidence of his lack of scholarship.

As already mentioned, in AFL I analyze in excruciating detail, sentence by sentence, word by word, the work of just about everyone who has written anything about a fortiori argument: now, *that* is scholarship. And it is not very little: some of these analyses are longer than the texts they analyze, and took months of daily, conscientious work to achieve. The present essay regarding D'Almeida's alleged contributions is written with the same conscientious attention to detail, and is longer than the paper it assesses. Clearly, D'Almeida is not merely ignorant, but dishonest. He did not carefully study the literature before writing his piece, yet pretends to know it.

In all fairness, D'Almeida's paper is not badly written. He develops the subject in a manner that shows some potential, if he only took the trouble to study more and paid more attention to personal ethics. As a teacher myself, I clearly see all the things about a fortiori argument that he has learned from me, and feel some satisfaction that he has. What is enervating, is his pretentiousness, and of course all the errors, omissions and sophistry in his work that we have here pointed out.

I speak here especially of the logical aspects of his essay; I am not so much concerned with the legal applications or principles that he delves into. I make no effort to assess his knowledge and understanding of contemporary law. My only concern here, really, is with issues of formal logic. D'Almeida could very well have acknowledged my formalizations of a fortiori argument and gone on from there into his analysis of legal discourse to his heart's content. What excites my ire, to repeat, is that he effectively lays illegitimate claim to my prior formal findings.

Some readers might rightly wonder why I have wasted so much of my time debunking the work of a very minor player in the field of logic and philosophy. I have asked

myself the same question: if I regard this guy as rather ignorant and unintelligent, why bother with him at all? Surely, I would do better to pass my time criticizing Kant or Wittgenstein, and other famous writers who have done much greater harm to logic and philosophy. There are hundreds if not thousands of second-rate (or third- or fourth- or fifth- rate) writers and lecturers like D'Almeida out there, saying all sorts of stupid things. It is impossible to criticize them all in full detail as would be ideal.

Frankly, I do not care two hoots what this particular specimen says or fails to say. Nevertheless, since I have done very important new work in the field of a fortiori logic, I consider myself its guardian. I regard it as my duty, so long as I am alive and well, to protect this specific field from incompetent intruders. D'Almeida's attempt to have an impact on the field needed to be assessed. The fact that this assessment exposed his many failings does not diminish the value of the assessment. We can learn from the faults of others as well as from their good work. We can learn much logic by observing the shenanigans of sophists.

Allow me now some social commentary, here. Dishonorable behavior like that displayed by D'Almeida appears to be rather common nowadays in some academic circles. It seems that rectitude is not highly prized in that milieu, or its absence sufficiently looked down on. There is much pressure to produce, but the low quality of the product is not considered too problematic. The trouble with this cultural context is that it does a great disservice to science. Serious work is disparaged by people who do not know what they are talking about; and at the end of the day, it becomes difficult for third parties to tell the wheat from the chaff. It would be wiser for such people to keep quiet than to speak nonsense and muddy the waters. Egged on by conceit, desiring to be noticed and admired, they just make fools of themselves by displaying their ignorance in public, and they mislead many people. And few people ultimately

care: the stamp of approval of some publisher or institution or celebrity suffices to convince them.

I also want to take this case as an example, and draw attention to the sorry state of academia and academic publishing, at least in the realm of philosophy and logic (though, I gather, it is true in other fields too). It is evident that D'Almeida's faculty friends or colleagues (those he mentions by name, at least), as well as the two *anonymous* Modern Law Review reviewers, were in fact all lacking in the logical knowledge and skills needed to properly judge the article in question and tell him his mistakes. *We do not know what their qualifications and past intellectual achievements were, yet they are effectively treated and presented as authorities.* And the sad thing is that this is not exceptional. The 'prestige' of the institution and some of staff involved does not make reviewers immune to ignorance and incompetence. Their approval is evidently, often enough, in reality, of little or even without objective value. Position does not guarantee knowledge or skill – it only signifies position.

Writers of papers on logic and philosophy cannot produce good material if their motivation is merely personal ambition – the desire to stand out and impress their peers, and maybe get or keep certain academic positions or even just some financial benefits. Such motives can only produce 'fake news'. Logic is not a game, or an ego-trip, but a serious human endeavor, aimed at human welfare. Good reasoning sometimes saves or improves lives, and bad reasoning sometimes puts them in danger or affects them negatively. A fit argument in a court of law can produce justice, as an unfit one can produce injustice.

Logic and philosophy researchers need to be motivated by truth, idealistically and fanatically so. They must view scientific truth as *a sacred goal* of all research. They must view research as *a spiritual act*, an act that calls on their

power of virtue. Only thus will they work carefully and relentlessly till they achieve truly credible results. There is no room in the field of logic for fake logicians, who manipulate or approximate logic theory to make believe they are authentic logicians. Logic is a scientific discipline, not a playing field or a theatrical stage.

In conclusion, I would like to reflect on the usually deafening silence, of authors on papers relating to a fortiori argument, in reaction to my detailed critiques of their work. Usually, they do not respond; and when they do, it is only to indignantly deny any intellectual wrongdoing. None of them write back to me saying: ‘Oh, thanks, I am really grateful that you took the trouble to review my work in so much detail and pointed out its flaws to me!’ As the *Dhammapada* (v. 76) puts it, in a more spiritual context:

*“Look upon the man who tells thee thy faults as if he told thee of a hidden treasure.”*

And this ancient work of wisdom adds that the man who tells people their faults “will be loved by those who are good and hated by those who are not” (§77). It seems to me that a sincere searcher after truth would always rejoice at being corrected. Therefore, I conclude that those who do not show gratitude – either sullenly refusing to reply to criticism or being loudly in denial, no matter what evidence is put before them – such people cannot be truly scientific researchers. I wait to see how D’Almeida reacts to the present scathing critique of his article.

### **Prescript and postscript**

When I came across D’Almeida’s essay a few months ago, I had the following e-mail exchange with him (it was in March 2017). Having now completed my analysis of it, I

am glad to say that my initial reactions, expressed my e-mails, were quite appropriate.

- From Avi Sion: “Mr D’Almeida. I am the author of A Fortiori Logic. I have just found your article Arguing A Fortiori on the Internet, and briefly perused it. I must tell you my first reaction – it is indignation. Indignation that you display so little respect for my work, which I suspect you have read only a chapter or two of, and that in in a cursory manner, while at the same time using a great deal of the terminology and ideas contained in it without due acknowledgment. You have the chutzpah, in a mere footnote, to call my formulations “too crude to do justice to his insights” and make other unfair remarks concerning them! Apart from the dishonesty involved, I can tell you that there [are] things you have not understood and have treated incorrectly. I am too busy right now to write an article showing this up, but I hope to do it at a future date. And it will be self-published.”
- From Luis Duarte D’Almeida: “Dear Mr Sion. Having read some of the texts on your website, I can’t say I’m surprised by either the tone or the content of your email. I look forward to reading your article. Best wishes.”
- From Avi Sion: “No shame on your part.”
- From Luis Duarte D’Almeida: “Dear Mr Sion. Now I am surprised (at the unnecessary insult); and sorry you feel that way. I know that you have more than once felt that people doing work on a fortiori arguments have dishonestly relied on your work, or paid insufficient attention to it, or learned from it without quoting it; and that you express such views in strong terms on your website (and indeed in your book). But I meant what I said – I do look forward to reading your article. I’m imagining you will have had access to a pre-print pdf of my paper. I’m attaching the MLR file, which is the

final publication (although the text is the same). Best wishes.”

- From Avi Sion: “Hello Mr. D’Almeida. Do you not think that your calling my formalizations of afa, the work of years of careful study, “too crude” was insulting on your part? You can be sure that, when I write the article, I will be strictly fair, even so – as I have been strictly fair with others, even when angered. What I dislike is people who are debonair towards others’ work in order to give an impression of superiority. I have noticed this to be a common trait nowadays, and have resolved not to tolerate it. That said, I appreciate your last e-mail. I do have your article, which I obtained through ReadCube.”

After writing the above essay, I posted it (in Sept. 2017) in a blog, and informed D’Almeida of this as follows:

- From Avi Sion: “Hello, Mr. Duarte D’Almeida. I have completed my examination of your paper "Arguing a fortiori" published earlier this year in the Modern Law Review. Below are the first two paragraphs, which summarize my judgment. I hope you will have the patience and attention span needed to read it all carefully, and learn a thing or two from it. Knowing how your mind works perhaps better than you do, I know that you are rather lazy and not very bright. But I ask you to make an extra effort in this instance.”

I simultaneously sent copies of this e-mail to the journal concerned and to his university. I was not surprised that D’Almeida never replied, either to thank me or to defend his thesis. He did not, either, as a repentant man would have, retract his fake article and publicly apologize for it. Having already demonstrated his dishonesty and pretentiousness, I expected no better behavior from him. I also received no acknowledgment or comment from the journal, showing that they do not mind publishing

plagiarized and invalid material! The university, too, did not display any concern regarding this matter.

### 3. MAHMOUD ZERAATPISHE

#### 1. Introduction

In my 2013 book, *A Fortiori Logic* (henceforth AFL), I studied a fortiori argument in depth, examining in extensive and meticulous detail its formal varieties and its practical applications. I found and analyzed a great many examples of such argument in world literature, including the works of Plato and Aristotle, and some later Greek and Roman philosophers; in the Tanakh (Jewish Bible), the Talmud (Mishna and Gemara), and subsequent Rabbinic discourse; in the Christian Bible (NT) and some later Christian discourse, in the Koran and Hadiths, and subsequent Islamic jurisprudence (*fiqh*); in Chinese and Indian texts; in other ancient literature and in more modern literature; and in just about all papers published thus far on a fortiori argument. On this basis, I can well claim to be the foremost authority on this subject; no one has ever done such a thorough study of a fortiori argument before or since.

I devote one chapter, in the said book (AFL 11), to the logic displayed in Islam. This chapter was 48 pages (size A4) in length (pp. 268-315), including some 13 pages on logic in the Koran and Hadiths and about 20 pages to *fiqh*; the remaining few pages being devoted to Islam in general. This work was for me incidental; I explicitly said in it that I did not intend it as an exhaustive study. As regards logic in general in the Koran, I mainly referred to the few cases found by the Muslim philosopher Abu Hamid al-Ghazali (11<sup>th</sup>-12<sup>th</sup> cent. CE), which I analyzed and fairly judged. As regards a fortiori argument in the Koran, my research consisted only of a mechanical search through that

document for various key words and phrases indicative of such discourse; and to my surprise, I found no cases that way (surprisingly, because in most other documents investigated, such mechanical search had revealed numerous instances). I did, however, come across *one* case by chance, and duly acknowledged it and analyzed it.

Sometime in 2016, Mahmoud Zeraatpish<sup>76</sup>, an Iranian academic, published a short paper called *Quranic A Fortiori Arguments*<sup>77</sup>, in which he contests my conclusion that there is little logic, and in particular little a fortiori argument, in the Koran. Here is the introductory paragraph of his essay:

“Avi Sion, who has previously investigated a fortiori logic in Judaic Logic, has dedicated about two pages of his recent book, *A Fortiori Logic*, to Quran. He admitted that his Quranic research and review in *A Fortiori Logic* is incomplete, because he has only relied on the English translation of Quran and has not gone into the deep concepts of those translations either. He says also that he has only searched the associated English keywords and phrases with software and finally that such a

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<sup>76</sup> A young assistant professor in the Dept of Islamic Philosophy and Theology (of the Faculty of Humanities and Literature) at the University of Birjand, in eastern Iran.

<sup>77</sup> Apparently, judging by the banner shown on the paper, in a French journal called: *Europe - Revue littéraire mensuelle* (2016: 360-365). I do not know whether the paper was actually published in one of their print editions of that year, or only online. I found it online (in about March 2017, by chance) at <http://rrbitz.com/papers/Mahmoud-Zeraatpish.pdf> (though this site seems now defunct); but I do not see it listed in the catalogue of the print editions of *Europe*. Maybe it was only submitted there, but not published? An article by the same author, apparently on the same subject, can be seen at: [http://logicalstudy.ihcs.ac.ir/article\\_1787\\_ffbee7ea8960ae13f34135fee\\_dda329c.pdf](http://logicalstudy.ihcs.ac.ir/article_1787_ffbee7ea8960ae13f34135fee_dda329c.pdf); however, this is in the Persian language.

research has been performed reluctantly (p.268). However, he has finally jumped to the conclusion that there is no logic in Quran, let alone a fortiori logic (p.268). It seems that he has taken the advantage of his incomplete work very well. The current research is supposed to redress Sion's incomplete effort to find a fortiori arguments in Quran."<sup>78</sup>

This introduction is inaccurate and unfair. First, the claim that I only dedicated "about two pages" of my book to the Koran – is false. Only about one page deals with a fortiori argument in the Koran, because I did not find much more to say about that. However, the next 5½ pages deal with other forms of logic in the Koran, and a further 5 pages discuss the Koran in more general terms. Moreover, there are another 29 pages on other topics relating to Islamic logic. So, either Zeraatpishe did not see and read more than two pages, or he deliberately lied.<sup>79</sup>

Second, I did not guiltily "admit" that my "research and review" were "incomplete" – I openly informed readers of the fact:

I must stress that I do not intend the following treatment to be exhaustive. I am merely breaking ground for a more extensive treatment by others. Being personally not very interested in the Moslem religion, I am not sufficiently motivated to do a thorough job on the subject. I do hope someone else will take up the challenge and do the necessary research.

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<sup>78</sup> Note that Zeraatpishe's English, throughout his essay, is far from perfect. But I will not draw attention to its imperfections by using '(sic)' repeatedly. So long as we get the gist of what he is trying to say, we can let these pass.

<sup>79</sup> His own paper, note, is only five A4 pages long. The present review of his paper is *five times* that long.

Moreover, I did not “finally jump to the conclusion that there is no logic in Quran” – I merely objectively reported the zero result of mechanical research<sup>80</sup>, without excluding the possibility that further research (by reading) would yield more positive results:

Thus, it would appear from this research effort that there is no logic use in the Koran. The sweet voice of reason is never actually used. This is quite a shocking finding, which goes some way to explain the dogmatic style of Islam. Note that this conclusion does not exclude the possibility that closer reading might reveal some use of logic, because it is based on mechanical search of key words and phrases.

Indeed, immediately after that, I wrote: “In truth, after writing the above I discovered that there is in the Koran at least one passage that can reasonably be admitted as a fortiori, namely **36:78-79**,” and after analyzing the text, I confirm: “So there is, after all, at least one a fortiori argument in the Koran. Maybe there are others, but so far this is all I have found – a pretty poor harvest, anyway.”

Notice my use of “at least,” even then. So, clearly, Zeraatpishe’s suggestion that “he has taken the advantage of his incomplete work very well,” hinting that I was deliberately trying to malign the Koran, was quite unjustified. The truth is, when I discovered that someone had taken up the challenge and tried to find more a fortiori arguments in the Koran, I was rather pleased. This is just what I had hoped for!

Leaving such disputes behind, let us now examine and evaluate the many cases of a fortiori argument in the Koran proposed by Zeraatpishe.

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<sup>80</sup> Anyone who does the same research, using the same instruments, will get the exact same result.

## 2. Cases proposed by Zeraatpische

Zeraatpische begins (in §2) by briefly describing and naming the parts and varieties of a fortiori argument in accord with my work; he does this on the whole quite well<sup>81</sup>. Zeraatpische then tries to show (in §3) that there are many more a fortiori arguments in the Koran than the single one that I found.

His exposé starts (in §3-1) with the one a fortiori argument that I found, namely Koran **36:78-79**: “He [man] says, ‘Who will give life to bones while they are disintegrated?’ Say [to him], ‘He [God] will give them life who produced them the first time; and He is, of all creation, knowing’”. Here is what I wrote in AFL 11:1 on this argument:

Although here there is no key phrase indicative of a fortiori argument, there is a connection between the sentences in the fact that the first is a question and the second is an answer to it. Moreover, since the reply “He will give them life” would have sufficed, it is obvious that the clauses “who produced them the first time” and “He is, of all creation, knowing” are intended as additional explanations for that reply. The argument here is clearly that if God (S) was powerful (R) enough to create man in the first place (P), He (S) is surely just as able (R) to resurrect him long after he dies (Q). This is a positive predicatal argument<sup>82</sup>, since the subsidiary

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<sup>81</sup> His statement that “it seems that the invalid forms can be executed in superior arguments only” is, however, wrong. However, this error does not have an impact on the rest of his essay.

<sup>82</sup> Note that the identification of the argument as predicatal in form is mine; I have found no evidence so far that Islamic commentators are at all aware of the differences between predicatal and subjetal

term S (God) is the subject of the minor premise and conclusion. It would be counted as *a pari*, since the premised act P (initial creation) is not presented as more or less difficult than the concluding act Q (resurrection)<sup>83</sup>. Indeed, the additional comment that God fully knows creation implies that both these acts are equally easy for Him<sup>84</sup>. Lastly, the argument is purely a *fortiori*, not a *crescendo*, since the subject (God) is the same in the minor premise and conclusion.

Zeraatpishe reads the argument as follows: “More power (R) is required to create man in the first place (P) than to resurrect him (Q); God (S) is powerful enough to create man in the first place; He is surely just as able to resurrect him long after he dies.” This is correct and corresponds to my reading (although I do mention in a footnote that an egalitarian reading is more appropriate). Note that, while the translation I used (above) was Sahih International (1997)<sup>85</sup>, the translations that Zeraatpishe preferred (below) were those of Mohammed Marmaduke Pickthall (1930)<sup>86</sup>; so, we shall use the latter henceforth.

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arguments. As we shall see further on, they seem to have only noticed the subjectal form.

<sup>83</sup> The major premise of the argument is clearly: “As much power is required to produce new life as to recover past life.” But it could be “More power is required, etc.”

<sup>84</sup> This Koran argument from one power of God to another is reminiscent of some in the Jewish Bible: Psalms 78:20, which states that if God is powerful enough to draw water from a rock, then He is powerful enough to feed His people with bread and meat; and Psalms 94:9-10, which states that if God is powerful enough to implant the ear and form the eye, then He is powerful enough to hear and see, and if God is powerful enough to chastise nations, then He is powerful enough to reprove individuals.

<sup>85</sup> See at: [quran.com](http://quran.com).

<sup>86</sup> See at: <http://www.sacred-texts.com/isl/pick/>.

Zeraatpishe now adds the following five cases (I list them in the order he gives them, though this is not their order of appearance in the Koran), which he claims are “the same argument,” although he does not actually spell out the arguments in full PQRS format or even just sketch their overall intent:

- **Koran 75:37-40:**

37 Was he not a drop of fluid which gushed forth?

38 Then he became a clot; then *(Allah) shaped and fashioned*

39 *And made of him a pair, the male and female.*

40 *Is not He (Who doeth so) Able to bring the dead to life?*

I agree that there is an a fortiori argument here, which I would detail as follows: if Allah (S) was powerful (R) enough to shape and fashion man and woman (P), then He (S) is surely just as able (R) to bring the dead to life (Q) (mood +p).

- **Koran 17:49-51:**

49 And they say: When we are bones and fragments, shall we forsooth, be raised up as a new creation?

50 Say: Be ye stones or iron

51 Or some created thing that is yet greater in your thoughts! *Then they will say: Who shall bring us back (to life). Say: He Who created you at the first.* Then will they shake their heads at thee, and say: When will it be?

Say: It will perhaps be soon;

Although Zeraatpishe mentions verses 48-51, verse 48 is not really involved. Also, although Zeraatpishe highlights only one a fortiori argument (the second one, shown in italics), there are in my opinion two of them. The first is in verses 49-51: since Allah (S) would be powerful (R) enough to raise up as a new creation stones or iron or anything you imagine to be more difficult (P), He (S) is

obviously able (R) to raise up your bones and fragments (Q) (mood +p). And the second is part of verse 51: since Allah (S) was powerful (R) enough to create you at the first (P), He (S) is obviously able (R) to bring you back to life (Q) (mood +p).

- **Koran 6:94-95:**

*94 Now have ye come unto Us solitary as We did create you at the first*, and ye have left behind you all that We bestowed upon you, and We behold not with you those your intercessors, of whom ye claimed that they possessed a share in you. Now is the bond between you severed, and that which ye presumed hath failed you.

95 Lo! Allah (it is) Who splitteth the grain of corn and the date-stone (for sprouting). He bringeth forth the living from the dead, and is the bringer-forth of the dead from the living. Such is Allah. How then are ye perverted?

Actually, Zeraatpishé only mentions verse 94, which seems to refer to the last judgment (and he only cites the first part of it, shown in italics); but I do not see any a fortiori argument in this verse viewed alone. He must have also intended the next one, verse 95, but failed to mention it. With this addition, an a fortiori argument may well be constructed as follows: since Allah (S) is powerful (R) enough to split corn-grain and date-stone, bring the dead to life and the living to death (P), then He (S) is surely (contrary to your perverse denials) able (R) to judge man alone (i.e. without participation of intercessors) at the last judgment (Q) (mood +p).

- **Koran 18:48:** And they are set before thy Lord in ranks (*and it is said unto them*): *Now verily have ye come unto Us as We created you at the first*. But ye thought that We had set no tryst for you.

This verse seems to be saying: you are now facing God for the reckoning after death, even though you did not expect

that to happen. The sentence highlighted by Zeraatpishe (shown in italics) is admittedly similar in wording to preceding cases; but I see no a fortiori argument in the present case, no matter how tacit. Zeraatpishe wrongly presumes one.

- Koran **41:21**: And they say unto their skins: Why testify ye against us? They say: Allah hath given us speech *Who giveth speech to all things, and Who created you at the first, and unto Whom ye are returned.*

Here again, albeit some similarity in wording highlighted by Zeraatpishe (shown in italics), I see no intent of a fortiori argument. There is no inference from one thing to another. Zeraatpishe appears to have imagined an inference from Allah being able to create people and recall them to Him, to His being able to give voice to skin; but the question put is “why do our skins testify against us?” – and not “how come skins have the power of speech?” The sentence about Allah “giving speech to all things” is not an answer to the question why the skins speak against the people.

Thus, to summarize so far, of the five cases proposed by Zeraatpishe: in three cases there are valid a fortiori arguments, and indeed in one of the cases there are two of them; but in two cases, there is no discernible a fortiori argument. We have thus added, thanks to Zeraatpishe, four new a fortiori arguments (all +p – i.e. positive predicatal) to our listing of a fortiori argument use in the Koran. But we can also see that Zeraatpishe’s grasp of such research is approximate, since he proposed two instances incorrectly (probably, so as to ‘pad’ his results), and missed out on one glaring instance (which I therefore now take credit for), making his success rate so far only 50%.

As regards the contents of the above four new arguments, it should be said in passing that while they are formally

valid, it does not mean that their power of conviction is very high. Clearly, the speaker has certain beliefs, and from within this belief system his arguments seem to him very forceful (whence his very emotional tone). But someone who does not share the same beliefs might not find the arguments very convincing. Thus, for a modern atheist, who does not believe in *the material premises used*, i.e. in God and Creation, or in Resurrection and Last Judgment, none of the conclusions proposed would carry any weight. Similarly, Buddhists or Hindus, who function under very different belief-systems, would not be moved by such arguments.

Even Jews or Christians, who believe in these general ideas, need not believe that their particular expressions in the Koran are of Divine origin. For them, there is no guarantee that the god called Allah corresponds to their God (whose words and deeds are very different), or that Muhammad (if he at all existed) was a genuine prophet, however insistently the Koran makes such claims. Jews and Christians believe the Koran to be a forgery – a partial and distortive cut-and-paste job from their own Scriptures, and (to a lesser extent) other sources – a collection of stories and ideas, snatched and freely reworked by its author or authors (whether Muhammad or anyone else) to fit his or their fancies and needs at the time. Just because someone has composed a document, with adamant claims to have been inspired or dictated to by God, this does not logically prove that the document had any *ad hoc* Divine origin whatsoever. Anyone can claim anything they want: claims are not proofs.

So, the Koran's discourse is only at best rhetorical; it preaches to people who are already somewhat converted, or who are easily swayed by emotional (mostly intimidating) speeches. It can only convince simplistic minds, who are not conversant with and fully committed to rational evaluation of claims – i.e. the minds of backward

individuals and peoples. That is why in practice, as its bloody history attests, Islam has spread and maintained itself mostly by brute force, or at least the threat of it. To convert intelligent and informed ‘unbelievers’ through truly rational means, the Koran would have to offer arguments that are logically much more profound and elaborate. The arguments given in the Koran are mere religious claims, which are only superficially rational. Their logical credibility is relative, not absolute. They are not arguments in the philosophical or scientific sense, basing knowledge on objective induction from empirical data and strict deduction.

Next (in §3-2), Zeraatpishe draws attention to this verse:

- Koran 43:81<sup>87</sup>: *Say (O Muhammad): If the Beneficent One hath a son, then, I shall be first among the worshippers.* (But there is no son.)

Based on a reading of this verse by a living Iranian Grand Ayatollah, called Makarim<sup>88</sup>, as: “Say to those who believe in God having a child, ‘Had there been a child for God the Compassionate, I would have been the first one to respect and follow that son, because my belief in God and my

<sup>87</sup> Note that Zeraatpishe wrongly identifies this verse as “verse 43 of Zukhruf,” whereas in fact the Sura called Zukhruf is chapter 43 of the Koran, and the verse quoted is number 81. This is mere sloppiness, but significant.

<sup>88</sup> Makarim Shirazi, N. (b. 1926), in *Tafsir Nimuneh, Tehran, Dar al-Kutub al-Islami*, 1st Edition. Vol 21, p. 127. The reference is that given by Zeraatpishe. Check out this guy’s profile on Wikipedia: he is a *Holocaust-denier!* At

[https://en.wikipedia.org/wiki/Naser\\_Makarem\\_Shirazi](https://en.wikipedia.org/wiki/Naser_Makarem_Shirazi), he is quoted as saying: “The Holocaust is nothing but superstition, but Zionists say that people of the world should be forced to accept this. The truth about the Holocaust is not clear, and when the researchers want to examine whether it is true or the Jews have created it to pose as victims, they jail the researchers.”

knowledge toward Him is more than you,” Zeraatpische interprets this statement as a “pure superior subjectal a fortiori argument,” in the following way: “If Prophet (p) which has more belief/knowledge in/about God (R), has not enough belief/knowledge in/about His having a child to respect/follow him (S) (i.e. the child), others (Q), all the more, have not enough belief/knowledge in/about God having a child to respect/follow him.”

However, to my mind neither the Koranic verse nor the Ayatollah’s interpretation of it suggest Zeraatpische’s a fortiori argument or any other a fortiori argument.

The Koranic verse states that if God has a son, then Muhammad will be the first to worship that putative son. This is plainly intended as the major premise of a negative apodosis (*modus tollens*); the tacit minor premise being that Muhammad does not worship a son of God (denial of the consequent) and the conclusion being that God has no son (denial of the antecedent). This argument is formally valid.

The Ayatollah’s commentary has the same reading, except that it *adds a reason* why Muhammad would be “the first among the Worshippers” of the son – namely, his superior “belief in God” and “knowledge toward Him.” According to him, then, Muhammad here presents himself as an example to follow by lesser mortals, effectively saying: you (my followers) should not believe in a son of God, because I (your spiritual leader) do not believe in a son of God. This reason is nowhere explicit in the source text; but added on, note well. Zeraatpische’s attempt at a fortiori interpretation is based on this additional clause, courtesy of the said commentator; it is not exclusively based on the Koran.

