# The RashiYomi NewsLetter The 10 RashiYomi Rules, Vol 30 \#23, Feb. 21, 2019 Their Presence in this Week's Parshah, PeQuDaY <br> © Rashiyomi.com 2019 

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## We explore mathematical Rashis today based on algebraiccomputational and geometrical illustrations. Please send questions on Rashi to Rashiyomi@GMail.Com

Here is the Biblical text for today's digest.

## Biblical Text: Ex38-25,26a,b

The silver [collected from] the congregation 100 Kikar (a unit of currency), and 1,775 Shekel (equivalent of a dollar)
A split-dollar, half a shekel (Temple shekels) For all those counted above age 20 603, 550
The 100 Kikar of silver was use for
The supports of the Temple beams The support for the Paroceth
100 supports for 100 Kikar
A Kikar per support
The 1,775 were made into curtain hooks
Rashi uses 2 methods here.
First Rashi uses the Reference Method. Rashi cites Nu01-46 which states supporting the count in Ex38-25,26,
The total count [of the Jews] was 603,550. Nu 01 deals with the census and counting of Jews in the $2^{\text {nd }}$ year, $2^{\text {nd }}$ month, $1^{\text {st }}$ day.

Next Rashi uses the Non-Verse method to clarify the meaning of the Kikar. Ex38-25,26 gives the total silver collected as

[^0]currency like the dollar in America and the Shekel in Israel (which in fact derives its name from the Shekel word used in the wilderness)

We know from the verses in the black box that the 100 Kikar +1775 Shekel dollars came from 603,550 people each contributing half a dollar. Rashi could have used an additional Reference Method here sine Ex30-13 explicitly states This is what those counted should give A half-dollar (in Temple dollars)
This gives us a $2^{\text {nd }}$ equation describing the total donation
Total Donation $=603,550$ people $\mathrm{x}^{1 / 2}$ dollar
Thus, we have two equations
Total Donation=100 Kikar+1775 Shekel Dollars
Total Donation $=603,550$ people $\times 1 / 2$ dollar

We can perform the multiplication
$603,550 \times 1 / 2$ dollar $=301,775$ dollar

The two equations can then be rewritten
Total Donation $=100$ Kikar +1775 Shekel Dollars Total Donation $=301,775$ dollar
Notice how both the left-hand side of each equation is Total Donation. It follows that the two right hand sides must be equal yielding

301,775 dollars $=100$ Kikar +1775 Shekel Dollars

We notice that both the left- and right-hand side of this equation has 1,775 dollars.

## 301,775 dollars =100 Kikar + 1775 Shekel Dollars

We can therefore subtract 1,775 dollars from both sides obtaining.

301,775 dollars $=100$ Kikar +1775 Shekel Dollars 1,775 dollar $=1,775$ dollars

300,000 dollars $=100$ Kikar
We can now divide both sides of this last equation by 100 to obtain the Kikar-dollar relationship.

$$
\begin{aligned}
& 300,000 \text { dollars = } 100 \text { Kikar } \\
& 100=100 \\
& \text {------------------------------- } \\
& 3000 \text { Dollar }=1 \text { Kikar }
\end{aligned}
$$

As can be seen, just as an American dollar has 100 cents, a Temple Kikar has 3000 Shekeldollars.

Just to recap, Rashi here used the non-Verse Algebraic-computational method to clarify currency meaning. One may regard Kikar as an unknown quantity which has to be solved for. The equations presented above are linear equations. In solving this single linear equation, we have used the two basic solution rules for linear equations

- Add or subtract the same amount from both sides
- Multiply or divide the same amount to both sides.

The biblical text Ex39-30, Ex28-37 describes the Priestly mask, a pure solid gold mask worn by the Priest with the words Holy To God engraved on them. The priest also wore a turban. Finally, consistent with Ex12, and Dt06 the priest word the
Tefillin. Let us first examine the verses describing the placement of the mask

Ex39-30
1)- They place on it [the mask] a sky-blue thread
2)- To place on the Priest-turban above

Ex28-37
3)-Place the mask on a sky-blue thread
4)- It will be on the turban
5)- It will be opposite the face of the turban
6)- It [the mask] will be on Aaron's forehead

Rashi first notes problems or more precisely contradictions. Here Rashi uses the Contradiction Method.

- \#1) and \#3) above seem to contradict each other: Is the thread on the mask or the mask on the thread
- Similarly, \#2, \#4 and \#6 seem to say the mask is on the turban but only on the priest's forehead.

When confronted with such contradictions Rashi may use the Non-verse Picture Method. Of course, today, Pictures are easy. But Rashi had no pictures. So, he describes the picture. We have provided a front view below with clarifying points from Rashi beneath them


- The mask was fastened with three threads, 2 on the side and one in the center
- The two on the side went around to the back of the neck where they were tied (This enabled the mask to stay in place)
- The center thread went over the turban and joined the other two threads in the back (This secured the fastening)
- The mask itself was on the forehead
- The Turban itself was above the mask
- There was space between the Turban and mask to allow for tefillin.

