

CANTILLATION: SOME OBSERVATIONS – PART 1

By **William Gewirtz** - September 19, 2019

פִּשְׁטָא מִנַּח זִרְקָא מִנַּח סְגוּל מִנַּח
 מִנַּח רְבִיעֵי מִהֶפֶךְ פִּשְׁטָא זְקַף־קִטּוֹן
 זְקַף־גְּדוּל מִרְכָּא טְפַחָא מִנַּח אֲתַנְחַתָּא
 פִּזֹּר הַתְּלִישָׁא־קִטְנָה הַתְּלִישָׁא־גְּדוּלָה קְדָמָא־
 וְאַזְלָא אֲזַלָא־גֵּרֶשׁ גֵּרֶשִׁים דְּרַגְנָא תְּבִיר
 יְתִיב פְּסִיק | סוּף־פְּסוּק: שְׁלֵשֶׁת קַרְנֵי־
 פָּרָה מִרְכָּא־כְּפוּלָה יְרַח־בֶּן־יּוֹמוֹ:

WILLIAM GEWIRTZ

Introduction: ^[1]

My hope is that this brief paper will contain something of value even for those familiar with cantillation, henceforth referred to as *trop*, and is not too cursory for those with only limited familiarity. In this essay, *trop* will be briefly introduced, followed by a look at its importance in a **local context**, structuring a phrase within a *pasuk*. It concludes with an unrelated topic: some signs of *trop*'s rabbinic origin. A follow-up essay will look at *trop* in its **global context**, structuring the whole *pasuk*. The process by which the *trop* operates on a *pasuk* demonstrates its surprisingly recursive nature, providing the first such example in a musical context of which I am aware.

Before going any further, it is critical to recognize the role of *trop* in providing (only) syntax as opposed to semantics. Semantics specifies the meaning of a word, phrase, sentence, etc., something that *Onkelos* and other interpreters do; syntax provides only the structure. A given syntax can rule out a specific semantic interpretation, remaining consistent only with

other interpretations. A semantic interpretation will normally imply a specific syntax and invalidate (some) other syntactic alternatives. Multiple examples in the next section will illustrate.

Both *trop* and *Onkelos* are accorded an ancient origin in the Talmud.^[2] However, on arguably well over fifty occasions, they differ with respect to the meaning of verses in the Torah.

Despite a dispute between traditional and academic scholars over the identity and dating of *Onkelos*, many contemporary scholars date *Onkelos'* commentary to the later part of the 4th century CE to the early part of the 5th century,^[3] during the period of the *amoraim*. Not surprisingly, at times *Onkelos* differs from the view of the *bavli*. However, while the *trop* of various *pesukim* was still unsettled in Talmudic times,^[4] the *trop* does not differ from *halakhic* conclusions of the *bavli* in any critical instance of which I am aware. While there are minor differences in the *trop* currently in use, our system of *trop* correlates with the Aleppo codex. No version of *trop* in our possession predates the end of the period of the *geonim*.

The *trop* – a simplified overview^[5]

Trop contains 4 levels of separators (*mafsikim*) and a single set of connectors/servants (*meshartim*). The first level separators (often referred to as *keisarim*, Caesars) are the sentence ending *sof pasuk*, and the *etnahta*, which identifies the midpoint of the sentence, a semi-colon of sorts. Both parts of the sentence, before and after the *etnahta*, are treated identically by the syntax defining rules of *trop*.^[6] The second level of separators (often referred to as *melakhim*, kings), the *zakeif katon*, *zakeif gadol*, *segol*, *shalsholet* and *tipha*, define the major structure of the *pasuk*. *Pashta*, *revii*, and *tevir* are common third level separators, while *darga*, *pazeir* and *telisha gedolah* are common fourth level separators.

Munah, *merha*, *mahapah*, and *kadma* are common connectors; there should not be an apparent pause between the reading of words where they appear and the following word.

Trop structures both at a global / macro level (the entire *pasuk* and its two major components) and at a local / micro level (each individual phrase).