It should be noted, incidentally, that the Pickthall translation misreads the argument, since it adds in brackets

(i.e. in the way of an explanatory commentary<sup>89</sup>): “But there is no son.” This is logically erroneous, in that it suggests the intended argument to be: if God had a son, then Muhammad would worship him; *but* God has no son; *therefore*, Muhammad does not worship any alleged son. The latter is, of course, illicit reasoning, since it moves from denial of the antecedent to denial of the consequent.

Zeraatpishe’s proposed a fortiori argument (shown above) can be rejected on several grounds. First, notice that his middle term (labeled R) in the major premise is “belief/knowledge in/about God” (this Muhammad is said to have *more of* than others do); whereas his middle term in the minor premise and conclusion seems to be “belief/knowledge in/about His having a child” (this is what the people involved have *not enough of*), the subsidiary term (labeled S) being “to respect/follow him” (i.e. the child). The object of the phrase “belief/knowledge in/about” is not the same in both cases; in the first, it is “God,” and in the second, it is “His having a child.” This is a fatal error, which immediately invalidates the a fortiori argument; the middle term must be *exactly the same* throughout for the inference to work.

There is no way to fix the error. If we change the middle term in the minor premise to “Muhammad (P) has not enough belief/knowledge in/about *God* (R) to assume His having a child to be respected/followed (S),” we are implying that Muhammad’s belief/knowledge might be inferior to the needed degree, without that implying a denial that God, in fact, has a son! If, instead, we change the middle term in the major premise to “Muhammad (P) has more belief/knowledge in/about *God having a child* (R)

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<sup>89</sup> This remark is absent, for instance, in the Sahih International translation. Note that Zeraatpishe does not quote this explanatory remark, but only the main sentence (shown above in italics).

than others (Q) do,” we are implying Muhammad does have some belief/knowledge in the thesis that God has a son, even more of it than others do! Clearly, no a fortiori argument can be constructed with the desired result.

It is easy to see why Zeraatpishe worded his proposed argument as he did. What he had in mind was the prospective argument: Muhammad (P) is wiser (R) than his followers (Q); and Muhammad (P) is wise (R) enough to disbelieve in God having a son (S); therefore, his followers (Q) ought to be wise (R) enough to disbelieve in God having a son (S). But he realized, if only subconsciously, that this reasoning, being *positive* subjectal, could not validly go *from major to minor* as it needed to. This is obvious: just because Muhammad is wise enough to disbelieve in a son of God, it does not follow that his *less-wise* disciples will be wise enough to do the same! So, Zeraatpishe tried to recast the argument in *negative* subjectal form to make it look valid. But the only way he could do that was by *mixing up the middle and subsidiary terms*, as above explained. This was, of course, *cheating*. It is not uncommon to find people trying to make an argument seem a fortiori when it is not, by manipulating the terms involved in just this way.

Additionally, even if Zeraatpishe’s proposed argument had been formally valid (which, to repeat, it is definitely not), it could be rejected on other grounds. First, Zeraatpishe’s proposed minor premise only tells us that Muhammad did not believe in or worship a son of God – but this is not the same as saying that there is no son of God. It could be taken to mean that Muhammad did not believe in or worship a son of God, *even though there was* such a son – and this is obviously not at all the intent of either the Koranic verse or the Ayatollah’s commentary. Second, Zeraatpishe’s proposed conclusion, besides mirroring the minor premise’s factual ambiguity, is *merely descriptive*; it *does not prescribe* to other people not to believe in and not to

worship a son of God. Yet clearly, the whole intent of the given verse and comment is not merely that people *do not* have such belief or worship, but that they *should not* do so.<sup>90</sup>

So, here again, we have to firmly reject Zeraatpishe's specious claim to an additional a fortiori argument in the Koran, or even in the stated commentary to it. His proposed a fortiori argument is just *spin*. Not only is it not manifest in these texts, whether explicitly or implicitly; but it does not even reflect the evident intent of the texts examined. And, worst of all, it is formally invalid; and there is no way to fix it. Clearly, Zeraatpishe was not here trying to scientifically find out just how frequently a fortiori argument happens to be present in the Koran; he was trying to forcefully buttress his ideological contention that it is frequently present. This is not a spirit of unbiased academic research, but one of dishonest religious apologetics.

Next (in §3-3), Zeraatpishe claims: "It seems that most of the a fortiori arguments in Quran are a crescendo." But he gives only two actual examples:

- Koran **67:22**: *Is he who goeth groping on his face more rightly guided, or he who walketh upright on a straight road?*

About this verse, Zeraatpishe writes: "Here, assimilating to 'who walk groping on their face', the unbelievers (Q) are compared with believers (P) who are assimilated as 'who walk upright'. Note that 'Walk' (R) has used here metaphorically and it refers to some other characteristic

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<sup>90</sup> Please note that I am not arguing for belief in a son of God; I am not a Christian. I am merely pointing out that Zeraatpishe's reading of the said texts does not constitute a convincing argument against such belief. It is the logic of it that concerns me, here; not the material issue.

(like knowledge or insight).” Then he proposes the following argument: “If he who walks groping on his face, walks enough to be guided, therefore, all the more, who walks upright, walks enough to be more guided”. Or, in other words: “If unbelievers have enough insight to be guided, believers have enough insight to be more guided.”<sup>91</sup>

I do agree that there is an *a fortiori*, and indeed a *crescendo*, intent in this verse. But I would read it as follows: given that the Believers (P) are more upright in their ways (R) than the Unbelievers (Q) are; it follows that if the Unbelievers (Q) are at all upright (R) enough to be at all rightly guided (S), then the Believers are surely upright (R) enough to be even more rightly guided (S+). This is a positive subjectal (+s) argument, which goes from minor to major. The underlying proportionality would be: the more upright (R), the more right-guided (S). Notice the quantitative change in the subsidiary term from S in the minor premise to S+ in the conclusion. It is not implied that the Unbelievers are at all upright and rightly guided, but only assumed hypothetically; but it is affirmed that the Believers are, in any case, more upright (as the major premise establishes), and thence more rightly guided (presumably by the Koran, or by Muhammad, or by Allah).

- **Koran 9:107-108:**

107 And as for those who chose a place of worship out of opposition and disbelief, and in order to cause dissent among the believers, and as an outpost for those who warred against Allah and His messenger aforetime, they will surely swear: We purposed naught

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<sup>91</sup> Zeraatpishe does not specify what constitutes believing or not-believing. These are very vague terms. Belief in whom or in what? To what degree? On what basis? How is this in practice objectively identified? He does not say.

save good. Allah beareth witness that they verily are liars.

*108 Never stand (to pray) there. A place of worship which was found upon duty (to Allah) from the first day is more worthy that thou shouldst stand (to pray) therein, wherein are men who love to purify themselves. Allah loveth the purifiers.*

Note that Zeraatpishe only quotes verse 108 (shown in italics); I have added verse 107 here, to make the text more comprehensible. Zeraatpishe explains this passage as follows: “In this verse two mosque (Quba (P) and the mosque which was made by hypocrites (Q)) are compared in ‘piety’ (R) as the motivation of their foundation. The hypocrites requested the prophet decisively to hold prayers (S) in their mosque so to gain credit for themselves and their mosque.” Then he proposes the following argument: “If hypocrites’ mosque is based on piety enough to be worthy that you pray in it, the Quba is more worthy that you pray in it, for it is based on piety more.”

Here again, I agree that there is an a fortiori, and indeed a crescendo, intent. I would expound it as follows: given that the [good guys’] place of worship (P), good because founded on duty from the first day, is based on more piety (R) than the [bad guys’] place of worship (Q), bad because chosen out of opposition and disbelief, etc.; it follows that if the latter is at all based on piety (R) enough to be worthy to be prayed in (S), then the former must be based on piety (R) enough to be even more worthy to be prayed in (S+). Here again, we have a positive subjectal (+s) argument, which goes from minor to major. The proportionality here would be: the more piety a place of worship is based on (R), the worthier it is to be prayed in (S). Notice the quantitative change in the subsidiary term from S in the minor premise to S+ in the conclusion. It is not implied that the bad guys’ mosque is at all based on piety and worthy to

be prayed in, but only assumed hypothetically; but it is affirmed that the good guys' mosque is, in any case, based on more piety (as the major premise establishes) and thence worthier to be prayed in.

Regarding the content, notice in passing the fierce intolerance displayed in this last passage. People with different views or practices are, typically in the Koran, treated with the utmost contempt and hatred. The tone is one of uncompromising discrimination and rejection; accusations and insults fly about like daggers. It is by means of such harsh discourse that extremism and fanaticism are, unfortunately, psychologically programmed into Muslims from their childhood; and this is what causes them to so often commit acts of violence against non-Muslims, or even Muslims of a different persuasion.

So, we can say that Zeraatpishe has identified two valid a crescendo argument of positive subjectal form in the Koran. However, we only have his word for it that "most of the a fortiori arguments in Quran are a crescendo." He does not give us an exhaustive listing for verification; only, thus far, these two cases.

Next (in §3-4), Zeraatpishe claims: "It seems that the middle term in most Quranic a fortiori arguments, indicates to a range of values which include zero or less." This, as we have just seen, is true of the preceding two examples (though he does not explicitly say so). He now proposes two more examples.

- **Koran 10:35:** *Say: Is there of your partners (whom ye ascribe unto Allah) one that leadeth to the Truth? Say: Allah leadeth to the Truth. Is He Who leadeth to the Truth more deserving that He should be followed, or he who findeth not the way unless he (himself) be guided. What aileth you? How judge ye?*

Zeraatpishe reads this verse as follows: “‘God’ (P) has been compared with ‘His partners’ (Q) in guidance (R). Then it has been concluded that God is more qualified for ‘Being followed’ (S). In fact, there is the following a crescendo argument here: ‘The partners are guider enough to be followed; Allah guides more than his partners; more guiding more being worthy to be followed; So Allah is guider enough to be more worthy to be followed’.” (We may let pass the incomprehensible English here used.)

I agree with the assessment that an a crescendo argument is intended here. But my reading of it would be: given that Allah, who leads to the Truth independently, (P) is more reliable (R) than someone who finds not the way without being guided (Q); it follows that if the dependent guide (whoever it be) (Q) is deserving (R) enough to be followed at all (S), then the independent guide (Allah) (P) is deserving (R) enough to be followed even more (S+). This is a positive subjectal (+s) argument, from minor to major, and so valid. The tacit proportionality would be: the more deserving the guide (R), the more ought he to be followed (S).

As Zeraatpishe points out, all this does not formally exclude the possibility that the minor term (Q) has a zero or even negative value of the middle term. However, in this particular case, this would apply to “he who findeth not the way;” but, in view of the stated exception (“unless” in the text), it is not meant to apply to one who is “himself guided” (presumably in the Koran’s ways). Evidently, Zeraatpishe did not take the text at hand into account very carefully.

- **Koran 4:95:** *Those of the believers who sit still, other than those who have a (disabling) hurt, are not on an equality with those who strive in the way of Allah with their wealth and lives. Allah hath conferred on those who strive with their wealth and lives a rank above the*

*sedentary. Unto each Allah hath promised good, but He hath bestowed on those who strive a great reward above the sedentary.*

Zeraatpishe reads this passage as follows: “This verse compares two groups of believers: ‘Mujahidun’ (P) (those who strive in the way of Allah) with ‘Qa’dun’ (Q) (those who strive not) in striving (R) to specify their rank (S). This verse can be said in the following a crescendo argument: ‘the Mujahidun strives more than Qa’dun; so if Qa’dun strives enough to get a rank; Mujahidun gets a higher rank, because more striving, higher ranking’.”<sup>92</sup>

The present case is also clearly a crescendo argument. I would preferably word it as follows: The believers who strive in the way of Allah with their wealth and lives (P) are more highly ranked (R) than the believers who sit still voluntarily (i.e. except the disabled who are sedentary involuntarily). Both get a reward (S), but this is given in proportion to rank (R). If sedentary believers (Q) have enough of a rank (R) to get some reward (S), then the striving believers (P), whose rank (R) is greater, will get a greater reward (S+). Here again, the subsidiary term is greater in the conclusion (S+) than in the minor premise (S), because of the said proportionality.

Here, contrary to Zeraatpishe’s above claim, the middle term does not include the values zero or less. It seems to be always positive – meaning that any ‘believer’ is, by virtue of that fact alone, has some minimal ranking and is due to get some reward. So, this case cannot serve as an illustration of Zeraatpishe’s claim that “the middle term in most Quranic a fortiori arguments, indicates to a range of

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<sup>92</sup> Note in passing that a “Mujahidun” is what we more commonly know as a *jihadist*. The “striving” (with one’s wealth and one’s life) here referred to is *jihad* – terrorism, i.e. gratuitous violence against people of different persuasions.

values which include zero or less.” Here again, we see that Zeraatpishé does not study the text as closely as he should. Nevertheless, we must admit that Zeraatpishé has discovered here two more valid a crescendo arguments.

At his point, Zeraatpishé remarks that “There are many verses in Quran which gives such a comparison as a major premise of an a fortiori argument.” He then lists five examples<sup>93</sup>. But try as I might, I see no a crescendo, or even purely a fortiori, argument in them. It is therefore not clear why he lists them; we must assume this is another attempt at ‘padding’. The examples he gives are:

- Koran **39:9**: *Are those who know equal with those who know not?*
- Koran **5:100**: *The evil and the good are not alike...*
- Koran **6:50**: *Are the blind man and the seer equal?*
- Koran **35: 22**: *Nor are the living equal with the dead.*
- Koran **59:20**: *Not equal are the owners of the Fire and the owners of the Garden.*

A comparison might serve as major premise of an a fortiori argument; but no a fortiori argument can be claimed on that basis alone. There has to be some textual evidence of a fortiori intent for such argument to be claimed. I therefore do not accept these five cases as indicative of additional a fortiori or a crescendo argumentation in the Koran.

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<sup>93</sup> Zeraatpishé adds: “There are many examples of such comparisons in Quran. The above mentioned verses are only a selection of them. Other verses can be found with a simple search of keywords like ‘Istiwa’ (equality)” and its derivations or phrases like ‘Kaman’ (like who), ‘khayrun minh’ (better than), ‘Ahaqhun Anh’ (more worthy than), or any derivations with the structure form of ‘Af’al’ (which is one of Arabic verbal structures to make a preference) like ‘Ahda’ (more guided or guiding), ‘Akbar’ (bigger) etc.”

Next (in §3-5), Zeraatpishe begins by rightly pointing out that “Sion has clarified that an a fortiori argument is not a mere comparison, although it is based on it. The difference is the subsidiary term which exists only in the former.” Zeraatpishe apparently shows clear understanding of this principle. But then he seems to differ, saying: “there is no mere comparison in Quran, although some of the four terms required is not explicitly cited.” In other words, according to him, all comparisons in the Koran are intended to point to an a fortiori argument.

To defend this viewpoint, he again cites Surah 39:9, “*Are those who know equal with those who know not?*” According to him, this verse “is suggesting a subjectal a crescendo argument,” because a certain commentator, one Tabatabayi, reads it as: “as the talented persons (P) are not equal to the general public (Q) in level of knowledge (R); they will not have equal responsibilities (S) either.”<sup>94</sup> But there is no textual evidence whatsoever, in the verse (or anywhere around it), for the idea of unequal consequent responsibilities (S) for the two classes of people mentioned (P and Q) with reference to their respective levels of knowledge (R).

Zeraatpishe here tries to read an a fortiori (indeed a crescendo) argument *into* the text, instead of reading the argument *out* of the text. The commentator he refers to may not have had the same ambition; he may have been using the verse merely as a springboard for a homily, without claiming deductive status<sup>95</sup>. Presumably, Zeraatpishe

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<sup>94</sup> This is presumably a paraphrase by Zeraatpishe, who gives as reference Allameh Tabatabayi in *al-Mizan*, vol. 1, p. 214. This Shia commentator is mentioned in Wikipedia, as Mohammad Hossein Tabataba'i (Iran, 1903-1981), and the work cited is *Tafsir al-Mizan*.

<sup>95</sup> Not having seen the comment Zeraatpishe refers to, I cannot tell what it actually intended.

wants us to suppose that the other four verses he mentions in this context (viz. 5:100, 6:50, 35:22, 59:20) also suggest a crescendo arguments, though he does not spell out these claims. Clearly, Zeraatpishe is here again trying to artificially inflate the number of a fortiori arguments in the Koran!

Hermeneutics, the art of interpreting texts accurately, cannot accept such unscientific projections of meaning into text. I do not say that all the terms of a putative a fortiori argument must be manifest in the text; but I do say that there must be some sort of evidence within the given text (*ad loc* or thereabouts) that some such terms and argument are intended. One cannot claim just whatever one pleases as “implicit” – there has to be some clear enough basis for it in what is explicit. One has to be honest, and not try to slant the data at hand in whatever way. Clearly, in the eight cases<sup>96</sup> that Zeraatpishe has thus far proposed in his paper, and that I rejected after due consideration, there was no textual basis.

Next (in §3-6), Zeraatpishe draws attention to “the causal role of the middle term.” The single example of this phenomenon that he gives is:

- Koran **2:247**: *Their Prophet said unto them: Lo! Allah hath raised up Saul to be a king for you. They said: How can he have kingdom over us when we are more deserving of the kingdom than he is, since he hath not been given wealth enough? He said: Lo! Allah hath chosen him above you, and hath increased him abundantly in wisdom and stature. Allah bestoweth His*

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<sup>96</sup> That is, the five just seen, plus the three earlier dealt with – namely: 18:48, 41:20, 43:81.

*Sovereignty on whom He will. Allah is All-Embracing, All-Knowing.*

Zeraatpische expounds as follows: “This verse firstly refers to the wrong argument of some Jewish to show disqualifying “Talut” (Saul) for kingdom: ‘We have more wealth than him, so if he deserve kingdom, we deserve that more’. This argument will be valid and true, if ‘wealth’ as the middle term is the right cause for giving kingdom to Saul. But at the continuing part of the verse, this idea is denied and wisdom and stature have been introduced as true middle term. So the true argument, according to the Quran, is as follows: ‘If you have enough wisdom and stature to be kingdom, Saul has more wisdom and stature, so he is more qualified for kingdom’. Be careful that finding the true middle term is not a formal activity and has nothing to do with validity; it is a hermeneutical (not logical) affair.”

The a fortiori argument apparent in the text is: We (the objectors to Saul’s appointment as king) (P) are wealthier (R) than Saul (Q); so, if Saul (Q) is wealthy (R) enough to deserve the kingdom (S), then we (P) are wealthy (R) enough to deserve it (S), maybe (if merit is proportional to wealth) even more (S+). This is a formally valid positive subjectal (+s) a fortiori, and maybe a crescendo, argument, irrespective of the truth of its content; it can therefore be counted as one of the a fortiori arguments in the Koran.

The problem with it is not its form; but its content. The Koran itself tells us that those (the objectors) who formulated this argument wrongly assumed that the decision to appoint Saul king (S) was based on his wealth (R); it suggests that the decision had more to do with his

greater “wisdom and stature”<sup>97</sup>; and that, anyway: “Allah bestoweth His Sovereignty on whom He will.” In this way, even granting the major premise to be true (i.e. that Saul is poorer than the other candidates), the minor premise is rejected: we are told, effectively, that no amount of wealth (R) will suffice to merit being appointed king (S).

This discourse thus provides, within the Koran, a perfect illustration of how an a fortiori argument, however *formally* valid it may be, may be rejected with reference to the inappropriateness of some part of its *content* – in the present case, the proposed middle term, “wealth.” This is therefore an interesting example, which adds something new to Islamic logic<sup>98</sup>, that Zeraatpishe has identified. He deserves credit for that.

However, it should be said that Zeraatpishe’s analysis is not entirely correct. It is not accurate to say that “wisdom and stature have been introduced as true middle term.” In truth, these qualities have been introduced as motivating (i.e. being the cause of) the appointment of Saul, but not as the middle term of any further argument. There is no second a fortiori argument, here; there is only the neutralization of the first argument, by denying the truth of its minor premise (not by changing its middle term). One can only, at best, claim the following positive apodosis:

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<sup>97</sup> About this, it is interesting to note that in the Tanakh (1 Samuel 9:2), it is said that Saul was “young and goodly, and there was not among the children of Israel a goodlier person than he: from his shoulders and upward he was higher than any of the people.” Here, there is no mention of his having “wisdom,” only beauty; as for his “stature,” it was his physical height.

<sup>98</sup> Rebuttal of a fortiori argument is, of course, a logical possibility, one long before familiar to Talmudic logic (where it is referred to as *pirka* or *teshuvah*); see for example Mishna Pesahim 6.2, but there many more cases. It is also found in the Tanakh, in Ezekiel 33:24-26.

only if anyone has a certain degree of wisdom and stature, then he is qualified to be king: Saul has the requisite degree, and no one else; therefore, Saul deserves to be king. One could also suppose that the selection of Saul was arbitrary (“on whom He will”); and that the “increase in wisdom and stature” was not the motive of this selection, but was effected in addition to or as a consequence of this selection.

Zeraatpishe wrongly claims that a new a fortiori argument is tacitly intended, since he says: “So the true argument, according to the Quran, is as follows: ‘If you have enough wisdom and stature to be kingdom, Saul has more wisdom and stature, so he is more qualified for kingdom’.” One cannot argue a fortiori, as Zeraatpishe attempts to do, that Saul (P) has greater wisdom and stature (R) than the others (Q); and the others (Q) have enough wisdom and stature (R) to be qualified, if only somewhat, for the kingdom (S); therefore, Saul has enough wisdom and stature (R) to be qualified, even more, for the kingdom (S+). Why not? Simply because nowhere in the source text is the putative minor premise hinted at – there is no evidence that if Saul were not available for the job, any of the other candidates (even if somewhat wise and elevated) would have been chosen.<sup>99</sup>

So, with regard to the above quoted verse, we can say that Zeraatpishe has correctly discovered one more a crescendo argument; but we must also note that his attempt to propose a second one was a fail. As regards his understanding of

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<sup>99</sup> Also, there is no mention in the retort of Saul having “more” wisdom and stature than all the others (the putative major premise), and no mention of his having “enough” wisdom and stature for the job (the putative conclusion). The expression “chosen him *above* you” does not suggest either of the premises; it simply means that Saul was chosen *to rule over* the others.

the Koran text, we see here again that it is based on rough reading; he does not notice the fine details and take them into consideration.

Regarding the story under consideration, of Saul's appointment by God to the throne of Israel, it should be mentioned that there is no mention in the Tanakh (the Jewish Bible) of any people objecting to Saul's appointment as king of Israel *because of his wealth*. The Koran narrative is nonsensical. The events leading to Saul becoming king are described in 1 Samuel 9-11<sup>100</sup>. The prophet Samuel presents Saul to the people as chosen by God for the task, saying "there is none like him among all the people," and "all the people" shout "Long live the king!" (10:24). There was, it is true, some dissenters, since it is written: "But certain base fellows said: 'How shall this man save us?' And they despised him" (10:27). However, the reason for this dissent, according to Jewish commentators, was that Saul hailed from Benjamin, the smallest and least influential of the 12 tribes, and therefore apparently lacked *the broad power base* needed in those days to gather an army large enough to wage eventual wars. The text itself suggests this, since it says: "how shall this man *save us*"<sup>101</sup>. When Saul did thereafter inspire the whole people to go to war, against Ammonite invaders, and Israel thoroughly defeated the enemy, his kingship was vindicated in everyone's eyes (11:11-13).

As can be seen from this example (and very many others), whoever wrote the Koran was not well-acquainted with the Tanakh (and still less with other Jewish literature already existing at the time); and so, missed many significant details and invented other details. Furthermore, he (or they)

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<sup>100</sup> See at: <http://www.mechon-mamre.org/p/pt/pt08a09.htm>.

<sup>101</sup> And not "this man is not the wealthiest among us!"

had a very superficial understanding (if any) of the portions of it that he (or they) used. The Koran appears rich and credible to Muslims, because they are not personally acquainted with its Tanakh (and other) sources. Whereas Christians do study the Tanakh often, Muslims never do; because, if they did, they would see for themselves the Koran's partly derivative and partly fictional status, and quickly lose faith in it. True knowledge requires courage and effort, and sadly they lack both. And of course, there are vested interests: if the people were emancipated, the Islamic authorities would lose their totalitarian stranglehold.

Next (in §3-7), Zeraatpishe discusses “enthymeme arguments,” i.e. arguments not entirely explicit. He notes a past remark of mine to the effect that “logical arguments seldom come with all premises.” He proposes four examples of this, claiming them to be a fortiori arguments. This first is:

- **Koran 3:59:** *Lo! the likeness of Jesus with Allah is as the likeness of Adam. He created him of dust, then He said unto him: Be! and he is.*

Zeraatpishe interprets this verse as being “against the Christian belief that Jesus Christ is not a regular human, but the son of God,” in accord with a commentary by Tabatabayi, who rejects “the godhood of Jesus” because “there is nothing more in his creation than the creation of Adam. So if the type and method of his creation causes him to become God, the same cause applies for Adam as well. So since the Christians don't regard Adam as The Lord, they should not consider Jesus to be The Lord either.”<sup>102</sup>

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<sup>102</sup>

Op. cit. Vol 3, p. 333.

Zeraatpishe pursues: “According to this explanation, the verse is a negative egalitarian a fortiori argument, which can be said as follows: ‘If Adam (P) who has no father is not irregular (R) enough to be a God (S), so Jesus (Q) equally is not irregular enough to be a God’. This verse can be said in the following superior a fortiori argument too: ‘Adam is more irregular than Jesus, because if Jesus has no father, Adam has neither father nor mother, so if Adam is not irregular enough to be a God, Jesus all the more is not irregular enough to be a God’.”

My analysis of the Koranic verse would be as follows: the sentence “the likeness of Jesus with Allah is as the likeness of Adam” can be viewed as an egalitarian major premise: Jesus (Q) has the same likeness with Allah (R) that Adam has (P). The sentence “He created him of dust, then He said unto him: Be! and he is” simply means that ‘he’ was created, which can fairly be taken to imply that ‘he’ is not a god or a son of God. Who is ‘he’ (the person referred to by the pronoun “him”)? Jesus is not directly intended; because if he was, the major premise mentioning Adam would be logically useless. So, “him” here refers first to Adam; and then only, by deduction, to Jesus. So, this sentence tells us both the minor premise and (by implication) conclusion of the argument: just as He created Adam out of dust, so He created Jesus out of dust.

But is this an a fortiori argument? We can reasonably cast it as such, as follows: if Adam’s (P) likeness with Allah (R) is not enough to qualify him as anything more than a mere creature (S), then Jesus’ (Q) likeness with Allah (R) is not enough to qualify him as anything more than a mere creature (S). This is an egalitarian negative subjectal a fortiori argument. Since we wanted it to go from Adam to Jesus, we had to choose Adam as the major term (we could formally, of course, have equally well gone in the opposite direction, but this would not be in accord with the source text’s intention). Is this an enthymeme? Hardly, since we

have not added any terms or ideas to those given in the text. But obviously, some interpretative work is involved; so, we could, if we wish, refer to this as an enthymeme (it is not a big issue).

As above mentioned, Zeraatpishe also proposes a “negative egalitarian a fortiori argument” (he does not specify it as subjectal, as he should have, however). However, his proposal is not apposite, since he brings to bear ideas *not given* in the text under consideration; namely, the reference to both Adam and Jesus not having had a (flesh and blood) father. His major premise is also new, namely that Adam is as “irregular” (i.e. “not a regular human”) (R) as Jesus. This thought causes Zeraatpishe to propose an additional a fortiori argument, this time “superior” (without mentioning that it is also negative subjectal), based on the idea that whereas Adam lacked both a father and a mother, Jesus lacked only a father (but had a mother). Here, the major premise is no longer egalitarian, since Adam is now *more* “irregular” (R) than Jesus.

