A tool of remembrance: the shofar in modern music, literature and art
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3. The Shofar in the Prayer Books for the High Holy Days

The shofar plays an important role in the service of the High Holy Days Rosh Ha-Shanah and Yom Kippur, also called the Days of Awe. In contrast, its role in the Siddur, the daily prayer book, is very modest: the shofar is mentioned only a few times, it has the same meanings as in the prayer books for the High Holy Days and shofar blasts are absent; therefore, the Siddur is left out of consideration in this chapter. Doublings in the prayer books are omitted, just as additional piyyutim and the services of the second day, in which the shofar prayers and blasts hardly differ from the first.

The prayer books used are *The Koren Rosh HaShana Mahzor* (Hebrew-English, 2011) and *The Koren Yom Kippur Mahzor* (Hebrew-English, 2012). Many prayer books come in Ashkenazi Nusḥ (“version”) and Sephardi Nusḥ; the former has been chosen, because Ashkenazi congregations represent the great majority. In the Chapters 3.1-3.3 of *A Tool of Remembrance*, page numbers of the Koren prayer books are added, for easy access.\(^1\)

The religious use of the shofar is subject to halakhah, the system of religious laws and regulations, based on the Torah and other Jewish writings and traditions. The laws regarding the shofar can be found in the Mishnah and the Talmud and the most important of them are listed in Chapter 3.1. Chapter 3.2 is about the shofar prayers of the High Holy Days, and Chapter 3.3 about the shofar blasts of the High Holy Days, in particular the system of 100 shofar blasts in the Rosh Ha-Shanah service.

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3.1. Shofar and Halakhah

**Mishnah**

The most important halakhah concerning the shofar is given in the Mishnah tractate Rosh Ha-Shanah, which is included in the prayer book for Rosh Ha-Shanah (127-193).

Chapter 3:2 of this tractate (164) discusses the species which provide the material for the shofar. The ram and the ibex are preferred; the cow’s horn, however, is forbidden because it is reminiscent of the golden calf worship described in Exod. 32. The list of donor animals is based on Deut. 14:4-6: “4 These are the animals that you may eat: the ox, the sheep, and the goat; 5 the deer, the gazelle, the roebuck, the wild goat, the ibex, the antelope, the mountain sheep, 6 and any other animal that has true hoofs which are cleft in two and brings up the cud—such you may eat.”

Chapter 3:3 (164-6) concerns the combination of the shofar with the two ḥaẓōrot, the silver trumpets, in the Temple service of Rosh Ha-Shanah. The instructions are concise, only stating that the shofar blows long notes, while the ḥaẓōrot blow short notes.

Chapter 3:6 (168) states that a cracked shofar should not be used, even if the crack has been glued. A shofar with a hole that has been glued but affects the sound, is not kosher.

Chapter 3:7 (168-70) focuses on the hearing of the shofar blasts: “If one blows the shofar into a pit or a cellar or a barrel, one who hears the sound of the shofar - has fulfilled his obligation; one who hears the echo - has not. So, too, one who walks behind a synagogue, or whose house adjoins the synagogue, and who hears the sound of the shofar or the sound of the megilla, if he attunes his heart to it - he has fulfilled his obligation, and if he does not - he has not.” The sound quality of the shofar, which plays a major role in works of art, carries little weight in worship; musical embellishment by resonance is allowed, as long as the listener hears the tone itself and not its echo.

Chapter 4:6 (186) describes the three central berakhot (“blessings”): Malkhuyyot (“Kingship”), Zikhronot (“Remembrances”) and Shofarot (“Shofars”), which are still part of the Rosh Ha-Shanah service. The laws in Chapter 4:9 are still valid as well; “The order of the shofar notes - Three, where in each three there are three” (190) draws attention to the consequent tripartite structure of the system of shofar blasts: “A tekia is the length of three teruot. A terua is the length of three staccato notes” (192). 32

Chapter 4:8 (188-90) includes a number of laws about the instrument and about hearing it, in which musical standards play no role whatsoever: “One need not prevent children from sounding the shofar, but may join them in blowing it until they have learnt. One who plays it without purpose has not fulfilled his obligation, and neither has one who hears that man.”