Some examples of *trop's* importance locally

To begin examining *trop* in a localized context, let's look at the significant impact that can be drawn from the placement of the *tipha*, a second level separator, versus the *munah* and

merha, connectors that almost always occur prior to the *sof pasuk* and the *etnahta*. The examples below further illustrate the difference between semantics and syntax. Two phrases from *Az Yashir*, מִרְכַּבַּת פְּרָעָה וַחִילוֹ יָרָה בַיָּם (*Shemot* 15:4) and צָלְלוּ קְעוּפֹרֶת בְּמַיִם אֲדִירִים (*Shemot* 15:10), illustrate this difference. Both phrases have two different interpretations; in each case, the first interpretation, coming from *Onkelos* and based purely on semantics, is inconsistent with the *trop*; the *trop* is, however, consistent with the second interpretation.

יָרָה בַיָּם can mean either:

1. The army was **shot** while at sea or
2. The army **drowned** in the sea.

There is a major difference between

1. being shot at the sea, where the sea does not play a participating role but is simply the location where the shooting occurs, and
2. being drowned in the sea, where the sea is an indispensable part of the event.

By use of a connector, the *munah*, linking יָרָה to בַיָּם, the *trop* implies a significant link between the sea and the event. The *trop* is identical to that on רָמָה בַיָּם, slightly earlier in אָז יִשְׂרָאֵל, again indicating a significant connection between the sea and the action. The connecting *munah* in the word יָרָה is consistent with being cast into the sea (and dying as a result of of drowning in the sea) as opposed to simply being shot while at sea. *Onkelos'* translation, *shedi ba'yamoh*, unquestionably means shot at sea.

Similarly, בְּמַיִם אֲדִירִים can mean either:

1. The Egyptians sank in the **mighty** waters or
2. The **mighty** (Egyptians) sank in the water.

There is a major difference between

1. the **mighty** waters, where mighty is an adjective describing the waters, and
2. the **mighty** (Egyptians) being drowned in the sea, where the two words are an independent noun and verb, and the noun appears awkwardly, alone, at the end of the verse.

By (strongly) separating *בְּמַיִם* and *אֲדִירִים*, the *trop* is consistent only with the second interpretation where the words are independent, telling us who, the *אֲדִירִים*, and where (they drowned), *בְּמַיִם*. *Onkelos*, on the other hand, translates the phrase as *be'mayin takifin*, the mighty waters.

When a *tifha* and a *munah* or *merha* are interchanged, as in the above two examples, the impact on the semantics must be carefully examined. In the above examples, even not following the *trop* results in a different but still very plausible reading.

Most often, however, an incorrect reading has no coherent interpretation. Another phrase from *Az Yashir*, *וַיִּצְבּוּ כְמוֹ-הַדָּג נִזְלִים*, is illustrative. The phrase has a *tifha* on the third word, separating the first three words from the fourth, which supports a meaning like “the waters formed a heap.” However, erroneously reading the *tifha* on the first word and connecting the second, third and fourth word would support a farfetched and rather unlikely meaning, which alleges that God formed a leaky heap.

A second localized area of oft overlooked significance concerns pausing in a manner consistent with the *trop*'s four levels of separators. Pausing properly for the four levels requires a full stop, one-half stop, one-quarter stop and one-eighth stop respectively. Stopping is rarely explained or practiced; when the proper length of stops is violated the resulting error has varying consequences.

An amusing example involves a *tevir*, requiring a one-quarter stop, followed a word or two later by a *tifha*, requiring a recognizably longer one-half stop.

Correctly read, *וּמִקֵּלֶל אָבִיו וְאִמּוֹ מוֹת יוּמָת׃* (*Shemot* 21:17) means

And one who curses his father or mother is put to death.

With improper pausing, a longer pause after the *tevir* on the word *אָבִיו* than after the *tifha* on the word *וְאִמּוֹ*, the sentence can be misinterpreted to mean:

And if one who curses his father, then his mother is put to death.

Equally shocking is the second half of *Shemot* 31:15, which states *כָּל-הַעֲשֵׂה מְלֶאכֶה בְּיוֹם הַשַּׁבָּת מוֹת יוּמָת׃*

He who works on the *Shabbat* is executed.

With improper pausing exactly as above, it might be misinterpreted to mean:^[7]

He who works is executed on the *Shabbat*.