However, while Zeraatpishe correctly places Adam in the minor premise, and Jesus in the conclusion; and his two a fortiori arguments are formally valid; and the thoughts they express (about lacking one or both parents) are true (according to the sources taken for granted) – we must say that Zeraatpishe’s theory does not accurately reflect what is stated in the verse under scrutiny. Both his proposed a fortiori arguments are fabrications, needlessly projected onto the Koranic text. To him, therefore, the verse is enthymemic; but in fact, it is not really, since an a fortiori argument can be formed from it without adding the extra material. Therefore, while Zeraatpishe deserves credit for drawing attention to the said verse as involving an a fortiori argument, he should be reprimanded for proposing two interpretations that unnecessarily deviate from the text. My interpretation is more accurate.

What about the argument proposed by Tabatabayi? It takes the following form: The creation of Jesus does not differ from that of Adam; so, if the former's type and method of creation makes him godly, then the latter's should have the same result; but Christians do not regard Adam as godly, so they should not regard Jesus as godly, either. An egalitarian negative a fortiori argument can be built from this; namely: Jesus (Q) is as special a creation (R) as Adam (P) is; and Adam (P) was created in a way not special (R) enough to make him a god (S); therefore, Jesus (Q) was created in a way not special (R) enough to make him a god (S). This is formally valid, and it matches Zeraatpishé's first interpretation. This means that Tabatabayi's interpretation is not exactly in accord with the Koranic text; it introduces new ideas not found in it. It can also be said that Zeraatpishé's second interpretation is novel (i.e. not copied from Tabatabayi, as far as we know).

Now, let us briefly consider the credibility of the argument proposed in the present Koranic verse from a wider perspective. The argument is materially not unassailable. A Jew<sup>103</sup> would, like a Muslim, accept the major premise's claim that the "likeness to God" (whatever that means) of Adam and Jesus is *identical*; but a Christian<sup>104</sup> could well

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<sup>103</sup> The idea of "likeness" of Adam to his Creator comes from the Jewish Bible: "And God said: 'Let us make man in our image, after our likeness... And God created man in His own image, in the image of God created He him; male and female created He them'" (Genesis 1:26-27). It is not made clear there what "in God's likeness or image" means; it is certainly not taken by Jewish commentators to mean that God has a human body; rather, it is taken to mean that human beings have a spark of the divine in them. The idea that Adam was created from earthly "dust" is likewise from the Jewish Bible: "Then the Lord God formed man of the dust of the ground" (Genesis 2:7). As regards Jesus, Jews do not ascribe to him any divinity, other than that present in all human beings.

<sup>104</sup> In the Christian Bible, Adam is presented as "the son of God" (in Luke 3:38), and Jesus as descended from him (Luke 3:23-38).

deny that claim, and retort that, though both Adam and Jesus have this feature in common, they have it to *different degrees*. Moreover, a Christian could well argue that the creation of Adam differs from the creation of Jesus; Adam's body could be made of earthly material, whereas Jesus' body might be made of finer stuff; in that case, the inference from one creation mode to the next would be inoperative. And so forth.

In other words, the argument made by the Koran is far from conclusive, being rather circular. For someone who already believes its premises, it seems credible enough; but for one who disagrees with them, it has no force of conviction. I am not personally defending Christian belief; but merely pointing out that it is defensible, in this context, in this way. My main point is that, here again, the Koran's logic is only relatively forceful; it does not have absolute force. It follows that Muslims cannot argue that anyone who is not convinced by such arguments is a miscreant. If the Koran's argument is weak, that is the fault of whoever wrote it!

Zeraatpishe additionally claims the following to be "some other verses with enthymeme a fortiori arguments;" but he makes no effort to analyze them and demonstrate their a fortiori status. Looking at them, I do not see any argument in them.

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Moreover, Jesus is declared as "the Son of God" (in John 1:49), and as God's "Son," who was "sent into the world" by Him (John 3:17), and as having "come down from heaven" (in John 6:38), and as "from the realms above" and "not from this world" (in John 8:23), and as "the image of the invisible God and the firstborn of all creation" (Colossians 1:15). Jesus seems to claim identity with God, saying "I and the Father are one" (in John 10:30); but also seems to deny being God, saying: "The Father is greater than I am" (in John 14:28). No doubt many more passages can be brought to bear. Anyway, as the Trinitarian doctrine suggests, and in practice, Christians do regard Jesus as an incarnation of God, i.e. as God come down in human form.

- Koran **3:162**: *Is one who followeth the pleasure of Allah as one who hath earned condemnation from Allah, whose habitation is the Fire, a hapless journey's end?*
- Koran **16:17**: *Is He then Who createth as him who createth not? Will ye not then remember?*
- Koran **40:20**: *Allah judgeth with truth, while those to whom they cry instead of Him judge not at all. Lo! Allah, He is the Hearer, the Seer.*

They are just statements of comparison and contrast: a follower of Allah is not comparable to a non-follower; a Creator is not the same as a non-Creator; Allah judges with truth, while the others judge not at all. These are not arguments, let alone a fortiori arguments; no inference is made or implied in them. Here again, Zeraatpishe indulges in wild claims, without proving his assertions. This is all just more 'padding' on his part; trying to make the Koran look more rational than it is, or trying to take credit for more discoveries than he has made.

Thus, to conclude this section, Zeraatpishe can be credited with discovering one more a fortiori argument in the Koran (namely, 3:59). However, he does not analyze it correctly; misled by the commentary of Tabatabayi, he reads two a fortiori arguments into the text that are just not there. He thinks that by labeling the verse as enthymemic, he is justified in adding material to it; but this is not acceptable, since an a fortiori argument can (as I show) be constructed without adding material. Thus, while Zeraatpishe (to repeat) has found a verse pregnant with a fortiori argument, he has not actually managed to deliver the a fortiori argument; this I had to do in his stead. Furthermore, we should note that Zeraatpishe spuriously claims three more verses (viz. 3:162, 16:17, and 40:20) as (enthymemic) a fortiori arguments.

### 3. Summary of results

Having in the previous section carefully examined and evaluated the cases of a fortiori argument proposed by Zeraatpishé in his paper, we can draw the following conclusions. **There are in the Koran at least 11 confirmed instances of a fortiori discourse.** Of these cases, one was initially found by me (AS) in A Fortiori Logic, and another was found by me in the course of the present study. Zeraatpishé (MZ) can lay claim to having found nine (9) more valid cases. However, while these cases were rightly pointed out by him, he did not interpret them all. One case (3:59), he misinterpreted; and I had to interpret it for him. Three cases (6:94-95, 17:51, 75:37-40), he did not interpret at all; and I had to interpret them for him. The remaining five cases (2:247, 4:95, 9:107-108, 10:35, 67:22) he did interpret correctly (although not very ably, perhaps due to difficulty with English). This is made clear in the following table:

Koran	mood	&?	found by	read by	location
<b>2:247</b>	+s	&	MZ	MZ	§3.6
<b>3:59</b>	-s		MZ	AS	§3.7
<b>4:95</b>	+s	&	MZ	MZ	§3.4
<b>6:94-95</b>	+p		MZ	AS	§3.1
<b>9:107-108</b>	+s	&	MZ	MZ	§3.3
<b>10:35</b>	+s	&	MZ	MZ	§3.4
<b>17:49-51</b>	+p		AS	AS	§3.1
<b>17:51</b>	+p		MZ	AS	§3.1
<b>36:78-79</b>	+p		AS	AS	AFL 11.1
<b>67:22</b>	+s	&	MZ	MZ	§3.3
<b>75:37-40</b>	+p		MZ	AS	§3.1

Of the eleven cases of a fortiori argument so far found in the Koran, notice, five are positive subjectal (+s), one is negative subjectal (-s), and five are positive predicatal (+p); none are negative predicatal (-p). Moreover, note, five cases are a crescendo (&), while six cases are purely a fortiori. Needless to say, there may well in fact be more cases of a fortiori argument in the Koran, and more might in time be discovered; but only eleven cases have been found so far.

Zeraatpishe actually proposed fourteen (14) more cases; but following our analysis in the present study they were rejected. One case (43:81) was rejected as quite contrived. In one case (2:247), although he rightly read the main argument, he wrongly assumed that there was a second a fortiori argument. In another case (3:59), although he rightly identified the presence of a fortiori argument, he wrongly read the argument in two different ways (adding redundant information). In the remaining ten cases (see table below, “no afa”), Zeraatpishe claims a fortiori arguments where there are in fact none (perhaps just to ‘pad’ his thesis). Additionally, we should note that Zeraatpishe missed one a fortiori argument (17:49-51) that was present next to one that he did find.

<b>Koran</b>	<b>rejection</b>	<b>location</b>
<b>2:247</b>	no 2nd afa	§3.6
<b>3:59</b>	misinterpreted	§3.7
<b>3:59</b>	misinterpreted	§3.7
<b>3:162</b>	no afa	§3.7
<b>5:100</b>	no afa	§3.4
<b>6:50</b>	no afa	§3.4
<b>16:17</b>	no afa	§3.7
<b>17:49-51</b>	missed	§3.1
<b>18:48</b>	no afa	§3.1
<b>35:22</b>	no afa	§3.4
<b>39:9</b>	no afa	§3.4
<b>40:20</b>	no afa	§3.7
<b>41:21</b>	no afa	§3.1
<b>43:81</b>	not valid	§3.2
<b>59:20</b>	no afa	§3.4

From the above-listed data, we can estimate Zeraatpishé's general skill at finding and correctly reading a fortiori arguments. He found nine valid cases, he missed one case right under his nose, and he wrongly claimed or misread fourteen cases; therefore, his failure rate was:  $15/24 = 63\%$  (i.e. work done almost two-thirds erroneous, in some way or other); and this is not taking into account his weakness at interpretation (5 cases) or non-interpretation (4 cases) of the valid cases that he has found. This is slipshod work. Nevertheless, Zeraatpishé must be congratulated for having in fact discovered nine new cases of a fortiori argument in the Koran; that is the important thing.

In his Abstract, Zeraatpishé makes the following broad claim: "The author of this article [i.e. Zeraatpishé himself] has already discussed the case briefly in an article titled 'A Fortiori Logic in Quran' (in Persian) and showed that not

only the claim of absence of such logic in Quran is wrong, but it seems that a fortiori logic can be considered a fundamental logic in Quran. The current article is, in fact, a developed version of the previous discussion, and tries to elaborate more Quranic examples about what is called ‘A Fortiori Logic’ by Sion, so to reveal wider aspects of a fortiori arguments in Quran.”

I let the reader of the present review judge for himself whether this boast by Zeraatpishe is justified. Note that he does not claim he has more a fortiori arguments up his sleeve in the earlier paper. Do 11 confirmed a fortiori arguments in the whole Koran (assuming no more are found in the future) suggest that such argument is a “fundamental” logical instrument in the Koran? I would call that an occasional and rather incidental occurrence. For comparison, there are 46 cases in the Jewish Tanakh (as well as 42 cases in the Mishna and probably hundreds of cases in the Gemara); and 36 cases in the Christian New Testament. In the writings of Plato, there are at least 15 cases; and in those of Aristotle, at least 80 cases. Clearly, while a fortiori argument may be said to be “fundamental” to Judaic logic, the same cannot be said of Islamic logic.

I should at this point disclose that there was an exchange of e-mails between Zeraatpishe and myself, prior to his publishing the paper here reviewed. This happened between end November 2013, and end August 2016; and it involved some 30 messages each way. Though the correspondence was initiated by Zeraatpishe asking me questions on a fortiori logic and other topics, I also welcomed it as an opportunity to ask him some questions on Arabic language and Islamic philosophy. Much ground was covered; and the tone was respectful, even friendly, but also frank. I repeatedly encouraged him to push on with

his research and to publish its results; and he expressed gratitude.

Looking back, now, at this conversation<sup>105</sup>, I see that many of the views expressed by him in his eventual essay, and by me in my present review of it, were already rehearsed in the e-mails. Judging by some of his questions and answers, I can see that Zeraatpishe did not, or not carefully, read the whole chapter 11 of AFL, let alone the whole of AFL. It is also clear from his questions and answers to me that Zeraatpishe did not have prior knowledge of a fortiori logic, nor acquire such knowledge thereafter, from Islamic sources; this belies his later claim, in the paper under review, that such logic is something known, indeed well known, to Islamic commentators. I am also amazed and saddened to see that Zeraatpishe did not pay much heed to my good advice on different issues!

Zeraatpishe, in his e-mails, proposed three verses from the Koran as examples of a fortiori argument. His first two examples were 10:35 and 67:22, both of which I immediately approved, although I disagreed with his vague reading of them (even as he tried claiming that some things make sense in Arabic in ways that English cannot reproduce); his last was 43:81, which I immediately refuted. It is interesting that our respective positions have remained essentially the same in the present context. Albeit all my remonstrances, he did not budge from his inadequate readings. The reader of the present essay can judge for himself who is right, as both our positions are clearly spelled out. Zeraatpishe did not consult me as regards his many other claims of a fortiori argument in the Koran; I only found out about them when I read his paper.

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<sup>105</sup>

Which I may eventually decide to post online somewhere.

Nevertheless, even in their cases, it is evident to me that he blithely ignored my general advice.

My general advice included: aiming for clarity and precision; sticking close to the text at hand when interpreting it; reading ‘out of’ the text, instead of ‘into’ it; casting putative arguments in standard forms to check their a fortiori status; making sure not to confuse the middle and subsidiary terms; and much more. Evidently, he did not take my recommendations to heart. Many of his interpretations are approximate and fanciful; in many cases, he does not take the trouble to formally check the a fortiori status; and in one case (43:81), he blurs the distinction between middle and subsidiary terms seemingly deliberately in order to make the argument seem a fortiori and improve the score.

From the fact that he did not announce to me having completed<sup>106</sup> and presumably published<sup>107</sup> his paper, I infer that he knew I would take a dim view of some of its contents. The following verse (v. 64) from the *Dhammapada* would be a fitting expression of my disappointment at Zeraatpishe’s ineptitude: “*If during the whole of his life a fool lives with a wise man, he never knows the path of wisdom as the spoon never knows the taste of soup.*”

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<sup>106</sup> He did inform me of having prepared two papers in Persian; but he never informed me of having completed this paper in English.

<sup>107</sup> As already mentioned, I found the paper by chance on the Internet. The .pdf file I downloaded displays the banner “Europe – Revue littéraire mensuelle.” But I found no mention of this author or paper in that journal’s online catalogue, at: <https://www.europe-revue.net/tables-annuelles-2/>. So, I do not know what to think. All I can say is: if they did publish this paper, their standards must be very low indeed; or maybe they have special ‘dhimmi’ policies with regard to Muslim texts.

#### 4. Fake general claims

Next, (in 3-8), Zeraatpishe claims that:

“What is called by Sion a fortiori argument is nothing more than ‘Qiyas al-Uwlawiyyah’ or ‘Qiyas Bitariq ‘Ula’ (both literally meant ‘Superior Syllogism) in Islamic tradition which is sometimes used by Islamic theologians as the opposite of ‘Qiyas al-Adna’ or ‘Qiyas al-Mosavat’ (i.e. respectively ‘inferior’ and ‘egalitarian’ Syllogism).”<sup>108</sup>

This (“nothing more than”) is a lie, intended to make it appear like Islamic theologians knew about a fortiori argument, and that in three varieties (superior, inferior and egalitarian)<sup>109</sup>. Zeraatpishe does not, note well, tell us *when and by whom* the said three terms were first used and discussed. Moreover, note well, he does not quote or even mention any Islamic text where a fortiori argument was *clearly identified and intelligently discussed*. His boast of traditional knowledge is, therefore, empty. Furthermore, these terms, taken alone, are very rough; they do not highlight the important distinctions between subjectal and predicatal, positive and negative, copulative and implicational, or pure and a crescendo, forms of a fortiori argument, which distinctions are *indispensable* to full understanding of a fortiori argument. Zeraatpishe here

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<sup>108</sup> In AFL 11: 4, I use the terms *qiyas al-awla* (analogy of the superior), *qiyas al-adna* (analogy of the inferior), and *qiyas al-musawi* (analogy of equals). Though the first and third look a bit different, they are obviously (in view of their common roots) the same.

<sup>109</sup> Such a sweeping claim is typical of Islam, which once it more or less assimilates some idea or story it got from others, claims it as its own, and even claims it as original.

translates the Arabic term *qiyas* as “syllogism;” but the correct translation (generally found in books on the subject) for this term is ‘argument’ in a general sense. In any case, this does not refer to a fortiori argument, for which (significantly) Islamic commentators have *no specific name*.<sup>110</sup>

What the above-named three *qiyas* in fact refer to, are mere arguments by analogy, which go from a greater, a lesser or an equal term, to a lesser, a greater or an equal term, respectively. Arguments by analogy are less complex and less certain than arguments a fortiori or a crescendo<sup>111</sup>. I say this clearly in AFL 11:3:

Lastly comes *qiyas*, which is usually translated as ‘argument by analogy’, although, while this may be accurate etymologically, the term in practice seems (as we shall see) to refer more broadly to any sort of deductive or inductive inference used to derive laws from Koran, Sunna or consensus. *Qiyas* thus corresponds somewhat to the hermeneutic principles (*middot*, in Hebrew) used in Jewish jurisprudence, or

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<sup>110</sup> In e-mail correspondence, I asked Zeraatpishe some of the questions raised above, though I had already raised them in AFL. From him, I learned that the plural of the Arabic word *qiyas* is *aqyisi*; also, that “al-uwlaviyyah” signifies “priority.” When I asked him to suggest a more specific name in Arabic for a fortiori argument, he proposed the word ‘*tashkik*’, found in Islamic philosophy, where it signifies “a range with weak and strong.” (Another suggestion he made was ‘*mantiqi tariqi ulay*’, though he did not explain this phrase, other than say that it is a mixture of Persian and Arabic; I assume this too refers to ‘more and less’.) Zeraatpishe also told me that he had heard that the commentator Makarem has written something in defense of the validity of a fortiori argument, but had not yet found out just where; it is interesting to note that he does not, in his paper, mention or quote Makarem (or anyone else) in this regard.

<sup>111</sup> I analyze quantitative analogical argument forms in detail, and explain exactly how and why they differ from a fortiori argument forms, in AFL 5:1.

potentially even more largely to logic in general (*mantiq*, in Arabic).

I discuss Islamic knowledge and understanding of a fortiori argument in considerable detail (with reference to modern and earlier sources) in AFL 11:4; but apparently Zeraatpishe did not take the trouble to study this discussion carefully, if at all. My conclusion was that “classical Islamic jurists did not manage to truly grasp the distinctive features of a fortiori argument. *They could apparently intuitively use the argument (some forms of it, at least) correctly, but they could not pinpoint how and why it works.*” I need not repeat my analysis here; but only repeat that Zeraatpishe’s above-said claim is apologetic bunk.

Next, Zeraatpishe claims:

“Using ‘Qiyas al-Uwlawiyyah’ or not is a hot issue in Islamic Jurisprudence. Shiites, according to some hadiths of their imams use it very rare and carefully to be more bound to their holy texts. I think that the lack of the very binding is why there are some a fortiori arguments in Jewish texts which forces someone like Sion to try hard to show that an a fortiori argument can be materially valid, while being formally invalid (see: 2013, p. 70)! The lack of this problem (i.e. being materially valid andn formally invalid) in Quranic logical arguments amplifies this theory that Quran is not distorted, or at least as distorted, as Jewish texts.”

It may be true that Shiite commentators are more reluctant to resort to *qiyas* than their Sunni rivals. As I point out in AFL 11:3: “Shia scholars refer to ‘*aql* (the rational faculty), rather than *qiyas* (arguments), to explain their inferences.” To determine what this distinction means precisely would require a great deal of study; but I suspect offhand that such study would reveal that Shiites do as much reading into (as

against out of) the Koran text as their Sunni rivals, though perhaps not in the same ways. This methodological issue is probably just a sectarian squabble by means of which they differentiate themselves; and justify distinctive doctrines. Certainly, as we have seen above (re. 3:59), Zeraatpishe and the commentator Tabatabayi that he refers to, are in practice both quite willing to read stuff into the Koran text that is just not there!

As regards Zeraatpishe's remark concerning me, claiming that I "try hard to show that an a fortiori argument can be materially valid, while being formally invalid" – I see no evidence of my having ever said anything of the sort on the page he cites or anywhere else! This just snide disinformation<sup>112</sup>. Maybe I said somewhere that an argument might seem materially valid to someone while it is in fact formally invalid. Or maybe I said somewhere that an argument can intuitively appear materially valid well before it is established as formally valid (one could claim this true of all valid arguments). But I surely never said that an argument can be materially valid and formally invalid! Clearly, either Zeraatpishe completely misunderstood something he read somewhere, or he was trying to invent some reason to criticize my work because he could find none.<sup>113</sup>

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<sup>112</sup> Unless there is a typographical error in his statement.

<sup>113</sup> I found an e-mail by Zeraatpishe in which he argues (I am paraphrasing, for brevity's sake) that logical research into a fortiori argument in the Koran only needs to show the formal validity of the putative argument, not its material truth. He reproaches me for criticizing material aspects of the Koran, thereby treating it inequitably in comparison to other texts. Perhaps this is what he was trying to repeat here, in his paper, but had difficulty expressing himself. While I would agree that the prime object of logical research into a document like the Koran is to find traces of logic in it (this is the formal aspect), I would not agree that the logician has no right to respond to the document's substantial claims (the material aspect). I also disagree with

Similarly, his claim that “this problem (i.e. being materially valid andn formally invalid)” is lacking in Koranic logical arguments, but present in Jewish texts, is pure fabrication. As we have seen above, Zeraatpishe himself proposes a considerable number of Koran passages as suggestive of a fortiori argument, where in fact none are manifest<sup>114</sup>. Surely, we can surmise that these cases seemed to him “materially valid,” although they were in fact “formally invalid.” In particular, we caught Zeraatpishe trying hard to force an a fortiori reading of verse 43:81. So, he can hardly be said to practice what he claims to preach. Nowhere does he show any example where I behave in the same logically illicit way.

Of course, this whole comment of his is designed to buttress his spurious claim that “Quran is not distorted, or at least as distorted, as Jewish texts.” Continuing along this line, he makes a distinction between *qiyas* where the “middle term is cited explicitly in Quran and Hadith” and those where the “middle term is inferred.” He claims that Shiites almost never use the latter in their jurisprudence<sup>115</sup>,

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the said personal accusation, that I unfairly criticize the Koran more than other religious texts. If I do criticize the Koran with particular passion, it is because it particularly deserves criticism, and not out of any *ab initio* prejudice.

<sup>114</sup> It is significant that in one of his e-mails he complains: “You said to me ‘try to give the verse formally in a fortiori form in a way that convince me or anyone’. Why should I do this?! Do you mean that an argument cannot be a fortiori unless it is convincing to anyone?!” My reply was: “An argument may seem valid to you intuitively, but you cannot prove that it is valid merely by saying that you find it convincing. You must make it convincing to everyone through formal validation.”

<sup>115</sup> He gives one exception: the argument in Koran 17:23, “(that ye show) kindness to parents. If one of them or both of them attain old age with thee, say not ‘Fie’ unto them nor repulse them, but speak unto them a gracious word.” I have analyzed this argument extensively in AFL 11:4, so will not repeat myself here. Suffices to remark that Zeraatpishe does not have anything new to say about it.

because they believe it leads to distortion. According to him, too, Shiites are very careful to “be more bound to their holy texts.” Judging by what we have seen above, this claim is more baloney: we have seen that Zeraatpishe, and both the commentators he quotes (Makarim for 43:81 and Tabatabayi for 3:59)<sup>116</sup>, use without qualms middle terms not explicitly given in the Koran.

Moreover, we have seen that Zeraatpishe is often unsure what precisely the middle term intended is, even though it is present in the text (thus, in 4:95, in 10:35 and in 67:22); he is not very perceptive. Furthermore, I have in several contexts above reproached Zeraatpishe for his failure to stick close to the text under investigation, and his willingness to interpret it as he wills. See my comments in this regard in the analyses above of 2:247, 3:59, 4:95, 10:35, and 39:9. In the latter case, it looks like Tabatabayi may be guilty of similar misreading. Also note the many cases (already listed above) where Zeraatpishe claims that there is a fortiori argument when there is none; he must have been misreading the verses concerned to have so misinterpreted them.

Zeraatpishe then suggests: “In comparison, It seems that most of Jewish a fortiori arguments are [devoid of middle term], if not all .” Here again, Zeraatpishe does not provide a list of examples to back his claim, or even just one example to illustrate it. I do, in AFL (and before that in my book *Judaic Logic*), point out that the middle term must very often be guessed at (no doubt he got the idea from there); but I do not anywhere claim that this is something peculiar to “Jewish” texts – it is something probably found in all world literature. Moreover, it is not something

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<sup>116</sup> In 43:81, the middle term injected is “belief/knowledge in/about God;” and in 3:59, it is the lack of a father, or the lack of a father and a mother.

restricted to a fortiori argument, but something also found in other forms of argument, such as syllogism or analogical argument. The reason for this practice is simply discursive *economy*: there is no need to specify something that most readers can easily enough gather from the context. The issue is: when is such ‘gathering’ justified, and when is it not justified?

## 5. Apologetic nonsense

One can discern, in Zeraatpische’s repeated negative insinuations about Jewish texts and people, that he has anti-Semitic tendencies. Such animus is not surprising, considering that at one point he quotes a Holocaust-denier (the Grand Ayatollah Makarim). Most Muslims, and perhaps especially Iranian ones, have a big chip on their shoulder concerning Jews; no doubt this is due to the many gratuitous negative statements concerning Jews in the Koran and Hadiths. In his Abstract, Zeraatpische calls me “a Jewish logician;” but I have never called myself that. I may be called a Jewish philosopher, because some (though certainly not all) of my thought is influenced by Judaism. But there is no basis for calling me “a Jewish logician,” even if some of my work has consisted in analyzing Judaic logic, because when it comes to logical analysis I don’t play favorites but do my work in a scientific spirit. Just because I have analyzed Islamic or Christian or Buddhist logic does not make me “a Muslim logician,” etc.

But it is evident that Zeraatpische’s motivation in making such statements is not only anti-Semitic. Zeraatpische comes on as a defender of or an apologist for Islam. He is evidently hurt by various statements I made in AFL denying the spiritual credibility of the Koran; and he wants to retaliate. He has correctly understood my there deriding the low frequency and low level of reasoning in the Koran

and Hadiths as indicative of intellectual poverty in Islam. As he puts it in his Abstract: “Raising such a claim might be done with the purpose of ignoring the logical equivalence of Jewish and Christian scriptures and Quran, so to prevent the idea that all these texts originate from the same source.” This is the crux of the matter – whether the Koran has a *direct* Divine origin (through dictation to Muhammad by an angel), or whether it is a man-made assemblage of snippets drawn from various Jewish, Christian and other pre-existing sources (be they of Divine origin or not) and some novel fantasies.<sup>117</sup>

As we have seen, Zeraatpishe left many cases without interpretation; he assumed or claimed that they were valid a fortiori arguments without actually demonstrating it by proposing a credible interpretation. This may have been laziness or negligence on his part; but I tend to think (as already indicated) that it was deliberate ‘padding’ to make the Koran look more frequently logical than it really is. Zeraatpishe makes a strange remark, in his concluding section (§4):

“In spite of Sion’s claim, there are so many a fortiori arguments in Quran in which the formal principles of a fortiori arguments said by Sion is respected. Most of Quranic a fortiori arguments are a crescendo which in their validity do not need the extra endeavor that Sion

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<sup>117</sup> One example was brought home to Zeraatpishe when asked me by e-mail whether there is any parallel in Jewish sources to the story given in Koran 2:30-33. I gave him a link to an online copy of the Midrash Genesis Rabbah containing a similar account: He asked me how he could be sure the Koran story did not precede that of the Midrash; I explained to him that the latter is dated by historians as being about four centuries before the former.

devoted to justify Jewish arguments to show some kind of material validation.”

