LOGIC IN THE TALMUD

A Thematic Compilation

By **Avi Sion** PH.D.

Self-published through Lulu; CreateSpace & Kindle.
Website: www.TheLogician.net. E-mail: avi-sion@thelogician.net.

Logic in the Talmud can be freely read online at avisiontalmudlogic and in various other locations. It can be purchased, in print and e-book editions, in Amazon.com, Lulu.com and many other online booksellers.

The present document contains **excerpts** from this book, namely: The Abstract; the Contents; and Sample text (Chapter 1, Sections 3-5).

Avi Sion (Ph.D. Philosophy) is a researcher and writer in logic, philosophy, and spirituality. He has, since 1990, published original writings on the theory and practice of inductive and deductive logic, phenomenology, epistemology, aetiology, psychology, meditation, ethics, and much more. Over a period of some 28 years, he has published 27 books. He resides in Geneva, Switzerland.

It is very difficult to briefly summarize Avi Sion's philosophy, because it is so wide-ranging. He has labeled it '**Logical Philosophy**', because it is firmly grounded in formal logic, inductive as well as deductive. This original philosophy is dedicated to demonstrating the efficacy of human reason by detailing its actual means; and to show that the epistemological and ethical skepticism which has been increasingly fashionable and destructive since the Enlightenment was (contrary to appearances) quite illogical – the product of ignorant, incompetent and dishonest thinking.

Abstract

Logic in the Talmud is a 'thematic compilation' by Avi Sion. It collects in one volume essays that he has written on this subject in *Judaic Logic* (1995) and *A Fortiori Logic* (2013), in which traces of logic in the Talmud (the Mishna and Gemara) are identified and analyzed. While this book does not constitute an exhaustive study of logic in the Talmud, it is a ground-breaking and extensive study.

Contents

Sample text (chapter 1, sections 3-5)

A Fortiori in the Talmud

3. A fresh analysis of Mishna Baba Qama 2:5

In the Mishna Baba Qama 2:5, there is a debate between **the Sages** and **R. Tarfon** about the concrete issue of the financial liability of the owner of an ox which causes damages by goring on private property. This debate has logical importance, in that it reveals to a considerable extent skills and views of Talmudic rabbis with regard to the a fortiori argument. The Sages consider that he must pay for half the damages, whereas R. Tarfon advocates payment for all the damages[1].

The Sages (*hachakhamim*) are unnamed rabbis of Mishnaic times (Tannaim) and R. Tarfon is one of their colleagues (of the 3rd generation), who lived in Eretz Israel roughly in the late 1st – early 2nd century CE. We are not told how many were the Sages referred to in this Mishna (presumably there were at least two), nor who they were. The contemporaries of R. Tarfon include R. Eleazar b. Azariah, R. Ishmael b. Elisha, R. Akiva, and R. Jose haGelili; it is conceivable that these are the Sages involved in this debate. They are all big names, note; the latter three, as we have seen, produced hermeneutic principles. R. Tarfon, too, was an important and respected figure. So, the debate between them should be viewed as one between equals.[2]

The Mishna (BQ 2:5) is as follows[3]:

> "What is meant by 'ox doing damage on the plaintiff's premises'? In case of goring, pushing, biting, lying down or kicking, if on public ground the payment is half, but if on the plaintiff's premises R. Tarfon orders payment in full whereas the Sages order only half damages.
>
> 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 plaintiffs premises so as to require compensation in full?

---

[1] R. Tarfon's pursuit of a more stringent legal conclusion might be imputed to his belonging to the School of Shammai, although he is personally reputed to be inclined to leniency. This said in passing.

[2] Although in some contexts the word "sage" (*hakham*) is intended to refer to someone of lesser rank than a "rabbi," I use the terms as equivalent in my works.

[3] The extracts from the Talmud quoted in the present chapter were found on the Internet at: www.halakhah.com/pdf/nezikin/Baba_Kama.pdf. I have made minor modifications to the text, such as changing the spelling of Kal wa-homer and Dayyo. All explanations in square brackets in the Gemara are as in the original, unless otherwise stated.

> 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."

This discussion may be paraphrased as follows. 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.

(a) R. Tarfon argues that in the case of damages caused by "tooth and foot," the (Torah based) law was lenient (requiring no payment) if they occurred on public ground and strict (requiring full payment) if they occurred on private ground – "*does it not stand to reason that*" in the case of damages caused by "horn," since the (Torah based) law is median (requiring half payment) if they occurred on public ground, then the law (i.e. the rabbis' ruling in this case) ought to likewise be strict (requiring full payment) if they occurred on private ground? Presented more briefly, and in a nested manner, this *first argument* reads as follows:

If tooth & foot, then:

- if public then lenient, and
- if private then strict.

If horn, then:

- if public then median, and
- if private then strict
- (R. Tarfon's putative conclusion).

R. Tarfon thus advocates 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, this time starting from the laws relating to public ground, where that concerning "tooth and foot" is lenient (requiring no payment) and that concerning "horn" is median (requiring half payment), and continuing: "*does it not stand to reason that*" with regard to private ground, since the law for "tooth and foot" damage is strict (requiring full payment), the law (i.e. the rabbis' ruling in this case) for "horn" damage ought to likewise be strict (requiring full payment)? Presented more briefly and in a nested manner, this *second argument* reads as follows:

If public, then:

if tooth & foot then lenient, and

if horn then median.

If private, then:

if tooth & foot then strict, and

if horn then strict

(R. Tarfon's putative conclusion).

R. Tarfon thus advocates full payment for damage on private property. The Sages disagree with him again, advocating half payment only, saying "*dayo*—it is enough."

More precisely, they reply to him both times: "*it is quite sufficient that the law in respect of the thing inferred should be equivalent to that from which it is derived*" – meaning that only half payment should be required in the case under consideration (viz. damages by "horn" on private grounds). In Hebrew, their words are: דיו לבא מן הדין להיות כנדון (*dayo lavo min hadin lihiot kenidon*) – whence the name *dayo* principle[4].

Now, the first thing to notice is that these two arguments of R. Tarfon's 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 (ii) and (iii). The logical outcome seems bound to be the same:

(a) If tooth & foot and public, then lenient (i).

If tooth & foot and private, then strict (ii).

If horn and public, then median (iii).

If horn and private, then strict (R. Tarfon's putative conclusion).

(b) If public and tooth & foot, then lenient (same as (i)).

If public and horn, then median (same as (iii)).

If private and tooth & foot, then strict (same as (ii)).

If private and horn, then strict (same putative conclusion).

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.

(a) What is R. Tarfon's logic in **the first argument**? Well, it seems obvious that he is making some sort of argument *by analogy*; he is saying (note the identity of the two sentences in italics):

Just as, in one case (that of tooth & foot), *damage in the private domain implies more legal liability than damage in the public domain* (since strict is more stringent than lenient).

---

[4] A comparable statement of the *dayo* principle is found in *Pesachim* 18b, whence we can say that it is intended as a statement of principle and not just as an *ad hoc* position.

> So, in the other case (viz. horn), we can likewise say that *damage in the private domain implies more legal liability than damage in the public domain* (i.e. given median in the latter, conclude with strict, i.e. full payment, in the former, since strict is more stringent than median).

Just as in one case we pass from lenient to strict, *so* in the other case we may well pass from median to strict[5]. Of course, as with all analogy, a generalization is involved here from the first case (tooth & foot being more stringent for private than for public) up to "all cases" (i.e. the generality in italics), and then an application of that generality to the second case (horn, thusly concluded to be more stringent for private than for public). But of course, this is an inductive act, since it is not inconceivable that there might be specific reasons why the two cases should behave differently. Nevertheless, if no such specific reasons are found, we might well reason that way. That is to say, R. Tarfon does have a point, because his proposed reasoning can well be upheld as an ordinary analogical argument. This might even be classified under the heading of *gezerah shavah* or maybe *binyan av* (the second or third rule in R. Ishmael's list of thirteen)[6].

The above is a rather intuitive representation of R. Tarfon's first argument by analogy. Upon reflection, this argument should be classified more precisely as a quantitative analogy or *pro rata* argument:

> The degree of legal liability for damage is 'proportional' to the status of the property the damage is made on, with *damage in the private domain implying more legal liability than damage in the public domain*.
>
> This is true of tooth and foot damage, for which liability is known to be nil (lenient) in the public domain and full (strict) in the private domain.
>
> Therefore, with regard to horn damage, for which liability is known to be half (median) in the public domain, liability may be inferred to be full (strict) in the private domain.

This argument, as can be seen, consists of three propositions: a general major premise, a particular (to tooth and foot) minor premise and a particular (to horn) conclusion. The major premise is, in fact, known by induction – a generalization of the minor premise, for all damage in relation to property status. But once obtained, it serves to justify drawing the conclusion from the minor premise. The pro rata argument as such is essentially deductive, note, even though its major premise is based on an inductive act. But its conclusion is nevertheless a mere rough estimate, since the 'proportionality' it is based on is very loosely formulated. Notice how the minor premise goes from zero to 100%, whereas the conclusion goes from 50% to 100%[7].

The Sages, on the other hand, seem to have in mind, instead of this ordinary argument by analogy or pro rata argument, a more elaborate and subtle *a fortiori* argument of positive subjectal form.

---

[5] Indeed, R. Tarfon could buttress his argument by pointing out that the latter transition is only half the distance, as it were, compared to the former. Alternatively, we could insist on 'proportionality' and say: from lenient (zero) to strict (full) the change is 100%, therefore from moderate (half) we should infer not just strict (full), which is only 50%, but 'stricter than strict', i.e. 150% payment! This is just pointed out by me to show that R. Tarfon's argument by analogy was more restrained than it could have been. Evidently, 100% is considered the maximum penalty by both parties; no punitive charges are anticipated.

[6] I am here just suggesting a possibility, without any intent to make a big issue out of it. The advantage of this suggestion is that it legitimates R. Tarfon's line of reasoning as an application of *another* rabbinic hermeneutic principle. The format would be: 'just as private is stricter in the known case, so private should be stricter in the case to be determined'.

[7] Because, to repeat, judging by Torah practice, it can go no further – i.e. there is no "150%" penalty.

They do not explicitly present this argument, note well; but it is suggested in their reactions to their colleague's challenge. Their thinking can be construed 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 (R) enough to make the payment half (median) (S).
>
> Therefore, for horn, private domain damage (P) implies legal liability (R) enough to make the payment half (median) (S).

We see that the subsidiary term (S) is the same (viz. 'median', i.e. half payment) in the Sages' minor premise and conclusion, in accord with a fortiori logic; and they stress that conclusion in reply to R. Tarfon's counterarguments by formulating their *dayo* principle, viz. "it is quite sufficient that the law in respect of the thing inferred should be equivalent to that from which it is derived," to which they add: "just as for damage [by horn] done on public ground the compensation is half, so also for damage [by horn] done on the plaintiff's premises the compensation should not be more than half."[8]

We see also that the major premise of the Sages' *qal vachomer* is identical to the statements in italics of R. Tarfon's argument by analogy, i.e. to the major premise of his pro rata argument. In both R. Tarfon and the Sages' arguments, this sentence "private damage implies more legal liability than public damage" is based on the same generalization (from tooth & foot, in original premises (i) and (ii), as already seen) and thence applicable to the case under scrutiny (horn, for which proposition (iii) is already given)[9]. So, both their arguments are equally based on induction (they disagreeing only as to whether to draw the conclusion (iv) or its contrary).

But the most important thing to note here is that the *same* premises (viz. (i), (ii) and (iii)) can be used to draw *contrary* conclusions (viz. full payment vs. half payment, respectively, for damage by horn on private grounds), according as we use a mere analogical or pro rata argument, like R. Tarfon, or a more sophisticated strictly a fortiori argument, like the Sages. This discrepancy obviously requires explanation. Since both arguments are built on the same major premise, produced by the same inductive act of generalization, we cannot explain the difference by referring to the inductive preliminaries.

The way to rationalize the difference is rather to say that the argument by analogy or pro rata is more approximate, being a mere projection of the *likely* conclusion; whereas the a fortiori argument is more accurate, distilling the *precise* conclusion inherent in the premises. That is to say, though both arguments use the same preliminary induction, the argument of R. Tarfon is in itself *effectively a further act of induction*, whereas the argument of the Sages is in itself *an act of pure deduction*. Thus, the Sages' conclusion is to be logically preferred to the conclusion proposed by R. Tarfon.

Note well that we have here assumed that R. Tarfon's first argument was merely analogical/pro rata, and that the Sages proposed a purely a fortiori argument in response to it. It is also possible to

---

[8] The words "by horn" in square brackets added by me; but they are in accord with the interpolation in the Soncino edition.