**Talmud**

The above-mentioned laws are commented in the Babylonian Talmud tractate Rosh Ha-Shanah, which provides a number of statements to which some artists refer in their works.

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32 As a result of a terminology shift, the ancient “teru’ah” and “staccato notes” are now called “shevarim” and “teru’ah” respectively.
In Talmud Rosh Ha-Shanah 16a, R[abbi] Abbahu asks the question why the shofar is blown and his answer connects the blowing of the horn with the sacrifice of Abraham: “The Holy One, blessed be He, said: Sound before Me a ram’s horn so that I may remember on your behalf the binding of Isaac the son of Abraham, and account it to you as if you had bound yourselves before Me.”

Talmud Rosh Ha-Shanah 27b and 33b contain statements touching on musical aspects of the shofar. In 27b, the 2nd-century Rabbi Simeon ben Gamaliel makes the difference between shofar music and shofar blasts in worship perfectly clear: “If its sound is thin, thick or dry, it is valid, since all sounds emitted by a shofar can pass muster.” 33b underlines that ritual shofar blasts are only valid when blown with the right intention and, moreover, that there are no objections against making music on a shofar: “One who blows merely to practise does not thereby fulfill his religious obligation: [Even if accidentally he produces the proper sounds.] I infer that one who blows to make musical sounds [without religious intention] does thereby fulfil his religious obligation. May we say that this supports Raba, for Raba said that one who blows to make musical sounds fulfills his religious obligation? – Perhaps our authority includes ‘making music’ also under the head of practising’. ”

Talmud Rosh Ha-Shanah 34a suggests a certain similarity between shofar blasts and emotional expressions of the human voice: “He [R. Abbahu] was in doubt whether it [the sound of teruʿah] was a kind of wailing or a kind of groaning.” As noted above on the quotation from the Mishnah tractate Rosh Ha-Shanah, the teruʿah corresponds to the modern shevarim.

Finally, the Talmud tractate Kinnim (“Nests”) on bird sacrifices contains a comment on the making of a shofar and the use of other parts of the ram, revealing the transcendence of the biological into the religious: “3:6 When [the beast] is alive it possesses one sound, but when it is dead its sound is sevenfold. . . . Its two horns [are made into] two trumpets, its two leg-bones into two flutes, its hide into a drum, its entrails for lyres and its large intestines for harp strings[.]”

Concluding, it can be said the halakhah concerning shofar making is very strict, stressing a careful selection and use of the material; on this point, halakhah bears a resemblance to the mentality of an artist. Though the emphasis on the obligations of the shofar blower is foreign to the arts, the emphasis on listening and attuning the heart to the blasts could well be shared by artists. And though the halakhah concerning the shofar blasts is also very strict, the extreme simplicity of the blasts offers space for new interpretations in a variety of artistic styles.

33 Quotations from the Soncino Babylonian Talmud, Ed. I. Epstein.
34 Notes of the editor between square brackets.
3.2. Shofar Prayers

**Rosh Ha-Shanah: Eve, Evening, Shaḥarit**

Chapter 3.2 concentrates on the First Day (397-658) from the Rosh Ha-Shanah prayer book, in particular on the Blowing of the Shofar (493-509) and the Musaf (515-50); subsequently, it will discuss the Ne’ilah service (1105-1201) from the Yom Kippur prayer book. In consideration of clarity, Chapter 3.2 does not offer an exhaustive overview of the shofar prayers, whereas Chapter 3.3 discusses the complete system of 100 shofar blasts from the Rosh Ha-Shanah service.

The first chapters of the Rosh Ha-Shanah prayer book: Rosh Ha-Shanah Eve (3-51), Rosh Ha-Shanah Evening (52-195), and Shaḥarit\(^\text{35}\) (196-396) contain no shofar blasts but only prayers mentioning the shofar. These prayers are related to key passages in the Bible: a prayer in the Morning Blessings (272) refers to the biblical origin of shofar blowing, the substitute sacrifice of the ram in Gen. 22:13; another prayer (74) calls Rosh Ha-Shanah a Day of Remembrance, a gathering to commemorate the exodus from Egypt (74); a prayer in Ma’ariv quotes Ps. 81:4-5 on the commandment of blowing the shofar at new moon (64); God is praised with the complete Ps. 150, which mentions the shofar (334); and a prayer in Minḥa refers to Isa. 11:12, where the shofar is blown for the ingathering of the exiles from the four corners of the earth (24).