Here, Zeraatpishe seems to be saying that Koranic a fortiori arguments do not need to be justified – they are, he seems to be saying, valid without the extra endeavor normally devoted to show some sort of concrete validation. Does he imagine, then, that Koranic arguments are *exempt* from the logical requirement of scrutiny and validation? Does he imagine that it suffices for him to claim them to be a fortiori for them to indeed be a fortiori? Perhaps that would explain why he so often makes false claims about specific Koranic arguments being a fortiori when in fact they are not<sup>118</sup>. In any case, this statement suggests that Zeraatpishe does not really understand formal logic and our absolute need of it for definitive validation of material arguments. Clearly, the anti-Jewish slant of Zeraatpishe’s thinking leads him astray here; he cannot judge Islamic logic objectively because he has a supremacist axe to grind.

That Zeraatpishe very desperately wants to prove not only the equality of Islam, as he slyly pretends, but its *superiority* over Judaism and Christianity, is made evident in his concluding remarks:

“This characteristic can amplify the theory that Quranic texts are less distorted than Jewish texts, if distorted at all. The important role of a fortiori logic in Quran, concerning its important role in Jewish and Christian texts, will also fortify this theory that the origin of

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<sup>118</sup> As for his claim that “most of Quranic a fortiori arguments are a crescendo” – this is not correct. As we have seen, of the eleven confirmed a fortiori argument in the Koran, five (less than half) are a crescendo, and the rest are pure.

Islamic, Jewish and Christian texts is the same. In other words, logical similarity of Quran, Jewish and Christian has been cleared by Zion, while striving to deny it.”

At this point, Zeraatpishe piously quotes some Koran rant: “They want to put out the light of Allah with their mouths, but Allah has decided to let His light shine (verse 32 Surah Tawbah).” This is of course an incantation, which Zeraatpishe uses to exorcise his own fears and give himself courage, and throw opprobrium on his adversaries. The suggestion here (and frequently throughout the Koran) that disbelief in the Koran is motivated by disbelief in God is without basis in fact. Such statements are really argument by intimidation, expressing dark hostility to anyone who disagrees (labeled ‘infidels’), and implicitly threatening them. Then, Zeraatpishe comes to his closing argument, delivered in a pseudo-reasonable tone:

“However one problem might come to mind. The Muslims believe that Jewish and Christian scriptures have been distorted. Knowing that, someone may ask ‘how on earth it is possible to find the same thing as a fundamental logic in Quran and Jewish and Christian texts?’ To answer this question, it shall be considered that, when distorting someone’s speech, usually the material of its speech changes, not its form and context. Distortion of a religion, naturally, occurs in the same context of that religion which includes its underlying logic.”

Clearly, Zeraatpishe’s main concern is not logic, but religious dispute. What is involved here is the utterly ridiculous Muslim claim that the Koran historically *antedeceded* the Jewish and Christian Bibles. This canard is, of course, a brazen attempt at cultural appropriation and

*replacement theology*; and it has no basis whatsoever in empirical, scientific history. There is no doubt whatsoever from *extant historical documents and unearthed artifacts* that these documents anteceded the Koran. Ancient peoples like the Egyptians, Assyrians, Babylonians and Persians knew of Israelites, but never heard of Muslims. The Greeks and Romans knew about Judaism, and later about Christianity; but never heard of Islam. These facts cannot be dismissed in favor of the Islamic fabrication of chronological precedence, for which exactly *zero evidence* of any sort is put forward. This Muslim invention is contrary to *inductive logic*, which requires that solid empirical evidence be given absolute preference over any groundless fantasy claims. Logic has certainly every right to scrutinize and criticize material faith-based claims; it is not limited in scope to formal issues.

It is interesting that certain Arabs, who only a few decades ago started to call themselves “Palestinians,” are now using the same meme to claim that they inhabited the Land of Israel well before the Jews. Recently, in a speech before the UN, their current leader Mahmoud Abbas shamelessly claimed that his “people” have lived on that land for 5000 years! In other venues, he has repeatedly denied that today’s Jews have any connection to this ancestral Jewish land, accusing them of being invaders and colonialists. This is simply identity theft, attempted reversal of historical roles. This is not astonishing, considering that this vile man has often in the past denied the Holocaust of 6 million Jews by the Nazis.

Such *historical revisionism* apparently sounds convincing to people devoid of any knowledge of history; but to anyone who has studied the matter, it is cynical prevarication. Clearly, Muslims imagine that they can get away with any falsification of history that serves their interests. Being themselves easily fooled by the confabulations of their own teachers and leaders, they think

they can in turn fool other people. They do not realize just how intellectually and ethically retarded they are, even while they live in the 21<sup>st</sup> Century. Their bodies are in this century, but their hearts and minds are still firmly stuck in the 7<sup>th</sup> Century.

Furthermore, examination of the three documents here discussed makes clear the relative position of the Koran. The Jewish Bible (Tanakh) mentions neither the Christian Bible *nor the Muslim Koran*, whereas the Christian Bible mentions and refers to the Jewish Bible *but not the Muslim Koran*, while the Muslim Koran *mentions and refers to both* the Jewish Bible and the Christian Bible. This tells us the order of things. Moreover, as we have seen with a couple of examples above, while the Jewish and Christian Bibles tell their stories *in a chronologically ordered manner*, the Koran retells some of their stories *in a very disorderly manner*. It is clear, reading the Koran, that it is referring to *pre-existing* stories and ideas, and merely recalling them and commenting on them, sometimes more or less correctly, but very often in a very inaccurate manner<sup>119</sup>. If any logic is indeed found in the Koran, it is logic that it has learned *from* its Jewish, Christian and other sources; the Koran has certainly not taught any logic *to* Jews or Christians. Instead of being grateful to those who taught them, Muslims arrogantly claim being the teachers. No one had ever heard of the Koran till it appeared in the 7<sup>th</sup> (or maybe only the 8<sup>th</sup>) Century CE. It wasn't 'hidden' somewhere till then – it just did not exist yet. When it appeared, the Jewish narrative was already some 1900 years long (counting from Moses to Muhammad), and the Christian narrative was already some 600 years long

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<sup>119</sup> To give one example, in 19:28 it confuses Miriam (Aaron's sister) with Mary (Jesus' mother)! For more examples, see AFL 11:2.

(counting from Jesus to Muhammad). Nineteen centuries and six centuries! During which time *no one ever* heard of the Koran, no one ever mentioned it, and it left no material trace whatever anywhere! Muhammad (who is mentioned in the Koran) was not born yet; so, no one could possibly speak of him yet (not even a ‘hidden’ Koran). This is plain commonsense, which any sincere person would readily agree with. And yet Muslim commentators like Zeraatpische choose to imagine and boast that the Koran came first, and that the other two books were “distortions” of it! Can any doctrinal claim be more illogical *and dishonest* than that one? An earlier document cannot “distort” a later document.

Another absurd claim Muslims make is that the Koran existed even before Creation. This claim may be viewed as a further attempt by Islam at one-upmanship over the two said religions that preceded it. However, funnily enough, *even that* claim is a copycat claim, being found in Talmud and Midrash in favor of the Torah, long before Islam appeared! And indeed, this meme of “before the world came into being” is found, in some form or other, in other religions. In Christianity, Jesus is said to have existed before the world; and similarly, in Buddhism (at least the Mahayana branch), Siddhartha Gautama. Such claims are common, because they serve to give a sect more ‘legitimacy’.

*Logically*, the idea that the Koran – or the Torah, for that matter – preceded the material world is a non-starter. Such a claim is self-contradictory. God might have had certain *abstract* ideas, plans, guiding principles or laws in mind, which were later written into the document; but surely, granting the existence of freewill, the *concrete* people and stories in the document could not be predetermined. God might have seen all events beforehand; but he could not, without paradoxical circularity, create the world on their

basis (the past must precede the future in all respects – the past cannot in any way be caused by the future).

The truth is that the Koran (and likewise the other sources of Islamic law, or Shariah) was put together as a *political* weapon; its main goal is not spiritual enlightenment, but power over people. It is given the outward garb of a religious document, an alleged communication from God; but this is only done for the nefarious purpose of capturing and imprisoning people's minds and souls, and thence their bodies. Its psychological effect on the people who are taken in by it is devastating; they are not spiritually liberated, but profoundly spiritually oppressed by it, with no apparent way out ever. This is evident in the rudeness of their speech and behavior in everyday life.

*The few syllogisms and a fortiori arguments that have been found in the Koran do not attest to its rationality*; its overall effect on people's minds is what counts, and its effect has been and is very negative. This is starkly manifest in the backwardness of Muslim countries and the people in them, in multitudes of ways. Whatever signs of progress may be seen in them are due to Western influence, training and technology (for which they show no gratitude). Their wealth today is mainly due to their petroleum resources, and the extraction of these is only made possible thanks to Western knowhow. They have little to boast about in any field of endeavor.

Today, Islam is known to the world mainly because of one thing: the rabid terrorism and warmongering that it generates, the *murder and mayhem* that it spreads far and wide. Even within Muslim countries, Islam produces cruel dictatorships, and sundry horrible individual, family and societal mores. In the international arena, whenever and wherever it is given a chance to do its thing, its record is even worse.

Until the beginning of this century, Islam seemed innocuous to most people in the West. Then, on the infamous day of 11 September 2001, when thousands of innocents were murdered in one go, the whole world discovered the Muslims' ferocious hatred and potential destructiveness. While Westerners cried for the victims, Muslims cheered and celebrated. This dramatic event was no side-show, not the work of a score of deluded fanatics – it was a direct consequence of anachronistic Koranic teachings, which enjoin “jihad.” This term refers to world conquest and domination by Muslims, through all sorts of violence and through lies (*taqqiya*).

The goal of Islam, to repeat, is absolute political power, over everyone, 24/7 and forever. It should be stressed that the prime and principal victims of the Islamic ideology are the Muslims themselves. Most Muslims today are descended from non-Muslims forcibly converted to Islam. Islam has forcibly arrested their cognitive and moral development, creating in them sick desires to enslave, rape and rob other peoples, instead of teaching them civilization and peace. The free world will surely eventually defeat today's Islamic aggressors, as it did in the past; but Islam will not disappear till the Muslims themselves show courage and free themselves from it.

Reason can help them in this sacred struggle for freedom.

#### 4. MICHAEL AVRAHAM, ET AL.

*The present essay<sup>120</sup> is in reply to the general letter (called "A general treatment of Avi Sion's critique," signed by Dov Gabbay, Michael Avraham, Uri Schild) and specific comments (authored by Michael, and presumably endorsed by Dov and Uri) that you sent to me on 21.1.2014, in reply to chapter 25 of my book A Fortiori Logic (AFL, henceforth) dealing with your 2009 essay "Analysis of the Talmudic Argumentum A Fortiori Inference Rule (Kal Vachomer) using Matrix Abduction"<sup>121</sup>.*

I am very glad that you wrote to me because it has revealed to me *the alarming extent of your misconceptions concerning the nature and purpose of formal logic, i.e. of the work of the logician*, let alone further confirmed my conviction that *you do not fully understand a fortiori argument*. For convenience, I have numbered the paragraphs of your summary letter L-1 to L-10 and your specific comments C-1 to C-23. I will here try to react to your various statements, though in an order that seems appropriate to me.

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<sup>120</sup> Posted in The Logician website as *Addendum to A Fortiori Logic, chapter 25*. This addendum has so far not been published in any book or e-book. It was written in April 2014.

<sup>121</sup> *Studia Logica* 92(3): 281-364. For information, your original essay was 84 pages long; my chapter 25 was 15 pages (A4) long; your general letter was 2 pages long, and the 23 additional comments amount to about 1.5 more pages. The present retort is 13 pages long.

## 1. About “translation”

The main problem in your understanding of logic is **your very odd notion that all attempts at argument description and explanation, i.e. at formalization and validation, constitute “translation”** – by which term you apparently mean a “trivial and useless” *cosmetic rewording* of arguments found in ordinary discourse. According to you, such rewording cannot serve to reveal deductive arguments, but are effectively arbitrary. I quote you:

“Explanation and validation of the basic KVH itself is trivial, and make almost no difference to non-deductive arguments. To my opinion it is just a matter of translation. (C-6)

Every non-deductive argument can be translated to a deductive one, if you add premises. Take simple analogy between A and B (if A is X than B is also X). If you add a premise that their common attribute implies X you make it deductive. This is trivial and useless. That is exactly what I mean by translation in comparison to logical modeling. (C-7)

Because we are not translating, as you do. We deal with the logical dimensions of the SUGIA.” (C-22)

I would say that so long as you do not discard such attitudes, so long as you do not open your mind to more perspicacious and profound work by others, your logical comprehension and skills are bound to remain at a low level. “Translation” *from what to what* exactly? You do not say. You do not detail even one example of this alleged rewording process nor demonstrate why the results are, and indeed *are bound to be* (according to you), “trivial and useless.” It is all just *a vague notion* in your mind, through which you can conveniently *summarily dismiss* any work

you evidently do not understand or take the trouble to study closely.

One could perhaps regard the rewording by A. Schwarz of a fortiori argument in syllogistic form as a mere “translation” – but that would certainly not do it justice. The reason why Schwarz tried to formulate a fortiori argument as syllogism was in order to justify it, syllogism being a more easily and widely understood form of argument than a fortiori argument. As it turns out, Schwarz’s hypothesis was wrong – but not for the reason you assume, i.e. not because it constituted “translation.” The reason it was wrong, as I clearly show *in AFL chapters 5 and 14 (read them!)*, is that, even though they overlap somewhat, the information contained in a fortiori argument and the information contained in syllogism are not coextensive. Hence, Schwarz’s syllogism cannot fully justify a fortiori argument. In other words, the mere fact of “translation” has, contrary to your supposition, *nothing to do* with the rejection of Schwarz’s theory. His attempt to justify a fortiori argument by reducing it to syllogism is perfectly legitimate and potentially informative, but it is just not supported by the facts.

Moreover, while one might represent Schwarz’s attempt as a “translation,” as just mentioned, one could in no wise reasonably represent L. Jacobs’ simple and complex a fortiori types of a fortiori argument as “translations.” Again, from what to what? He is not changing the wording of arguments found in discourse, but merely *attempting to find their common features* by putting letters (A, B, x, y) in place of terms commonly found in discourse. He is by this means just trying to *summarize* information. There is no “translation” whatsoever involved, contrary to your imagination. The reason why his theory also fails (at least in part) is not due to its involving “translation,” but due to its not being applicable to all cases (i.e. it is overhasty generalization from some instances) and to its being

incomplete for the cases it does apply to (i.e. his formalization does not bring out all relevant features and therefore cannot be formally validated). This is thoroughly demonstrated in *AFL chapter 16 (do read it!)*.

All the more, the theory of a fortiori argument presented in my 1995 book *Judaic Logic*, chapter 3, which is a *more fully conscious* effort at formalization and validation of a fortiori argument, cannot be characterized as you claim so offhandedly as mere “translation.” To help you understand ‘where I’m coming from’ when I say all this, let us go back to the beginning of formal logic, i.e. to the work of its founder, Aristotle. *What exactly did Aristotle do when he developed the syllogism?* He must have noticed himself and others thinking or saying or writing arguments like:

Socrates is a man, therefore he is mortal.

Or like:

All men are mortal, therefore Socrates is mortal.

He must have asked himself: what makes such arguments cogent, what makes them *convincing* to our rational faculty? He must have carefully examined and thought about many such statements till he saw, perhaps in a flash of insight, *what* they had in common and *why* they were intuitively credible. He proposed the theory that the full argument in the above two examples was:

All men are mortal (major premise),  
and Socrates is a man (minor premise);  
therefore, Socrates is mortal (conclusion).

He was not really thereby “adding” a statement to either of the preceding arguments, but merely *bringing out into the open tacit but intended information* in each case (the major premise in the first case, the minor premise in the second case). He realized that *both* these premises were needed to justify the said conclusion, and that neither could do the job by itself.

Moreover, Aristotle could not really have done this without realizing *just why* these two premises led to this conclusion. He could not have properly *described* things if he had not properly *explained* them. Here, he developed the idea of individuals (like Socrates) *belonging* (that's the word he often uses) in a group of similar individuals (like mankind), and through this intermediary also *belonging* in a larger such group (like mortals). That is, he discovered *the middle term* which made the transition from the minor term to the major term possible. Once he grasped this reasoning process, he was able to *formalize* the syllogism in question to:

All B are C,  
and this A is B;  
therefore, this A is C.

This was not the end of his task, but in fact just the beginning. He had to now *test* his theory with reference to many cases which did *not* seem to fit in to this pattern. For example, he had to realize that the argument:

All men are mortal,  
and my cat is *not* a man;  
therefore, my cat is *not* mortal.

... is *not* valid and why it is not so. Moreover, he tried out every permutation and combination of terms in premises (the four figures, and the 64 moods in them), and thus developed a full theory of syllogism, listing both the valid and invalid moods (for more details, see my book *Future Logic*, chapters 8-10).

Now, Michael, Dov and Uri, everyone who has in his youth learned formal logic knows this story, and most students supposedly have understood it. But apparently it has escaped your notice or comprehension. Aristotle's development of the syllogism has obviously nothing to do with mere "translation." There is no "item translated" and

“item emerging from translation” about it - it is work of formalization, and validation or invalidation.

Note well that the process of validation (or invalidation, as the case may be) consists in *determining precisely under what conditions (if any) a given premise or set of premises implies a putative conclusion, or precisely through which premise(s) a desired conclusion can (if at all) be obtained.* Contrary to what you imagine, it is not arbitrary and futile manipulation of data; it is a very demanding process with very significant results.

The utility of this logical work is that it allows us to understand how and why we reason in certain particular ways all the time, i.e. why we naturally find this or that argument convincing and informative. It is of great importance to epistemology (and to our peace of mind, mental health and survival as living organisms) to know exactly how we reason and to justify, where possible, such reasoning.

The starting point of all logic theorizing has to be ordinary human discourse, which we become aware of by personal introspection and by observing other people’s speech and writings. Once the logician has isolated an argument type as an object of study, he tries first to describe it, then to explain its workings, and thence to prescribe how to correctly use it. The logician is not a superior being, above the crowd; he is an informed and skilful layman. He can and does improve his own and other people’s thought processes because he has studied the matter more than most people. It is clear from the following comment that you do not understand the development of logic as research primarily aimed at perfecting human thought:

“That is exactly the difference (sic) between a translation and logical model (as ours). A logical model need not to follow literally a layman way of thinking.

To my opinion, no layman needs help in order to deduce a conclusion by KVH. It is quite simple. That is exactly the reason why such a work is at most a translation. Can you give me an example in which your validation prevents getting a mistaken conclusion by a layman? I can give you many such cases in our model.” (C-11)

If you want many examples of mistaken conclusions by laymen, read the assessments in *part 3 of AFL*. Many people do make errors of reasoning – which they would not make if they had studied logic more assiduously. You too, as I show here, are far from skillful in reasoning. Study of formal logic improves thinking. As for your claim here that your “model” can prevent mistaken conclusions by laymen - I very much doubt it. It is so confused it can only cause confusion.

The development of a formal theory of a fortiori argument follows the very same process of search and discovery, and justification, as you can see if you read my descriptions of it. There is nothing fanciful or trivial about it; it is a scientific and revealing process. *You should take the time to study my book AFL, at least chapters 1, 2 and 3; and if you wish to be real scholars the whole 700 page volume, before making any more silly statements about “translation” and “non-deduction.”* There is nothing wrong with not-knowing something; but there is much wrong in entrenched refusal to learn and evolve.

## **2. About deduction**

According to your statements above quoted, all the deductions thus decorticated and authenticated by formal logic are arbitrary and trivial. You repeat this outlandish claim in your summary:

“You repeatedly assert that according to your approach an AFA is a deductive method. You base this on an ad hoc addition of basic assumptions. If that is done, every non-deductive assertion can easily become a deductive assertion. Hence, the discussion whether an assertion is deductive is moot, it relates mainly to the translation of the inference but not to its logical meaning.” (L-7)

**You imagine that we can justify *any* claim that, say, conclusion Z can be “deduced” from premises X and Y, by *merely* adding a premise that “X and Y together imply Z”. In that case the argument becomes, not:**

“Given premises X and Y, one can infer conclusion Z”

– but:

“Given that ‘X and Y together imply Z’ and that ‘X and Y are true’, it follows that ‘Z is true’.”

But these are very different arguments! The latter argument is a mere apodosis (*modus ponens*, affirming the antecedent) – whereas the former is a more demanding construction.

*How do we know that “X and Y together imply Z”? That is the question you do not ask. Is this premise true or false? You do not ask. Can one just affirm this connection of any triad X, Y, Z? You obviously think so. You base that belief on the example of analogy (in C-7) – but such simple analogy is not deductive argument, and therefore cannot exemplify your claim about the arbitrariness of deduction!*

The truth is, *no* non-deductive can be made out to be deductive by artificial means.

You, however, say (in C-7): “Every non-deductive argument can be translated to a deductive one, if you add premises,” and again (in L-7): “every non-deductive assertion can easily become a deductive assertion” – *but you do not say how you know in the first place that the assertion in question, whatever it is, is “non-deductive”!* You obviously think all assertions are in fact non-deductive.

Where have you first *logically demonstrated* that the assertions by Schwarz or Jacobs, let alone mine, are “non-deductive”? We can only label something as non-deductive if we are sure it is not deductive. Since you obviously do not understand the nature and basis of deduction, you are hardly in a position to judge what is or is not “deductive.” All you do is throw opprobrium on others’ theories by calling them “translations,” as if that cliché clinches the matter. Tell me, where in general logic theory – in metalogic – is the concept and theory of “translation” developed and validated? Nowhere – it is just a figment of your imagination.

According to you, then (since your statements are general, i.e. you say and repeat “every”), Aristotle’s syllogism is also just “translation” – based on nothing more than the arbitrary apodosis “Given that ‘All B are C and this A is B’ together imply ‘this A is C’, it follows that if All B are C and this A is B, then this A is C.”

Have you not noticed the *self-inconsistency* of your sweeping claim? You reject all of formal deductive logic *except* apodosis. But if all deductive logic can only be justified by an arbitrary apodosis, then even that arbitrary apodosis can only be justified by an arbitrary apodosis, and likewise the latter in turn, and so on ad infinitum. Do you understand this, which shows the naivety and absurdity of

your anti-deduction belief? I repeat for your benefit: if the only way to prove that “premises (X and Y) imply conclusion (Z)” is by saying: “if (X and Y imply Z), then if (X and Y) then (Z),” then the latter argument must in turn be justified by saying: “if (X and Y imply Z implies that if X and Y then Z), then given (X and Y imply Z), it follows that (if X and Y then Z); and so on without end.

In other words, your vision of deductive argument is that it is nothing more than *tautology*, in which case there is *no such thing as* deductive logic. There is, in your view, *only* inductive logic. You think it is useless and trivial to look for any necessary connections between things or ideas, and exclusively acknowledge your “logical modeling” method as capable of inferring more information from given information. If anything deserves to be characterized as “trivial and useless” it is surely this belief of yours, which is based on shocking ignorance of the genesis of formal logic and on faulty reasoning.

It is no surprise, in view of such attitudes, that the starting premise of your 2009 paper on a fortiori argument is that such argument is necessarily non-deductive. In response to a remark by me that this basic premise is mistaken, you reply:

“Nonsense. See below. (C-8)

You have to take into account that due to most of the commentators, the Talmud itself looks at KVH as a doubtful conclusion. That is the reason why you get no punishment if you committed an offence which is deduced by KVH.” (C-9)

The fact that the Talmud views a fortiori argument as open to rebuttal does not justify your view, for any deductive argument can indeed, even if formally valid, always be rebutted by attacking its premises. As I point out in my

original essay (i.e. in AFL), your English paper contains no analysis of the rabbinic doctrine of rebuttal, so you have not demonstrated your understanding of it. This doctrine does not constitute a denial of the deductive power of a fortiori argument, contrary to what you evidently imagine. This comment of yours shows that you have not yet grasped the difference between formal validity and concrete truth of premises. It is amusing that someone who does not know even such elementary aspects logic says “Nonsense” with such superb aplomb.

More than this, as your following comment makes clear, your opinion of deductive logic is so negative (due to your ignorance of it) that you regard *any* claim of deduction as ridiculous:

“Constructed deductively of course!! Let us remember that due to Sion KVH is deductive inference.” (C-20)

You criticize me for being angry (in L-2 and C-15). Well I might be outraged when I see so much nonsense being peddled by you as logic. But I assure you my judgment is not clouded by my just indignation. I am not in any way hostile towards you as persons, or in any way jealous of your or anyone else’s discoveries (if any). My only concern is with truth and falsehood, and this concern certainly should be passionate. It is in truth out of kindness that I have taken the time to criticize your wrong attitudes, and to advise you not to cling to them if you want to progress as logicians. If you are truly interested in logic, and in particular in a fortiori logic, you will follow my advice and study the matter further. Nobody forces you to do so; the choice is yours.

The truth is, formal deductive logic is the ultimate in “logical modeling.” When Aristotle provided valid syllogistic forms, or I provided valid a fortiori forms, this

was giving people *100% reliable models of logical discourse*. Given certain information, we might well be able to infer from it some other information, which is implicit in it but not immediately apparent. This is certainly not always possible, but it is certainly sometimes possible. To say that it is never possible (as you effectively do) is a silly as to say that it is always possible. The primary work of the logician is to try and find ways to demonstrate the connection between various premises and conclusion. Only if such demonstration is not found possible can one declare that there is no necessary connection, i.e. no deductive argument. In that event, one might try and find less than necessary connections, i.e. inductive arguments.

As regards the difference between deduction and induction, and in particular the difference between deductive and inductive a fortiori argument, I advise you to *carefully read AFL chapter 3, section 3*. A fortiori argument has in principle deductive force – when it is perfectly formulated. Nevertheless, when an attempted a fortiori argument is incomplete, i.e. when some needed elements of it are not clearly put forward, it can still be looked upon and treated as an inductive a fortiori argument, i.e. as one with less than deductive force, at least until evidence or proof to the contrary is provided.

The funny thing is that your denigration, and even denial, of deductive logic is quite unnecessary. You think you need to take an antagonistic stance in order to give value and importance to your proposal of “matrix abduction” of a fortiori argument, but in fact you don’t. There is room for your proposal even granting the existence and validity of deductive a fortiori argument, because your method (as I understand it, see below) can still in principle be applied to determination of quantitative variations within deductive a fortiori arguments, and all the more so to determination of quantitative variations within inductive a fortiori arguments.

Note that neither here nor in my original critique (i.e. in AFL) do I try to deny the possible utility and novelty of your work as such, as you suggest in your letter (quoted below). Why would I?

“Further on you write that our concept of abduction is not new. It seems you did not understand that we only use a certain type of abduction (which is indeed novel) as a logical tool for our purposes. Contrary to what you write, abduction is not the aim of our research, and in principle there is not supposed to be anything innovative in what we have to say about it. We here bring a new abductive algorithm for our logical purposes and not anything new about the concept itself.” (L-4)

I have no desire to put you down, no wish to deny or diminish your achievements. I rejoice at all advances in logic theory, or any scientific endeavor, whoever is their author. My only concern throughout is with the accuracy and relevance of your proposals in relation to a fortiori argument (as against other forms of proportional reasoning); I do not think them altogether worthless as you suppose.