[9] Note that the general major premise of the Sages' *qal vachomer* can be stated more specifically as "for horn" – in which case, since the minor premise and conclusion are both specified as "for horn," the whole a fortiori argument can be considered as conditioned by "for horn" and this condition need not be specified as here done for each proposition in it.

imagine that R. Tarfon *intended* a purely a fortiori argument, but erroneously drew a 'proportional' conclusion from it; in which case, the Sages' *dayo* objection would have been to reprove him for not knowing or forgetting (or even maybe deliberately ignoring) the principle of deduction, i.e. that such argument can only yield a conclusion of the same magnitude as the minor premise. However, I would not support this alternative hypothesis, which supposes R. Tarfon to have made a serious error of reasoning (or even intentionally engaged in fallacy), because it is too far-fetched. For a start, R. Tarfon is an important player throughout the Mishna, someone with in general proven logical skills; moreover, more favorable readings of this particular argument are available, so we have no reason to assume the worst.

Another possible reading is that R. Tarfon's first argument was not merely analogical/pro rata but was *intended as a crescendo*, i.e. as a combination of a fortiori argument with pro rata argument, which can be briefly presented 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 (median) (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 (strict) (Sp = more than Sq).

In that case, the *dayo* statement by the Sages may be viewed as *a rejection of the additional premise about 'proportionality'* between S (the subsidiary term) and R (the middle term) in the case at hand. That would represent them as saying: while proportionality might seem reasonable in other contexts, in the present situation it ought not to be appealed to, and we must rest content with a purely a fortiori argument. The advantage of this reading is that it conceives R. Tarfon as from the start of the debate resorting to the more sophisticated a fortiori type of argument, even though he conceives it as specifically a crescendo (i.e. as combined with a pro rata premise). The Sages prefer a purely a fortiori conclusion to his more ambitious a crescendo one, perhaps because it is easier to defend (i.e. relies on less assumptions), but more probably for some other motive (as we shall see).

(b) So much for the first argument; now let us examine **the second argument**. This, as many later commentators noticed, and as we shall now demonstrate, differs significantly from the preceding. The most important difference is that, here, the mere argument by analogy (or argument pro rata, to be more precise), the purely a fortiori argument and the a crescendo argument (i.e. a fortiori and pro rata combo), *all three yield the same conclusion*. Note this well – it is crucial. The second analogical argument proceeds as follows:

> Just as, in one case (that of the public domain), *damage by horn implies more legal liability than damage by tooth & foot* (since median is more stringent than lenient).
>
> So, in the other case (viz. the private domain), we can likewise say that *damage by horn implies more legal liability than damage by tooth & foot* (i.e. given strict in the latter, conclude with strict, i.e. full payment, in the former, since strict is 'more stringent than' [here, as stringent as[10]] strict).

---

[10] Note that whereas in the first argument by analogy the movement is 'from median to strict', in the second argument by analogy the movement is 'from strict to strict'. Assuming here again that 100% payment is the maximum allowed. Otherwise, if we insisted on 'proportionality', arguing that just as the increase from lenient (zero) to median

This argument is, as before, more accurately represented as a pro rata argument:

> The degree of legal liability for damage is 'proportional' to the intentionality of the cause of damage, with *damage by horn implying more legal liability than damage by tooth & foot*.
>
> This is true of the public domain, for which liability is known to be nil (lenient) for damage by tooth and foot and half (median) for damage by horn.
>
> Therefore, with regard to the private domain, for which liability is known to be full (strict) for damage by tooth and foot, liability may be inferred to be full (strict) for damage by horn.

This argument visibly consists of three propositions: a general major premise, a particular (to the public domain) minor premise and a particular (to the private domain) conclusion. The major premise is, in fact, inductive – a generalization of the minor premise, for all damage in relation to intentionality (in horn damage the ox intends to hurt or destroy, whereas in tooth and foot damage the negative consequences are incidental or accidental). But once obtained, the major premise serves to justify drawing the conclusion from the minor premise. Here again, the 'proportionality' is only rough; but in a different way. Notice how the minor premise goes from 0% to 50%, whereas the conclusion goes from 100% to 100%.

The purely a fortiori reading of this second argument would be as follows:

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

Note that *the conclusion would be the same if this argument was constructed as a more elaborate a crescendo argument*, i.e. with the additional pro rata premise "The payment due (S) is 'proportional' to the degree of legal liability (R)." The latter specification makes no difference here (unlike in the previous case), because (as we are told in the minor premise) the minimum payment is full and (as regards the conclusion) no payment greater than full is admitted (by the Torah or rabbis) as in the realm of possibility anyway. Thus, whether we conceive R. Tarfon's second argument as purely a fortiori or as a crescendo, its conclusion is the same. Which means that the argument, if it is not analogical/pro rata, is essentially a fortiori rather than a crescendo.

Observe here the great logical skill of R. Tarfon. His initial proposal, as we have seen, was an argument by analogy or pro rata, which the Sages managed to neutralize by means of a logically more powerful a fortiori argument; or alternatively, it 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 strict conclusion whether it is read as an argument by analogy (pro rata) or a more elaborate a crescendo – or as a purely a fortiori argument. 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.

(half) is 50%, so the increase from strict (full) ought to be 50%, we would have to conclude an 'even stricter' penalty of 150%!

Note well *why* R. Tarfon tried a second argument. Here, the stringency of the target law (viz. horn in the private domain) is *equal to* (and not, as in his first argument, greater than) the stringency of the source law (viz. tooth & foot in the private domain); i.e. both are here 'strict'. This makes R. Tarfon's second argument consistent with a fortiori logic and with the *dayo* principle that the Sages previously appealed to, since now "the law in respect of the thing inferred" is apparently "equivalent to that from which it is derived." Yet, the Sages reiterate the *dayo* principle and thus reject his second try. How can they do so?

What is odd, moreover, is that the Sages answer both of R. Tarfon arguments *in exactly the same words*, as if they did not notice or grasp the evident differences in his arguments. The following is their identical full reply in *both* cases:

> "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 is half, so also for damage done on the plaintiff's premises the compensation should not be more than half."
>
> אמרו לו דיו לבא מן הדין להיות כנדון מה ברה"ר חצי נזק אף ברשות הניזק חצי נזק

One might well initially wonder if the Sages did not perchance fail to hear or to understand R. Tarfon's second argument; or maybe some error occurred during the redaction of the Mishna or some later copying (this sure does look like a 'copy and paste' job!). For if the Sages were imputing a failure of *dayo* to R. Tarfon's second argument, in the same sense as for the first argument, they would not have again mentioned the previous terms "public ground" for the minor premise and "the plaintiff's premises" for the conclusion, but instead referred to the new terms "tooth and foot" and "horn." But of course, we have no reason to distrust the Sages and must therefore assume that they know what they are talking about and mean what they say.

Whence, we must infer that *the Sages' second dayo remark does not mean exactly the same as their first one*. In the first instance, their objection to R. Tarfon was apparently that if the argument is construed as strictly a fortiori, the conclusion's predicate must not surpass the minor premise's predicate; in this sense, the *dayo* principle simply corresponds to the principle of deduction, as it naturally applies to purely a fortiori argument. Alternatively, if R. Tarfon's first argument is construed as pro rata or as a crescendo, the Sages' first *dayo* objection can be viewed as rejecting the presumption of 'proportionality'. However, such readings are obviously inappropriate for the Sages' *dayo* objection to R. Tarfon's second argument, since the latter however construed is fully consistent with the *dayo* principle in either of these senses.

How the second *dayo* differs from the first. An explanation we can propose, which seems to correspond to a post-Talmudic traditional explanation[11], is that the Sages are focusing on *the generalization* that precedes R. Tarfon's second argument. The major premise of that argument, viz. "Horn damage implies more legal liability than tooth & foot damage" was derived from two propositions, remember, one of which was "In the public domain, *horn* damage entails *half*

---

[11] In the notes in the Artscroll Mishnah Series, Seder Nezikin Vol. I(a), Tractate Bava Kamma (New York: Mesorah, 1986), the following comment is made regarding 2:5 in the name of Rav: "Even in this [second] *kal vachomer*, we must resort to the fact that keren [i.e.horn] is liable in a public domain; otherwise, we would have no *kal vachomer*." Other commentators mentioned in this context are: Tos. Yom Tov, Nemmukei Yosef, Rosh and Rambam.

payment" (and the other was "In the public domain, tooth & foot damage entails no payment"). R. Tarfon's putative conclusion after generalization of this comparison (from the public domain to all domains), and a further deduction (from "In the private domain, tooth & foot damage entails full payment"), was "In the private domain, *horn* damage entails *full* payment." Clearly, in this case, the Sages cannot reject the proposed deduction, since it is faultless however conceived (as analogy/pro rata/a crescendo or even purely a fortiori). What they are saying, rather, is that *the predicate of its conclusion cannot exceed the predicate* (viz. half payment) *of the given premise involving the same subject* (viz. horn) *on which its major premise was based.*

We can test this idea by applying it to R. Tarfon's first argument. There, the major premise was "Private domain damage implies more legal liability than public domain damage," and this was based on two propositions, one of which was "For tooth & foot, *private* domain damage entails *full* payment" (and the other was "For tooth & foot, public domain damage entails no payment"). R. Tarfon's putative conclusion after generalization of this comparison (from tooth & foot to all causes), and a further deduction (from "For horn, public domain damage entails half payment"), was "For horn, *private* domain damage entails *full* payment." Clearly, in this case, the Sages cannot object that the predicate of its conclusion exceeds the predicate of the given premise *involving the same subject* (viz. private domain, though more specifically for tooth & foot) on which its major premise was based, since they are the same (viz. full payment). Their only possible objection is that, conceiving the argument as purely a fortiori, the predicate of the conclusion cannot exceed the predicate (viz. half payment) *of the minor premise* (i.e. "For horn, public domain damage entails half payment"). Alternatively, conceiving the argument as pro rata or a crescendo, they for some external reason (which we shall look into) reject the implied proportionality.

Thus, the Sages' second objection may be regarded as introducing an extension of the *dayo* principle they initially decreed or appealed to, applicable to any generalization preceding purely a fortiori argument (or possibly, pro rata or a crescendo arguments, which as we have seen are preceded by the same generalization). The use and significance of generalization before a fortiori argument (or eventually, other forms of argument) are thereby taken into consideration and emphasized by the Sages. This does not directly concern the a fortiori deduction (or the two other possible arguments), note well, but only concerns an inductive *preliminary* to such inference. However, without an appropriate major premise, no such argument can be formed; in other words, the argument is effectively blocked from taking shape.

The question arises: how is it possible that by merely reshuffling the given premises we could obtain two different, indeed conflicting, a fortiori (or other) conclusions? The answer is that the two major premises were constructed on the basis of *different directions of* generalization[12]. In the first argument, the major premise is based *entirely* on tooth & foot data, and we learn something about horn *only* in the minor premise. In the second argument, the major premise relies *in part* on horn data, and the minor premise tells us *nothing* about horn. Thus, the two preliminary generalizations in fact cover quite different ground. This explains why the two a fortiori processes diverge significantly, even though the original data they were based on was the same.

The first *dayo* objection by the Sages effectively states that, if R. Tarfon's first argument is construed as purely a fortiori, the conclusion must logically (i.e. by the principle of deduction)

---

[12] To give a simpler example, for the reader's assistance: suppose we are given that 'Some X are Y'; this is equivalent to 'Some Y are X'. In such case we have two possible directions of generalization: to 'All X are Y', or to 'All Y are X'. Clearly, while the sources of these two results are logically identical, the two results are quite different.

mirror the minor premise; alternatively, construing it as pro rata or a crescendo, the needed 'proportionality' is decreed to be forbidden (for some reason yet to be dug up). For the second argument, which has one and the same conclusion however construed (whether a fortiori or other in form), the Sages' *dayo* objection cannot in the same manner refer to the minor or additional premise, but must instead refer to the inductive antecedents of the major premise, and constitute a rule that the conclusion cannot exceed in magnitude such antecedents. This explains the Sages' repetition of the exact same sentence in relation to both of R. Tarfon's arguments.

A problem and its solution. There is yet one difficulty in our above presentation of the Sages' second *dayo* objection that we need to deal with.

As you may recall, the first dialogue between R. Tarfon and the Sages could be described as follows: R. Tarfon proposes an a crescendo argument concluding with full payment for damage by horn on private property, whereas the Sages conclude with half payment through the purely a fortiori argument leftover after his tacit premise of 'proportionality' is rejected by their *dayo*. That is, they effectively say: "The payment due (S) is *not* 'proportional' to the degree of legal liability (R)." Thus, the first exchange remains entirely within the sphere of a fortiori logic, despite the *dayo* application.