**Rosh Ha-Shanah: First Day**

Shaḥarit (399-436) contains a piyyut by Elazar Ha-Kalir, “The trembling comes,” which deals with Rosh Ha-Shanah as Day of Judgment and contains verses on the shofar: “Her [Sarah’s] offshoots are frightened as the shofar service of the day is observed; / as they stand to represent themselves before the throne of the most fearful One. / On this day they shall whisperingly offering up the sound of their speech, / gathering to sound the shofar in the hope of finding redemption. . . . I shall sway Him with the shofar and my bended knee as I bow, / and I shall find companionship in the shelter of God’s garden among His beloved nation” (402). This prayer stresses repentance, the central meaning of the Days of Awe. Apart from the prayer to awaken, to sound the shofar and to cut down all evildoers (412), all shofar prayers in the Leader’s Repetition for Shaḥarit refer to the ram, that served as a substitute sacrifice for Isaac and taught Isaac’s descendants to blow the shofar (404, 416, 418, 424).

Rosh Ha-Shanah is rightly called *Yom teru’ah* (“Day of shofar blowing”), because the service mentions the shofar 60 times and contains 100 shofar blasts. The shofar verses and blasts of the First Day (397-658) are concentrated in five passages:

1. before Musaf:\(^\text{36}\) The Blowing of the Shofar, with prayers and 30 blasts (492-506);
2. in Musaf: the Amidah\(^\text{37}\) with the three central blessings Malkhuyyot (Kingships), Zikhrnot (Remembrances) and Shofarat, without shofar blasts (524-42);

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\(^{35}\) Eve/Erev is the time before sunset and Minḥa is the afternoon service on the Eve; Evening/Ma’ariv is the time after sunset (the beginning of Rosh Ha-Shanah), while Shaḥarit is the morning service.

\(^{36}\) “Supplement,” additional service on special Holy Days.
3. in Musaf: the Leader’s Repetition, the repetition of these three blessings, with 30 shofar blasts added (602-22);
4. in Musaf, after Full Kaddish, with 30 blasts (642);
5. in Musaf, after The Rabbis’ Kaddish, with 10 blasts (648).

Rosh Ha-Shanah: The Blowing of the Shofar

The opening of this section with the full Ps. 47 is followed by the prayer for the toke’ah, the shofar blower (492). This prayer has three sections, each of them concluded by a psalm verse.

In the first section, the toke’ah reminds God of the merits of Abraham, Isaac and Jacob, Moses and Aaron, David and Solomon and other righteous men and begs God to rise from His throne of judgment and to sit on His throne of compassion, quoting Ps. 47:6: “God has raised up in sound, raised, the LORD, in the voice of the shofar” (492).

In the second section, the toke’ah shows himself humble: “I do not have the understanding or wisdom to hold the correct intentions, with the right holy names, while blowing the shofar,” while he trusts God’s mercy. In the words of Ps. 90:17: “May the pleasantness of the LORD our God be upon us. Establish for us the work of our hands[.]” (494).

The third section is a repeated plea for compassion and protection against accusations by the Adversary as well as a plea for a place in the book of life, culminating in Ps. 19:15: “May the words of my mouth and the meditation of my heart find favor before You, LORD, my Rock and Redeemer” (494). A blessing of God, who has sanctified His people by His commandments and has commanded us to hear the shofar, is followed by three series of ten shofar blasts, each with a comparison: the first (496) should become a crown on God’s head, the second (498) should be “stitched across the curtain before You” and in the third (500), the angels should ascend to the throne of God to plead forgiveness of sins.