### **3. Past attempts**

I think I know how you have got your idea that all attempts are formalization constitute mere “translation,” and are thus invalid, being non-deduction posing as deduction. Back in 1992, Michael Avraham published a paper called “The ‘Kal Vachomer’ as a Syllogism – Arithmetic Model” in *Higayon* (vol. 2. Pp. 29-46). In this essay, he made a first and only attempt at formal description of a fortiori argument, as follows (my translation from the Hebrew):

“If A is light in ‘a’ and heavy in ‘b’, then B which is heavy in ‘a’ will obviously be heavy in ‘b’.”

I analyze and criticize this proposed formulation in *AFL chapter 20*, and will not repeat myself here. Suffice to say here that this attempt, though valiant, was *unsuccessful*. It is incidentally interesting that you do not mention this essay and my review of it in your letter or comments. It suggests to me that you did not read chapter 20, which suggests to me that you did not even take the trouble to look through the table of contents of *AFL*, let alone read any chapter of the book other than chapter 25 (and possibly not all of that – see further on). This tells me something about your study methods.

Anyway, it is clear from this episode that Michael must have, if only subconsciously, realized the failure of his formula for a fortiori argument, and thus lost faith in formalization (which he thereafter called “translation”). It is significant that he made no attempt at its formal validation or invalidation. But it is clear from the fact that he thereafter, in the same essay, went on to try out a more inductive approach – albeit one, in my assessment, *leading nowhere* – that he came to regard a fortiori argument (as he saw it through his attempted formalization) as “non-deductive.” Apparently, he passed on his credo of “non-deductive translation” to his colleagues (Dov and Uri) in 2009.

But of course, these conclusions were just hasty generalizations on Michael’s part. Just because his own single attempt at formalization was not very convincing, it did not follow that other attempts might not be more successful. As I show in *AFL*, many people have over time tried their hand at describing and explaining a fortiori argument. Michael was certainly not the first or the last.

Yet he made no effort to find out whether other people did so better (or worse) than him. In the passage of your letter quoted below, you point to your lifetime experience in logic research; I have not read your other works, but judging from the two articles of yours that I have read you ought to humbly revise this favorable self-assessment of yours:

“Reading your words one gets the impression that there is nothing correct in our work, and that we actually do not understand what an AFA is all about, and what makes it different from analogy. That would be quite strange coming from people involved in all branches of logic research for several decades.” (L-3)

Returning to your 2009 paper, you do there (as we have already seen) mention the attempts by Schwarz and Jacobs, not to mention my own; but my complaint is that you do not make any effort to analyze them in detail. You merely list them and more or less reject them, but you do not say why exactly they deserve rejection. This is inadequate methodologically – you cannot claim knowledge that you have not publicly demonstrated.

Incidentally, in your comments, you complain that I criticize your brief exposition of Schwarz’s syllogistic formula for a fortiori argument, saying:

“As I remember, the identification with Aristotelian Sylogism (*sic*) is Schwartz's main statement. We think and wrote exactly the opposite. (C-2)

That is not ours but Schwartz's analysis of KAL VAHOMER.” (C-3)

Yet I clearly wrote: “The authors do not, however, intend thereby to subscribe to Schwarz’s theory.” So, you misunderstood my criticism. My point here is that it is not enough to declare that you disown Schwarz’s approach – you need to truly justify your distance from it.

I was also perplexed by your comments concerning Jacob’s simple and complex type of a fortiori argument:

“There is no such KAL VAHOMER as the first one. The second is our's Talmudic one (*sic*). The biblical is a third kind that Sion totally ignores here. (C-4)

This is all a misunderstanding. Look at my former note.”  
(C-5)

Here again, without any proof you claim that there is no *qal vachomer* of the first type (contrary to Jacobs, who claims all Biblical *qal vachomer* are simple); then you claim (like Jacobs) that Talmudic *qal vachomer* arguments are of the second type; then you claim that Biblical *qal vachomer* are of a third type that I (and presumably Jacobs too) totally ignore, a third type that you never go on to describe! Now, I ask you – is this serious scholarship? Where is your formal study of Jacobs’ two types; and what is your mysterious third type? Where is your *empirical* study of all Biblical and all Talmudic *qal vachomer* that allows you to make such sweeping statements? You here speak with a tone of authority, but you are just expressing your vague prejudices again.

I can speak knowledgeably about Jacobs’ theory of a fortiori argument because I have read all of his writings on the subject and written a thoughtful 25-page essay on it (see *AFL, chapter 16*). And I can speak about Biblical a fortiori argument because I have done *empirical* research in that field, listing and analyzing 46 arguments, many of them previously undiscovered (see *AFL, appendix 1*). As regards

the Talmud, I have listed and analyzed (following Samely in most cases) 46 Mishnaic a fortiori argument (see *AFL*, appendix 2), and have made efforts to examine the use of many such arguments in the Gemara (see *AFL*, appendix 3). Your statements, on the other hand, are *unsubstantiated assertions*, not based on systematic research.

I *show* in my book that Jacob's first type is, from a formal point of view, merely an abridged version of his second type. In the former, the middle term is not explicitly mentioned, whereas in the latter it is. Moreover, I *show* that there are arguments of both types in both the Tanakh and the Talmud (thus rebutting Jacobs' claim that the first type comes from the Bible and the second from the Rabbis) – and also that there are arguments of other types (i.e. that Jacobs' formulation is far from exhaustive). You just make wild claims.

As far as I am concerned, as already explicated earlier, both Schwarz and Jacobs were way ahead of you in their understanding of the task, even if they did not find the correct or complete solution to the problem of a fortiori argument. But in any case, your mention in passing in your paper of these two authors, and of my *Judaic Logic* work, does not constitute scholarship. As far as I am concerned, this is just name-dropping, to give an illusion of having looked at the literature. Your passing mention of the Islamic *qiyas* and the Indian *kaimutika* fall under the same category, as far as I am concerned. If you wished to scientifically claim that *all* theories of a fortiori argument preceding yours were worthless (as you have the *chutzpah* to do), you were duty-bound to list *all* the theories you had in mind and to closely analyze them *all*. Don't take people for fools – make a real effort.

In my book, I analyze the work of some thirty modern authors, not to mention many less recent ones. So, I can tell you who said what, and why what they said is wholly or

partly right or wrong. There is no guesswork involved, but patient (*ad nauseam*) sifting through actual data and careful reflection.

One of the most interesting findings of this research was the discovery of the contribution of Moshe Chaim Luzzatto (the Ramchal). His work is distinguished by its clearly listing the four main forms of a fortiori argument (which I have called the positive and negative subjectal and the positive and negative predicatal). Even so, his work is not the definitive solution, for two related main reasons. He failed in his formalization to realize and mention the crucial factor of “sufficiency or insufficiency of the middle term,” and he made no effort at validation (which would in any event have only been possible through the sufficiency or insufficiency of middle term).

Your approach to a fortiori argument, lacking such subtleties, is incapable of analyzing and judging past contributions.

#### **4. A fortiori argument?**

This brings us to your claim to know a fortiori argument and to have devised a way to represent it. I have no doubt that you can, in most cases, tell at a glance that a certain argument is intended to be a fortiori. After all, whoever wrote the text (or spoke the words) intended his argument to be so received. But to recognize an a fortiori argument’s grammatical form (or the keywords indicative of such argument) is not the same as to understand its logical structure and workings. You have not shown yourself to have grasped the latter.

As I have shown in AFL, chapter 25, the techniques you use to represent a fortiori argument, such as tabulation, are not capable of distinguishing between the different forms

of the argument. A fortiori argument may be copulative or implicational; if copulative, it is *subjectal* if the major and minor terms given in the major premise are the subjects of the minor premise and conclusion, and it is *predicatal* if the major and minor terms given in the major premise are the predicates of the minor premise and conclusion (similarly, if implicational, it may be antecedental or consequential, according to where the major and minor theses appear); these arguments may be positive or negative; there is also a distinction between primary and secondary arguments; there is also a distinction between purely a fortiori argument and a crescendo argument, the former being non-proportional and the latter proportional.

Your method is too rough to discern and take into account these various fine distinctions. Yet these distinctions are all very significant in determining the conclusion from given premises. For instances: positive subjectal and negative predicatal arguments go from minor to major, whereas negative subjectal and positive predicatal arguments go from major to minor. In your approach, you can go equally well from minor to major or from major to minor in all cases. In a fortiori argument, this is impossible (except in the special case of a *pari* argument, which is bidirectional). This goes to show that **your method is not essentially concerned with a fortiori argument, but with quantitative analogy or pro rata argument**. It is simply about predicting missing quantities from given quantities, given that some proportionality is present.

This is why you can claim that your method applies equally well to a fortiori argument and to simple analogy and to more complex analogy (*binyan av*). You evidently think that this is a bargain – two or more articles for the price of one! Thus, you write the following comments:

“Our main statement is that analogy, a-fortiori and many other logical inferences can be put together on the same basis. This is another advantage when one deals with logical model rather than a translation. It appears that Sion didn't understand this basic (and novel) issue in our work, so it is not surprising that he sees no new concept here. (C-19)

Here again you miss our main point. A-fortiori and analogy can be put on the same general logical basis.” (C-23)

The truth is that your method only addresses the *lowest common denominator* of these three forms of argument – namely, proportionality. Given certain specific ratios are true, or given a certain general formula regarding concomitant variation, one can fill in blanks in information. But, though this element of proportionality is found in *some* a fortiori arguments (specifically, in a crescendo arguments), it is not really found in all of them. Moreover, even where it is found, when dealing with a fortiori argument *we cannot normally (i.e. except in egalitarian moods) reason in any direction we please. We can only reason from minor to major or from major to minor. If we reason in the wrong direction, given a certain structure, we are making an illicit inference – it is fallacious reasoning. Your method cannot integrate this crucial distinction; it is too indiscriminate.*

You, of course, repeatedly claim to be able to distinguish these various forms of argument in your system – but you provide no evidence or proof of such ability. For instances, in your letter, you write:

“You repeatedly assert that that we do not understand the difference between an AFA and analogy, and mix the concepts up. But we are well aware of the

differences between these concepts, and do not compare them anywhere. (L-5)

You do not seem to have understood our principal innovation in this and other papers, which is the following: Consider inferences of the following types: AFA, analogy (binyan av based on one or more verses), their rejections and also expanding structures built from such inferences. All these inferences can be united within one conceptual and logical structure, and can be analysed in a similar manner. It does not mean that they are all identical (as you think we are saying), rather that their differences may be exposed using the same box of mathematical and logical tools.” (L-6)

Note your admission that you “do not compare them anywhere,” even as you assert that “their differences may be exposed using the same box of mathematical and logical tools.” You perhaps do not equate them – but you certainly do not clarify their differences. In truth, to repeat, your tools can only deal with proportionality, which is the common feature of simple and complex quantitative analogy and of a crescendo argument. Your tools refer to the commonality of these processes, but are not able to differentiate them.

Regarding the figures and moods of a fortiori argument I invite you to *study AFL chapter 1*. Regarding the distinction between pure (non-proportional) and a crescendo (proportional) a fortiori argument, I invite you to *study AFL chapter 2*. Regarding the formal distinctions between a fortiori argument and simple and complex analogy, I invite you to *study AFL chapter 5, section 1*. If you have not studied these chapters, you cannot claim to have taken these issues into consideration in your work. *You cannot claim knowledge or ability that you have not explicitly displayed for all to see*. You have to study – it is

not a substitute to bluntly “deny” the work or criticisms of other people without taking the time to study. If the subject does not interest you, that’s fine. But to claim that it does interest you and yet not to do the necessary work, that’s wasting your time and others’. Study is not a hardship – it is enriching.

In one of your comments, you ask:

“Does Sion's attitude explain more complex structures than ours?” (C-6)

The answer to your question is surely yes. If you had taken the trouble to study the work before you, you would not have asked such a question.

I have taken into consideration a great many subtleties in my analysis of a fortiori argument that you do not even dream about, let alone mention or deal with. *Your approach is naïve and simplistic.* Look at the table of contents of my book AFL. Have you even looked into any of the issues there raised? E.g. Have you considered quantification (ch. 3.2)? Or antithetical items (ch. 3.4)? Or the differences between ontical, logical-epistemic and ethical-legal a fortiori arguments (ch. 4)? It is evident from your work that you are only (if vaguely) aware of the simplest form of a fortiori argument, namely the positive subjectal mood. You do not even treat the corresponding negative mood, let alone the positive and negative predicatal moods.

Even though in your letter (L-6) you claim to have dealt with “rejection” of arguments, you have in fact not clarified how your approach effectively differentiates between positive and negative arguments. Moreover, you even confuse the positive subjectal mood of a fortiori argument with the positive subjectal mood of quantitative analogy, since as already pointed out your arguments are reversible

(i.e. do not only proceed from minor to major). You think I am wrong in levelling this criticism against your work because you have not yet, even now, understood this criticism.

In the following comment you express indignation at my referring to your table as mere analogy, and not a fortiori argument:

“1. Please just read what it says! Fig. 46 deals with the second step, and not with step 1. It is stated clearly. Step 2 is exactly similar to this table, with no translation or hidden premises. 2. According to your approach step 2 is analogy and not a- fortiori. This is false of course' as one can see in the Talmud itself.” (C-21)

This comment once again shows you do not understand that such a table *cannot* represent an a fortiori argument per se, but only the analogical subtext of a fortiori argument, for the simple reason that the issue of the sufficiency of the middle term, which is a distinctive feature of and essential to a fortiori inference, is simply not reproduced in this sort of tabular representation. Just because you have in the back of your mind the thought that this table is intended to represent an a fortiori argument does not mean that the table actually performs this desired function – all it does is illustrate the underlying proportionality. It is useless for you appeal to the Talmud’s labeling of its argument as a fortiori – this does not prove that your representation of it is entirely accurate. You need to become more conscious if you wish to progress in logic; you are still very much a novice.

You refuse instruction offhand. In my original critique (i.e. in AFL), I try to draw your attention to the difficulties inherent in quantification within a tabular representation like yours, and here is what you remark:

“1. If you take an example (like a simple KVH 2x2 table) you can see that we're quite right. Is half payment of KEREN in RESHUT HARABIM a general or particular statement? Is it right in most cases or at all of them? 2. According to your suggestion I would rather take fuzzy logic with infinitely many values.” (C-10)

This reaction is indeed the product of a fuzzy mind. Your thinking is far too rough; you are satisfied with mere approximations; you do not show the patience to deal with fine details. One cannot opt for fuzzy logic when precise logic is available – it can only be a last resort.

## 5. In denial

Your letter and the related comments display one common feature throughout – you are *in denial*, refusing any and all criticisms of your 2009 article. I do not doubt that in your own assessment, you have committed no errors or lacunae; but I suggest that this is because since writing that essay your thought has not evolved, because you have made no effort to study the matter further. Although you deserve high commendation for having the scientific spirit to reply to my criticism (for many others whom I have criticized have not displayed such spirit), you do not show the same spirit with regard to *acknowledgment* of any errors or lacunae in your approach. In your letter, you state:

“You express your appreciation of Dov Gabbay's "scientific sportive spirit", i.e., his readiness to examine criticism of his work in an open and honest manner.” (L-9)

This is a good definition of scientific spirit (I never said “sportive,” by the way, but that’s unimportant). But I would add that this spirit includes willingness to admit errors or lacunae. I do not see such willingness even in your reaction to the most obvious errors which I pointed out to you.

I refer here to *AFL chapter 25, section 3*, where I point out to you that:

- *given* that only three quantities are possible, namely 0,  $\frac{1}{2}$ , or 1, then:
- if we have four variables A, B, C, D, and we are *given* that C:D as A:B, it logically implies that whenever  $B > A$ , it *must* follow that  $D > C$ : so that:
- (a) in the specific case where  $A=0$  and  $B=1$  and  $C=\frac{1}{2}$ , it follows that  $D=1$  (and *cannot* be  $\frac{1}{2}$ );
- similarly, (b) in the specific case where  $A=0$  and  $B=\frac{1}{2}$  and  $C=1$ , it follows that  $D=1$  (and *cannot* be  $\frac{1}{2}$ ).

<b>A = 0</b>	<b>B = 1</b>
<b>C = 1/2</b>	<b>D = 1</b>

(a)

<b>A = 0</b>	<b>C = 1</b>
<b>B = 1/2</b>	<b>D = 1</b>

(b)

This is a simple ratio calculation and not open to debate – ask anyone in your university’s mathematics department. Yet you refuse the criticism and continue to blithely claim that D may = 1 or  $\frac{1}{2}$  – and even, here, therefore just  $\frac{1}{2}$  (!) – as is evident in your comment:

“When the conclusion is  $X \geq 1/2$ , this means that practically you cannot take more than  $1/2$ . This needs no further explanation in the logical context, and there is no discrepancy.” (C-14)

*No, sir.* The *only* conclusion you can draw either way in your tabular approach is 1 (like R. Tarfon), and there is *no* place in it for the conclusion  $1/2$  (and therefore also no place for the vaguer conclusion “1 or  $1/2$ ”). Yet you insist on the latter conclusion, in order to make your approach seem capable of addressing the Sages’ disagreement with R. Tarfon. Whether this is lack of attention or lack of intelligence or dishonesty on your part, I cannot say – but I can say that it is error, and you must admit the error. If you admit the error, it is a minor issue; but if you refuse to admit it, it becomes a major issue.

The scientific spirit, ideally, is to be only concerned with truth and falsehood, and not with one’s personal standing or any ideological prejudice. In your following comments, you protest that it was not your intent in your original English paper to explain the debate between R. Tarfon and the Sages (which is presented in the Mishna *Baba Qama* 2:5), and you accuse me of miscomprehension and my critique of irrelevancy if not dishonesty:

“You missed the whole issue. We use this KVH just to demonstrate a simple KVH, and we did not intend to explain the SUGIA itself. You decided that we have to explain the SUGIA, then criticize us about the missing exact page, and about not explaining the TANAIC concepts and debate, and especially DAYO. This is an unfortunate case of reading mis-comprehension. It seems to be due to your evident anger. You must put that aside in order to keep your ability to understand and

criticize honestly. You can delete about 2 irrelevant pages of discussion here. It is all based on a mistake. (C-15)

The AFA that we cited from Babba Kamma (R. Tarfon's dayo) was meant as an illustration only, to show the reader an example of a Talmudic AFA. You spend a lot of effort (over several pages of the chapter) to explain the issue (*sugiya*). You thus attempt to show that we did not explain the opinions of the tannaim and their argumentation (and even did not include a reference to it). But it never was our intention to explain all this or relate to it, but only to show an example of a Talmudic AFA.” (L-8)

This is evading the issue, which is that your method of a fortiori argument analysis is, contrary to your claim, *incapable of representing even this one* fundamental Mishnaic debate which you take as an example, let alone all possible debates. You perhaps imagine that you are successfully representing the debate, because you are unaware of your error of calculation. But I show you that your method in fact *can only* explain R. Tarfon's position (viz. full compensation either way), and *cannot* explain the Sages' counter posture. Surely that is a very relevant objection; and since I prove my case it is neither miscomprehension nor dishonesty on my part. Moreover, the fact that your method can only duplicate R. Tarfon's position and has no place for the Sages' is indicative of its simplicity – it just deals with proportions, i.e. it is technically only about analogical reasoning and not about a fortiori reasoning.

You cannot use a text (the said *sugya*) as an example and misrepresent it, and then complain when someone objects to such misrepresentation that it was not your intention to fully analyze the issues involved. Your intellectual duty

here was to lay out the relevant elements of this *sugya* – including the fact that R. Tarfon twice concludes 1, whereas the Sages opposing him twice conclude  $\frac{1}{2}$  (motivated by a *dayo* statement, which therefore also needs some mention and explanation). Your method, objectively, could only come up with R. Tarfon’s conclusions (1) and could not reflect the Sages’ position ( $\frac{1}{2}$ ), let alone its motive (*dayo*). This is not “missing the whole issue” – it is very much the issue.

It is not enough in this context to refer me (or any reader) to your Hebrew paper, as you do in these comments:

“In order to understand R. Tarfon and the others you can read the Hebrew paper. Here we don't explain it. (C-16)

If you will read our Hebrew paper you will get the exact explanation to the DAYO also. But this is not our aim at this stage. (C-17)

We had no intention of explaining it here.” (C-18)

No one expects you to reenact the whole *sugya* in the English paper, if that is not your intent. But you must state the relevant elements of your interpretation in a few words – not just to show you understand the discussion, but to enlighten the reader with your lights. I have not read your Hebrew paper; but I am very skeptical that you have in it accurately analyzed the rabbinic discussion, for the simple reason that one cannot truly understand it if one does not have a clear idea of a fortiori reasoning, and you do not. If you have not grasped the different forms of such argument, and the way their premises might be arrived at, you cannot grasp the nature and variety of the Sages’ *dayo* objections. You may think you have “the exact explanation of the *dayo*,” but I doubt it. I challenge you to produce and send me a faithful English translation of your Hebrew paper

(without any ex post facto revisions, please), and I will tell you exactly where you went wrong. Alternatively, read my account of *Baba Qama* 2:5 and 25a-b (in *AFL*, chapters 7-8), and see for yourself where we agree or differ. You might well learn something new!

If you discern anger in my rebuttal, it is because I do not like being taken for a ride. It is obviously comforting to you to imagine that, as you put it in your letter, I display “a basic lack of understanding” of your work, but I think I understand it only too well – well enough, surely, to find fault with it. You use this accusation to close the subject, saying:

“After realising that your words show a basic lack of understanding of our work, we did not proceed any further.” (L-1)

And indeed, your comments stop well before the end of my critique (a bit past the halfway mark, to be more precise)! Perhaps you think that everything I said after that point was just (more) hot air – or maybe you could not face the criticism or understand it, and preferred to walk away from the discussion under the pretext that I do not understand your work. Did you read the remaining pages? If so, was there nothing in them that you found relevant or significant?

Interestingly, just after your last comment (C-23) I propose to you a “modified table” in which the issue of sufficiency of the middle term is taken into consideration. I suspect you have no comment on that suggestion because you do not understand the need to take this issue into account if your tabular representation is to refer to a fortiori argument instead of just to analogy. Am I here misunderstanding your work, or are you failing to grasp my criticism?

Thereafter, I show how your analysis of the *sugya* in question (*Kiddushin* 5a-b) “mixes apples and oranges,” i.e. *indiscriminately lumps together* arguments that are a fortiori and others which are not, in a complex tabular unfolding. I explain clearly that such compound tables must be avoided because they blur the boundaries between individual arguments in the chain of reasoning (rather than “unite” them as you claim in L-6). Furthermore, the fact that these “expanding structures” (as you call them in L-6) *are not mechanically generated but require human intervention* to build up is cause for suspicion. Perhaps you can understand these concerns more readily if I refer you to my critique of G. Abitbol in *AFL, chapter 21, section 4*. He, like you, dealt with refutations by expanding the initial table of four cells, i.e. by adding cells (vertically or horizontally) – whereas it would be more accurate and safer to construct antagonistic tables that respect the number of terms operative in each individual argument.

In the next section of chapter 25, I criticize *your overall methodology* by pointing out that an inductive method such as yours cannot be “proved” by testing it once or twice, particularly if the material used for the test is itself open to doubt or at least still unproven (as is the case with examples drawn from the Talmud). If you had tested your method say twenty or fifty times, on all sorts of reasonably trustworthy material, and found it fitting every time, its reliability would certainly be highly confirmed. But as your paper stands, that was not the case. Perhaps you can understand these concerns more readily if I refer you to my critique of Y. Ury in *AFL, chapter 29, sections 2-3*. He devised a way to represent a fortiori arguments and, like you, tested it on a few Talmudic arguments; after which he too optimistically predicted it applicable to all arguments. Surely, if you disagreed with these criticisms of your method, you should have defended yourself; and if you agreed, you should have said so. Yet you chose to ignore

them all, under the pretext that I misunderstand your work. I have written a *haiku* (that's a Japanese style of poetry consisting of 5-7-5 syllables), which sums up the present essay for you:

Pearls on a platter –  
This food is too rich for him.  
Prefers his own '*ful*'!

With thanks for your kind attention, and friendly regards.

## 5. BAR ILAN'S JOURNAL, BDD

### 1. Submission and rejection of an article

Back in January 2014, soon after I completed and published my book *A Fortiori Logic*, I went to Israel for a well-earned vacation. I met Prof. Ely Merzbach in Jerusalem over a cup of tea. We had met before, years ago in his office at Bar Ilan University, and had kept contact since then through occasional e-mail correspondence. I was indebted to him for having, back in 1997, after publication of my book *Judaic Logic* in 1996, consented to publish a short article on that subject in the journal that he edited at the time, called *Higayon*. The article was an extract from the book, and was entitled *Forms of A-Fortiori Argument*.

In 2014, over tea, Prof. Merzbach kindly offered to publish an article related to my latest work in the journal he now edited, called *BDD*, which was dedicated to interfacing Jewish studies and Science. He specified the number of pages and mentioned that the article would have to go through a review process. I was delighted by his offer, having in truth hoped for it. I set about preparing the text in May of that year, after submitting its proposed content to him, and submitted a 20-page paper before month's end. Three months later, to my great surprise, I received a report written by an anonymous reviewer rejecting the submission.

I did not greatly mind the rejection *per se*, but was truly shocked by the stark ignorance and intellectual dishonesty, and indeed outright hostility, of the anonymous 'reviewer'

who recommended it<sup>122</sup>. In my simplicity, I could not understand the possible motive of such unfair treatment, and went about replying to his technical criticisms point by point. In my innocence, I initially took these criticisms at face value, and responded *bona fide*. But it was, of course, useless: he was determined from the start to block publication of the article, irrespective of its logic and truth. The arguments he constructed were only rationalizations of this foregone conclusion<sup>123</sup>.

You will find my two retorts below; these are interesting both from the standpoint of logic and from that of academia. Judge for yourself. The article I had submitted is now a chapter of the present book<sup>124</sup>.

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<sup>122</sup> Although I asked repeatedly for revelation of the critics' name and qualifications (if any), it was denied to me. It is amazing to me that an academic journal keeps such information secret: this is akin to judgment by a kangaroo court. In this particular case, the 'reviewer' was manifestly ignorant and lacking in intelligence; so, I am sorry not to be able to publicize his identity. His remaining anonymous is proof of his lack of qualification; if he was qualified, he would have proudly given his name, taking full responsibility for his words and deeds.

<sup>123</sup> Ely Merzbach disappointed me by not, as editor, reading and judging the article for himself. He did propose to me to submit the article to a second reviewer, and I accepted, although I told him not to send me the reviewer's report this time, as I was in no mood to waste more time on the subject (I was in fact, at that time, suffering from chronic intense physical pains due to a recent accident). A few months later, in January 2015, one year after my submission, he regretfully sent me a negative final verdict. Apparently, the editor of BDD has no say in these matters; he is a passive intermediary. Nevertheless, I resent his having refrained from telling me *from the start* (either before I wrote the paper or as soon as he received it) that a Bar Ilan publication could not countenance a critical discourse like mine; that would surely have saved me much time and vexation. Or at least, after I refuted all the fake objections that his evil stooge put forward, he should have had the good grace to admit that the verdict was unjustified and to apologize; but he chose to keep silence, effectively condoning the lies and insults. I am sorry, in retrospect, to have trusted him.

<sup>124</sup> See chapter 1.

It is only a couple of months later (yes, I am slow at times) that, reflecting on the whole episode, I finally saw *the elephant in the room!* I realized that the reviewer was so intent on preventing my essay's publication because it mentioned some of my *findings critical of the Gemara* (the later phase of the Talmud), even though my findings were generally favorable to the Mishna (the earlier phase). In his report and in his reply to my first retort, he tried to find fault with my method and logic, but was very careful not to mention or challenge my criticism of Talmudic reasoning. He did try to deny, in a brief, vague and unsubstantiated manner that my analysis of a fortiori argumentation was at all applicable to the Talmud, saying:

“the four moods of a fortiori arguments described by the author do not have any sense for *qal vachomer* arguments used in the Talmud. The matter is that the Sages appeal to the a fortiori argument limited by the so-called *dayo* principle.”