But the second dialogue between these parties cannot likewise be entirely included in the sphere of a fortiori logic, because the final conclusion of the Sages here is not obtained by a fortiori argument. Since the effect of their second *dayo* objection is to block the formation by generalization of the major premise of R. Tarfon's second a fortiori argument, it follows that once this objection is admitted his argument cannot proceed at all; for without a general major premise such argument cannot yield, regarding horn damage on private property, a conclusion of half compensation any more than a conclusion of full compensation. Yet the Sages do wish to conclude with half compensation. How can they do so?

The answer to the question is, traditionally, to refer back to the Torah passage on which the argument is based, namely Exodus 21:35: "And if one man's ox hurt another's, so that it dieth; then they shall sell the live ox, and divide the price of it; and the dead also they shall divide". This signifies half compensation for horn damage without specifying the domain (public or private) in which such damage may occur – thus suggesting that the compensation may be the same for both domains. In the above two a fortiori arguments, it has been assumed that the half compensation for horn damage applies to the public domain, and as regards the private domain the compensation is unknown – indeed, the two a fortiori arguments and the objections to them were intended to settle the private domain issue.

This assumption is logically that of R. Tarfon. Although the said Torah passage seems to make no distinction between domains with regard to damage by horn, R. Tarfon suspects that there is a distinction between domains by analogy to the distinction implied by Exodus 22:4 with regard to damage by tooth and foot (since in that context, only the private domain is mentioned[13]). His thinking seems to be that the owner of an ox has additional responsibility if he failed to preempt his animal from trespassing on private property and hurting other animals in there. So, he tries to prove this idea using two arguments.

---

[13] "If a man cause a field or vineyard to be eaten, and shall let his beast loose, and it feed in another man's field; of the best of his own field, and of the best of his own vineyard, shall he make restitution."

The Sages, for their part, read Exodus 21:35 concerning horn damage as a general statement, which does not distinguish between the public and private domains; and so, they resist their colleague's attempt to particularize it. For them, effectively, what matters is that two oxen belonging to two owners have fought, and one happened to kill the other; it does not matter who started the fight, or where it occurred or which ox killed which – the result is the same: equal division of the remaining assets between the owners, as the Torah prescribes. Effectively, they treat the matter as an accident, where both parties are equally faultless, and the only thing that can be done for them is to divide the leftovers between them.

Clearly, if compensation for horn damage on public grounds could be more than half (i.e. if half meant at least half), R. Tarfon could still (and with more force) obtain his two 'full compensation' conclusions (by two purely a fortiori arguments), but the Sages' two *dayo* objections would become irrelevant. In that event, the conclusion regarding horn damage would be full compensation on *both* the public and private domains. But if so, why did the Torah specify *half* compensation ("division" in two)? Therefore, the compensation must at the outset be only half *in at least one domain*. That this would be the public domain rather than the private may be supposed by analogy from the case of tooth and foot[14]. This is a role played by the major premise of the first argument. This means that the first argument (or at least, its major premise) is needed *before* the formulation of the second. They are therefore not independent arguments, but form (in part) a chain of reasoning (a sorites) – and their order of appearance is not as accidental as we might initially have thought.

It should be realized that the assumption that the liability for horn damage on private property is equal to or greater than same on public grounds is not an *a priori* truth. It is *not unthinkable* that the liability might be less (i.e. zero) in the former case than in the latter. Someone might, say, have argued that the owner of the private property, whose animal was gored there, was responsible to prevent other people's oxen from entering his property (e.g. by fencing it off), and therefore does not deserve any compensation! In that case, it would be argued that on public grounds he deserves half compensation because he has no control over the presence of other people's oxen thereon. In this perspective, the onus would be on the property owner, rather than on the owner of the trespassing ox.

Given this very theoretical scenario, it would no longer be logically acceptable to generalize from the liability for damage by tooth & foot, which is less (zero) on public ground and more (full) on private ground, and to say that liability for damage of any sort (including by horn) is greater in a private domain than in the public domain. However, this scenario is not admitted by the rabbis (I do not know if they even discuss it; probably they do not because it does not look very equitable[15]).

---

[14] Note that although Ex. 22:4 only mentions the private domain, it is taken to imply the opposite penalty for the public domain. That is to say, if we take it to mean that damage by tooth & foot in the private domain must be compensated in full, then we can infer *from the non-mention* here or elsewhere of the public domain that this level of compensation does not apply. This is called a *davka* (literal) reading of the text. Although strictly speaking the denial of 'full' may mean either 'only half' or 'zero' compensation, the rabbis here opt for an extreme inversion, i.e. for zero compensation for tooth & foot damage in the public domain. Presumably, their thinking is that if half compensation was intended in this case, the Torah would have said so explicitly, since there is no way to arrive at that precise figure by inference.

[15] Another very theoretical possibility is that the compensation, which as we have argued must be only half in at least one domain (since the Torah specifies equal division of remains), is half in the private domain and either nil or full in public domain. It could be argued that it is nil in the public domain because the owner of the killed ox should have watched over his animal, or that it is full in the public domain because the owner of the killing ox should have

Therefore, the said generalization is accepted, and serves to determine the compensation for damage by horn on private property in both arguments. In the first argument, this generalization (from tooth & foot damage to all damage) produces the major premise. In the second argument, it serves only to eliminate in advance the possibility of zero compensation in such circumstance.

Thus, we can interpret the Torah as teaching that compensation for horn damage is generally *at least* half – and more specifically, *no more than* half on public grounds and *no less than* half on private property. Thereafter, the issue debated in the Mishna is whether the latter quantity is, in the last analysis, 'only half' or 'more than half (i.e. full)' compensation. Both parties in the Mishna take it for granted that the half minimum is a maximum as regards public grounds; but they leave the matter open to debate as regards its value on private property. R. Tarfon tries, in his second argument, to prove that the compensation in such circumstance ought to be full, by comparison to the law relating to tooth & foot damage in the same circumstance. But the Sages, interdict his major premise by saying *dayo*, in view of the textual data that premise was based on, and thus opt for only half compensation.

Following this *dayo*, note well, the Sages' conclusion is not obtained by a modified a fortiori argument, since (as already mentioned) such an argument cannot be formulated without an appropriate major premise, but is obtained by mere *elimination*. Their form of reasoning here is negative disjunctive apodosis (*modus tollens*):

> The appropriate compensation for horn damage on private property is, according to the Torah, at least (*lav davka*) half, i.e. *either* only half *or* full.
>
> But it cannot be proved to be full (since the major premise of R. Tarfon's attempt to do so by a fortiori cannot be sustained due to a *dayo* objection).
>
> Therefore, it must be assumed to be only (*davka*) half (as the Sages conclude).

It should be said that this reasoning is not purely deductive, but contains an inductive movement of thought – namely, the generalization *from* the failure to prove full compensation specifically through R. Tarfon's a fortiori argument in the light of the Sages' renewed *dayo* objection *to* the impossibility henceforth to prove full compensation by any means whatever. This is a reasonable assumption, since we cannot perceive any way that the *dayo* might be avoided (i.e. a way not based on the given of half compensation for damage by horn on public grounds[16]); but it is still a generalization. Therefore, the apodosis is somewhat inductive; this means that further support for the Sages' conclusion of only half compensation for damage by horn on private property would be welcome.

Thus, strictly speaking, in the last analysis, although a fortiori argument is attempted in the second dialogue, it is not finally used, but what is instead used and what provides us with the final conclusion is a disjunctive argument.

The essence of the *dayo* principle. We can thenceforth propose a more inclusive formulation of the Sages' *dayo* principle, which merges together the said two different cases, as follows.

---

watched over his animal. These logical possibilities are also ignored no doubt because they do not look equitable: they make one party seem more responsible than the other.

[16] Actually, I believe I have found such a way. We could use the *kol zeh assim* argument proposed by Tosafot to put the Sages' *dayo* principle in doubt, at least in the present context. See my analysis of this possibility in chapter 4.6 of the present volume. Even though I do there decide that the *dayo* principle trumps the *kol zeh assim* argument, it remains true that this at least proves the Sages' conclusion to be inductive rather than deductive.

Whenever (as in the present debate) the same original propositions can, via different directions of preparatory induction and/or via different forms of deduction, construct two or more alternative, equally cogent arguments, the chain of reasoning with the less stringent final result should be preferred. This, I submit, is to date the most accurate, all-inclusive statement of the *dayo* principle formulated on the basis of this Mishnaic *sugya*.

In the light of this broader statement of the *dayo* principle, we can read the two applications given in the present debate as follows. In the first argument, where there was a choice between a pro rata or a crescendo argument with a stringent conclusion, and a purely a fortiori argument with a median conclusion, the Sages chose the latter argument, with the less stringent conclusion, as operative. In the second argument, where all three forms of argument yielded the same stringent conclusion, the Sages referred instead to the preliminary generalization; in this case they found that, since the terms of one of the original propositions generalized into the major premise corresponded to the terms of the putative final conclusion, and the former proposition was less stringent than the latter, one could not, in fact, perform the generalization, but had to rest content with the original proposition's degree of stringency in the final one.

In the first instance, the *dayo* principle cannot refer to the inductive antecedent of the argument, because that original proposition does not have the same terms as the final conclusion, however obtained; so, we must look at the form of the deductive argument. In the second instance, the *dayo* principle cannot refer to the deductive argument, since whatever its form it results in the same the final conclusion; so, we must look at the preliminary generalization preceding such argument. Thus, one and the same *dayo* principle guides both of the Sages' *dayo* objections. Their teaching can thus be formulated as follows: 'Given, in a certain context, an array of equally cogent alternative arguments, the one with the less stringent conclusion should be adopted'.

In other words, the *dayo* principle is a *general* guideline to opt for the less stringent option whenever inference leaves us a choice. It is a principle of *prudence*, the underlying motive of which seems to be moral – *to avoid any risk of injustice in ethical or legal or religious pronouncements based on inference*. We could view this as a guideline of inductive logic, insofar as it is a safeguard against possible human errors of judgment. It is a reasonable injunction, which could be argued (somewhat, though not strictly) to have universal value. But in practice it is probably specific to Judaic logic; it is doubtful that in other religions, let alone in secular ethical or legal contexts, the same restraint on inference is practiced.

An alternative translation of the Sages' *dayo* principle that I have seen, "*It is sufficient that the derivative equal the source of its derivation*," is to my mind very well put, because it highlights and leaves open the variety of ways that the "derivation" may occur in practice. The *dayo* principle, as we have seen, does not have one single expression, but is expressed differently in different contexts. The common denominator being apparently an imperative of caution, preventing too ready extrapolation from given Scriptural data. In the last analysis, then, the *dayo* principle is essentially not a logical principle, but rather a moral one. It is a Torah or rabbinical decree, rather than a law of logic. As such, it may conceivably have other expressions than those here uncovered. For the same reason, it could also be found to have exceptions that do not breach any laws of logic. Traditionally, it is deemed as applicable in particular to *qal vachomer* argument; but upon reflection, in view of its above stated essential underlying motive or purpose, it is evident that it could equally well in principle apply to other forms of argument. Such issues can only be definitely settled empirically, with reference to the whole Talmudic enterprise and subsequent developments in Jewish law.

Alternative scenarios. Our proposed scenario for the Mishna debate is thus as follows. R. Tarfon starts the discussion by proposing a first argument, whose form may be analogical/pro rata or a crescendo, which concludes with the imperative of full payment in the case of horn damage in the private domain. The Sages, appealing to a *dayo* principle, interdict the attempted 'proportionality' in his argument, thus effectively trumping it with a purely a fortiori argument, which concludes with a ruling of half payment. In response, R. Tarfon proposes a second argument, based on the very same data, which, whether conceived as analogical/pro rata or a crescendo, *or as purely a fortiori*, yields the very same conclusion, viz. full payment. This time, however, the Sages cannot rebut him by blocking an attempt at 'proportionality', since (to repeat) a non-'proportional' argument yields the very same conclusion as 'proportional' ones. So, the Sages are obliged to propose an extension or enlargement of the initial *dayo* principle that focuses instead on the generalization before deduction. In this way, they again rule half payment.