Rosh Ha-Shanah: Malkhuyyt, Zikhronot, Shofarot

In the Musaf of Rosh Ha-Shanah, the Amidah (514-48) has three central blessings: Malkhuyyt (“Kingship”) (524-32), which concerns God’s kingship, Zikhronot (“Remembrances”) (532-8), in which God remembers the Covenant and the deeds of His people, and Shofarot (538-42) on the role of the shofar in Jewish history. These three central blessings are inspired by phrases from Num. 10:10: “I, the LORD, am your God” (Malkhuyyt); “they shall be a reminder of you before your God” (Zikhronot), and “you shall sound the trumpets” (Shofarot).

Each blessing contains ten Bible verses: three from Torah (the five books of Moses), three from Kethuvim (Psalms only), three from Nevi’im (Prophets) and, to conclude, one from Torah. Malkhuyyt, Zikhronot and Shofarot (524-42) are repeated in the Leader’s Repetition, with shofar blasts (596-622) according to the same formula of 3+3+3+1=10.

37 “Standing,” the main Jewish prayer, which is recited standing.
38 The hazzan’s sung repetition of the silent prayers of the individual congregation members.
39 “Holy,” a prayer magnifying God’s name.
Two prayers at the beginning of the Leader’s Repetition emphasize the dialogic character of shofar blowing. In the first (552), the congregation direct their shofar blast as a plea to God, the Compassionate One, to remind Him of the oath he swore to their ancestors, and two verses from the second prayer, the Meḥāyeh (“Who revives [the dead]”) (556), give a visual impression of God’s requested listening: “O Lofty One, lend a listening ear; / turn to the sound of the shofar as it rises from inhabited land. . . . Turn to the sound of their shofar blasts from on high, / and exchange the seat of stern judgment for the throne of compassion.”

The U-Netanneh Tokef (“Let us voice the power of this day’s sanctity”) (566) establishes a connection between two seemingly incompatible phenomena on Mount Sinai: the overwhelming sound of God’s great shofar in Exod. 19:19, announcing His revelation of the Ten Commandments, and the soft sound with which God reveals Himself in 1 Kings 19:12 after the storm, the earthquake and the fire. The opening words of U-Netanneh Tokef read: “A great shofar sounds, / and a still small voice is heard, / angels rush forward / and are held by trembling, shaking; / they say: ‘Here is the Day of Judgment / visiting all the heavenly host for judgment –/ for they are not cleared in Your eyes in judgment.’” The announced judgment, which can be averted by “Repentance, Prayer and Charity” (568) will be sealed on Yom Kippur. Rosh Ha-Shanah is called a “Day of Remembrance” (590), a gathering to commemorate the exodus from Egypt, and, following Num. 29:1, “The Day of the Blowing of the Shofar” (592), a day of rest and of sacrifices to God. The introductory prayers are followed by the three blessings with shofar blasts.

Malkhuyyot (“Kingship”) (596-607), the first central blessing, is directed to God as the king. God’s kingship is established in the Torah verses Exod. 15:18, Num. 23:21 and Deut. 33:5; it is glorified in the Psalm verses 22:29, 93:1 and 24:7-10; and God’s oneness is emphasized in the verses from the Prophets: Isa. 44:6, Obad. 1:21 and Zech. 14:9 and the concluding verse from Torah: Deut. 6:4. The time aspect in the 3 x 3 verses is different. The Torah verses: Num. 23:21, “He saw no injustice in Jacob, no deceit did He witness in Israel” and Deut. 33:5, “[The LORD] became King in Yeshurun” are directed to the past. The Psalm verses refer to the present: Ps. 22:29, “For Kingship is the LORD’s / and He rules over the nations[;]” and Ps. 93:1, “The LORD reigns.” Finally, the verses from the Prophets are directed to the future: Isa. 44:6, “I shall be the last[,]” Obad. 1:21, “and the LORD’s shall be the kingdom[,]” and Zech. 14:9, “On that day shall the Lord be One[.]” They are followed by ten shofar blasts and a short prayer, referring to the shofar: “May our mouths’ words rise beautiful before You, / most high and elevated God, who understands and heeds, / looks on and listens to the sounds of our shofar blasts. / Accept, with compassion and favor, our Order of the Kingship” (606).