While humorous examples like the two above are rare,^[8] there are typically one or two such examples in every week's Torah reading. Some are of minimal consequence at best; the *trop* repeated 12 times in *parshat Nasso* ending the sacrifice of each tribe's head is a good example.^[9] However, many cases of improper pausing work at cross purposes with the *trop*, modifying associations that the *trop* intends. For example, the *trop* on the *pasuk* פָּר אֶתֶד בְּן־בְּקָר אֶתֶד בְּן־שָׁנָתוֹ לְעֹלָה: implies that the bull, the ram and the lamb in its first year are all sacrificed as *olot*. Improper pausing could imply that only the lamb is sacrificed as an *olah*. Such examples abound; three more examples are given in the footnote below.^[10]

A famous example is the *pasuk* in *Ha'azinu*:

שְׁחַת לוֹ לֹא בְּנֵי מוֹמָם דָּוָר עֲקָשׁ וּפְתִילָתָל

The *pasuk* has multiple interpretations; most fundamental is the decision whether to connect the word לא with the next word/phrase, בְּנֵי מוֹמָם, or (as the *trop* does) with the prior word/phrase, שְׁחַת לוֹ. The former would refer to a group characterized as **not** His children; the latter a **negative response** to either a quizzical or an assertive assignment of responsibility for destruction to God.

Trop is Rabbinic:

There has been reference to the Karaite leanings^[11] of (some of) those involved in the transmission or transcription of *trop*. Other *sefarim*, first among them *Ve'yavinu Ba'mikra*^[12] by R. Naftali Tzvi Yehudah Gettinger, try to explain idiosyncrasies in the *trop* by citing a rabbinic view, halakhic or midrashic, that might explain an otherwise (often mildly) troublesome sequence of *trop*. While many of these explanations are plausible or even brilliant, they are not always entirely convincing.^[13] I will illustrate that surprisingly, non-literal, rabbinic interpretations, as opposed to ones that adhere more closely to the text, are supported by the *trop* in its most critical decision, the placement of the *etnahta*.

Such examples are not common; in most cases rabbinic interpretations:

- augment the text, providing missing context but leaving the text itself unchanged; or
- modify the semantics in a way that does not impact the syntax.

The rabbinic constraints on parameters surrounding a *ben sorer u'moreh* are a classic example of the former; the additional constraints are derived from the words in the text without changing their inter-relationship and hence their *trop*. Similarly, the rabbinic implications drawn from *lo ba'shamayim hi* or treating *lex talionis* as requiring monetary compensation illustrates the latter; both the literal and the rabbinic interpretation would suggest similar syntax and *trop*.

The first example of a non-literal Rabbinic reading being supported by the *trop* is Shemot (20:20):

לֹא תַעֲשֶׂוּן אֱתֵי אֱלֹהֵי כֶסֶף וְאֱלֹהֵי זָהָב לֹא תַעֲשֶׂוּ לְכֶם:

The most literal interpretation would divide the sentence into two parts, the first ending with the word *כֶסֶף*; the *pasuk* prohibits graven images of both silver and gold, using a chiasmic structure. However rabbinic interpretation lists three prohibitions:

1. לֹא תַעֲשֶׂוּן אֱתֵי – forbidding making images of my celestial beings.
2. אֱלֹהֵי כֶסֶף – (do not make)^[14] the *keruvim* from silver, as opposed to gold.
3. וְאֱלֹהֵי זָהָב לֹא תַעֲשֶׂוּ לְכֶם – other than the *keruvim*, make no other images of gold.

A rather idiosyncratic *trop*, with an otherwise inexplicable *etnahta* on אֱתֵי, is in complete alignment with rabbinic interpretation.

A second verse will illustrate the challenges that are associated with the methodology. Consider *Shemot* (22:12):

אִם-טָרַף יִטְרַף יְבֹאֵהוּ עַד הַטְּרָפָה לֹא יִשְׁלַם:

As written, the *etnahta* divides the *pasuk* at the word *עַד*. However, the literal interpretation embraced by many *rishonim* interprets the *pasuk* to mean that the body of the animal is brought as witness to its having been devoured by a wild animal. This explanation would place the *etnahta* on the word *הַטְּרָפָה*, one word beyond *עַד*.