This scenario is obvious, provided we assume the Sages' two *dayo* objections are expressions of a *dayo* principle. It is also conceivable, however, that they have no such general *principle* in mind, but merely intend these objections to be *ad hoc decisions* in the two cases at hand. In that case the *dayo* principle is a "principle," not in the strict sense of a universal principle that must be applied in *every* case of the sort, but in the looser sense of a guiding principle that may *on occasion*, for a variety of unspecified motives, be applied[17]. In fact, if we look at the Mishna passage in question, we see that nowhere is there any mention of a *dayo* "principle." There is just statement "It is quite sufficient that the law in respect of the thing inferred should be equivalent to that from which it is derived," which was presumably labeled "the *dayo* principle" by later commentators. This statement could be interpreted equally well as having a general or particular intent.

If we adopt the latter assumption, the scenario for the Mishna debate would be as follows: when R. Tarfon proposes his first argument, whether it is construed as pro rata or a crescendo, the Sages merely refuse his inherent 'proportional' premise *in this particular case*, without implying that they would automatically refuse it in other eventual cases. Similarly, when he proposes his second argument, whether it is construed as pro rata, a crescendo, or purely a fortiori, they merely refuse his preparatory generalization *in this particular case*, without implying that they would automatically refuse it in other eventual cases. Thus, the Sages might be said to making 'ad hoc' *dayo* objections, rather than appealing to a *dayo* 'principle' in the strict sense. Why would the Sages raise a *dayo* objection in this particular case, and not raise it in other cases? Conceivably, they perceive some unspecified danger in the present case that may be absent in other cases.

Granting this alternative view of the *dayo* principle, be it said in passing, there is conceivably no need to mention *qal vachomer* argument at all in this Mishna debate! In this view, it is possible that neither R. Tarfon nor the Sages intended any genuine a fortiori type of reasoning, but were entirely focused on mere analogy. As we shall see, although the Gemara probably does intend an a crescendo interpretation of the two arguments of R. Tarfon, it is not inconceivable that its author simply had in mind analogical/pro rata argument. Although the expression *qal vachomer* does appear in the Gemara, it does not necessarily have to be taken as referring to a fortiori or a crescendo argument, but could be read as referring to pro rata. It is anyhow worthwhile stating that another

---

[17] Thus, for instance, we speak in philosophy of the uniformity principle, not meaning that everything is uniform, but that there is considerable uniformity in the universe. Or again, in physics there is the uncertainty principle, which is applicable not in all systems but only in the subatomic domain.

viewpoint is possible, because this allows us to conceptually uncouple the *dayo* principle from *qal vachomer*.

But the main value of our proposing alternative scenarios is that these provide us with different explanations of the disagreement between R. Tarfon and the Sages. Where, precisely, did they disagree? Given the primary scenario, where the *dayo* principle is *a hard and fast principle* in the eyes of the Sages, the question arises: how come R. Tarfon forgot or did not know or chose to ignore this principle? If the Sages claim it as a Divine decree, i.e. an ancient tradition dating "from the Sinai revelation," whether inferred from Scripture or orally transmitted, it is unthinkable that a man of R. Tarfon's caliber would be ignorant of it or refuse to accept it. Thus, the primary scenario contains a difficulty, a *kushia*.

One possible resolution of this difficulty is to say that the Sages were here legislating, i.e. the *dayo* principle was here *in the process of* being decided by the rabbis collectively, there being one dissenting voice, viz. that of R. Tarfon, at least temporarily till the decision was declared law. In that event, the conflict between the two parties dissolves in time. Another possible resolution is to say that the Sages did not intend their *dayo* statement as a hard and fast principle, but as *a loose guideline* that they considered ought to be applied in the present context, whereas their colleague R. Tarfon considered it ought not to be applied in the present context. In that event, the two parties agree that the *dayo* principle is not universal, but merely conditional, and their conflict here is only as to whether or not its actual application is appropriate in the case at hand.

This would explain why R. Tarfon can put forward his first and second arguments failing each time to anticipate that the Sages would disagree with him. He could not offhand be expected to predict what their collective judgment would be, and so proposed his opinion in good faith. That they disagreed with him is not a reflection on his knowledge of Torah or his logical powers; there was place for legitimate dissent. Thus, while the hypothesis that the Sages' *dayo* objections signify a hard and fast rule of Sinaitic origin is problematic, there are two viable alternative hypotheses: namely, that the Sages' *dayo* objections constituted a general rabbinical ruling in the making; or that they were intended as ad hoc, particular and conditional statements, rather than as reflections of a general unbreakable rule. The problem with the former hypothesis is explaining away R. Tarfon's implied ignorance or disagreement; this problem is solved satisfactorily with either of the latter two hypotheses.

The Gemara commentary revolves around this issue, since its first and main query is: "Does R. Tarfon really ignore the principle of *dayo*? Is not *dayo* of Biblical origin?" The Gemara's thesis thus seems to be that *dayo* is a principle of Biblical origin and that therefore R. Tarfon knew about it and essentially agreed with it. We shall presently see where it takes this assumption.

About method. An issue arising from this Mishnaic discussion is whether it is based on revelation or on reason. If we examine R. Tarfon's discourse, we see that he repeatedly appeals to reason. Twice he says: "does it not stand to reason?" (*eino din*) and twice he claims to "infer" (*edon*)[18]. This language (the translations are those in the Soncino edition) suggests he is not appealing to Divine revelation, but to ordinary human reason. And, significantly, the Sages do not oppose him by *explicitly* claiming that their *dayo* principle is Divinely-ordained (as the Gemara later claims) and thus overrides his merely rational argument – no, they just affirm and reaffirm it as something

---

[18] See the sentences: "does it not *stand to reason* that we should make it equally strict with reference to the plaintiffs premises?" and "does it not *stand to reason* that we should apply the same strictness to horn?" Also: "R. Tarfon, however, rejoined: but neither do I *infer* horn from horn; I *infer* horn from foot." (My italics throughout.)

intuitively self-evident, on moral if not logical grounds. Thus, from such positive and negative evidence, it is possible to suppose that both R. Tarfon and the Sages regard their methodological means as essentially rational.

Concerning the logical skills of R. Tarfon and the Sages, neither party to the debate commits any error of logic, even though their approaches and opinions differ. All arguments used by them are formally valid. At no stage do the Sages deny R. Tarfon's reasoning powers or vice versa. The two parties understand each other well and react appropriately. There is no rhetorical manipulation, but logic is used throughout. Nevertheless, a pertinent question to ask is: why did R. Tarfon and the Sages not clarify all the logical issues involved, and leave their successors with unanswered questions? Why, if these people were fully conscious of what they were doing, did they not spell their intentions out clearly to prevent all possible error? The most likely answer is that they functioned 'intuitively' (in a pejorative sense of the term), without awareness of all the formalities involved. They were skillful practitioners of logic, but evidently not theoreticians of it. They did not even realize the importance of theory.

4. A logician's reading of Numbers 12:14-15

We have thus far analyzed the Mishnaic part of Baba Qama 24b-25a. Before we turn to the corresponding Gemara, it is wise for us – in the way of a preparatory study – to look at a Torah passage which plays an important role in that Gemara, as an illustration of the rabbinical hermeneutic rule of *qal vachomer* (a fortiori argument) and as a justification of its attendant *dayo* (sufficiency) principle.

The Torah passage in question is Numbers 12:14-15. 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[19]. And of the nine other a fortiori arguments in the Tanakh spoken by God, two do concern punishment for sins but not specifically enough to guide legal judgment[20]. Clearly, the Mishna BQ 2:5 could only be grounded in the Torah through Num. 12:14-15.

Num. 12:14-15 reads: "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.*" Verse 14 may be construed as a *qal vachomer* as follows:

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

---

[19] One is by Lemekh (Gen. 4:24), one is by Joseph's brothers (Gen. 44:8), and two are by Moses (Ex. 6:12 and Deut. 31:27). The argument by Lemekh could be construed as concerning a penalty, but the speaker is morally reprehensible and his statement is more of a hopeful boast than a reliable legal dictum.

[20] The two arguments are in Jeremiah 25:29 and 49:12. The tenor of both is: if the relatively innocent are bad enough to be punished, then the relatively guilty are bad enough to be punished. The other seven a fortiori arguments in the Nakh spoken by God are: Isaiah 66:1, Jer. 12:5 (2 inst.) and 45:4-5, Ezek. 14:13-21 and 15:5, Jonah 4:10-11. Note that, though Ezek. 33:24 is also spoken by God, the (fallacious) argument He describes is not His own – He is merely quoting certain people.

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

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

This argument, as I have here rephrased it a bit, is a valid purely a fortiori of the positive subjectal type (minor to major)[21]. Some interpretation on my part was necessary to formulate it in this standard format[22]. I took the image of her father spitting in her face (12:14) as indicative of "paternal disapproval" caused presumably, by analogy to the context, by some hypothetical misbehavior on her part[23]. Nothing is said here about "Divine disapproval;" this too is inferred by me from the context, viz. Miriam being suddenly afflicted with "leprosy" (12:10) by God, visibly angered (12:9) by her speaking ill of Moses (12:1). The latter is her "offense" in the present situation, this term (or another like it) being needed as middle term of the argument.

The major premise, about causing Divine disapproval being a "more serious" offense than causing paternal disapproval, is an interpolation – it is obviously not given in the text. It is constructed in accord with available materials with the express purpose of making possible the inference of the conclusion from the minor premise. The sentence in the minor premise of "isolation" for seven days due to causing paternal disapproval may be inferred from the phrase "should she not hide in shame seven days?" The corresponding sentence in the putative conclusion of "isolation" for seven days due to causing Divine disapproval may be viewed as an inference made possible by a fortiori reasoning.

With regard to the term "isolation," the reason I have chosen it is because it is *the conceptual common ground* between "hiding in shame" and "being shut up without the camp." But a more critical approach would question this term, because "hiding in shame" is a voluntary act that can be done within the camp, whereas "being shut up without the camp" seems to refer to involuntary imprisonment by the authorities outside the camp. If, however, we stick to the significant distinctions between those two consequences, we cannot claim the alleged purely a fortiori argument to be valid. For, according to strict logic, we cannot have more information in the conclusion of a deductive argument (be it a fortiori, syllogistic or whatever) than was already given in its premise(s).

That is to say, although we can, logically, from "hiding in shame" infer "isolation" (since the former is a species the latter), we cannot thereafter from "isolation" infer "being shut up without the camp" (since the former is a genus of the latter). To do so would be illicit process according to the rules of syllogistic reasoning, i.e. it would be fallacious. It follows that the strictly *correct* purely a fortiori conclusion is either specifically "she shall hide in shame seven days" or more generically put "she shall suffer isolation seven days." In any case, then, the sentence "she shall be shut up

---

[21] Actually, it would be more accurate to classify this argument as positive antecedental, since the predicate S (meriting isolation for seven days) is not applied to Q or P (causing disapproval), but to the subject of the latter (i.e. the person who caused disapproval). That is, causing disapproval *implies* meriting isolation. But I leave things as they are here for simplicity's sake.

[22] I say 'on my part' to acknowledge responsibility – but of course, much of the present reading is not very original.

[23] The Hebrew text reads 'and her father, etc.'; the translation to 'if her father, etc.' is, apparently, due to Rashi's interpretation "to indicate that the spitting never actually occurred, but is purely hypothetical" (Metsudah Chumash w/Rashi at: www.tachash.org/metsudah/m03n.html#fn342).

without the camp seven days" cannot logically be claimed as an a fortiori conclusion, but must be regarded as a *separate and additional* Divine decree that even if she does not voluntarily hide away, she should be made to do so against her will (i.e. imprisoned).

We might of course alternatively claim that the argument is intended as a crescendo rather than purely a fortiori. That is to say, it may be that the conclusion of "she should be shut up without the camp seven days" is indeed *inferred* from the minor premise "she would hide in shame seven days" – in 'proportion' to the severity of the wrongdoing, comparing that against a father and that against God. For this to be admitted, we must assume a tacit *additional premise* that enjoins a pro rata relationship between the importance of the victim of wrongdoing (a father, God) and the ensuing punishment on the culprit (voluntary isolation, forced banishment and incarceration).

Another point worth highlighting is the punishment of leprosy. Everyone focuses on Miriam's punishment of expulsion from the community for a week, but that is surely not her only punishment. She is in the meantime afflicted by God with a frightening disease, whereas the hypothetical daughter who has angered her father does not have an analogous affliction. So, the two punishments are not as close to identical as they may seem judging only with reference to the seven days of isolation. Here again, we may doubt the validity of the strictly a fortiori argument. This objection could be countered by pointing out that the father's spit is the required analogue of leprosy. But of course, the two afflictions are of different orders of magnitude; so, a doubt remains.