In Zikhronot (“Remembrances”) (608-16), the second central blessing, the subject is God’s mindfulness of His people. God remembers Noah and His Covenant with Abraham, Isaac and Jacob in the Torah verses Gen. 8:1, Exod. 2:24 and Lev. 26:42; this remembering is extended to all the people of Israel in the Psalm verses 111:4, 111:5 and 106:45; God is portrayed as the loving father who remembers His youthful people in the prophetic verses Jer. 2:2, Ezek. 16:60 and Jer. 31:20; finally, the exodus from Egypt is recalled in Lev.

Zikhronot is concluded with the same ten shofar blasts and the same prayer as Malkhuyyot, while “Kingship” is replaced by “Remembrances” (616).

In Shofarot (616-22), the third central blessing, God reveals Himself as redeemer. The subject of Exod. 19:16, 19:19 and 20:15 is the theophany. Of the three Psalm verses 47:6, 98:6 and 81:4-5, the first two celebrate the enthronement of God, while the third celebrates the new moon and Rosh Ha-Shanah. The shofar is blown successively as a sign of Judah’s inviolability under God’s protection, as a reference to the end of days, and as an announcement of the punishment of enemy nations in the verses from Nevi’im: Isa. 18:3, Isa. 27:13 and Zech. 9:14-15. The concluding, tenth Torah verse is taken from Num. 10:10: “On the days of your celebration, / and at your times of gathering and at your New Moons, / sound the trumpets over your offerings / and over your peace-offerings, / and those days will be remembrance for you before your God, / I am the LORD your God.” Before Shofarot is concluded in the same way as Malkhuyyot and Zikhronot, a short prayer is introduced, showing again the dialogic character of shofar blowing: “For You hear the call of the shofar, / and listen to its sounding, and there is none to be compared to You. / Blessed are You, LORD, who listens to the sound of Your people Israel’s trumpet-blasts in compassion” (622). After this, the shofar is not mentioned anymore in the prayers, but Full Kaddish is followed by 30 shofar blasts (642) and The Rabbis’ Kaddish by 10 blasts (648).

Yom Kippur: Musaf
The period of the ten Days of Awe, which begins on Rosh Ha-Shanah, is concluded on Yom Kippur. Just as the prayer book for Rosh Ha-Shanah, the prayer book for Yom Kippur refers to the great shofar at the revelation at Mount Sinai (822), to shofar blowing at new moon (806), to repentance in the U-Netanneh Tokef (842), and to the ingathering of the exiles into a restored Jerusalem: “Our God and God of our ancestors, / Light up the dimness of the widowed [Jerusalem]; . . . Return Your forgotten tribes; / call them forth, shout, Sound Your horn. / Bring them to Your holy mountain, / and gladden them in Your House of Prayer” (920-2).

Yom Kippur: Ne’ilah
Yom Kippur ends with the Ne’ilah service (1105-1201), which is concluded with one teki’ah gedolah; this long shofar blast can be considered as a “final wordless cry at the end of the day when we have exhausted the lexicon of penitential words” (1201, Note). The shofar blast is carefully fit into the prayers and the liturgical action (1198-1200):

May He who makes peace in His high places,
make peace for us and all Israel –
and say: Amen.
The shofar is sounded.

TEKIA GEDOLA

Congregation aloud:
Next year in Jerusalem rebuilt!

The Ark is closed.

The shofar blasts in the prayer books are wordless continuations of the prayers, whereas the prayers in their turn reveal the meaning of the shofar blasts. In the Rosh Ha-Shanah service, the blasts are assertives expressing faith or trust in God, directives with the character of pleas or wishes, expressives meant to thank God, or a combination of these speech acts. The Yom Kippur service ends with one single blast (1200), in which all five sorts of speech acts are united: as an assertive, the shofar blast confirms the trust in God; as a directive, it is a plea to God to allow His people to celebrate next year in Jerusalem; as a commissive, it confirms the vow to do everything possible to realize this wish; as an expressive, it thanks God; and as a declarative, it concludes the Days of Awe and heralds the new year for the faithful, who begin it free of sin.