We may further clarify the Rashi with a citation of the 6 phrases above and an indication of what each phrase indicates.

| Verse \# | Biblical <br> Text | Right <br> meaning | Wrong <br> Meaning |
| :--- | :--- | :--- | :--- |
| Ex39-30\#1 | Place it on <br> thread | Mask on side <br> threads |  |
| Ex39-30\#2 | It will be <br> on Turban | Center thread <br> on Turban | Mask on <br> turban |
| Ex28-37\#3 | Mask on <br> thread | Mask on side <br> threads |  |
| Ex28-37\#4 | It will be <br> on turban | Center thread <br> on turban | Mask on <br> turban |
| Ex28-37\#5 | It is <br> opposite <br> turban face | On forehead <br> mask <br> opposite <br> below face <br> side of turban | On <br> forehead <br> mask <br> opposite <br> above face <br> side of <br> turban |
| Ex28-37\#6 | It will be <br> on <br> forehead | Mask on <br> forehead |  |

Note: We have left out from Ex39-30 the terminal phrase it will be opposite the face of the turban since this identical with Ex28-37\#5.

Let us summarize the Rashi comments

- There are not just 2 items - mask and turban but 4 items -mask, turban, side threads, center thread
- The contradiction Thread on it, it on thread can be resolved by splitting the phrases as talking about the 2 threads: The mask is on the side threads, but the center thread is on the turban.

Rashi summarizes with a description of a picture

The mask with its 2 side threads going around the head and one center thread going on top of it resembled a helmet. The helmet was placed on the turban.

As the reader reviews the journey we have taken (s)he will notice four distinct stages:

- The Biblical narrative
- The contradictions
- The conceptual distinctions (side/center thread) and resolution (the "table")
- The Picture.

We hope this development makes the reader appreciate the variety of ways to explain a Rashi comment, to see what works and what doesn't work, to see the aha moment when the confusion gets lifted and one finally understands the verse.

Finally, we hope todays issue inspires the reader to a broader perspective. Algebra and pictures are not non-Torah; Anything that facilitates understanding of a Rashi comment should be pursued. We need to use all resources available.

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Rule I-REFERENCE: EXAMPLE: Dt26-05d We went down to Egypt with a few people explained by Gn46-27: with 70 people

## Rule II-MEANING / Lexicography / Dictionary: EXAMPLE (Connectives) KI means IF,PERHAPS,RATHER,BECAUSE,WHEN,THAT

 (Rashi on Gn18-15a Gn24-33a) EXAMPLE (Nuances): YDA means FAMILIAR, not KNOW (e.g. Dt34-10a) egg Gn04-01 Adam was FAMILIAR with his wife EXAMPLE (Idioms) ON THE FACE OF means DURING THE LIFETIME (Rashi on Nu03-04a Gn1128a Ex20-03c Dt05-07a) EXAMPLE (Synonyms) Marchese means pot; Machinate means frying pan (Lv02-05a, 07a) EXAMPLE (Homonyms) SHAMAH can mean listen, hear, understand: (Gn42-23a) They didn't appreciate that Joseph understood them (Note: They knew he was listening) EXAMPLE (Metonymy) (Lv02-11a) Don't offer ...any honey as sacrifices RASHI: honey includes any sweet fruit juiceRule III-GRAMMAR: EXAMPLE: BA-ah means COMING not CAME(Gn46-26a)
EXAMPLE: A grammatical conjugation in the Hitpael if 1st root letter is Tzade (Gn44-16a)

Rule IV-PARALLELISM: EXAMPLE: (Ex20-04) Don't POSSESS the gods of others Don't MAKE idols RASHI: So both POSSESSion \& MAKING of idols are prohibited

Rule V-CONTRADICTION: EXAMPLE: (Nu04-03, Nu08-24a)Levites start Temple work at 25; Levites start
temple work at 30 . RASHI: They apprentice at 25 but start actual service at 30 .

Rule VI-STYLE: RABBI ISHMAEL RULES: EXAMPLE: (Simple verses should be generalized): (Rashi Pesachim 6) (Dt25-04a) Don't MUZZLE an OX while THRESHING RASHI: Don't STOP any WORKING ANIMAL from eating

Rule VII-FORMATTING: EXAMPLE (BOLD indicated by Repetition): Ex12-09c) COOK it in water (So COOKED-COOKED is understood the same way bold is understood by modern reader) RASHI: Preferred to COOK it in water; But COOK it at all costs(Even if you don't have water) EXAMPLE: (BULLETS indicated by Repeating keywords) (Ex03-11a) Who am I - THAT I should go to Pharaoh - THAT I should take the Jews out of Egypt RASHI: Repeated word THAT creates BULLET effect - Pharoh was a difficult king (Bullet one) - Jews were not yet ready for freedom (Bullet two) EXAMPLE (Climax assumed in any Biblical list): (Dt19-11a) If a man HATES, SPIES, CONFRONTS \& KILLS. RASHI: Bible identifies 4 stages to murder (indicated by capped words

Rule VIII-DATABASE: EXAMPLE: God spoke to Moses to say over introduces about 7 dozen biblical commandments; God spoke to Aaron to say over only introduces 2 commandments. RASHI: (Lv10-03b) Aaron was silent when his sons died because they served in the Temple drunk; hence he merited that the commandment prohibiting priests to work in the Temple drunk, was given to him

Rule IX-NON VERSE: EXAMPLE: (Use of Algebra)(Ex38-26b) Temple donations of silver were 100 Kikar and 1775 Shekel from 630,550 half-shekels RASHI: So one Kikar of silver $=3000$ Shekel.

Rule X: SYMBOLISM: EXAMPLE: (Use of puns) Moses made a copper snake for people to look up to when bitten by snakes (so they should pray and recover) RASHI: (Nu21-09a) The Hebrew root for copper and snake are identical (Cf. The English copperhead) Moses made the metal snake copper colored to symbolize the snake


[^0]:    Total Donation=100 Kikar+1775 Shekel Dollars