We must therefore here again admit that this difference of punishment between the two cases is not established by the purely a fortiori argument, but by a separate and additional Divine decree. Or, alternatively, by an appropriate a crescendo argument, to which no *dayo* is thereafter applied. We may also deal with this difficulty by saying that the punishment of leprosy was *already* a fact, produced by God's hand, before the a fortiori argument is formulated; whereas the latter only concerns the punishment that is *yet to be* applied, by human intervention – namely, the seven days' isolation. Thus, the argument *intentionally* concerns only the later part of Miriam's punishment, and cannot be faulted for ignoring the earlier part.

It is perhaps possible to deny that an a fortiori argument of any sort is intended here. We could equally well view the sentence "Let her be shut up without the camp seven days" as an independent decree. But, if so, of what use is the rhetorical exclamation "If her father had but spit in her face, should she not hide in shame seven days?" and moreover how to explain to coincidence of "seven days" isolation in both cases? Some sort of analogy between those two clauses is clearly intended, and the a fortiori or a crescendo argument serves to bind them together convincingly. Thus, although various objections can be raised regarding the a fortiori format or validity of the Torah argument, we can say that all things considered the traditional reading of the text as a *qal vachomer* is reasonable. This reading can be further justified if it is taken as in some respects a crescendo, and not purely a fortiori.

What, then, is the utility of the clause: "And after that she shall be brought in again"? Notice that it is not mentioned in my above a fortiori construct. Should we simply read it as making explicit something implied in the words "Let her be shut up without the camp seven days"? Well, these words do not strictly imply that after seven days she should be brought back into the camp; it could be that after seven days she is to be released from prison (where she has been "shut up"), but not necessarily brought back from "without the camp." So, the clause in question adds information. At the end of seven days, Miriam is to be both released from jail *and* from banishment from the tribal camp.

Another possible interpretation of these clauses is to read "Let her be shut up without the camp seven days" as signifying a sentence of *at least* seven days, while "And after that she shall be brought in again" means that the sentence should *not exceed* seven days (i.e. "after that" is taken to mean "immediately after that"). They respectively set a minimum and a maximum, so that *exactly* seven days is imposed. What is clear in any case is that "seven days isolation" is stated and implied in both the proposed minor premise and conclusion; ***no other quantity, such as fourteen days, is at all mentioned***, note well. This is a positive indication that we are indeed dealing essentially with a purely a fortiori argument, since the logical rule of the continuity between the given and inferred information is (to that extent) obeyed.

As we shall see when we turn to the Gemara's treatment, although there is no explicit mention of fourteen days in the Torah conclusion, it is not unthinkable that fourteen days were implicitly intended (implying an a crescendo argument from seven to fourteen days) but that this harsher sentence was subsequently mitigated (brought back to seven days) by means of an additional Divine decree (the *dayo* principle, to be exact) which is also left tacit in the Torah. In other words, while the Torah apparently concludes with a seven-day sentence, this could well be a final conclusion (with unreported things happening in between) rather than an immediate one. Nothing stated in the Torah implies this a crescendo reading, but nothing denies it either. So much for our analysis of verse 14.

Let us now briefly look at verse 15: "And Miriam was shut up without the camp seven days; and the people journeyed not till she was brought in again." The obvious reading of this verse is that it tells us that the sentence in verse 14 was duly executed – Miriam was indeed shut away outside the camp for exactly seven days, after which she was released and returned to the camp, as prescribed. We can also view it as a confirmation of the reasoning in the previous verse – i.e. as a way to tell us that the apparent conclusion was the conclusion Moses' court adopted and carried out. We shall presently move on, and see how the Gemara variously interpreted or used all this material.

But first let us summarize our findings. Num. 12:14-15 may, with some interpolation and manipulation, be construed as an a fortiori argument of some sort. If this passage of the Torah is indeed a *qal vachomer*, it is not an entirely explicit (*meforash*) one, but partly implicit (*satum*). In some respects, it would be more appropriate to take it as a crescendo, rather than purely a fortiori. It could even be read as not a *qal vachomer* at all; but some elements of the text would then be difficult to explain.

It is therefore reasonable to read an a fortiori argument into the text, as we have done above and as traditionally done in Judaism. It must however still be stressed that this reading is somewhat forced if taken too strictly, because there are asymmetrical elements in the minor premise and conclusion. We cannot produce a valid purely a fortiori inference without glossing over these technical difficulties. Nevertheless, there is enough underlying symmetry between these elements to suggest a significant overriding a fortiori argument that accords with the logical requirement of continuity (i.e. with the principle of deduction). The elements not explained by a fortiori argument can and must be regarded as separate and additional decrees. Alternatively, they can be explained by means of a crescendo arguments.

In the present section, we have engaged in a frank and free textual analysis of Num. 12:14-15. This was intentionally done from a secular logician's perspective. We sought to determine objectively (irrespective of its religious charge) just what the text under scrutiny is saying, what its parts are and how they relate to each other, what role they play in the whole statement. Moreover, most importantly, the purpose of this analysis was to find out what relation this passage of the Torah might have to a fortiori argument and the principle of *dayo*: does the text clearly and indubitably

contain that form of argument and its attendant principle, or are we reading them into it? Is the proposed reasoning valid, or is it somewhat forced?

We answered the questions as truthfully as we could, without prejudice pro or con, concluding that, albeit various difficulties, a case could reasonably be made for reading a valid a fortiori argument into the text. These questions all had to be asked and answered before we consider and discuss the Gemara's exegesis of Num. 12:14-15, because the latter is in some respects surprisingly different from the simple reading. We cannot appreciate the full implications of what it says if we do not have a more impartial, scientific viewpoint to compare it to. What we have been doing so far, then, is just preparing the ground, so as to facilitate and deepen our understanding of the Gemara approach to the *qal vachomer* argument and the *dayo* principle when we get to it.

One more point needs to be made here. As earlier said, the reason why the Gemara drew attention in particular to Num. 12:14-15 is simply that this passage is the only one that could possibly be used to ground the Mishna BQ 2:5 in the Torah. However, though as we have been showing Num. 12:14-15 can indeed be used for this purpose, the analogy is not perfect. For whereas the Mishnaic *dayo* principle concerns inference by a rabbinical court from a law (a penalty for a crime, to be precise) explicit in the Torah to a law *not* explicit in the Torah (sticking to the same penalty, rather than deciding a proportional penalty), the *dayo* principle implied (according to most readings) in Num. 12:14-15 relates to an argument whose premises and conclusion are all in the Torah, and moreover it infers the penalty (for Miriam's *lèse-majesté*) for the court to execute by derivation from a penalty (for a daughter offending her father) which may be characterized as intuitively-obvious morality or more sociologically as a pre-Torah cultural tradition.

For if we regard (as we could) both penalties (for a daughter and for Miriam) mentioned in Num. 12:14-15 as Divinely decreed, we could not credibly also say that the latter (for Miriam) is *inferred* a fortiori from the former (for a daughter). So, the premise in the Miriam case is not as inherently authoritative as it would need to be to serve as a perfect analogy for the Torah premise in the Mishnaic case. For the essence of the Mishnaic sufficiency principle is that the court must be content with condemning a greater culprit with the same penalty as the Torah condemns a lesser culprit, rather than a proportionately greater penalty, on the grounds that the only penalty explicitly justified in the Torah and thus *inferable* with certainty is the same penalty. That is, the point of the Mishnaic *dayo* is that the premise is *more authoritative* than the conclusion, whereas in the Num. 12:14-15 example this is not exactly the case. What this means is that although the Mishnaic *dayo* can be somewhat grounded on Num. 12:14-15, such grounding depends on our reading certain aspects of the Mishna *into* the Torah example. That is to say, the conceptual dependence of the two is mutual rather than unidirectional.

5. A critique of the Gemara in Baba Qama 25a

As regards the Gemara of the Jerusalem Talmud, all it contains relative to the Mishna Baba Qama 2:5 is a brief comment in the name of R. Yochanan[24] that R. Tarfon advocates full payment for damages in the private domain, whereas the Sages advocate half payment[25]. This is typical of this

---

[24] I presume offhand this refers to R. Yochanan bar Nafcha, d. ca. 279 CE.

[25] See page 11b, chapter 2, law 7.

Talmud, which rarely indulges in discussion[26]. On the other hand, the Gemara of the Babylonian Talmud has quite a bit to say on this topic (see p. 25a there), though perhaps less than could be expected. When exactly that commentary on our Mishna was formulated, and by whom, is not there specified; but keep in mind that the Gemara as a whole was redacted in Babylonia ca. 500 CE, i.e. some three centuries after the Mishna was closed, so these two texts are far from contemporaneous[27]. It begins as follows:

> "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!"

The a crescendo reading. Reading this passage, it would appear that the Gemara conceives *qal vachomer* as a crescendo rather than purely a fortiori argument; and the *dayo* principle as a limitation externally imposed on it. It takes the story of Miriam (i.e. Numbers 12:14-15) as an illustration and justification of its view, claiming that the punishment due to Miriam would be fourteen days by *qal vachomer* were it not restricted to seven days by the *dayo* principle. The *dayo* principle is here formulated exactly as in the Mishna (as "It is sufficient, etc."); but the rest of the Gemara's above statement is not found there.

In fact, the Gemara claims that the thesis here presented is a *baraita* – i.e. a tradition of more authoritative, Tannaic origin, even though it is not part of the Mishna[28]. This is conventionally signaled in the Gemara by the expression 'as taught': דתניא (*detania*)[29]. The *baraita* may be taken as the Hebrew portion following this, i.e. stretching from "How does the rule of *qal vachomer* work?" to "…from which it is derived." Note well that *baraita* thesis is clearly delimited: the preceding questions posed by the Gemara – viz. "Does R. Tarfon really ignore the principle of *dayo*? Is not *dayo* of Biblical origin?" – are *not* part of it; we shall return to these two questions further on.

---

[26] This Talmud (closed in Eretz Israel, ca. 400 CE) may of course contain significant comments about *qal vachomer* and the *dayo* principle elsewhere; I have not looked into the matter further.

[27] Since R. Tarfon flourished in 70-135 CE, and the Mishna was redacted about 220 CE, the Gemara under examination here must have been developed somewhere in between, i.e. in the interval from c. 220 CE to c. 500 CE. The thesis upheld in this particular anonymous Gemara may have existed some time before the final redaction, or may have been composed at the final redaction (or possibly even later, if some modern scholars are to be believed).

[28] According to a note in *Talmud Bavli*, this *baraita* first "appears at the beginning of *Toras Kohanim*," by which they presumably mean the introduction to *Sifra* listing the thirteen hermeneutic principles of R. Ishmael and some Biblical illustrations of them.

[29] According to the *Introduction to the Talmud* of R. Shmuel Ha-Nagid (Spain, 993-1060 – or maybe Egypt, mid-12th cent.), a *tosefta* (addition) is a form of *baraita* (outside material) "usually introduced by the word *tanya*;" so, the use of this word here could be indicative of a *tosefta*. Further on in the same work, it is said that "an anonymous statement in the Tosefta is according to R. Nechemia;" so, the statement here cited by the Gemara might have been made by the Tanna R. Nechemia (Israel, fl. c. 150 CE). This is just speculation on my part, note well. An English translation of the book by R. Shmuel Ha-Nagid can be found in Aryeh Carmell's *Aiding Talmud Study*; see there, pp. 70, 74.

As we have shown in our earlier analysis, Num. 12:14-15 could be read as devoid of any argument; but then we would be hard put to explain the function of the first sentence: "If her father had but spit in her face, etc.," and its relation to the second: "Let her be shut up without the camp, etc.". It is therefore a reasonable assumption that an argument is indeed intended. This argument can be construed as purely a fortiori; in that event, its conclusion is simply seven days isolation, the same number of days as mentioned in the minor premise; and if the *dayo* principle have any role to play here it is simply that of the principle of deduction, i.e. a reminder that the conclusion must reflect the minor premise. It is also possible to interpret the argument as a crescendo, as the Gemara proposes to do; in that event, its conclusion is a greater number of days of isolation (say, fourteen days); and the *dayo* principle plays the crucial role of resetting the number of days to seven.

The latter is a conceivable hypothesis, but by no means a certainty, note well. There is clearly no mention of "fourteen days" in the Torah passage referred to, i.e. no concrete evidence of an a crescendo argument, let alone of a *dayo* principle which cuts back the fourteen days to seven. The proposed scenario is entirely read into the Biblical text, rather than drawn from it, by the *baraita* and then the Gemara; it is an interpolation on their part. They are saying: though the Torah does not explicitly mention fourteen days, etc., it tacitly intends them. This is not inconceivable; but it must be admitted to be speculative, since other readings are equally possible.