Those shofar blasts which are directives in the Bible, are often orders enforcing obedience and resulting in physical action. The shofar blasts as directives in the prayer books have a more restrained character, while they require no physical action. In the Bible, the shofar blower—whether or not on behalf of an authority—wields power over the hearer, except in the case of expressives, which are addressed to God. In contrast, the shofar blower in the synagogue acts on behalf of the congregation and expresses their thoughts and feelings. Whereas most biblical shofar blasts are directives, or speech acts with the “world-to-words” direction of fit, the blasts in the prayer books are either assertives with “words-to-world” direction of fit, directives with a more restrained character than those in the Bible, or expressives without direction of fit. Two passages about shofar blowing for a king may serve as examples. The shofar blasts in 1 Kings 1:34 announce the coronation of a king, creating a situation of “world-to-words,” whereas the shofar prayers and blasts in Malkhuyyot, the first central blessing of the Rosh Ha-Shanah service, create a situation of “words-to-world,” as they are expressives, celebrating God’s kingship.
3.3. Shofar Blasts

Shofar blasts can have denotations, that is, direct, specific meanings. As explained in Chapter 2, Section 2: Directives, the shofar was blown in biblical warfare to announce alarm, assembly, attack, and ceasing of pursuit, and it is likely that there were clearly recognizable shofar blasts, in order to avoid confusion on the battlefield.\(^{41}\) In the prayer books, however, the four standard shofar blasts themselves do not have denotations and their meanings become only clear in the context of the shofar prayers. Whereas these shofar prayers refer to phenomena in the outside world, shofar blasts refer rather to themselves; the system of 100 blasts in the Rosh Ha-Shanah service has its own, almost musical rules, depending largely on repetition and combination of fixed elements. The musicologist Thrasybulos Georgiades’ remark about organ music in the church applies as well to shofar blasts in the synagogue:

The essential clarifying factor in the sounding, in the organ’s sound, is the relationship between the tones themselves, therefore, an internal relationship. In contrast, the word clarifies through the reference of a series of speech sounds to something real. Here we have an external relationship.\(^{42}\)

Because of their abstract character—which harmonizes with the prohibition on uttering the name of G*d—wordless shofar blasts at certain climaxes in the High Holy Days services are more appropriate means of expression than recited prayers. This transition from words to blasts is clearly expressed in the following passage from the Yom Kippur prayer book:

Blessed and praised,
glorified and exalted, raised and honoured,
uplifted and lauded be
the name of the Holy One, blessed be He,
above and beyond any blessing, song,
praise and consolation
uttered in the world – and say: Amen.
Some congregations sound the Shofar at this point.\(^{43}\)

A Tool of Remembrance is the first study to elaborate the system of 100 shofar blasts in the Rosh Ha-Shanah service in a table, visualizing a system which is consequently based on the number 3, just like a fractal, in which the same pattern appears at different levels.

The number 3, according to Talmud Rosh Ha-Shanah 34a, is derived from three scrip-

\(^{41}\) A description of an elaborate system of military blasts can be found in the eschatological 1Q War Scroll, Col. VIII, of the Dead Sea Scrolls. Cf. The Dead Sea Scrolls: Study Edition, Vol. I 127. Cf. also Chapter 4.67.

\(^{42}\) Georgiades, Nennen und Erklingen: die Zeit als Logos 15. Quotation translated from the German by KvH.

\(^{43}\) The Koren Yom Kippur Mahzor 1198.
tural passages about shofar blowing: Lev. 23:24, “In the seventh month, on the first day of the month, you shall observe complete rest, a sacred occasion commemorated with loud blasts” as well as the almost identical Num. 29:1, from which Rosh Ha-Shanah originates; and Lev. 25:9, “in the seventh month, on the tenth day of the month—the Day of Atonement—you shall have the horn sounded throughout the land[,]” from which Yom Kippur originates.

The tripartite structure of the blasts themselves is already discussed in the Mishnah:

The order of the shofar notes –
Three,
where in each three there are three.
A tekia is the length of three teruot.
A terua is the length of three staccato notes.”