The rabbis interpret *eid*,^[15] a witness, to mean two *eidim*, or witnesses, despite the word being written in the singular, and explain that the witnesses tell of the occurrence, as opposed to bringing the physical carcass as evidence. Their interpretation is therefore consistent with an *etnahta* on the word *עֵד*, as occurs in the *trop*. This proof was convincing, until modern scholars gave two alternate readings that would also imply the same *trop* as in the rabbinic interpretation (the first ironically providing added rationale / support for the reading in the Talmud):

1. Witnesses do not have to bring physical evidence; their word is adequate.
2. The word *יְבִאֶהוּ*, the word preceding *עֵד*, already refers to the carcass,. The Pasuk is saying implicitly that it is to be brought as a witness.

As well, the halakhah may also favor the *trop* over *Onkelos*. Consider the oft repeated phrase throughout *selihot*:

יְקוּמָה בְּשֵׁם יְקוּמָה

Whereas *Onkelos's* translation places a *dalet* in front of *יְקוּמָה*, connecting the word to *בְּשֵׁם*, meaning "that we call in the name of God," the *trop* separates the word *בְּשֵׁם* from *יְקוּמָה*, which would support several alternative meanings, including "we call to God by His Name."

Ashkenazic practice when reciting *selihot* follows the *trop*.^[16]

There are also many instances where the *trop* follows a *midrashic* interpretation, as for example in *Bereishit* (13:13) *וְאֵלֶּיךָ יָדָעוּ רָעִים וְחַטָּאִים לִיקוּלָהּ מֵאֵד*. A possible translation given by JPS reads: "Now the inhabitants of Sodom were very wicked sinners against the LORD." This and other translations would not comport with the presence of an *etnahta* on the word *וְחַטָּאִים*. Other interpretations, like: "Now the inhabitants of Sodom were very wicked and sinners against the LORD," might move the *etnahta* one word forward. The *trop* seems to support various *midrashic* interpretation that lists specific sins (blasphemy, idolatry, sexual promiscuity, etc.) associated with both the words *לִיקוּלָהּ* and *מֵאֵד*.^[17]

This topic has other examples, almost always involving second level separators.^[18] Clearly providing examples from only 4 of over 4000 meaningful sentences in the Torah, some of which are potentially arguable, do not constitute proof of a Rabbinic origin for *trop*; influence, undoubtedly, but determining origin requires more extensive analysis.

In summary, almost every instance that attempts to demonstrate *trop's* rabbinic origin may be disputable. However, the existing evidence and the absence of any contradictory indication supporting a non-rabbinic reading makes a Karaite one unlikely. In fact, over the last 1000 years we do not have examples where the *trop* was determined to be in such significant opposition to rabbinic interpretation to result in raising fundamental questions.^[19]

Conclusions:

The Halakhah requires that we correct errors that impact meaning during the (public) reading of the Torah.^[20] Increased awareness of *trop's* implications may require halakhists to create additional guidelines with respect to *trop* implementing that rule more precisely. While I do not feel it is my place to shout out corrections, I have on occasion told the reader afterwards what interpretations his reading might suggest. On rare occasions, I have also told a reader that his reading was consistent with *Onkelos's* interpretation as opposed to the *trop*.

It has been jokingly remarked that the full understanding of *trop* is an example of something lost in the transmission of Torah from Moses to Joshua. My goal was to illustrate some remarkable features of *trop*, which might increase the level of interest in *trop's* essential role.

[1] This essay is dedicated in honor of my father's 21st *yahrzeit*. My father died peacefully on *Shabbat* after *davening*, telling my sister to go home to hear *kiddush* from her husband, telling the nurse to say goodbye to his wife, and then settling into bed. He died on the 21st of *Elul*, which fell on *Shabbat parshat Ki Tavo*, as occurred this past year and this year as well. My father was an expert's expert *ba'al keriah* to whom I asked too few questions.

[2] *Nedarim* 37b and *Megillah* 3a. It is not clear if *trop* denoted the same system throughout its history; in fact, the *trop* now in use is assumed to be post-talmudic. How it might relate to earlier such systems is unknown.

[3] See for example: <https://seforimblog.com/2015/08/the-history-and-dating-of-onkelos/>

[4] The *bavli* in *Yumah* 52a and 52b lists 5 places where there is uncertainty over the placement of the *etnahta*, the middle of the *pasuk*, the most important decision made by the *trop*. All 5 examples involve a dispute concerning the literal as opposed to rabbinic interpretation.