The *baraita* apparently proposes to read, not only the particular *qal vachomer* about Miriam, but *qal vachomer* in general as a crescendo argument, since it says "How does the rule of *qal vachomer* work?" rather than "how does the following example of *qal vachomer* work?" Thus, the Tanna responsible for it may be assumed to believe unconditionally in the 'proportionality' of a fortiori argument. Likewise, the Gemara – since it accepts this view without objection or explanation. If it is true that this Gemara (and the *baraita* it is based on – but I won't keep mentioning that) regards a fortiori argument to always be a crescendo argument, it is way off course, of course.

As we have seen, as far as formal logic is concerned a fortiori argument is essentially not a crescendo, even though its premises can with the help of an additional premise about proportionality be made to yield an a crescendo conclusion. It is conceivable that the particular argument concerning Miriam is in fact not only a fortiori but a crescendo (assuming the premise of proportionality is tacitly intended, which is a reasonable assumption); but it is certainly *not* conceivable that *all* a fortiori arguments are a crescendo. The Gemara's identification of a fortiori argument with a crescendo is nowhere justified by it. The Gemara has not analyzed a fortiori argument in general and found its logical conclusion to be a crescendo (i.e. 'proportional'); it merely asserts this to be so in the case at hand and, apparently, in general.

While it is true that, empirically, within the Talmud as well as outside it, convincing examples of seemingly a fortiori argument yielding a (roughly or exactly) proportional conclusion can be adduced, it is also true that examples of a fortiori argument yielding a *non*-proportional conclusion can be adduced. This needs to be explained – i.e. commentators are duty-bound to account for this variation in behavior, by specifying under what logical conditions a 'proportional' conclusion is justified and when it is not justified. The answer to that is (to repeat) that a fortiori argument as such does not have a 'proportional' conclusion and that such a conclusion is only logically permissible if an additional premise is put forward that justifies the 'proportionality'. The Gemara does not demonstrate its awareness of these theoretical conditions, but functions 'intuitively'. Its thesis is thus essential dogmatic – an argument by authority, rather than through logical justification.

Thus, for the Gemara, or at least this here Gemara, the words "*qal vachomer*," or their English equivalent "a fortiori argument," refer to what we have called a crescendo argument, rather than to

purely a fortiori argument. There is nothing wrong with that – except that the Gemara does not demonstrate awareness of alternative hypotheses.

A surprising lacuna. Furthermore, it should imperatively be remarked that the Gemara's above explanation of the Mishna debate, by means of the Miriam story, is only relevant to the first exchange between R. Tarfon and the Sages; *it does not address* the issues raised by the second exchange between them.

For in the first exchange, as we have seen, R. Tarfon tries by means of a possible pro rata argument, or alternatively an a crescendo argument (as the Gemara apparently proposes), to justify a 'proportional' conclusion (i.e. a conclusion whose predicate is greater than the predicate of the minor premise, in proportion to the relative magnitudes implied in the major premise); and here the Sages' *dayo* objection limits the predicate of conclusion to that of the minor premise; so the analogy to the Miriam case is possible. But in the second exchange, the situation is *quite* different! Here, as we earlier demonstrated, the *dayo* objection refers, not to the information in the minor premise, but to the information that was generalized into the major premise. That is to say, whereas the first objection is aimed at the attempted pro rata or a crescendo deduction, the second one concerns the inductive preliminary to the attempted pro rata or a fortiori or a crescendo deduction.

The Gemara makes no mention of this crucial distinction between the two cases. It does not anywhere explicitly show that it has noticed that R. Tarfon's *second* argument draws the same conclusion whether it is considered as pro rata, a crescendo, or even purely a fortiori, so that it formally does *not* contravene the Sages' first objection. The Gemara does not, either, marvel at the fact that the Sages' second objection is made in *exactly the same terms*, instead of referring to the actual terms of the new argument of R. Tarfon. It does not remark that the Miriam story (as the Gemara interprets it) is therefore *irrelevant* to the second case, since it does not resemble it, and some other explanation must be sought for it. This lacuna is of course a serious weakness in the Gemara's whole hypothesis, since it does not fit in with all the data at hand.

To be sure, the distinction between the two cases does appear in rabbinic literature. This distinction is solidified by means of the labels *dayo aresh dina* and *dayo assof dina* given to the two versions of the *dayo* principle. But I do not think the distinction is Talmudic (certainly, it is absent here, where it is most needed). Rather, it seems to date from much later on (probably to the time of Tosafot). These expressions mean, respectively, applying the *dayo* "to the first term (or law)" and applying it "to the last term (or law)." In my opinion, *assof dina* must refer to the *dayo* used on the first *qal vachomer*, while *aresh dina* refers to the *dayo* used on the second *qal vachomer*[30].

Be that as it may, what concerns us here is the Gemara, which evidently makes no such distinction (even if later commentators try to ex post facto give the impression that everything they say was tacitly intended in the Gemara). What this inattentiveness of the Gemara means is that even if it

---

[30] The reason I say "in my opinion," is that the text where I found this distinction, namely *La mishna* (Tome 8, Baba Kama. Tr. Robert Weill. Paris: Keren hasefer ve-halimoud, 1973), posits the reverse, i.e. *aresh dina* for the first argument and *assof dina* for the second. But that would not make sense in my view. Either there was a typing error, or (less likely) whoever originally formulated this distinction did not really understand how the two *dayo* applications differ. For it is clear from the analysis presented in the present volume that, in the first argument *dayo* is applied to the premise about proportionality (which is relatively downstream, whence "at the end"), while in the second argument it is applied before the formation of the major premise (thus, well upstream, i.e. "at the beginning"). Moreover, my view seems to be confirmed by the following comment in the Artscroll Mishnah: "it is easier to apply the principle of *dayyo* to the first *kal vachomer*, because in that instance it applies to the end of the *kal vachomer*." It also seems to be confirmed by the article on the *dayo* principle in ET (reviewed in chapter 5.3 of the present volume).

manages to prove whatever it is trying to prove (we shall presently see just what) – it will not succeed, since it has not taken into account all the relevant information. Its theory will be too simple, insufficiently broad – inadequate to the task. The Gemara's failure of observation is of course also not very reassuring.

The claim that *dayo* is of Biblical origin. Let us now return to the initial questions posed by the Gemara, viz. "Does R. Tarfon really ignore the principle of *dayo*? Is not *dayo* of Biblical origin?" (ור"ט לית ליה דיו והא דיו דאורייתא הוא). As already remarked, it is important to notice that these questions are *not* part of the *baraita*. They are therefore the Gemara's own thesis (or an anonymous thesis it defends as its own) – indeed, as we shall see, they are the crux of its commentary. The *baraita* with the a crescendo reading is relatively a side-issue. What the Gemara is out to prove is that R. Tarfon "does *not* ignore" the *dayo* principle, because "it *is* of Biblical origin." What is not of Biblical origin may conceivably be unknown to a rabbi of Tarfon's level; but what is of Biblical origin must be assumed as known by him.

The question of course arises what does "of Biblical origin" (*deoraita*) here mean exactly? It cannot literally mean that the principle of *dayo* is *explicitly* promulgated and explicated in the Torah. Certainly, it is nowhere to be found in the Torah passage here referred to, or anywhere else in that document. Thus, this expression can only truly refer to an *implicit* presence in the Torah. And indeed, the Torah passage about Miriam, brought to bear by the Gemara, seems to be indicated by it as the needed *source and justification* of the principle, rather than as a mere illustration of it. However, as we shall see further on, there is considerable circularity in such a claim. So, claiming the *dayo* principle to have "Biblical origin" is in the final analysis just *say-so*, i.e. a hypothesis – it does not solidly ground the principle and make it immune to all challenge, as the Gemara is suggesting.

It could well be thought, reading the Mishna, that R. Tarfon was *not* previously aware of the Sages' alleged *dayo* principle, since he did not preempt their two *dayo* objections. Had he known their thinking beforehand, he would surely not have wasted his time trying out his two arguments, since he would expect them to be summarily rejected by the Sages. Since he did try, and try again, the Sages must have been, in his view, either unearthing some ancient principle unknown to him, or deciding a new principle, or proposing ad hoc decisions. It is this overall reasonable conclusion from the Mishna that the Gemara seeks to combat, with its claim that the *dayo* principle was of Biblical origin and therefore R. Tarfon must have known it. Note this well.

I do not know why the Gemara is not content with the perfectly legal possibilities that the *dayo* principle might be either a tradition not known to R. Tarfon, or a new general or particular decision by the Sages (*derabbanan*). For some reason, it seeks to impose a more fundamentalist agenda, even though the alternative approaches are considered acceptable in other Talmudic contexts. The Gemara does not say why it is here unacceptable for the Sages to have referred to a relatively esoteric tradition or made a collegial ruling (by majority, *rov*)[31]. It seems that the Gemara is driven by a desire to establish that R. Tarfon and the Sages are more in harmony than they at first seem; but it is not clear why it has chosen the path it has, which is fraught with difficulties.

The claim that *dayo* is conditional. The Gemara shifts the debate between R. Tarfon and the Sages from one as to *if* the *dayo* principle is applicable to one as to *when* it is applicable. The two parties, according to the Gemara, agree that the *dayo* principle is "of Biblical origin," and thus that there is

---

[31] And I have found no explanation by later commentators.

a *dayo* principle; but they disagree on whether or not it is applicable unconditionally. In this view, whereas the Sages consider the *dayo* principle as universally applicable, R. Tarfon considers it as only conditionally applicable. Thus, the parties agree in principle, and their disagreement is only in a matter of detail. The Gemara then proceeds to clarify R. Tarfon's alleged conditions[32]:

> "The principle of *dayo* is ignored by him [R. Tarfon] only when it would defeat the purpose of the a fortiori, but where it does not defeat the purpose of the a fortiori, even he maintains the principle of *dayo*. In the instance quoted there is no mention made at all of seven days in the case of divine reproof; nevertheless, by the working of the a fortiori, fourteen days may be suggested: there follows, however, the principle of *dayo* so that the additional seven days are excluded, whilst the original seven are retained. Whereas in the case before us the payment of not less than half damages has been explicitly ordained [in all kinds of grounds]. When therefore an a fortiori is employed, another half-payment is added [for damage on the plaintiff's premises], making thus the compensation complete. If [however] you apply the principle of *dayo*, the sole purpose of the a fortiori would thereby be defeated."

Let us try and understand what the Gemara is saying here. It is proposing a distinction (allegedly by R. Tarfon) between two obscure conditions: when applying the *dayo* principle "would defeat the purpose of the *qal vachomer*," it is *not* applied; whereas where applying the *dayo* principle "would *not* defeat the purpose of the *qal vachomer*," it is applied. What does this "defeating the purpose of the a fortiori argument" condition refer to? The Gemara clarifies it by comparing R. Tarfon's (alleged) different reactions to two cases: that concerning Miriam and the (first) argument in the Mishna (the Gemara has apparently not noticed the second argument at all, remember).

The Gemara here reaffirms its theory that, although the Torah ("the instance quoted" – i.e. Num. 12:14-15) does not mention an initial or an additional seven days[33], "nevertheless, by the working of the a fortiori" (as conceived by the Gemara, meaning a crescendo) fourteen days in all (i.e. seven plus seven) are intended, and the *dayo* principle serves after that to "exclude" the additional seven days, admitting only the "original" seven days. In this case, then, the *dayo* principle *is* to be applied. The Gemara then turns to R. Tarfon's (first) argument, claiming that in its case the *dayo* principle is *not* to be applied. Why? Because "the payment of not less than half damages has been explicitly ordained [in all kinds of grounds]." This is taken by commentators (Rashi is mentioned) to mean that since the Torah does not make a distinction between public and private property when it

---

[32] In truth, the Gemara's explanations are not entirely clear; it is only by referring to later commentaries (paraphrased in *Talmud Bavli* ad loc) that I was personally able to fathom them.

[33] It is not clear which seven days the Gemara intends to refer to, when it says "there is no mention made at all of seven days in the case of divine reproof." It could be referring to the initial seven days (the minor premise of the a fortiori argument), which as we shall later see the Gemara considers as tacit. Or it could be referring to "the additional seven days" mentioned a bit further on in the same paragraph, i.e. the seven days added on to the presumed initial seven to make a total of fourteen (the a crescendo conclusion of the argument), which the Gemara also takes for granted though absent in the text. In any case, the Gemara's explicit admission that information is lacking is worth underlining.

specifies half liability for damage by horn[34], it may be considered as intending this penalty to be (the minimum[35]) applicable to both locations.