Each shofar blast is blown in one breath. The tekia consists of 1 long note, the shevarim of 3 short notes with equal total length, and the teru’ah of 9 (3 x 3) very short notes with equal total length; the concluding tekia gedolah (“great tekia”) consists of 1 note, sustained as long as possible.

3 or 1+(1+1)+1 blasts constitute a line, either a TaShRaT (an acronym for Teki’ah-Shevarim-teRu’ah-Teki’ah), a TaShaT (Teki’ah-Shevarim-Teki’ah), or a TaRaT (Teki’ah-teRu’ah-Teki’ah);

3 lines constitute a section;
3 sections constitute a service of 30 blasts;
and 3 services with a coda of 10 blasts make up an A-B-A-(B) form with a total of 100 blasts.

The bible quotations also fit into the tripartite structure and the number 10: the shofar blasts in each of the Malkhuyot, Zikhronot and Shofarot sections are introduced by 3 verses from Torah, 3 Psalm verses from Kethuvim, 3 verses from Nevi’im, and to complete the 10, another verse from Torah. Thus, each section of 10 (3+3+3+1) Bible verses corresponds to the system of 100 (30+30+30+10) shofar blasts.

Of these 100 blasts, the first 30 are the “sitting blasts,” during which the congregation sits, and the remaining 30+30+10 are the “standing blasts.”

The last service of 30 blasts and the coda of 10 blasts each follow a Kaddish (“Magni-

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44 Mishnah Rosh Ha-Shanah 4:9. In The Koren Rosh HaShana Mahzor 190-2. Today, the ancient “te-ru’ah” is called “shevarim” and “staccato notes” are called “teru’ah.”
45 Usually, the second harmonic of a horn is blown. Longer shofar notes make a leap into the third harmonic, a 5th higher; due to the irregular shape of an animal horn, this interval may be somewhat larger or smaller. On a shofar with, for example, the fundamental G3, the second harmonic is G4 and the third harmonic D5; so, a tekia is a G4 with an upward leap into a D5.
46 Symbolized by the a, b, and c lines in Fig. 1. A graphic representation of TaShRaT, TaShaT and TaRaT is already found in the Siddur of Saadiah Gaon from the early 10th century. Cf. Braun, Music in Ancient Israel/Palestine 319, and Wulstan, “The Sounding of the Shofar” 34.
47 The shofar is also used during the month of Elul, which precedes the High Holy Days; at the end of each morning service a TaShRaT is blown. The numbers 30+10 return in the 30 days of Elul, followed by the 10 Days of Awe.
fied and sanctified / may His great name be . . .” and the connection of this prayer with the shofar blasts consists of a non-verbal element, again tripartite, not in time but in space:

Bow, take three steps back, as if taking leave of the Divine Presence,
then bow, first left, then right, then center, while saying:
May He who makes peace in His high places,
make peace for us and all Israel –

Shofar blowing requires a physical effort, but little musical feeling: “If its sound is thin, thick or dry, it is valid, since all sounds emitted by a shofar can pass muster.” In a similar way, it requires a mental effort: “connect our good intentions to actual deeds, as if we had blown the shofar with all the correct intentions,” but little analysis. The execution of the scheme of 100 blasts is, in fact, an algorithm. According to a definition by the philosopher David Berlinski, an algorithm is “a finite procedure, written in a fixed symbolic vocabulary, governed by precise instructions, moving in discrete steps, 1, 2, 3, . . ., whose execution requires no insight, cleverness, intuition, intelligence, or perspicuity, and that sooner or later comes to an end.” The procedure for blowing the 100 shofar blasts is indeed a finite one; the names of the blasts are typographically distinct from the surrounding text, and in English prayer books they are written in the fixed symbolic vocabulary of the four fully capitalized names TEKIAH, SHEVARIM, TERUAH, and TEKIAH GEDOLAH; the precise instructions concern the fixed number of notes of each blasts; the procedure moves in 100 discrete steps; and though shofar blowing is a difficult and responsible task, the mere execution of the scheme of 100 blasts does not require insight or even a look into the prayer book, because the toke‘ah is prompted by the makrei. After the correct execution of the 100 discrete steps, the algorithm comes to an end, as the mizvah of shofar blowing is fulfilled.