- [5] A comprehensive review of *trop* is provided in *Ta'amai Ha'mikrah* by Rav Mordechai Breuer, who also authored a much shorter overview included in the first volume of *Daat Mikrah, Bereishit*. Also, Joshua Jacobsen has authored both an abbreviated and a comprehensive version of "Chanting the Hebrew Bible."
- [6] The equal treatment of both parts of a *pasuk*, covered in Part 2, is fundamental to how *trop* operates.
- [7] Shlomo Zuckier pointed out that the erroneous meaning associated with improper pausing is not correct grammatically. While certainly in this instance and in several others that is true, one cannot assume such knowledge of grammar among all listeners.
- [8] Another arguably bizarre example is *Vayikra* (14:7) where improper pausing would / might imply that diseased scale, as opposed to water, is to be sprinkled on the person being purified.
- [9] The result of improper pausing creates a tighter connection between one's name and one's father's name than the *trop* correctly read would suggest; the *trop* makes a tighter connection between the name and the *korban*.
- [10] There are numerous examples that the reader can examine. See for example *Vayikra* (11:31), which requires a longer pause after the *tifa* than the *tevir*; improper pausing might imply that if you are in contact with someone while they are still alive, you become impure after their death. Other clear examples are in *Bamidbar* (10:29), identifying Moshe's father-in-law, and *Bamidbar* (16:27) identifying from whose tents to separate.
- [11] <https://www.jewishvirtuallibrary.org/aaron-ben-moses-ben-asher>.
- [12] The classification of *trop* in some of these *sefarim*, including *Ve'yavinu Ba'mikre*, differs from that described, more in details than in fundamentals. Interestingly, the recursion to described in Part 2 is asserted only for the system of *trop* described by R. Breuer.
- [13] We are not talking about a strict proof; that would be impossible. Instead, a more intuitive (and biased) sense of the likelihood that it was the rabbinic interpretation that drove the *trop's* composition. *Devarim* (28:22), in *parshat Ki Tavo*, is a perfect example of the literal explanation given by *Rashi* being reflected in the *trop*. Provable, never; very likely, yes.

[14] This second phrase borrows לא תִּשְׁכַּח לָךְ from the end of the third phrase.

[15] There is a dispute about whether the carcass or witnesses are brought, (see *Baba Kama* 11a and *Meḥilta*, which quote the opinion of Abba Shaul, a mid-2nd century *tanna*, who supports bringing the carcass) the (uncontested) conclusion of the *gemara*, (*Sotah* 2a) brings proof from *Devarim* (19:15) that qualifies *eid* with *ehad*, implying *eid* without qualification, although singular (can) mean a pair of witnesses.

[16] See *Avudraham* in the Laws of Fasts where in alignment with the *trop* he suggests pausing after בְּשֵׁם. The phrase יהוה בְּשֵׁם occurs in multiple locations throughout the Torah. At times the *trop* and *Uneklos* have the same disagreement as they do in this example, at times they reverse positions, and at times they agree.

[17] See for example *Sanhedrin* 109a, *Tosefta Sanhedrin* chapter 13, and *Torat Kohanim Be’Hukotai*, parsha 2.

[18] A good example is found throughout the beginning of *parshat Tzav* where the different types of *korbanot* are preceded by the phrase “*zot torat ha-...*” While *Onkelos* **separates** the word *zot* from the word *torat*, consistent with the assumed *pshat*, the *trop* **links** them. See *Titein Emet le’Yaakov* by R. Yaakov Kaminetsky for various rabbinic interpretations the *trop* supports.

[19] As Shlomo Zuckier noted it is still possible that Karaites created much of the *trop*, which the Rabbinites modified in several places. One might, however, argue that it is unlikely that subsequent Karaite generations involved in *trop*’s transmission would not restore the Kariate version of the *trop*. I would very much appreciate being e-mailed *halakhic* examples consistent (or inconsistent) with the *trop*.

[20] Rambam, *Hilkhot Tefillah* (12:6) and Rabbi Yosef Karo in *Shulhan Arukh (Orah Hayyim 142:1)*. Some, including *Kaf Hahayyim to Orach Hayyim 142*, paragraphs 1-12, extend this to the *trop* as well.



William Gewirtz

Dr. William Gewirtz, a former CTO of AT&T Business, is a consultant in the technology and communications sector. He maintains a strong interest in halakhic areas where mathematics, science and/or logic play an important part, including all aspects of zemanim and kinim. He can be reached at wgewirtz@att.net.