He could hardly have formulated a statement more ignorant, idiotic and dishonest than this one. This was a statement delivered *ex cathedra* by someone who was, as appointed “referee,” apparently not obligated to demonstrate through empirical evidence the correctness of his opinion. He mentions no scientific study on which he based it. And of course, there is no such study; if there were, I would surely have found it and cheerfully debunked it in my book, *A Fortiori Logic*, which was the most thorough study of the subject ever made in history. This man, manifestly without any knowledge of the subject at hand, not even considering the evidence presented in the paper he was supposed to read, had the gall to make this statement with a tone of authority and finality.

It is now clear to me that what really frightened the reviewer, and the editor behind him and the university powers-that-be behind the editor, were statements like the following:

Now, one would have expected all that has been said above concerning Mishna Baba Qama 2:5, our analysis of the *qal vachomer* arguments involved and of the *dayo* principle, to have been said in a Gemara commentary on this passage. But, no; surprisingly, nothing of the sort appears in it. Instead, we find the Babylonian Talmud embarking on a set of relatively irrelevant investigations and making some very doubtful claims.

I stress that this statement and others like it in my works are never gratuitous, but always based on *truly very detailed and careful* analysis. I have never been motivated by the desire to debunk Judaism, but always tried my best to study it with respect and fairness. When I make negative comments about Judaism, it is always with a sad heart, albeit with the conviction that I am being fully objective and truthful. Notice the mildness of my tone; there is no triumphant hostility in it. Moreover, earlier in the same essay I praise the Rabbis as follows:

Nevertheless, they mastered this form of reasoning [a *fortiori* argument] very well in practice (with a few notable exceptions); and they resorted to it very often.

But to dogmatic minds, statements like the above are heretic. ‘What! You dare suggest that some Rabbis of the Talmud may not be perfectly knowledgeable and wise?’ In their conventional minds, the Rabbis are effectively omniscient and infallible. All *yeshiva* and *kollel* studies, and all orthodox exegeses and commentaries, are based on this precise, scholastic assumption. This is, of course, absurd – no human being has or has ever had or will ever have such powers. Some people are very knowledgeable and competent, and some are much less so; but no one is

free of occasional ignorance or error. To claim otherwise is mendacious.

One can, surely, say that the Rabbis were occasionally ignorant or in error, without thereby denying that their work was largely intelligent and accurate. But according to Jewish tradition, the Rabbis were divinely inspired, mere vessels for the transmission of Divine revelation; so, they could never say anything untrue or make any mistakes. This claim, of course, has to be taken on faith; it cannot be proved in any rational manner<sup>125</sup>. Faith cannot be considered as *proof* of anything.

Once I realized this – that the real reason for the rejection was simply the unwillingness to publish any work (even a bit) critical of the Talmud – I was considerably appeased (though with many a shake of my head at the stupidity and bad faith of the people involved).

Obviously, the reviewer saw himself as heroically serving G-d by protecting the Jewish faith from inimical intellectual assaults. People involved in such apologetics do not worry about being guilty of misrepresentations and lies; they consider themselves to be engaged in holy work, with the end justifying the means. They do not ask themselves if G-d might perhaps by far prefer honesty and truth to such fake virtue. To my mind, having the courage to say the truth, even when much social pressure is brought to bear against doing so, is genuine service of G-d and virtue.

I don't want to get heavy, but allow me to quote the Torah here: "Ye shall do no unrighteousness in judgment, in meteyard, in weight, or in measure" (Lev. 19:35); this I

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<sup>125</sup> And of course, the Jewish tradition is not the only one to make such claims for its saints and teachers; other religions do the same for theirs.

take to mean, in the realm of logic and philosophy, that one must strive for empirical exactitude, analytical accuracy and overall good judgment. Again, “Ye shall not steal; neither shall ye deal falsely, nor lie to one another” (Lev. 19:11); this I take to mean that one may not steal people’s belief and trust through consciously false doctrines, and by means of lies of commission or omission. In the realm of the intellect, as in that of commerce, *honesty* is surely the supreme virtue. To deliberately hide the truth is surely vicious.

Of course, the BDD people did not say out loud what motivated their rejection. To do so would have opened them up to universal ridicule in the academic world. Rather, the reviewer made a show of attacking other parts of my essay, pretending to find fault with my method and logic, while steering well clear of any comment regarding my analysis of relevant passages of the Mishna and Gemara, so as not to reveal his real motive.

Even though 30% of the text concerned the Talmud, he surprisingly found almost nothing to say on that subject, which one would have thought would have been his main area of interest. I assumed at the time that this was because he was too lazy to read what I wrote, or couldn’t understand it; but later I realized that he was just being very careful to avoid drawing attention to the deep fears this part of the text produced in him.

Needless to say, if the BDD editor and the people above him were confident of their beliefs, they would have allowed the article to be published, and simultaneously or later allowed other contributors to publicly debunk its claims. This is, after all, in theory, one aim of truly scientific journals: to stimulate thought and debate; in logic and philosophy, errors can be as interesting as correct findings. The fact that they chose to block the article from being publicized at all was a demonstration, if anything,

that they feared it and could think of no credible way to refute its findings. They thus selected a sufficiently dull ‘reviewer’ to make a parody of reviewing, and make it seem as if they gave the matter due consideration.

This episode made me discover that still, in this day and age, there is a university out there, Bar Ilan, which is not entirely loyal to the modern academic ideal of truth and science<sup>126</sup>, and is willing to suppress observations and analyses that are antithetical to its religious assumptions. Surely, to deliberately prevent knowledge from being transmitted is evil. I must say that, before I started writing the article I wondered whether the publisher would react negatively to critical thought; but I said to myself, “nah, it can’t be the case.” I assumed no self-respecting university would do such a thing! How naïve of me.

## 2. First retort to the anonymous referee

Sir, acting in your capacity as ‘referee’ for the journal BDD, you have (on Aug. 12) written a very negative assessment of my paper, “About A Fortiori Argument, in General and in Judaism” (submitted May 28), ref. #261. The following lines constitute my reply to your two-page essay. I hope you will have the courage and attention span required to read it all.

I do not know who you are, since you did not sign your work, and therefore I do not know what your paper qualifications are. Even so, I can easily see and demonstrate that you are in fact unqualified for the task handed to you.

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<sup>126</sup> Note that I use the word *ideal*. I do not believe the ideal is fully adhered to in any university. But that’s another discussion.

1. Let us to start with go to the crux of the matter, and find out **the level of your personal logical knowhow and skill**. You evidently fancy yourself quite knowledgeable and capable, but I will quickly show you that you are *quite incompetent*.

You claim, in the superior tone of one who is ‘teaching a lesson’, that I “implicitly” appeal to the following semantics: viz. that “P is more R than Q is R; Q is R enough to be S; then P is R enough to be S” means:

“P is R”  $\geq$  “Q is R”;

“Q is R”  $\geq$  “S is R”;

then “P is R”  $\geq$  “S is R”.

Now, I can assure you that I do *not anywhere* and would *never* assume or suggest this *inane* symbolic interpretation of a fortiori argument (or more specifically, of the positive subjectal mood of such argument)! This is *your own moronic concoction*, and I strongly resent your attributing it to me since it is utterly erroneous.

For a start, if the given major premise is “P is more R than Q is R” then its symbolization would be “P is R”  $>$  “Q is R” (and not as you have it  $\geq$ ). This is not very important in the context, but it demonstrates your inattention to detail.

Secondly, the minor premise and conclusion certainly *do not and cannot* mean “(Q is R)  $\geq$  (S is R)” and “(P is R)  $\geq$  (S is R)”, respectively. This is obvious immediately, since S is a *predicate* (of Q, then of P) in the said propositions, whereas you represent it as a *subject* (of R)!

The correct symbolic interpretation of these propositions would rather be (in part): “(Q is Rs)  $\rightarrow$  (Q is S)” and “(P is Rs)  $\rightarrow$  (P is S)”, respectively, *where Rs is a certain threshold value of R required to be S*, as made clear in my own paper. (Here, of course, the symbol  $\rightarrow$  means ‘implies’.)

You claim to have read my essay; but I very much doubt that you have more than very quickly skimmed through it. For if you have read it, how is it possible that you have not even grasped, let alone digested, this central concept of my whole teaching regarding (positive) a fortiori argument, namely that it inevitably depends on sufficiency of possession of the middle term (“is R enough to be”)? This is repeated again and again in my paper, not to mention the book it is derived from. For instance:

It is important to grasp the intent of the word “**enough**” (or “sufficiently”) in the minor premises and conclusions above detailed. These tell us that the subject has whatever amount of R it takes to merit the predicate; i.e. that the subject has at least the amount of R *required for* the predicate. The word “enough” informs us that there is a **threshold value of R** *as of and above which* the subject *indeed* has the predicate, but anywhere *before which* the subject *does not have* the predicate; the R-value of the subject is then specified as falling on the required side of the known threshold.

The above shows that your understanding of the text at hand is *nil*. You cannot even correctly formulate a logical sentence; yet you *pretentiously posture* as able to judge the matter at hand from a higher plane! A man cannot learn anything if he does not open his mind and patiently study a matter.

Your claim that a fortiori argument may be symbolized as “P is R”  $\geq$  “Q is R”; “Q is R”  $\geq$  “S is R”; then “P is R”  $\geq$  “S is R” is simply a claim that it is inference from quantitative comparisons, i.e. argument of the form: if  $A \geq B$ , and  $B \geq C$ , then  $A \geq C$ . Not only do I not advocate this in my writings, but I repeatedly warn against it.

What is evident from your effective advocacy of it (or your attribution to me of such advocacy) is that your knowledge of the possibilities of logical argument is limited to a very

narrow range. You try to reduce things too complex for your mind to grasp to simple formulas within your intellectual range, refusing to broaden your perspective.

Note also that I said above that “ $(Q \text{ is } R_s) \rightarrow (Q \text{ is } S)$ ” and “ $(P \text{ is } R_s) \rightarrow (P \text{ is } S)$ ” is only *part of* the symbolic interpretation of a fortiori argument, because there is also a negative aspect to consider, as I do in my paper (see quotation below). Your account totally ignores this.

As regards your underlying claim that my theory of a fortiori argument is limited to Aristotelian relations (essentially, just the copula ‘is’) – this too is utterly false. In my book (AFL 4.1), I explicitly say that such limitation is not intended:

I have called the first four moods ‘copulative’ because they involve categorical relations indicated by the copula ‘is’ (or ‘to be’). But it should be clear that they could equally well involve other categorical relations; also, negative polarity may be involved and non-actual modalities (can, must, and different probabilities in between) of various modes (de dicto or various types of de re).

And in fact, I give umpteen examples where such variation occurs. Moreover, I do not limit my theory to categorical propositions, but I mention and extensively deal with implicational a fortiori arguments. All this seems to have escaped your notice, no doubt because you have been so intent in finding fault with my work.

2. Moreover, wishing to appear like a cognoscenti, you write:

“The paper contains many theoretical errors. For instance, he offers the four valid moods for a fortiori reasoning. Nevertheless, he formulates only syntactic expressions of those moods without their semantics. In

the whole text, the author does not define semantics for a fortiori reasoning as such.”

This is of course, nonsense on your part, further proof that you do not know what you are talking about. The *syntax* of the valid moods of a fortiori argument is their outer *form*, the language they are expressed in everyday speech. Thus, “P is more R than Q is R; Q is R enough to be S; then P is R enough to be S” is the form or syntax of the positive subjectal mood of a fortiori argument. The *semantics* or inner meaning of the forms is their full *interpretation* in more accessible terms for the purpose of *validation*. Thus, the semantics of the positive subjectal form is given in my paper as follows:

- **Positive subjectal** a fortiori argument validation:

The major premise, “P is more R than (or as much R as) Q is,” means:

P is R, i.e. P is to a certain measure or degree R (say, Rp);

Q is R, i.e. Q is to a certain measure or degree R (say, Rq);

and Rp is greater than (or equal to) Rq (whence: Rp implies Rq).

The minor premise, “Q is R enough to be S,” means:

Q is to a certain measure or degree R (Rq);

whatever is at least to a certain measure or degree R (say, Rs) is S and

whatever is not at least to that measure or degree R (i.e. is not Rs) is not S;

and Rq is greater than or equal to Rs.

The *conclusion* “P is R enough to be S,” is composed of four clauses:

P is to a certain measure or degree R (say, Rp);

whatever is at least to a certain measure or degree R  
(say,  $R_s$ ), is S;

whatever is not at least to that measure or degree R  
(i.e. is not  $R_s$ ), is not S;

and  $R_p$  is greater than (or equal to)  $R_s$ .

These four components are obtained as follows: the first from the major premise, the second and third from the minor premise, and the fourth from the tabulated quantitative argument (see below) which is drawn from both premises. Here, note well, the “enough R” condition of the conclusion (implied in its second and third components) comes from the minor premise, because it concerns the subsidiary term (S). Here, then, the crucial threshold value of R is  $R_s$ , i.e. the minimum value of R needed to be S; knowing that  $R_q$  equals or exceeds  $R_s$ , we can predict that  $R_p$  does so too.

Note that I say “the major premise *means*” etc. Thus, when you claim that “he formulates only syntactic expressions... without their semantics” and that “in the whole text, the author does not define semantics for a fortiori reasoning as such,” you just show that you are unable to recognize a semantic intent even as it stands right before you!

You further write: “In some cases, he assumes that this semantics is Aristotelian, in some cases it is not. In the Aristotelian syllogistic, relations among terms are interpreted as set-theoretic operations of inclusion, exclusion and intersection among them. The author uses this idea as well...” (here you place your wrong formula already examined above, and continue:) “Probably, he supposes that the relation  $\geq$  is the Aristotelian inclusion (reflexive, antisymmetric, and transitive relations among terms). But evidently it cannot be for different reasons.”

Here, too, you are just strutting around trying to look intelligent, dishing out conventional words you hardly comprehend, attributing to me (let alone to Aristotle)

opinions that I have never expressed. Have I ever, would I ever, suppose that “the relation  $\geq$  is the Aristotelian inclusion”? That you even suggest this implies that there is some confusion in *your own* mind regarding the symbol  $>$ . You also claim that my theory of a fortiori argument depends on elucidation of the relation of quantitative comparison (i.e.  $\geq$ ). In your words: “Then the author concerns the validation of a fortiori argument on 5 pages. However, it has no sense without semantics at all. The relation  $\geq$  is unclear absolutely.”

But as I showed above, this relation (quantitative comparison) is not, contrary to your imagination, the central pillar of a fortiori argument. It is one item among others – see my own analysis above. Furthermore, it is not my role as a logician to elucidate it – I can take it as dealt with and passed on to me by mathematicians, since it is a purely quantitative issue. I would need to address the issue if it was peculiar to a fortiori argument; but it is not (just as predication or implication are not).

And anyway, what do you find so “unclear absolutely” about “the relation  $\geq$ ”? It is simple and obvious enough. You seem to imply that there is some profound secret about it that I do not know – but you do not say what your objection to it is, precisely. You are here again, obviously, just trying to project a flattering self-image and engaging in malicious innuendo.

All this shows again that you do not have *first-hand* understanding of logic, but you have only a smattering of *second-hand* formulas and expressions that you throw around without knowing what they really mean. You think you can fool people with such mimics, but you only succeed in publicizing your own ignorance and moral deficiency.

3. Another thing that needs pointing out is that you seem to imagine that because I avoid modern symbolic

logic like you but resort to **ordinary-language logic**, my understanding of logic must be inferior to yours (the very little you have displayed). Quite the contrary is true, I submit. If you take the trouble to actually read the book, or at least Appendix 7 of it, you will see that one of my themes throughout this work is that modern symbolic logic is con game – a means that people who do not understand logic use to give themselves and others the false impression that they do.

*Your essay once again proves my point.* You thought to look skillful with your misinterpretation of a fortiori argument – but all you did was to make manifest your own logical incapacity. If you had reviewed your proposal in ordinary-language terms, i.e. in plain English, you might have been able to see its stupidity for yourself. *A Fortiori Logic was written with the intent to help people like you.* If you want to develop your skills and evolve intellectually, you should make the effort to read it, and to do so with a duly receptive attitude. But, to tell you the truth, I do not think you will ever have *the intelligence needed*. I sincerely mean that. You write:

“From the fact that there is no true semantics it follows that the author formulates the subjectal moods and predict[a]tal moods which are the same in fact, as well as the following Aristotelian propositions: “S is P” and “P is a property of S”. Syntactically, they differ, but semantically, they do not.”

Seeing you write this, I regard you as a lost cause. This sentence of yours by itself convinces that you did not study the paper submitted to you, but merely skimmed through it. If you have truly read it and have not been able to see and grasp *the radical differences* between subjectal and predicatal argument, there is no hope for you. It is not a

matter of conversion of “S is P” to “P is a property of S” as you claim – if it were, then subjectal arguments could be reduced to predicatal ones, and vice versa – whereas I have looked into this question rigorously and shown clearly that this is impossible. *You make statements based on no research*, just on the big prejudices in your little head.

Again, just as you see no great difference between subjectal and predicatal argument, you fail to see any significant difference between purely a fortiori argument and a crescendo argument (proportional a fortiori argument). Thus, you write:

“The next section ‘Arguments involving proportionality’ on 6 pages contains several syntactic variations of a fortiori moods formulated in the first section. In my opinion, this section has to be reduced, because it contains much unimportant information for the main topic.”

Clearly, you are unaware of the history of a fortiori argument and the controversy surrounding this issue in the course of that history. You consider something unimportant simply because you find it tedious – i.e. your mind tires easily. But that is not a valid standard of judgment in this context. It is amazing to me that someone like you, who has obviously contributed nothing whatsoever of value to the field of *A Fortiori Logic*, but on the contrary misunderstands most of what he reads, offers an “opinion” as to what is “the main topic” and what is “unimportant information”!

4. Let us now take a look at **your reading of a concrete example** of a fortiori argument. You write:

“In order to illustrate the meaning of moods, the author provides some examples. Let us consider one. “Jack (P) can run faster (R) than Jill (Q); if Jill can run fast enough to cover one mile in under 15 minutes (S), then surely so can Jack; and if he can’t, then neither can she”. First, the relation “faster” is not transitive for any distance, because there are stayers and sprinters. And somebody can run faster as stayer but slower as sprinter. Second, the semantics of “S is R” in the form of proposition “fast enough to cover one mile in under 15 minutes” readily differs from the semantics of “P is R” and “Q is R”. In the first case, S from “S is R” is a distance. In the second case, P from “P is R” and Q from “Q is R” are human beings. It is a kind of the logical fallacy called *ignoratio elenchi*.”

I analyze this argument in my book *A Fortiori Logic* (AFL 1.1) as follows:

For example: granted Jack (P) can run faster (R) than Jill (Q), it follows that: if Jill can run (at a speed of) one mile in under 15 minutes (S), then surely so can Jack; and if he can’t, then neither can she. Needless to say, the conditions are presumed identical in both cases; we are talking of the same course, in the same weather, and so on. If different conditions are intended, the argument may not function correctly. The a fortiori argument is stated categorically only if there are no underlying conditions. Obviously, if there are conditions they ought to be specified, or at least we must ensure they are the same throughout the argument.

In your first comment, about the relation “faster” being potentially variable, you are only repeating in other words what I already say in my book, viz. that “the conditions are presumed identical” etc. However, what you are not aware of is that this is just a small forewarning to the reader

regarding an issue treated in more detail later, namely the possibility of using a middle term in more than one sense. *For instance*, a bit further down in the same chapter and section (AFL 1.1) I write:

On a formal level, what this means is that if we do not specify or keep in mind the middle term R intended in the major premise, we might easily intend another middle term, say R', in the minor premise and conclusion; in which case, our reasoning (whether unconsciously or deliberately done) would of course be faulty. This often happens in practice, and is one reason some people doubt the validity of a fortiori argument in general. But the problem here is not with the argument as such, but with the use of two middle terms. If we use, explicitly or implicitly, two middle terms, the argument is of course invalid, for it cannot be validated any longer. We could label such practice 'the fallacy of two middle terms' so as to remember to avoid it and not be taken in by it.

Thus, what you present as your own critique of my presentation is a possible fallacy that I have already pointed out and explained. Your suggestion is that the middle term "faster" can vary in meaning, i.e. that the "faster" intended for a stayer is different from the "faster" intended for a sprinter. You effectively accuse me of this fallacy – but I am the one who has discovered it before you! This is *dishonesty* on your part. You pretend to be the teacher while you are in fact the pupil.

As regards your second comment, all it succeeds in doing is to advertise again *your own total mental confusion*. The proposition "S is R" is nowhere to be found in my treatment of positive subjectal a fortiori argument, but is *your own* invention as we saw above (in the symbolic formula you proposed)! So, your criticism that the subject S (a distance) is not comparable to the subjects P and Q (human beings)

is nothing but a criticism of *your own* misperception of the formalization of a fortiori argument! In my analysis of subjunctal argument, S is a predicate not a subject. You only here once again demonstrate your own absurdity, and in no way provide a valid critique of my work!

And you have the gall to accuse me of committing the fallacy of *ignoratio elenchi*. Really, whatever your name is, what a fool you are – I feel sorry for you.

5. I will now address the following passage in your review, in which **you try to put in doubt my scientific credentials!** That got a bitter laugh out of me, considering your ridiculous lack of learning.

“The paper is written in the way that it is evident that the author is not a scientist. For example, he claims that 80 cases of a fortiori argument are found in Aristotle’s works (p. 4). But is it a subject of discussion which works are Aristotelian in fact and which ones are pseudo-Aristotelian, etc. Are all the cases of a fortiori contained in Aristotle’s Rhetoric or Organon? I know that reasoning by analogy was often used in biological works by Aristotle. How many are a fortiori arguments contained there? Another example of reference that cannot be in any scientific work is the reference to Ramchal’s *Sepher haHigayon* (p. 15). The author claims that the four moods of a fortiori arguments formulated in the paper were first formulated by Ramchal. In this case, it is unclear what scientific result of the author is. Is it only the syntactic formulation of these four moods?”

First, you attack my account of Aristotle’s use of a fortiori argument. If you were really a scholar, you would have simply looked into my book *A Fortiori Logic* before making these comments. In chapter 6 and Appendix 4

thereof, there is *a full description and analysis* of this topic. The following table summarizes my findings there:

Book in which a fortiori found	Number found
Posterior Analytics	3
Topics	24
Physics	1
On the Heavens	3
Meteorology	1
On the Soul	2
On Sense and the Sensible	1
Parva Naturalia	2
On Memory and Reminiscence	1
History of Animals	10
Metaphysics	4
Nicomachean Ethics	4
Politics	3
Rhetoric	21
14 books	80

This original research is based mainly on mechanical search for a fortiori argument expressions in *The Works of Aristotle* (Ed. William David Ross. Chicago: Encyclopædia Britannica, 1952).

Now, these works by Aristotle were all included in a reputed collection, published by *Enc. Brit.* You will find in W. Windelband's *History of Ancient Philosophy* (on pp. 236-247) a discussion of which extant works of Aristotle are genuine, doubtful or spurious. All the above are counted by him among the genuine. Anyway, while this issue could play some role in determining Aristotle's use in practice of a fortiori argument, it makes no significant

difference to the point being made in the paper that a fortiori argument in all its forms was frequently used in Greece as well as in Israel. Whether Aristotle wrote 60 or 80 or 100 a fortiori arguments makes no difference to this point.

Therefore, your raising this question at all could only be *in bad faith*. You have raised it only to fake scholarship, i.e. to seem historically savvy. I am willing to bet you have never read any of these works; at most a few lines out of one or two of them. This is easy to tell from your manifest ignorance of logic. It is also obvious from the following phrase, “reference that cannot be in any scientific work,” that you have never done any original scientific research yourself. You are constantly in search of external authorities. Well, let me tell you, you need look no further – I am the authority in this field.

As regards your comments regarding my findings on the Ramchal, if you bothered to look at chapter 9 section 10 of my book *A Fortiori Logic*, which you would have done if you were genuinely scholarly, I do not merely *claim* that he listed four moods of a fortiori argument, I *show* it in detail. What is the scientific purpose of doing that, you ask? Well, *A Fortiori Logic* is a book dedicated to tracing the true history of the use and understanding of a fortiori argument, so the discovery that the Ramchal was apparently the first to clearly list all four moods of copulative a fortiori argument is very significant.

However, as regards the syntax, and for that matter the semantics, I show that his understanding was incomplete, because he lacked the crucial factor of a threshold value of the middle term in the minor premise. This and other deficiencies go to show that my own work is in fact significantly more advanced. Nevertheless, this does not diminish the importance of Moshe Chaim Luzzatto’s contribution.

To repeat, had you been a scholar, you would have simply looked into my book before speaking. But of course, you are not interested in the facts of the case, are you? You are merely intent on projecting doubt in the value of my work. All you achieve thereby is to show up your own intellectual and moral deficiencies.

6. Now let us examine your brief pronouncements **concerning Judaic logic**. You write, in your usual know-it-all tone of voice:

“the four moods of a fortiori arguments described by the author do not have any sense for *qal vachomer* arguments used in the Talmud. The matter is that the Sages appeal to the a fortiori argument limited by the so-called *dayo* principle. As a result, any reasoning of the form

P is more R than Q is R; Q is R enough to be S; then P is R enough to be S

“P is R”  $\geq$  “Q is R”; “Q is R”  $\geq$  “S is R”; then “P is R”  $\geq$  “S is R”

is not valid for the Sages. There is no analogy with the ordering relation  $\geq$ .”

Here again, ironically, you judge the matter at hand in relation to *your own* erroneous interpretation of my formula “P is more R than Q is R; Q is R enough to be S; then P is R enough to be S” as meaning “‘P is R’  $\geq$  ‘Q is R’; ‘Q is R’  $\geq$  ‘S is R’; then ‘P is R’  $\geq$  ‘S is R’,” saying that “There is no analogy with the ordering relation  $\geq$ .” This has nothing to do with my account, but constitutes a criticism of your account!

But anyway, it is untrue to say that the Talmud does not indulge in quantitative analogies (i.e. making inferences based on quantitative sameness or difference), or that a

fortiori argument is “not valid” for the Sages. As I show in my books, *Judaic Logic* and *A Fortiori Logic*, and everyone who has studied Mishna and Gemara well knows, the Talmud is replete with quantitative analogy and with a fortiori argument, and the Sages effectively consider such arguments in principle quite valid since they resort to them, even if they raise occasional objections to particular arguments.

You make authoritative statements as if you know something, but you give zero evidence in support of your claims. Where is the scientific research on which you base those senseless denials? Do you think your *mere say-so* has any worth whatsoever? All my statements are based on *detailed rigorous research* which anyone can verify by reading the books or papers I have written and published on this subject. And I have done a great deal of research—original research that no one else has done. But of course, you are too lazy to look at the evidence before speaking. This is more dishonesty on your part.

7. Having shown your technical and theoretical incompetence in logic, logic history and Torah logic, let me now turn to your pretensions of being a scientist or speaking in the name of science. You write:

“we find not a scientific research in the strict sense, but the excerpts from those books. So, there is no introduction, where the author would formulate his goals, research methodology, etc. There are no conclusions, where the author would say a couple of words about results of his research. There are no connections among sections at all. Scientific paper is a genre that strongly differs from the books distributed for free in the Internet. There must be a good composition with introduction, conclusion, etc.”