The Gemara goes on to tell us that through "a fortiori" inference "another half-payment is added, making thus the compensation complete." The implication is that, whereas the Sages would at this stage apply the *dayo* principle and conclude with *only* half payment, R. Tarfon (according to the Gemara) considered that doing so would "defeat the purpose of the a fortiori" and he concluded instead with full payment. In the Miriam case, we go from *no* information to fourteen days and back to seven; so, we still end up with new information (seven) after the *dayo* application to the *qal vachomer* increase. Whereas in the Mishna case, we go from half to full payment and back to half; so that *dayo* application here would altogether cancel out the *qal vachomer* increase. Thus, R. Tarfon is presented by the Gemara as knowing and accepting the *dayo* principle, but applying it *more conditionally* than the Sages do[36].

But I would certainly challenge the underlying claim that the a fortiori argument used by R. Tarfon (which concludes with full payment for damage by horn on private property) is "nullified" by the Sages' objection to it (which limits the payment to half). What is given in the Torah is that such damage (on whatever domain) is liable to half payment. This "half" is indefinite, and must be interpreted as at least half (i.e. a minimum of half, *no less than* half), which leaves open whether only half (i.e. a maximum of half, *no more than* half) or full (i.e. *more than* half) is intended. R. Tarfon's argues (through a crescendo, i.e. 'proportional' a fortiori argument) in favor of the conclusion "full," whereas the Sages argue (through *dayo*, or purely a fortiori argument) in favor of the alternative conclusion "only half." R. Tarfon's argument is certainly *not made logically useless* by the Sages' dismissal of it, but constitutes a needed acknowledgment of one of the two possible interpretations of "half," just as the Sages' *dayo* duly acknowledges the other possibility. If the Mishna had directly interpreted "half" as "only half," without regard to the possibility of "full," the interpretation would have seemed unjustified.[37]

---

[34] Here reference is made to Ex. 21:35, which concerns an ox killing (by goring or other such means) another's ox, in which case the live ox is sold and the price of it divided between the two owners. And this situation is contrasted to Ex. 22:4, which does specify private property with regard to tooth & foot damage. However, this comparison seems a bit forced to me, because though it is true that there is no mention of where the ox was killed, that is because the damage done has nothing to do with location; whereas in the case of someone's beast feeding in another's field, it is the field that has been damaged. In any event, the rabbis are evidently making a generalization, from the case of an ox goring another ox (i.e. Ex. 21:35), to an ox goring or similarly damaging *anything* found on public or private property. Just as in the first case, the oxen are split between the owners, so the minimum for any *other* such damage by an ox is half liability. This is at least true for damage on public property, and the question asked is whether more than that can be charged for damage on private property.

[35] If we did not say "the minimum," and instead interpreted the "half damages" on private property as *davka*, we would be suggesting that this penalty is Torah-given, and therefore no greater penalty can be inferred. If the latter were assumed, the Sages' *dayo* objections would only be *ad hoc* Scriptural stipulations and not expressions of a broad principle. In that event, R. Tarfon's two arguments were not rejected by the Sages because of any technical fault in them, but simply because the conclusion was *already settled* by Scriptural decree, so that there was no sense in his trying to *infer* anything else. But this does not seem to be the intent of the Mishna or the Gemara.

[36] Obviously, this more specific difference of opinion between the parties does not disturb the Gemara authorship. The implication is that the viewpoint attributed to R. Tarfon (about the conditionality of *dayo*) is not "of Biblical origin" – or, of course, it would be known to and agreed by the Sages! What credence does it have, then? Why hang on to it, if it is just one man's opinion? One senses a double standard in the Gemara's approach.

[37] Thus, the comment in *Talmud Bavli* that "applying *dayyo* in this case would leave the *kal vachomer* teaching us absolutely nothing" is not correct. The Mishna does *not* go from 'half' to 'full' and *back to* 'half' – it goes from 'at

An argument *ex machina*. But let us dig deeper into the alleged conditionality of *dayo* application. Why, more precisely, does the Gemara's R. Tarfon consider that applying the *dayo* principle in the case of the Miriam argument does not "defeat the sole purpose of the a fortiori," yet would do so in the case of his formally similar (first) argument? What is the significant difference between these two cases? And what sense are we to make of the Gemara's further explanations, viz.:

> "And the Rabbis? — They argue that also in the case of divine [reproof] the minimum of seven days has been decreed in the words: Let her be shut out from the camp seven days. And R. Tarfon? — He maintains that the ruling in the words, 'Let her be shut out etc.', is but the result of the application of the principle of *dayo* [decreasing the number of days to seven]. And the Rabbis? — They argue that this is expressed in the further verse: And Miriam was shut out from the camp. And R. Tarfon? — He maintains that the additional statement was intended to introduce the principle of *dayo* for general application so that you should not suggest limiting its working only to that case where the dignity of Moses was involved, excluding thus its acceptance for general application: it has therefore been made known to us [by the additional statement] that this is not the case."[38]

It seems[39] that R. Tarfon's thought (still according to the Gemara, note well) is that, with regard to Miriam, *no part of the penalty for offence against God is explicitly mentioned in the Torah* (Num. 12:14-15), so that all fourteen days must be inferred by "a fortiori" (i.e. a crescendo); after which the *dayo* principle is used to revoke seven of those days, leaving seven. Whereas, in the case of horn damage on private property, the minimum liability of half payment is *already explicitly given in the Torah* (Ex. 21:35), so that the "a fortiori" (i.e. a crescendo) argument only serves to add on half payment; in which case, applying the *dayo* principle here would completely nullify the effect of the *qal vachomer*.

Thus, it is implied, the *dayo* principle is applicable in the Miriam case, but inappropriate in the case of a goring ox. The Sages (allegedly) then object that the initial seven days are indeed given in the Torah, in the sentence "Let her be shut out from the camp seven days." To which R. Tarfon (allegedly) retorts that this sentence refers to the *dayo* principle's "decreasing the number of days to seven." The Sages reply that that function is fulfilled by the sentence "And Miriam was shut out from the camp." To which R. Tarfon retorts that the latter rather has a generalizing function from the present case to all others. As far as I am concerned, most of this explanation by the Gemara is

---

least half' to 'full' and thence to '*only* half'. We could similarly interpret the Miriam argument as going from 'at least 7 days' to '14 days' to 'only 7 days', and thus show the two cases are logically quite similar, contrary to the Gemara's claim.

[38] The Gemara goes on and on, the next sentence being "R. Papa said to Abaye: Behold, there is a Tanna who does not employ the principle of dayo even when the a fortiori would thereby not be defeated…" (note the two negations, implying there may be yet *other* exceptions to *dayo* application). But this much later comment (dating from the late 3rd cent. CE) goes somewhat against the theory the Gemara attributes to R. Tarfon. So, it is safe to stop where we have. Incidentally, if the sequence of events was really as implied in the Gemara, then the anonymous thesis that R. Tarfon "did not ignore" that the *dayo* principle "is of Biblical origin" would be dated roughly somewhere in the 3rd cent. CE – that is, one or two centuries after the fact, rather than three or more. But it is also possible that the said anonymous thesis was composed after the "R. Papa said to Abaye" part, the latter being adapted by the redactors to "fit in" – as modern scholars say often happens in the Talmud.

[39] I base this interpretation on explanations given in *Talmud Bavli* ad loc.

artificial construct and beside the point. It is chicanery, *pilpul* (in the most pejorative sense of that term).

The claim it makes (on R. Tarfon's behalf) that *all fourteen days* for offence against God must be inferred is untrue – for the fourteen days are not inferred *from nothing*, as it suggests; they are inferred from the seven days for offence *against a father*. The inference of the conclusion, whether it is a crescendo or purely a fortiori, depends on this minor premise. The seven days for a father are indeed a given minimum, *also* applicable to God; *otherwise, there would be no a crescendo or a fortiori inference at all*. The Gemara is claiming an "a fortiori" (i.e. a crescendo) argument to be present in the text, and yet denying the relevance of the textual indicators for such an assumption. Its alleged "a fortiori" argument is therefore injected into the discussion *ex machina*, out of the blue, without any textual justification whatsoever. This is not logic, but rhetoric.

The situation in the argument about Miriam is thus in fact technically exactly identical to the (first) argument relating to liability for damages by horn in the Mishna. Both arguments do, in fact, have the minor premise needed to draw the conclusion. Whence the Gemara's concept of "defeating the sole purpose of the a fortiori" is a red herring; it is just a convenient verbal artifice, to give the impression that there is a difference where there is none. The Gemara has evidently tried to entangle us in an imaginary argument. For, always remember, it is the Gemara's reading which is at stake here, and not R. Tarfon's actual position as it appears in the Mishna, which is something quite distinct.

The roles of the verses in Num. 12:14-15. What is evident is that neither of the readings of the said Torah portion that the Gemara attributes to R. Tarfon and the Sages fully corresponds to the simple reading (*peshat*). They are both awkward inventions[40] designed to justify the Gemara's own strange thesis. The Gemara's thesis is not something necessary, without which the Mishna is incomprehensible; on the contrary, it clouds the issues and misleads. Whatever the author's authority, it is unconvincing.

The simple reading of Num. 12:14-15 is, as we saw earlier[41], that the sentence "If her father had but spit in her face, should she not hide in shame seven days?" (first part of v. 14, call it 14a) provides the minor premise of a possible a fortiori argument (whether strict or a crescendo), while the sentence "Let her be shut up without the camp seven days, and after that she shall be brought in again" (second part of v. 14, call it 14b) provides its immediate conclusion. Note well that it is from these two sentences (i.e. v. 14a & 14b) that we in the first place surmise that there is an a fortiori argument in the text; *to speak of an a fortiori argument without referring to both these indices would be concept stealing*. The further sentence "And Miriam was shut up without the camp seven days; and the people journeyed not till she was brought in again" (v. 15) plays no part in the a fortiori argument as such, but serves to confirm that the sentence was carried out by Moses' court as prescribed by God.

The Gemara's R. Tarfon makes no mention of the role of v. 14a in building a *qal vachomer*, and regards v. 14b as the final conclusion of the argument, *after* the operation of an *entirely tacit* a crescendo inference to fourteen days and an *also tacit* application of *dayo* back to seven days; as

---

[40] I call this 'pegging' – this sort of arbitrary association of rabbinical claims with Torah passages irrespective of content. When meaningful reasons are not available, the rabbis sometimes unfortunately engage in such lame excuses to give the impression that they have some Scriptural basis. The conclusions of such arguments are foregone – there is no process of logical inference. Such interpretations would supposedly be classed as ***asmakhta*** by the rabbis.

[41] See the previous section, on Num. 12:14-15, for a fuller exposé.

regards v. 15, it effectively plays no role within the argument in his view, having only the function of confirming that the *dayo* application is a general principle and not an exceptional favor[42]. The Gemara's Sages, on the other hand, regard v. 14b (not 14a, note well) as the minor premise of the *qal vachomer*, and v. 15 its final conclusion, after the operation of an a crescendo inference to fourteen days and an application of *dayo* back to seven days.

Both parties make serious errors. The first of these is that neither of them accounts for v. 14a – why is it mentioned here if as both parties suppose it plays no role? No a fortiori argument can at all be claimed without reference to this information. The R. Tarfon thesis here is largely imaginary, since he ignores the role of v. 14a in justifying a *qal vachomer*; there is no trace in the Torah text of the a crescendo argument he claims, other than v. 14b. On the basis of only the latter textual given of seven days, he *projects into the text* a minor premise of seven days, an intermediate a crescendo conclusion of fourteen days and a *dayo* principle application, yielding a final conclusion of seven days (v. 14b). But if all the textual evidence we rely on is v. 14b, on what basis can we claim any a crescendo reasoning has at all occurred before it, let alone a *dayo* application, with this verse as the final conclusion? The whole process becomes a patent fabrication.

Nowhere in the proof text, note well, are the words *qal vachomer* or *dayo* used, or any verbal signal to the same effect. And this being so, what credence can be assigned to the Gemara's central claim, viz. that the *dayo* principle is "of Biblical origin?" It is surely paradoxical that it is able to support this ambitious claim only by means of a very debatable mental projection of information into the Torah, like a magician pulling a rabbit out of a hat after showing us it was empty. This means that the Gemara's proposed argument in favor of this claim is circular: it assumes X in order to prove X. This is of course made possible through the use of complicated discourse; but the bottom line is still the same.

The Sages' thesis is a bit more credible in that, even if they also grant no role to v. 14 a, they at least do propose a minor premise (v. 14b), as well as a final conclusion (v. 15). However, it is hard to see how "Let her be shut up without the camp seven days" (v. 14b) could be the minor premise of *qal vachomer* yielding the conclusion "And Miriam was shut up without the camp seven days" (v. 15)! These two propositions have the same subject (as well as the same explicit predicates), so where is the *qal vachomer*? Moreover, the Sages thereby subscribe to R. Tarfon's strange misconception regarding a fortiori argument.