Here, you are implying that BDD is a scientific journal with specific standards regarding formal presentation of material, say like *Nature*. First, let me reply that looking at the articles in English in the couple of issues that I have of BDD, I do not see these lofty standards adhered to. To me, this journal is intended to house *thought-provoking* articles addressed to a rather Jewish audience which is intellectually attached both to secular science and to Judaism.

Second, contrary to what you suggest, the paper is not merely composed of “excerpts” from the book *A Fortiori Logic*. As I wrote to Prof. Ely Merzbach when I submitted the paper to him, it “took me about 12 hours to write” and it was “not a mere cut and paste from my book,” but “an original paper. Some of the material was copied verbatim, but some I rewrote especially.” So, here again you are wrong.

Third, you perhaps do not know that I was invited to contribute an article to this publication (BDD). I did not send in an article on my own initiative, in the hope of getting it published and thus being ‘vindicated by my peers’. *I never do this* – precisely because I do not consider people like you, the writer of this scandalous hatchet job you call a review, to be my peers. I know the value of my work independently – I certainly do not need *your worthless confirmation* of it. I am a teacher, not a pupil, for the likes of you. This is not conceit on my part; it is knowledge of fact (as I have proved above).

In any case, the following is what I wrote to Prof. Merzbach before I started writing the article in question:

As I recall, you proposed an article of about 20-page (BDD sized pages). Are there any other technical specifications I should know about? As regards the content, what I have in mind at this stage (granting space) is simply to:

- give some basic facts about the formal aspects of a fortiori argument, and its history and geography;
- describe the most important a fortiori debate in the Mishna (Baba Qama 2:5), which introduces the 'dayo' principle in Talmudic hermeneutics;
- describe and criticize the Gemara take on this debate, and some later commentaries on it;
- present a brief exposé of research on a fortiori argument in the Tanakh, the Mishna and the Gemara.

On the whole, then, my idea is to summarize the main aspects of my new book, selecting the topics of most likely interest to your readers, i.e. to a religious Jewish audience with a scientific bent of mind.

Please confirm your interest in such an article as here described, so I can start work on it. If you have any requests or conditions, please tell me about them now.

He replied that he approved of this project. As you can see, I did not manage to get all this information into the paper, but had to content myself with much less. Note well my description of the assumed readership. If you are looking for a formal scientific document, the book called *A Fortiori Logic* is it. There you will find ample description of scientific and historical goals, of methodology, of final conclusions. The paper submitted to BDD is not intended to play that role. As I say quite frankly in that paper, it is not possible to summarize the contents of a 700-page book in 20 pages:

The present paper is a very brief guide to that book, highlighting a few of its salient findings. It is of course impossible in the 20 or so pages of the present paper to summarize the 700 pages of the book. I strongly urge readers to study AFL, part 1, regarding formal issues, and AFL, part 2, regarding Jewish matters.

If you want to know what guided my choice of material for the paper, I can tell you. As regards general logic, it seemed most important to me to clearly show the difference between purely a fortiori argument, a crescendo argument, pro rata argument, and mere quantitative analogy, because, having studied the literature from antiquity to the present more thoroughly than anyone else, I found that this was a crucial problem in people's conception and comprehension of a fortiori argument. As regards Judaic logic, I decided that what needed clarification for readers of BDD above all was the discussion between R. Tarfon and the Sages in Baba Qama 2:5.

All this is of course clearly stated in my paper, notably in the Abstract, which you apparently did not notice:

This paper first details the formal relationships and distinctions between purely a fortiori argument, a crescendo argument (which refers to proportional a fortiori argument), pro rata argument and quantitative analogy. These various forms of argument are often confused, so it is well to clearly describe and explain them. The author then uses these general findings to formally analyze the debate between R. Tarfon and the Sages in Mishna Baba Qama 2:5, in the course of which the important dayo principle is introduced. Thereafter, the author takes a look at the Gemara's take on this Mishnaic passage (in the Babylonian Talmud, Baba Qama 25a-b).

There was and is no reason for me to present this information in the rigid form of a 'scientific paper'. My object was to draw the attention of interested readers to these crucial issues and to stimulate them to further study. I was not and am not interested in narcissistic posturing, contrary to your baseless accusation, where you write:

“this paper is already published as a part of the book *A Fortiori Logic* (2013) written by the author which is a modification of his old *Judaic Logic* (1995). Both books are available for free in the Internet. Moreover, the author considers this recent paper in BDD just as an advertisement of his *A Fortiori Logic*. So, the only idea of the Introduction is that *A Fortiori Logic* is “a novel, wide-ranging and in-depth study”. It has “a great many new theoretical insights”. And the paper is “a very brief guide to that book”. Such self-estimations that my book is a very good study and please read my guide to that great book cannot be allowed in any scientific paper. This concerns not only usual modesty that is ever expected, but also the fundamental principles of science that any work is reviewed and evaluated rather by others.”

*A Fortiori Logic* is not a mere “modification of” my book *Judaic Logic*, as you claim, obviously trying to downplay it. *A Fortiori Logic* makes very many important corrections, clarifications and expansions to *Judaic Logic* (see AFL 33.1). That both books are available for free in the Internet is proof that my wish is to promote knowledge using today’s technology without thought of financial profit – it is ridiculous for you to present this as something with negative implications.<sup>127</sup>

You also accuse me of submitting the paper to BDD as just “an advertisement” for my book *A Fortiori Logic*. This too is base insinuation on your part – if I mention the book to the readers of the paper, and indeed urge them to read it, it is because the book contains a great deal of valuable

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<sup>127</sup> See my remarks on self-publishing in chapter 6 of the present volume (N.B. this footnote was not included in the original retort).

information not included in the highlights given in the paper. It would have been wrong for me to give the impression that what is found in the paper covers the subject.

You continue your gratuitous insults, suggesting that I am boastful and lack “modesty” when I say that *A Fortiori Logic* is “a novel, wide-ranging and in-depth study” with “a great many new theoretical insights”. How else could I describe it, if that is the true description of it? It becomes evident that you are actually jealous of this achievement and wish to suppress it by all means possible to you. One may well wonder why. Many people would benefit from this article, even if you don’t want to.

Some people rejoice when they see another person achieve something good or great; while others are made to feel small and wasted and they react with malice. What creative work have you done in your life? Are you perhaps a second-rate sophomore student trying to impress someone? Or are you a failed lecturer or professor driven by dreary antipathies he does not understand? I do not know, so I can only guess at your motives. Do I know you? Do you bear a grudge against me? It is interesting that you have kept your identity concealed from me even though I have requested its disclosure.

You start your grotesque ‘review’ by saying “I strongly recommend to reject this paper for many reasons,” and you end it similarly by saying “To sum up, the paper cannot be published in any scientific journal for many reasons: composition, readability, theoretical weakness, etc.” What is interesting is that nowhere in the whole of your essay do you give *one word* of praise, or concede *one admission* that anything of value is to be found in the submitted paper, or for that matter in the book it is based on!

Now, isn’t that suspicious? One would think that the three long years of research and writing produced *something*

good for logic science and history, and for Torah study. But no – you were focused only on looking for faults. And as I have shown above, the “faults” you have found were only your own – none of the reasons you give for rejection of the article stand up to scrutiny.

What is clear is that you are not driven by reason, by love of truth, by love of scientific knowledge, or even by love of Torah, but by unstated petty personal considerations. Moreover, your knowledge and skill in logic, in science and history, and in Torah, are far below your personal estimation of them. Indeed, I would rate your brief essay as the most vacuous piece of writing I have ever come across; and I have analyzed very many in my career, so that is quite a distinction for you to have earned.

### 3. Second retort to the same referee

Sir, I have just received your (untitled, unsigned) reply to my Retort of Sept. 9, 2014 to your earlier “review” of my paper called “About A Fortiori Argument, in General and in Judaism” submitted for publication in BDD.

In this new essay, you propose three lame excuses for your preceding tract. Truly, one can apply to you the statement of Proverbs: “*But a scorner heareth not rebuke*” (13:1).

1. To my complaint that your interpretation, of my formula (for positive subjectal a fortiori argument) “P is more R than Q is R; Q is R enough to be S; then P is R enough to be S” as “P is  $R \geq Q$  is R; Q is  $R \geq S$  is R; then P is  $R \geq S$  is R” – all you manage to reply is the lame excuse that “*On p. 7 there is the table... where Avi uses the symbol  $\geq$  in the way I said.*” Does this constitute a credible “*counterargument,*” as you claim?

The fact that I use the relationship “ $\geq$ ” in my work certainly does not mean that I adhere to your moronic interpretation

of the said a fortiori argument as “P is  $R \geq Q$  is R; Q is  $R \geq S$  is R; then P is  $R \geq S$  is R.” This interpretation, as I said in my first Retort, has nothing to do with me and is indeed repeatedly disapproved by me. First, because “S is a predicate (of Q, then of P) in the said propositions, whereas you represent it as a subject (of R);” and second, because a fortiori argument cannot be reduced as you attempt to a mere “inference from quantitative comparisons, i.e. argument of the form: if  $A \geq B$ , and  $B \geq C$ , then  $A \geq C$ .” What you have *still today* evidently not yet understood is the significance of the clause “is **enough** R to be,” which is the crucial point of my formula.

Moreover, as I state in my first Retort, the fact that I use the relationship “ $\geq$ ” in my work does not make it “the central pillar of a fortiori argument. It is one item among others.” If you actually look at the use of this relationship in the validation process (stated in the original paper and quoted in full in section 2 of my Retort), you will see that it is simply found in:  $R_p \geq R_q$  and  $R_q \geq R_s$ , whence,  $R_p \geq R_s$ , where  $R_p$ ,  $R_q$  and  $R_s$  refer to the quantitative values of predicate R for P, Q and S, respectively. To say this is *very different* from saying as you do that “P is  $R \geq Q$  is R; Q is  $R \geq S$  is R; then P is  $R \geq S$  is R.” The fact that we both use the relationship “ $\geq$ ” does not make these two statements equal.

Furthermore, to repeat, my statement that “ $R_p \geq R_q$  and  $R_q \geq R_s$ , whence,  $R_p \geq R_s$ ” is *only part of* the validation process cited. What you keep failing to notice – which is the reason for my accusing you of lazily skimming over a text you are supposed to carefully read before pretending to comment on it – is that the full validation process involves crucially important **if–then** statements. It is these that clarify the said “enough” clause. It is because you have *not* closely scrutinized these if–then statements that you are able in your initial review to asininely propose that subjectal and predicatal arguments are the same, i.e. that

one can convert one to the other. If you compared these statements in the two forms of the argument (both given in the submitted paper) you would be able to see for yourself that such conversion is logically impossible.

This is one of the reasons I have called you utterly incompetent.

Moreover, you are again here trying to suggest that my use of the relationship “ $\geq$ ” constitutes a fault in my work. As I explained in my first Retort, the statement in your initial review where you claim that “the relation  $\geq$  is unclear absolutely” is a ridiculous attempt to discredit a perfectly legitimate use of mathematical concepts in a logical context. There is no shame in my use of “ $\geq$ ” contrary to your insinuations. It is your insinuations which are shameful.

To see the absurdity of your whole approach, consider a reviewer of a paper on physics submitted to the journal Nature who, upon reading, say, the formula  $x^2 = y^2 + z^2$ , freely “interprets” it as  $2x = 2y + 2z$  (because he does not understand what the square of a number is, and thinks it means multiplied by two), and on top of that he suggests (in a condescending tone, without giving any explanation or even any reference) that the mathematical relations ‘=’ and ‘+’ are “unclear absolutely.” Do you think such a reviewer would be allowed to retain one moment more his post as “referee”? Your ignorance and stupidity are all too manifest.

2. I now turn to your second pseudo-intellectual “*counterargument*,” where you state:

“Semantics assumes some abstract entities, e.g. trees, sets, etc. with some operations over them. Entities and operations over them are presented as models and semantics is a way of interpretation of propositions (theories) on models. Informal meaning of propositions

is not a kind of logical semantics. For example, ‘All S are P’ is not a logical semantics for ‘SaP’, because there are not defined abstract entities S, P, and operations over them to interpret ‘SaP’ on models. Logicians must know what semantics is and which role models play there.”

Needless to say, I well know that in symbolic logic, a symbolic formula like ‘SaP’ (syntax) may have a number of interpretations, such as ‘All S are P’ (semantics). But I do not deal in the silly artificial abstractions of symbolic logic, which I consider (as I said to you before, and demonstrate repeatedly in my book *A Fortiori Logic*, e.g. in Appendix 7) as a con game. Obviously, in your limited perspective on the field of logic, you think that making an inane statement like that makes you seem knowledgeable; but in fact it only shows up your ignorance once more.

I am not interested in the meanings of symbolic formulas; I deal in ordinary-language logic. I deliberately eschew symbolism as far as possible, regarding it as superficial and misleading. That is why I patiently explained to you in my first Retort that, in my approach to logic, the syntax is the form (the ‘All S are P’ interpretation in your view) and the analysis of the form (which I give in the validation process) is the semantics. For me, the only items needing symbols are the terms (e.g. S and P in ‘All S are P’) or theses (e.g. P and Q in ‘if P, then Q’); I avoid symbolizing relations (e.g. a is ‘SaP’ or ‘ $P \rightarrow Q$ ’). You call this “informal” – but this is in fact the traditional meaning of “formal logic.”

To me, any more abstract symbolic formula (such as ‘SaP’ or ‘ $P \rightarrow Q$ ’) can only be proposed as a *final* step, after all the logic of a topic has been sorted out. That is why I never in my book propose a reading like “P is more R than S, and (Q is Rs)  $\rightarrow$  (Q is S), therefore (P is Rs)  $\rightarrow$  (P is S)” (as part of the formula for a fortiori argument) – so as to set the example of restraint in symbolization (I propose it in my

first retort to you as a reply to your moronic proposal). To do this *at the outset*, before one has understood the subject at hand and sorted out its logic, is utter foolishness, bound to lead to confusion and error.

But being exceptionally unintelligent you cannot understand all this, but are stuck in repeating platitudes you have barely heard and never fully digested. What is worse is that you have the *chutzpah* to lecture your betters as if you know something<sup>128</sup>. You ask: “*Why must I read this book?*” Well, the answer to that is simple: because you are very ignorant and need to make a serious effort to educate yourself. I doubt, however, that you will ever follow this kindly advice.

3. For your third “*counterargument*,” you state, regarding the issue of the number of a fortiori arguments in Aristotle’s extant works:

“The matter is that Avi does not cite works to support his claims. In this case he assumes that anybody must have read his book and found out that Aristotle used a fortiori 80 times. However, he did not cite this place of the book. Even if he did so, it would not be enough. He should have said where a fortiori was found in the Aristotle’s works in the way: Categories 1b10. It is important. If somebody claims in his/her scientific paper that 80, it has to satisfy the reality and to be 80.”

In **footnote 4** to the paper I submitted to BDD, I say clearly: “See AFL appendices 1, 2 and 4 for more details on these findings.” This footnote is at the end of the sentence: “If we look at usage statistics, we find this assertion clearly

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<sup>128</sup> Moreover, you speak about me throughout your reply as “Avi” – this is more *chutzpah* on your part; my name to you is Dr. Sion.

confirmed,” following which I list the statistics “Of the 80 cases found in Aristotle’s works, **50 are +s, 22 are –s, 5 are +p and 3 are –p.**” If you go to Appendix 4 (section 2), you will there find not only a reference (as you demand) for each and every case, but a full quotation of the case and an analysis of it. Therefore, your claim that I did not cite the place in my book where this is researched is false – more proof of your *totally unconscious* and *dishonest* approach to reviewing texts and to “counterargument.”

Furthermore, remember that your argument in your initial review was that some of the 80 instances mentioned might have occurred in pseudo-Aristotelian works. My reply was that the exact number does not matter – even if some of the books cited were not really authored by Aristotle (although, as I showed, they all probably were, and your criticism was wholly gratuitous), since the reason that I stated this statistic was to show that a fortiori argument *in all its forms* (the positive and negative, subjectal and predicatal moods) was extensively used in literatures from other cultures (in fact, as I show in the book, though do not bother to mention in the paper, in all the main world cultures, including India and China). Therefore, so long as some cases were found in Aristotle’s real works that belonged to these four moods of a fortiori argument, the point would be proved.

Indeed, I describe precisely in the research on Aristotle (and similarly in other researches) how the research was carried out and what the limits of accuracy of its results are. In truth, although I doubt that a case could be made to reduce the number of a fortiori arguments for Aristotle (as you suggest, on pure speculation), I do not doubt that more instances might yet be found. Indeed, I later found a number more, and listed one of them as a sample (see end of Appendix 4). Therefore, here again, contrary to your insinuations, my approach is not all dogmatic but fully

open-minded and scientific. But of course, you know that – all you want to do is posture as superior.

So much for your pretentious three “counterarguments.” I note that these replies of yours address *only a small fraction* of the criticisms leveled against you in my first Retort. I take it this means that you were unable to contrive an answer to any of those criticisms you do *not* mention. This is typical of your method of work, that you gloss over anything you do not understand or cannot answer. You try to look savvy, but you are an ignoramus – and not only that, *a fake*.

I think it is very significant that you have to date not dared to disclose your identity to me. What is your name? What are you professionally, a student or a teacher? Tell me, so I can have a good laugh. If you are any sort of teacher anywhere, G-d help your students for you are certainly not qualified to teach logic or any science. I have said this to the Editor, and I have advised him not to ever again use you as a reviewer for BDD. I hope he takes my advice. You simply do not have the qualifications for such tasks.

#### **4. Torah and science**

My assumption until the above episode occurred was that Bar Ilan University was created to give Jewish religious assumptions *a fair hearing* in any eventual conflict with secular studies. It is true that other Israeli universities, notably Hebrew U. and Tel Aviv U., tend to abandon most such religious assumptions, rejecting them offhand at every opportunity; they thus seem to be biased against religion. It was thus a good idea to found a new university that would, while offering a full secular curriculum, also show respect for Judaism. It is with that thought in mind that I

have been, thus far, sympathetic to this particular university.

Possibly, in neutral fields like mathematics and physics, this program presents no difficulty (though in truth there are many difficulties, even in such fields). But evidently (judging by the episode here recounted) when it comes to subjects like logic and philosophy, which could directly impact on Jewish religious assumptions, Bar Ilan University (if only through its BDD organ, which ostensibly aims at Torah-Science reconciliation) has a hard time being open-minded and objective. It tends towards filtering of information and apologetics, even if in a masked and indirect manner.

In my view, anyone who consciously distorts or suppresses information given in good faith cannot be regarded as a scientist; and a university that houses, and worse still produces and maintains, such unscientific personnel (not to mention its ignorance and closed-mindedness) is not worthy of being called a university. We are, after all, in the 21<sup>st</sup> Century, and not in the Middle Ages. It is alright to defend religion so far as it can be objectively defended; but it is not acceptable to defend it at all costs, notably by effectively engaging in censorship of perfectly scientific discourse. That is shameful behavior.

A religious community that cannot sustain any amount of criticism, however justified, has very fragile faith. It should not try to impose “religiously correct” standards that contradict empirical and rational studies that are clearly devoid of anti-religious prejudice. The fact is that there are many serious ‘issues’ in the Jewish religion, as in all other religions. Jews should show intelligence and honesty, and take such problems in stride, even when no solutions are forthcoming. It is silly to insist on perfection.

Already in the first chapter of the Torah, the account given of the order of things in creation, if taken quite literally,

does not correspond to the scientific account, *which is based on detailed factual observation and tightly reasoned theory.*

The material universe, the planet earth and mankind are not a mere 6,000 years old as the Sages of Judaism imagined and claimed. The world was not literally created in six days, 5777 years ago. The Big Bang (the earliest material event known to modern science so far) took place about 13.8 billion years ago; planet earth was formed from stardust some 4.5 billion years ago. Life arose within it after (roughly speaking) half a billion years, and was monocellular for the first two billion years or so. Thereafter, more complex, multicellular life forms gradually evolved, coming and going, until perhaps some 200,000 years ago the creature we refer to as Man emerged (from earlier life forms, not *ex nihilo*).

There is no evidence of discontinuity. There was no Adam and Eve couple six millennia ago; or if there was, they were certainly not the biologically first man and woman. If they existed at all, they were, at best, the last survivors of preceding populations and the parents of all subsequent populations. But (so far, at least) there is no genetic evidence of such a single 'first family' for all humanity; human population worldwide was very scattered much earlier than 6,000 years ago<sup>129</sup>, and though the total numbers were at some periods very low (e.g. about 30,000 humans, according to one account I read somewhere), they were never that low (i.e. limited to one or two specimen). Perhaps Adam and Eve were the forebears of Middle Eastern peoples, but not of all peoples. The facts here cited are scientifically very well established.

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<sup>129</sup> Including, note well, on the Australian and American continents.

Similarly, science does not confirm the narrative of a worldwide Flood, or that of the Babel incident (put forward as explanation of national and linguistic differentiations), or many other ancient myths found in the Bible. The facts are physically evident, with no room for doubt. Anyone who sticks to the literal Biblical narrative on these questions, and many others for which there are similar doubts, cannot claim to be a scientist. There are likewise many pronouncements made in the Talmud and related literature that are simply unsustainable, if not utterly ridiculous, in the present context of knowledge; notably, statements on pseudo-medicine, on demonology and other superstitions<sup>130</sup>. I have no axe to grind – this is all just fact that anyone who studies the matter sincerely can see for himself. It may be sad, but it is true.

Of course, the mental rigidity of the defenders of orthodoxy is understandable. Once one doubts a single claim made in the Torah or in the Talmud, all claims in these documents become reasonably open to doubt. Once the principle of omniscience and infallibility is breached, the whole edifice collapses; or so it seems to them. But it need not be so: they could retreat gradually, only when and as far as they are

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<sup>130</sup> See *Everyman's Talmud*, by A. Cohen. In chapters 8 and 9, many examples of incredible pseudo-medical, demonological and other superstitious beliefs and practices are cited. That some Sages indulged in such ignorant and stupid beliefs and practices shows that they were not as knowledgeable and infallible as they are sometimes claimed to be. Judging from the said examples, these were unaware of the scientific method: they allowed their imaginations to run wild, they drew hasty conclusions from very little empirical data and engaged in some quite fallacious reasoning. Broadly speaking, they seem to have been admirable men in the ethical and religious domains, but were less adept in the physical and logical domains. Of course, nowadays, mainstream Judaism no longer adheres to such beliefs and practices; but still, these are not loudly decried. Read online at: [https://books.google.ch/books?id=HWKjAQAAQBAJ&printsec=frontcover&source=gbs\\_atb#v=onepage&q&f=false](https://books.google.ch/books?id=HWKjAQAAQBAJ&printsec=frontcover&source=gbs_atb#v=onepage&q&f=false).

rightly pushed back by science to do so. What is sure is that *facts are facts*. Ignoring them or suppressing them or distorting them won't make them go away. To think otherwise is self-delusion. Intellectual maturity, and plain honesty and decency, requires that we face reality, however unpleasant it may be some of our fondest religious assumptions.

It is true that science presents a danger to religion, and that once one goes down this road of preferring scientific accounts to religious ones, there is no end in sight, and religion can easily end up melting away. We can see the effects freethinking has had on Reform and Conservative Judaism. We can also see the Christian example, where many churches (especially Protestant ones) are simply denying their own religion, if not altogether dissolving<sup>131</sup>. But the way to prevent such outcome is not through ignoring facts or lying about them. That just causes thorough loss in credibility and deep distrust. The way is to admit and study the errors, while rationally delimiting and explaining them as far as possible, thus showing due regard for reality and mental sanity. Factual errors can often be explained away by allegorical (*derash*) or mystical (*sod*) interpretation.

One could, for example, plausibly claim that the Biblical myths refer, not to the material domain that science studies, but to another, more transcendental domain unknown to it. Perhaps the 6,000 years refers to another time dimension, or maybe to a variable time dimension (so that 6,000 years,

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<sup>131</sup> As for Islam, it has so far not managed to at all break away from fanaticism. From its inception, it was very adept at crushing dissent. There were vague attempts by some philosophers to break away from dogmas, but they were very soon silenced. For this reason, Muslims are today locked in intellectual backwaters with no end in sight. They are to be pitied for their utter lack of courage.

or even the Creation first week, corresponds to 13.8 billion years). It is philosophically acceptable, at least *prima facie*, to put forward such far-fetched ideas, provided they do not head-on contradict scientific truths (or each other). This is the work of allegory or mysticism, which however imaginary and difficult to prove is at least remotely conceivable. But it is certainly not acceptable to blithely ignore or deny outright, without any evidence or rational argument other than blind faith in the Biblical account, scientific truths. It is not saintly; it is folly.

This reflection is true not only for physical sciences like astronomy, geology, biology and medicine, to name only them, but equally well for logical science. If strict logical analysis, such as that I used in my books *Judaic Logic* and *A Fortiori Logic*, shows that some Talmudic modes of reasoning are non-sequiturs or contradiction-forming, no one can simply ignore the fact or arbitrarily deny it without losing all credibility and intellectual respectability. It is shamefully dishonest to deny manifest truth (and worse still, try to obscure it). Some people in Bar Ilan U. have manifestly not understood these obvious truths yet.

## **6. SELF-PUBLISHING AND OTHER-PUBLISHING**

### **1. A bit of history**

Publishing a piece of writing means making it public, so as to share its contents, to disseminate it, and in some cases (if it is considered timeless) to perpetuate it. Originally, in ancient times, when an author put his thoughts or ideas down on paper (or any other material medium), he might simply allow or encourage his friends and neighbors, or his pupils or disciples, to read the text, or he might just read it out loud to them. Later, he might have made a copy or two for others, or allowed others to make a copy of his manuscript. Eventually, this gave birth to the profession of copyist, when authors hired scribes to make copies, and usually to bind them. Eventually, this in turn gave rise to the profession of publisher, when an employer hired scribes for diverse authors. Obviously, in view of the difficulties involved, generally not many copies were made, and many works were lost due to this. Copyists still exist today, by the way; for example, they write Torah scrolls.

This state of affairs lasted for centuries, indeed millennia, till the advent of printing. At first, authors went directly to printers to duplicate their works. But soon, no doubt, printers dealt more often with publishers, who thus served as intermediaries between authors and their public. At first, no doubt, authors took charge of distribution, either giving or selling copies of their works to individuals, bookshops, schools or libraries. But eventually, this marketing function was also taken over by publishers. The publishers would thus provide a service, or a set of services, and financially

profit; they were businessmen. Sometimes, publishers required payment from the authors for their service; this was eventually called self-publishing. Often, publishers were capitalists, who covered all printing and distributing expenses, and collected all incomes, giving the authors a share of the profits (usually relatively small, but optimistically labeled ‘royalties’).

Obviously, once publishing became a business, the publisher would select the works he considered potentially profitable. Either the author would have to pay a fee for the services rendered, or sales would have to be sufficient to cover costs and yield a profit. The publisher thus became an arbiter of what could and would be published, largely on business grounds. Universities eventually got involved in publishing past or present works they deemed interesting or important. They published not only whole books, but also shorter essays on specific topics, which they might collect in journals or in books. In principle, profit might not be their motive; but they too had usually to look at the bottom line.

In any case, when universities, and indeed, publishers in general, considered material for publication, they would also decide whether it fell in line with their academic standards and beliefs, since their own reputations were at stake. Publishing thus became an authoritarian service. Authors who self-published were gradually regarded as inferior to other-published ones, because they were not given a stamp of approval by acknowledged (“accredited”) publishers. Self-published authors would also probably sell much less, not having the resources of professional publishers at their disposal. For these reasons, authors generally preferred to have their works other-published. Today, the situation has changed a bit due to the emergence of instant online self-publishing. This has been made possible not only because of the Internet, but also thanks to the new technologies of automated printing and binding.

Nowadays, an author can self-publish with a few clicks of his mouse, and the print-on-demand publishing companies then take care of all printing, binding and distribution (including advertising), not to mention the e-book edition, for a very reasonable cut of the profits. Sales occur online as well as through traditional outlets. And of course, there is not even real need for a hardcopy; posting material on a blog or website, in html or pdf or flipbook format, constitute forms of self-publishing. In my opinion, all this may well spell the death soon of traditional publishing, i.e. of publishing through a selective investor, producer and seller. Nevertheless, in the meantime, attitudes have changed little, and a work published through a traditional publisher is still given more credence than one self-published off- or online. This attitude should be vigorously questioned.

## **2. Weaknesses and abuses of the system**

Let us not forget the purpose of it all – the basic purpose of publishing is to get people to read a work. The readership, the type and number of readers a book or journal article musters, is indicative of popularity but not necessarily of quality. Large popularity may generate profits and fame, but is not a sure proof of value and truth. Publication by a prestigious publisher is not sure proof of value and truth; all it does, at best, is show the publisher to be an able investor or speculator. Publishers through their selections of works control the narrative; but this practical power does not logically make them authorities in the theoretical subject at hand.

Many of the very good or great books and articles in the history of philosophy or science were self-published. Not only in ancient history, but also in more recent history. To be self-published should not be regarded as a slight. On the

contrary, it should be viewed as a mark of commendable independence and enterprise. Self-published works should be touted as: 'proudly self-published'. Of course, many books and articles that are other-published are also very good or even great. Conversely, many self-published books or articles are of little or no worth. But it is also true that many books and articles published by publishing houses, even prestigious ones, are found on closer scrutiny to be of very middling worth if not shockingly worthless.

This is testimony to the ignorance, dimwittedness and vanity of many *reviewers* hired by publishers (or the *editors* the latter appoint). People who take this job can't be very intelligent, anyway: if they were, they would have better things to do, namely write their own material; if one is richly creative, one has no time for such sideline occupations. When one is a reviewer, one is generally not obligated to disclose one's name or qualifications. A reviewer is given great power to control an intellectual dialogue simply by accepting material that conforms to his opinions and refusing that which does not, without any need to publicly argue his case, or any danger of being contradicted and shown up to be ignorant or unintelligent.

So, the reviewer is godlike and authoritative, imposing what he regards as orthodoxy. He will likely reject anything unfamiliar to him, anything above (or of course below) his level of intelligence and knowledge. This pretty well ensures that the lowest common denominator is maintained indefinitely in the field concerned. Of course, there must be some informed and intelligent reviewers out there somewhere, since a lot of good stuff is being published anyway. But go find them; it is a lottery, causing authors much time-waste and vexation.

The *publisher* won't contradict his reviewer; he does not know any better himself, which is why he picked (for whatever reason) someone else to do the job. If he has any

doubts, he may ask for a second opinion; but all he will get is the same low quality of personnel (and second opinions cost money). All he cares about, at the end of the day, is whether his business flourishes and he gets as much reflected glory as he can. It must be said and should always be remembered that other-publishing is basically a racket for money and power.

The problem is that many *authors*, who are themselves of lesser ability, need publishers to receive third-party confirmation of the value and truth of what they have written; they are what Ayn Rand has characterized as ‘second-handers’. First-handers know the value and truth of their work; they do not need external confirmation. But second-rate authors feel vindicated and legitimized when others publish the work they submit to them. There is therefore a strong market for other-publishing from the standpoint of the authors. Personally, I do not feel the need to ‘be published’; it is too much trouble pursuing this goal; I am quite happy with self-publishing.

Authors seeking to be other-published will naturally tailor their views and tone to fit the standards set by the publishers concerned, which are usually the current mainstream views. If they submit a manuscript which is close enough to those standards, but not quite up to them, they may be asked by the reviewers to adjust their position or style as a condition for acceptance; and generally, since they yearn to be published more than they care to defend their opinions, they will comply with the reviewers’ demands. For many academic writers, being published is a necessity for professional survival and advancement. They are basically employees, and are willing to make sacrifices accordingly. Of course, some have no principles to sacrifice; they are glad to be published even if what they wrote is wrong or silly.

(It should be said that some authors need editorial assistance, because they lack the time or cannot be bothered to proofread and their own work, or are perhaps unable to do so because of language difficulties. Such editorial assistance is of course quite legitimate, whether the work is finally other-published or self-published.)

There is also, of course, a strong market for other-publishing from the standpoint of the *readers*. If the material has been published by some known publishing house, they imagine that this means that competent people have verified it and confirmed its value and truth. This potentially saves the readers time, since they do not have to wade through a work only to discover halfway through it that it is worthless. It also saves them having to think and judge things for themselves; they can rely on the reviews for their opinions. Of course, man is a social animal: following the opinions of others is to some extent part of human nature. For my part, I do not read or judge on such basis.

Needless to say, *it is not my purpose here to oppose the practice of peer group review*. The idea of peer group review is basically sound, for philosophy as well as for science; but this should be understood to mean *free and open public debate* of philosophical or scientific theories, and *not behind-the-scenes manipulation of information* by a privileged minority. Of course, too, I do not deny that publishers of books or journals have every right to select the works they want to publish. But such centralized selection should not be considered decisive; it should not be taken to signal the lack of value or truth of works not

selected<sup>132</sup>. Works should be judged by the public on their merits, and not on the basis of who published them.

It should be added that the meme of peer-group review is more appropriate in special fields like mathematics or physics, where there is an overall consensus among participants as to how to settle disputes (e.g. by experiment), than in more general fields like logic and philosophy, where opinions vary much more widely. Consensus in logic and philosophy is theoretically conceivable in some distant future, I suppose; but in practice today it is impossible, due to the fact that there are many participants who do not even admit of rational standards and methods in principle. So, the idea that there might be a peer group that can authoritatively judge works in logic and philosophy is misleading and dishonest. The arbiters in these fields can only be self-appointed mandarins. In truth, they have no intellectual authority; their claim to such authority is a con game.

I shudder to think of the number of great texts that have not been published, and have eventually disappeared from mankind's literary heritage, or even that have not been written, as a result of the current system of book and journal publishing by an elite. Just think about it... how many great thoughts and discoveries have been thrown into obscurity because the publishers and their chosen gatekeepers had the power to block their publication. This is at least true up to the creation of the Internet; thanks to that, and many allied technologies, most authors are now able to publish their own works in some way or other. But

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<sup>132</sup> Note also that authors who self-publish are not only often held in low esteem and mocked for that reason, but also sometimes plagiarized by other-published authors, who imagine them as having no copyright protection since they do not exist in the 'official' world they inhabit.

still, think of the waste of human potential and achievement that the other-publishing system is somewhat responsible for.

### **3. On academe**

The world of publishing – as regards logic and philosophy, and of course mathematics and the special sciences, and even general literature – is intimately bound with the academic world, needless to say. Most intellectuals, nowadays, are holders of university degrees, and some continue thereafter to work part- or full-time in or with universities. The authors, reviewers, editors and publishers we are here talking about are mostly college graduates. This is as it should be, since competence, if not excellence, in our fields of choice are what we should all be aiming for.

College degrees of course constitute one level of proof of competence; but this is only an introductory demonstration, which must constantly be renewed and confirmed through written works. Ironically, some written works are admitted by publishers of books or journals mainly on the basis of the authors' academic credentials. I say 'ironically', because this means that the editors or reviewers thus effectively give the responsibility for the decision to the universities; i.e. to other people. But the value of college degrees necessarily depends on the competence of those who dish them out; and the competence of the latter depends on the competence on those who awarded them a degree, and so on, to the founding of universities in the Middle Ages and thereafter.

Thus, ultimately, it is always humans deciding according to their inner capacities; there is in reality no guarantee of competence through a diploma. Even the prestige of the university or faculty staff awarding the diploma cannot be

regarded as sure proof of competence. There are many authors out there who have doggedly gone through the motions of the academic curriculum, and thus earned their degree(s), but who in reality are not genuine logicians or philosophers, or whatever they claim to be. Their capacity is attested on paper; but it is not in their blood, in their DNA. They are obligated to routinely churn out papers and even books, to appear active and knowledgeable, but it is evident from what they write that they do not really understand the subject. They know inside themselves that it is so, and that is why they desperately seek confirmation through other-publishing.

The same holds true for the mandarins of the publishing world, i.e. the reviewers, editors and publishers. Their having these jobs, presumably on the basis of their college backgrounds, is not a guarantee of their competence. For these reasons, one must always judge the content of what is written independently of 'learned' verdicts. Note well that I am not a relativist; I do believe that some academic texts are better than others and deserve more attention than others. But based on my reading experience it is evident that many texts published as books or as papers in journals are incredibly shallow, and very often filled with obvious empirical and intellectual errors. The authors are, of course, primarily to blame for their sloppy research and thought. But the reviewers, editors and publishers are also much to blame; if they had been intelligent and careful, they would have readily spotted the deficiencies.

I have no intimate knowledge of the publishing world and can only guess how it actually functions. What I do see from the outside is that it is, at least nowadays, closed-minded, petty and gloomy. This is surely not generally true, but it is probably largely true. Some books or journal articles are admittedly excellent, but many are shockingly inferior and most are far too 'average'. No doubt these adjectives equally apply to the authors behind the texts.

Logically, the publishing world cannot be better than the people who compose it; most are unremarkable conformists.

Universities were initially, in the European Middle Ages, until well after the Renaissance, religious institutions, don't forget. They thought and taught religious dogmas, and any individual who swerved from the authorized doctrine was sanctioned. Sometimes, as in the case of Giordano Bruno, they might be killed off. Some of this doctrinaire mentality has persevered into modern times, even though religion per se is no longer the guiding light. Instead of the "religiously correct," we are now (in Western countries) ruled by the "politically correct." Academic authorities may not literally execute dissidents, but they do try to smother them and shunt them aside when it suits them.

In the past few years, many universities seem to be going quite nuts, imposing on their faculty and students some absurd rules of speech and behavior, forbidding free debate, and so on<sup>133</sup>. This is not as in times past a "conservative" trend, but on the contrary now a very "progressive" trend. Its roots are deep in logic and philosophy dating from the very start of the modern era, when reason began to be put in doubt and attacked; but it has taken time to evolve. By the 20<sup>th</sup> Century, the irrational was considered glamorous, and in the early 21<sup>st</sup> Century it is virtually sovereign. This naturally affects the other-publishing world, which seems to regard any defense of reason as passé if not downright horrible. Certainly, if an author's thought does not fit into the world-view of those

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<sup>133</sup> Do read some of the hair-raising articles posted on this blog on current events in universities: <https://www.blazingcatfur.ca/category/batshit-crazy-universities/>.

dominating publishing, he has little chance of being published through them.

Universities in modern times were meant to defend the ideal of knowledge for its own sake, free from the control of powerful groups, be they religious, political or commercial. But this ideal has visibly eroded, and seems less and less likely to survive<sup>134</sup>. It is like the mainstream news media today: the ideals of objective reporting and even-handed editorializing have all but disappeared; nowadays, journalists are in-your-face propagandists, mainly for the ideological postures of the left. The same applies to today's universities; leftists have gradually infiltrated them and taken them over, and they are rapidly forming students in their twisted image and likeness.

Publishing, being an offshoot of academe, is obediently following the party line in every field. In logic, for instance, this means symbolism and superficiality; in wider philosophy, skepticism and materialism. It matters little whether such conformism is conscious policy or unconscious adherence to postmodern intellectual fashion; what matters is the behavior pattern.

#### **4. Publishing attempts**

I did, once in my life, send one of my books to a publisher. I happened to meet, while on vacation abroad back in 1999, an employee of a well-known Dutch publishing house, Kluwer Academic Publishers; and she kindly referred me to one of their young editors, to whom I submitted a copy of my *Future Logic* (written several years earlier as a Ph.D.

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<sup>134</sup> It will definitely die for centuries if not forever if Islam is allowed to prevail in the West. But even without the Islam factor, it seems doomed thanks to rampant progressivism.

dissertation). The book was presumably sent on to some reviewer for consideration, but was returned to me quite soon after (maybe a couple of months later, as I recall) with a refusal.

This is, mind you, a book (several hundred pages long) that boasts of many important discoveries relating to modal categorical and conditional propositions, including a thorough analysis of deductive aspects, culminating in *the formalization of induction by generalization and particularization*. Yet the reviewer rejected it, without giving me any explanation that would confirm to me he had read it (in the short time he had it in hand) and understood its achievements (yet found them wanting in some way). He was evidently not required to defend his case or give me a chance to defend mine.

Understandably, after this experience, I decided not to submit any of my books to any publishers again, unless of course one came asking me for it (which has not occurred to date). I could not see myself, hat in hand, more or less begging some intellectual inferior to please take a look at my book. I do not write in order to publish, but in order to know. If I do want to publish, it is because I kindly want to help other people (in the present and in the future) to know too. Happily, a couple of years after this episode, the Internet was developed and I started (in 2001) publishing my works online in my own website, TheLogician.net; so, I was finally not prevented from publicly sharing my knowledge.

Another publishing experience of mine was the resort, earlier, in 1997, to professional self-publishing through the Geneva firm of Editions Slatkine. In exchange for a hefty cash prepayment of Sw. Fr. 7'000, this publisher undertook to produce and market 800 copies of my *Judaic Logic* (written a couple of years before). I was given a small number of free copies and allowed to buy others at a

reduced price. My royalties on sales were to be a measly 8% of the sale price, which was unnecessarily high at Sw. Fr. 50, even though I had effectively (I assume) covered the production costs and more, not to mention written the book.

I accepted these harsh terms because I wanted to kick-start my publishing career. But, while two or three hundred copies were sold (I do not remember the exact figure), it soon became clear to me that the publisher was actually making zero effort to market the book. A couple of years later I discovered, after a bookshop told me they had tried unsuccessfully to order a copy or two, that the publisher had in fact recently destroyed 400 copies, leaving only a few dozen copies in stock. I was, upon asking, given some of these copies for free as compensation for my losses; but still, I had not been forewarned, or even been informed after-the-fact.

This experience taught me the vanity of using this paid-for publishing mode; it is exploitation of desperate authors. Maybe that is the real reason why it is called ‘vanity publishing’.

With regard to journals of logic or philosophy, I have made no attempts to publish any articles in them during my career. I did actually send an extract of my book *Judaic Logic*, soon after its publication by Slatkine, to the editors of a small Israeli journal called *Higayon*, and they kindly immediately published it; but apart from that have made no efforts in that direction, although I have dozens or maybe hundreds of essays I could have submitted. I did recently submit, after being invited to do so by the editor, a paper based on my work *A Fortiori Logic* (2013), but this was

rejected, due I suspect to its criticism (albeit very mild) of Talmudic logic<sup>135</sup>.

More recently, I was invited to submit a paper for a collection to be published by Springer. The paper I submitted (the same paper as above) was apparently welcomed by the editors, but I had to withdraw it when I found out that the publisher refused to sign a legal document acknowledging my continued ownership of the copyright. In other words, the publisher was not satisfied with my lending him a work of mine free of charge; but wanted me to give up ownership of it! Apparently, some authors are willing to get used like this, out of sheer vanity.

Brief essays of mine have been other-published (in 2010) in a couple of collections, one called *Logic in Religious Discourse* and the other called *Judaic Logic* (not to confuse with my earlier book with the same name), following invitation to contribute by their editor. But frankly, I found the interaction with the editor rather unpleasant and the final product embarrassing. Many of the contributions in these collections, and indeed in many of the journals currently being published that I have looked at, even prestigious ones, are so low-level that I prefer to remain out of them. Call me conceited, but I do not perceive most of the editors or most of the other contributors as my “peers.” Really, I think my works deserve better platforms.

Happily, the Internet again came to my aid, with the advent of instant self-publishing through firms like Lulu.com and CreateSpace.com, who provide a print-on-demand service to individual online buyers. The author uploads a text file, chooses the desired format and cover, decides on pricing, and presto! the book is published. There’s no long wait as

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<sup>135</sup> See chapter 5 of the present book, where this episode is described and discussed in more detail.

occurs in other-publishing; and further benefits are that one can update the text at will, one has immediate sales statistics, and the book is never out of print. This is definitely the way of the future in my view: no interfering intermediaries between the author and eventual readers, in a fair and transparent business deal. The author concentrates fully on writing, without having to worry about publishing. I started publishing my works like this in 2008, and have found the experience very rewarding. I recommend it.

## 5. On librarians

To be sure, some people resist progress, and insist on viewing self-publishing as a medium good only for second-rate writers. In truth (I read the figures once, but I have forgotten them) *only a small fraction* of the hundreds of thousands (or is it millions?) of works written every year are other-published. Most books submitted to publishing houses are rejected. After all, they are in it as a business venture; they cannot be expected to publish all written material, the market is simply not that lively. Even if they are subsidized by private or public monies, subventions are never unlimited. Similarly, I would say (without seeing statistics), most papers submitted to journals are left out of them; they have to be. This should not be taken to mean that what is published is necessarily the cream of what is written; what is published is, in truth, what the publishers believe will sell and generate profits for them, or at least will increase their prestige in some way. It is, objectively speaking, a reflection of their opinions, and not, as many people seem to think, a sure criterion of quality or veracity. In 2014, I decided to spend a few thousand dollars distributing copies of my main books to many university and public libraries in the world (mainly English-speaking

countries, but not only). I thought: why wait for them or their readers to discover my works? I'll speed the process up by making them readily available to present and future researchers, students and general readers, free of charge. Actually, I have been sending free copies to a few libraries every time I write a new book, to make sure that, should something happen to me, the work lives on. But here, what I had in mind was a more systematic and widespread dissemination effort, made possible by online print-on-demand services. I had CreateSpace.com produce and send several hundred books to over a hundred libraries.

Most of the libraries seem to have welcomed the material contributions to their collection, and duly catalogued them; but to my surprise some did not. For instances, a library in South Africa, and another in Lausanne, Switzerland, told me, when I asked them why they had not catalogued them, that they had destroyed the copies they got offhand, because they were self-published. Another librarian, at Tel Aviv university, mockingly pretended to refuse my books because they did not have a bibliography; when I pointed out that *A Fortiori Logic* did not need a bibliography, being a study where every author on the subject is not only mentioned but also analyzed within the text, she simply did not reply, and did not change her mind (as I expected). I find such ignorance and stupidity plainly evil.

After all, what is the function of libraries, and particularly of university libraries, if not to respectfully collect and preserve knowledge, and make it available to all comers? They are supposed to be custodians and transmitters of knowledge. How is it that someone, who probably knows close to nothing of logic or philosophy, or maybe has some knowledge but no time to read many books so as to evaluate them, has the chutzpah to refuse gift books merely because they are self-published? I cannot understand this mentality. It is true that libraries have limited space and must therefore be selective; but is self-publishing in itself

a sufficient reason for exclusion? Note that in the case of the TAU library, this could hardly have been the case, since they already had copies of most of my books, and I was only asking them to use the more recent editions; they kept the old editions and refused the better new ones. Clearly, there is an irrational prejudice at play, or at least disgraceful laziness.

Once again, however, the Internet has come to the rescue. Digital libraries like the Internet Archive and Google Books, to name but two that I have used, have vowed to collect the totality of human knowledge in their online libraries. This is really a fantastic contemporary initiative. Surely, all human writings are interesting in some way or the other, as creations of the human race, and should be perpetuated for present and future use or even merely as curiosities.

In antiquity, thanks to the famous Library of Alexandria, many valuable works (and no doubt also many less valuable ones) were made available and preserved for centuries. Unfortunately, when barbarian hordes destroyed it, many of these works were lost forever to mankind. Let's hope that today's digital libraries are not someday likewise destroyed in some nuclear holocaust. I hope the people in charge of them are taking all necessary precautions, with backups in different locations and the lasting technology to read the memory contents.

## **6. On historians**

This brings me to the subject of histories and encyclopedias of philosophy, including logic. What is the task of historians? It is surely to observe and show, to survey, comprehend, and summarize, to the best of their abilities, the real state of affairs in the world of logic and philosophy,

at any and every given time and over time. This is a sacred task, when it relates to logic and philosophy, because this field aims for a cumulative total, including for consideration all thought to date, and not like (say) physics for the latest results, leaving behind the past as mere curio. The job of historians of logic and philosophy is not in principle selective, though of course all historiography may well be critical. Historians should not ignore or discard material, simply because it does not fit into their own view of things at the time concerned; they are duty bound to be exhaustive, and to compare and contrast everything, in order to demonstrate the breadth and depth of their study. They should look for, find out, record and understand what has actually been proposed in the field researched, and not merely what suits a certain ideology or group. They may, of course, express doubt or disagreement with some of it, provided they give their reasons for such criticism. But in the latter case, they are entering the fray as involved participants in the great public debates of logic and philosophy; they are not acting as detached observers.

The following anecdote illustrates this reflection. Having read a few articles in the online Stanford Encyclopedia of Philosophy, and found them wanting, I wrote (this was in 2016) to the editor so as to draw his attention to some my works. I first pointed out the absence of an article on a fortiori argument, and recommended my book on the subject. He kindly answered me as follows:

“Thanks for your message and for the suggestion. Unfortunately, the SEP has limited resources; we don't charge our readers for the high-quality academic content that we deliver freely on the Internet, and the key to our survival therefore is to operate on a small budget. So we can't have entries on every concept or person that is deserving. One of the important criteria for

commissioning an entry has to do with whether the topic is of central importance to current academic philosophers, as evidenced by a large and active literature on the topic for which it would be useful to have an introduction. I'm afraid that an entry on a fortiori argument doesn't meet our criteria. Sorry the news isn't better. Thanks for your understanding."

While I found his reference to budgetary limitations understandable, I found his reference to "whether the topic is of central importance to current academic philosophers" much less convincing, as it seems to exclude in advance all innovation that has not captured the fancy of the well-placed few. This is a formula for stagnation; it is bureaucratic and lacking in initiative. So, I replied: "There are a lot of new ideas and approaches in my works on various logical and philosophical topics, yet unknown to most academics," and I gave him as example my latest essay of the Russell Paradox, adding a link to it and a brief abstract of its contents. He replied:

"If you get your work published in accredited, peer reviewed, philosophy/logic journals or by similarly-accredited book publishers, our authors will then have an obligation to consider the value of your work and the likelihood of it being cited in the SEP will increase."

To which I replied: "No – I won't do it, ever," and then explained my negative views concerning book publishers and journals (roughly as above done in the present essay, but much more briefly), concluding: "What I expect is that people like your authors, who are no doubt sincerely interested in progress in logic and philosophy, to make the effort to look at the actual field out there (not just the conventional in-group) and see what is going on really.

How can they claim to write a history of philosophy, when they ignore very relevant material? Is their history a history of familiar names and thoughts, or a history and objective account of what is really happening here and now? Are they true historians or just make-believe historians?”

I went on: “I have pointed you towards my 2013 essay on the Russell paradox. This is just one example among many. How can the SEP article on the Russell paradox be credible if you have not checked out this novel and significant contribution to the subject? Look and see for yourselves – that is your job, to seek and find what is really being said out there.”

I also referred him to my book *Hume's Problems with Induction*, pointing out that it is of great relevance to many articles in SEP, since I show in it that “the so-called Problem of Induction, which has so deeply and negatively affected modern Western (particularly Anglo-Saxon and German) philosophy from the start, is just a load of sophistry, instead of which we should be teaching the Principle of Induction.” I added: “This is just one topic treated in this book. Read the table of contents – everything in it is new and important. If your historians do not read this, and claim to describe philosophy as it has been to this day, they are failing in their vocation. Look at it yourself and judge for yourself.”

I went on: “Again... look at *The Logic of Causation*. For the first time in the history of philosophy, someone has written a systematic work on the logic of causation (over ten years), covering every possible form of causative argument! And thus incidentally proving once and for all that skepticism about causation is based on ignorance. ***This cannot be put in a mere journal article - it can only be put in a massive and very technical book, which most people are too lazy to read and study, so that publishers will not publish it because they know it won't sell.*** That has

nothing to do with *the value of its content*” (bold added now). I of course gave him links to these books, and even offered to send him paper copies of them at my expense. After that, he did not reply to me anymore; no doubt he did not like my comment about “make-believe historians.”

Note well my argument to him, which I reiterate here: there can be no excuse for alleged historians not-doing the necessary research when preparing an article for an encyclopedia, or a journal or a book, on the accumulated thought regarding a certain logical or philosophical topic. If they willfully bypass work that is actually present on the market of ideas, if they are lazy and do not even bother to read it if it is not published by what they regard as an “accredited” publisher, they are not real historians, but merely rapporteurs of the current philosophical clique and their tired clichés. This is unscientific on their part; it results in fake history.

Such pseudo-historians do not think and judge for themselves, but give other people (a selection of book and journal publishers that they refer to for a relevant research material) the responsibility to do so in their stead, paying no attention to the tortuous ways of a publishing business which is not focused on history. Who, after all, are these “accredited” geniuses that they have so much faith in? Just unremarkable, conventional people, themselves “accredited” by other unremarkable, conventional people, and so on *ad nauseam*.

Of course, I do understand the reluctance of the editor to engage in independent research. The ideal presented here of an all-inclusive effort by historians of human thought is so enormous that it is virtually impossible. It is certainly not something that any individual can do in a single lifetime, or even many individuals in many lifetimes. Therefore, in practice historians are very selective, and their selections are mostly second-hand.

This was recently brought home to me when I received a very aggressive e-mail from someone, demanding that I read his work, to which he gave me a link<sup>136</sup>. Although very busy with my own writing, I followed the link very briefly and was amazed to see it included thousands of pages of complex diagrams and formulas. Obviously, it would take someone years to read all that, let alone verify the truth and value of what is said. I wrote back to the guy, telling him I simply did not have the time to do that. He was very angry with me and I had a hard time getting him off my back. This made me better understand why editors are so unwilling to consider unknown work; the needed investment of human resources is just too much.

Maybe one day this issue will be resolved, or at least facilitated, through artificial intelligence. Or maybe some billionaire will finance such a massive project, putting thousands of idle college graduates to work. Meanwhile, without a doubt, many valuable and even important works will remain in obscurity, cruelly lumped together with many valueless ones. And many valueless works will continue to be given more attention than they really deserve, because editors and historians prefer to deal with familiar material that others have already approved of.

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<sup>136</sup> Here is the link for those interested: <https://archive.org/details/AUL070416>. The author is called John Clark and he describes his work as “a universal language”. Don’t ask me what it is worth: I have not examined it.

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The following are the main references made in the present work. There are, in fact, some more references scattered throughout the present volume, in footnotes. The selection of some under the heading of ‘main references’ is somewhat subjective. References made through Internet links, even if important are usually excluded here – as are references to works quoted rather incidentally or second-hand. Note that this listing is not intended as a bibliography, at least not as an exhaustive one.

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**Works by Avi Sion**

Avi Sion is the author of several works on logic and philosophy: *Future Logic* (1990); *Judaic Logic* (1995); *Buddhist Illogic* (2002); *Phenomenology* (2003); *The Logic of Causation* (1999, 2003, 2010); *Volition and Allied Causal Concepts* (2004); *Ruminations* (2005); *Meditations* (2006); *Logical and Spiritual Reflections* (2008-9); *A Fortiori Logic* (2013).

These works can be freely studied at:

**[www.TheLogician.net](http://www.TheLogician.net)** and **[www.AviSionBooks.com](http://www.AviSionBooks.com)**.

*Exposing Fake Logic* (2018), can be read online at:

**[www.avisionpolemics.bravesites.com](http://www.avisionpolemics.bravesites.com)**.

A complete list of Avi Sion's websites can be viewed at:

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