A fortiori argument with a single subject. I am referring here to the bizarre notion that (in the *qal vachomer* argument under consideration, which is positive subjectal) the subject of the minor premise must be repeated in the conclusion, while the subsidiary terms (i.e. the predicates of these propositions) go from less to more (implicitly). In fact, positive subjectal argument, whether a fortiori or a crescendo, *formally* has different subjects (the minor and the major terms, respectively) in the minor premise and conclusion (as for the predicate, i.e. the subsidiary term, it remains constant in pure a fortiori, while it increases in a crescendo). *There has to be* two subjects for the argument to logically function. The bizarre notion in the Gemara of a single subject argument is *the reason why* both parties in it ignore v. 14a and look for some other proposition to use as minor premise.

---

[42] If Miriam was spared the extra seven days incarceration due to the exceptional circumstance that Moses prayed for her, then it was not due to application of a *dayo* principle but to an ad hoc special favor. Note that there is nothing in v. 15 that suggests either interpretation – all it says is that Miriam was indeed shut up for seven days.

It should be stressed that there is *no allusion whatsoever* to such an idea in the Mishna. The Mishna's R. Tarfon and Sages manifestly have an entirely different dialogue than the one the Gemara attributes to them. The discussion in the Mishna is much more credible than that in the Gemara. The Gemara makes up this notion solely in order to create a distinction between the Miriam case and the Mishna's (first) argument. It needs to do this, remember, in order to justify its theory that R. Tarfon and the Sages agree on the *dayo* principle, although R. Tarfon applies it conditionally whereas the Sages apply it universally. But as we shall demonstrate formally, this notion is logically untenable. Buying the Gemara's scenario is like buying Brooklyn Bridge from someone who doesn't own it.

The thesis of R. Tarfon in the Gemara is that, in the Miriam case, we *must have* a minor premise that offending *God* (rather than merely one's father) justifies a minimum of seven days of punishment, in order to be able to infer *qal vachomer* (i.e. a crescendo) that offending God justifies fourteen days of punishment – just as with regard to an ox, we (allegedly) reason from half liability for damage done on *private* (rather than public) property to full liability on private property. The Sages do not object to this claim. But this claim is simply not true – there is no such technical requirement for positive subjectal a crescendo (or a fortiori) inference. We can very well, and normally do, reason with a change of subject, i.e. from the penalty for offence to one's father to that for offence to God, or from the liability for damage on public grounds to that on private grounds. This is precisely the power and utility of a fortiori (and a crescendo) inference.

Moreover, we in fact can, by purely a fortiori argument, infer the needed minor premise about seven days penalty for offending God (from the same penalty for offending one's father), and likewise the half liability on private property (from the same liability on public property)[43]. One cannot claim an a crescendo argument to be valid without admitting the validity of the purely a fortiori argument (and pro rata argument) underlying it. Obtaining the minor premise demanded by the Gemara's R. Tarfon is thus not the issue, in either case. The issue is whether such a minor premise will allow us to draw the desired 'proportional' conclusion. And the answer to that, as we show further on, is: No!

Furthermore, if we carefully compare the Gemara's argument here to the first argument laid out in the Mishna, we notice a significant difference. As we just saw, the Gemara concludes with full liability for horn damage on private property on the basis of half liability for horn damage on *private* property. As earlier explained, it bases this minor premise on the fact that Ex. 21:35 does not make a distinction between public and private property when it prescribes half liability for damage by horn, so that this may be taken as a minimum in either case. Thus, for the Gemara, half liability for horn damage on private property is a Torah given, which does not need to be deduced. On the other hand, in the Mishna, the minor premise of the first argument refers to the public domain rather than to private property.

In his first argument, R. Tarfon argues thus (italics mine): "…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 plaintiffs premises so as to require compensation in full?" And to justify his second argument he argues thus: "but neither do I infer horn [doing damage on the plaintiff's premises] from horn [doing

---

[43] These two a fortiori arguments are given in full in previous sections of the present chapter.

damage on *public* ground]; I infer horn from foot, etc."[44] Thus, his first argument is clearly intended as an inference from the penalty for horn damage in the *public* domain (half) to that in the private domain (full). The Gemara's construct is thus quite different from the Mishna's, and cannot be rightly said to represent it.

As regards the rule here apparently proposed by the Gemara (which it attributes to R. Tarfon), viz. that the subject must be the same in minor premise and conclusion, as already stated there is no such rule in formal logic for positive subjectal argument[45]. Such argument generally has the minor and major terms as subjects of the minor premise and conclusion respectively, even if the subsidiary term sometimes (as is the case in a crescendo argument) varies in magnitude 'proportionately'. In the case of a crescendo argument, where the predicate (subsidiary term) changes, *there absolutely must be a change of subject, since otherwise we would have no explanation for the change of predicate*. That is, we would have no logical argument, but only a very doubtful 'if–then' statement. The proposed rule is therefore fanciful nonsense, a dishonest pretext.

We can examine this issue in more formal terms. A positive subjectal a fortiori argument generally has the form: "P is more R than Q is; and Q is R enough to be S; therefore, P is R enough to be S" (two premises, four terms). If the argument is construed as a crescendo, it has the form: "P is more R than Q is; and Q is R enough to be Sq; and S is 'proportional' to R; therefore, P is R enough to be Sp" (three premises, five terms). The argument form attributed by the Gemara to R. Tarfon simply has the form: "If X is S1, then X is S2" (where X is the sole subject, and S1 and S2 the subsidiary terms, S2 being greater than S1); that is, in the Miriam sample: "if offending God merits seven days penalty, then offending Him merits fourteen days penalty," and again in the Mishna's first dialogue: "If liability for horn damage on private property is half payment, then liability for same on private property is full payment." This is manifestly not a fortiori or a crescendo argument, but mere if–then assertion; it could conceivably happen to be true, but it is not a valid inference.

It is clear that the latter inference, proposed by the Gemara in the name of R. Tarfon, has no logical leg to stand on. It has *no major premise* comparing the subjects (P and Q); and no need or possibility of one, since there is only one subject (X). Having no major premise, it has no middle term (R); and therefore, *no additional premise* in which the subsidiary term (S) is presented as 'proportional' to it. Thus, *no justification or explanation* is given why S should go from Sq in the minor premise to Sp in the conclusion. It is therefore not an a fortiori or a crescendo argument in form, even if it is arbitrarily so *labeled* by the Gemara. You cannot credibly reason a fortiori or a crescendo, or any other way, if you cannot produce the requisite premises. There is no such animal as "argument" *ex nihilo*.

The Gemara's proposed if–then statement is certainly not universal, since that would mean that if any subject X has any predicate Y then it has a greater predicate Y+, and if Y+ then Y++, and so

---

[44] The explanations in square brackets are given in the Soncino edition.

[45] Perhaps, then, the Gemara's authorship rather has in mind predicatal argument? For in the latter, the subject is normally constant while the predicates vary. But the difference is that in predicatal argument, the subject of the minor premise and conclusion is the subsidiary term, while the predicates are the major and minor terms; and the major premise differs in form, too. However, this schema does not accord with the form of the Miriam argument, so it is unlikely to be intended by the Gemara for R. Tarfon's first argument, which it considers formally analogous to the Miriam argument.

forth ad infinitum – which would be an utter absurdity[46]. From this we see that not only has the Gemara's argument no textual bases (as we saw earlier), but it has no logical standing. There is in fact no "argument," just arbitrary assertion on the Gemara's part. For both the Miriam sample and the (first) Mishna sample, the Gemara starts with the convenient premise that "there is a *qal vachomer* here," which it considers as given (since it is traditionally assumed present, on the basis of *other* readings of these texts), and then draws its desired conclusion without recourse to any other proposition, i.e. *without premises*![47]

If this requirement for a single subject is not a rule of logic, is it perhaps a hermeneutic principle, i.e. a rule prescribed by religion? If so, where (else) is it mentioned in the oral tradition or what proof-text is it drawn from? Is it practiced in other contexts, or only in the present one, where it happens to be oh-so-convenient for the Gemara's interpretative hypothesis? If it is an established rule, how come the Sages do not agree to it? The answers to these questions are pretty obvious: there is no such hermeneutic rule and no basis for it. It was unconsciously fabricated by the Gemara author in the process of developing the foolish scenario just discussed. It is not a general necessity (or even a possibility, really), but just an ad hoc palliative.

Unfortunately, when people use complex arguments (such as the a fortiori or the a crescendo) without prior theoretical reflection about them, they are more or less bound to eventually try to arbitrarily tailor them to their discursive needs.

To sum up. We have seen that the Gemara introduces a number of innovations relative to the Mishna it comments on. The first we noted was that the Gemara, in the name of an anonymous Tanna, reads the *qal vachomer* in Num. 12:14-15, and apparently all a fortiori argument in general, as a crescendo argument. Next we noted a surprising lacuna in the Gemara's treatment, which was that while it dealt with R. Tarfon's first argument, it completely ignored his second, and failed to notice the curious verbatim repetition in the Sages' two *dayo* objections. Third, we showed that the thesis that *dayo* is "of Biblical origin," so that R. Tarfon must have been aware of it, was the Gemara's main goal in the present *sugya*. In the attempt to flesh out this viewpoint, the Gemara proceeds to portray R. Tarfon as regarding the *dayo* principle as being applicable only conditionally, in contrast to the universal *dayo* principle seemingly advocated by the Sages.

To buttress this thesis, the Gemara is forced to resort to an argument *ex machina* – that is, although vehemently denying the role of both parts of Num. 12:14 in the formation of a *qal vachomer*, the Gemara's R. Tarfon nevertheless assumes one (i.e. a phantom a fortiori argument) to be somehow manifest between the lines of the proof-text. Moreover, in order to make a distinction between the Miriam example and the (first) Mishna argument, so as to present the *dayo* principle as applicable to the former and inapplicable to the latter, the Gemara's R. Tarfon invents a preposterous rule of inference for *qal vachomer*, according to which the subject must be the same in the minor premise and the conclusion. In the Miriam example, the absence of a minor premise with the required subject (offending God) means that *dayo* is applicable, for applying it would not "defeat the purpose of the *qal vachomer*;" whereas in the (first) Mishna argument, the presence of a minor premise with

---

[46] It is of course possible that in a specific case of Y, "all Y1 are Y2" is true; so that predicating the value Y1 entails predicating the value Y2. But this cannot be proposed as a general truth without absurd infinite reiteration.

[47] This is very much the mentality of a conventional mind – what Ayn Rand has called a "second-hander" in her novel *The Fountainhead*. Such a person takes the say-so of 'authorities' for granted, and makes no effort at independent verification. It builds buildings without foundations. It disregards the natural order of things.

the required subject (damage by ox on private property) means that *dayo* is inapplicable, for applying it would "defeat the purpose of the *qal vachomer*."

This all looks well and good, if you happen to be sound asleep as the Gemara dishes it out. For the truth is that at this stage the whole structure proposed by the Gemara comes crashing down.

The trouble is, there is no such thing as an a fortiori argument (or a crescendo argument) that takes you *from no information to a conclusion*, whether maximal or minimal. If the proposed *qal vachomer* "argument" has no minor premise (since v. 14a is explicitly not admitted as one) and no major premise (since the subject of the conclusion must, according to this theory, be the same in the minor premise as in the conclusion), then there is *no* argument. You cannot just declare, arbitrarily, that there is an argument, while cheerfully denying that it has any premises. And if you have no argument with a maximum conclusion, then you have no occasion to apply the *dayo* principle, anyway.

Moreover, there is no such one-subject rule in a fortiori logic; indeed, if such a rule were instituted, the argument would not function, since it would have no major premise, and no major, minor or middle term; consequently, if it was intended as 'proportional' (as the Gemara claims), it would imply an inexplicable and absurd increase in magnitude of the subsidiary term. Thus, even if the Gemara's textually absent argument about Miriam were generously granted as being at least 'imaginable' (in the sense that one might today imagine, without any concrete evidence, Mars to be inhabited by little green men), the subsequent demand that a *qal vachomer* have only one subject would make the proposed solution formally impossible anyway.

The Gemara's explanation is thus so much smoke in our eyes, a mere charade; it has no substance. We need not, of course, think of the Gemara as engaging in these shenanigans cynically; we can well just assume that the author of this particular commentary was unconscious. In fine, the Gemara's scenario, in support of its claim that the *dayo* principle is "of Biblical origin" and so R. Tarfon did not ignore it—is logically unsustainable.