While the system of 100 shofar blasts with its step-by-step procedure to fulfill the mizvah can be seen as an algorithm, a concept from arithmetic, the system can also be considered an oration, a concept from classical rhetoric, including special methods to persuade an audience of the soundness of certain arguments. In this case, the audience is God and the soundness of the arguments is the sincerity of the toke‘ah’s prayers on behalf of the congregation. Fig. 1 reveals that the predominant rhetorical figure of speech in the system of 100 shofar blasts is repetition. As the biblical scholar Jack Lundbom puts it, “The importance of repetition in Hebrew rhetoric can hardly be overstated. Repetitions express the superlative (‘holy, holy, holy’ in Is. 6.3), provide emphasis (epanalepsis), give structure to psalms, prophetic oracles, and other compositions, and terminate debate.” In the system of 100 shofar blasts, repetition is expressed in five figures of

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48 The Koren Rosh HaShana Mahzor 640, 648.
50 The toke‘ah’s prayer in The Koren Rosh HaShana Mahzor 494. Cf. also Chapter 3.2.
51 Berlinski, The Advent of the Algorithm: The 300-Year Journey from an Idea to the Computer xviii. Italics and dots original.
52 Lundbom, “Hebrew Rhetoric” 325.
speech, as can be demonstrated on the basis of the example below, taken from Malkhuyyot, the first central blessing from the Rosh Ha-Shanah service:

<table>
<thead>
<tr>
<th>TEK'AH</th>
<th>Shevarim</th>
<th>Ter’ah</th>
<th>TEK'AH</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEK'AH</td>
<td>Shevarim</td>
<td>TEK'AH</td>
<td></td>
</tr>
<tr>
<td>TEK'AH</td>
<td>Ter’ah</td>
<td>TEK'AH</td>
<td></td>
</tr>
</tbody>
</table>

The first figure of speech is the *anaphora*, that is, the repetition of the same blast (teki’ah) at the beginnings of all lines; the second, the *epistrophe*, the repetition of the same blast (again teki’ah) at the endings of all lines. The third is the *epanalepsis*, the repetition of the beginning of a line (teki’ah) at the end of the line. The fourth is the *tricolon crescens*, that is, the succession of three elements of increasing rhythmic intensity in the first line: a teki’ah with one note, a shevarim with three notes, and a teru’ah with nine notes. The fifth is the parallelism between the three similar lines. Parallelism is also an extremely frequent figure of speech in shofar prayers and Psalm verses, as becomes clear in first four of the above-quoted verses from the Yom Kippur prayer book:

Blessed and praised,
glorified and exalted,
raised and honoured,
uplifted and lauded be
the name of the Holy One.[.]^{54}

The sincerity of the toke’ah’s intentions is expressed by the utmost formal consistency of the system of 100 blasts, while the system’s symmetry and perfection also provide a counterbalance to the strong emotions and rhetoric *pathos* expressed in the preceding shofar prayers. Of prime importance is not the musical quality of the blasts, but the perfect execution of the system and the fulfillment of the mizvah of shofar blowing, and in order to achieve these, the shofar blower is assisted by the makrei.

In the Yom Kippur service, one single teki’ah gedolah (1200) announces the end of the Yom Kippur service and the High Holy Days. This single shofar blast is very different from the elaborate system of 100 shofar blasts in the Rosh Ha-Shanah service, but just as sophisticated in its simplicity. In rhetorical terms, this blast is an *epiphonema*, an exclamation used to round off the discourse.

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53 The Koren Rosh HaShana Mahzor 606.
54 The Koren Yom Kippur Mahzor 1198.
### The System of 100 Shofar Blasts in the Rosh Ha-Shanah Service

--- Teki'ah; --- Shevarim; .......... Teru'ah; ------------ Teki'ah gedolah

#### (From the Order for the First Day)

<table>
<thead>
<tr>
<th>Services</th>
<th>Notes</th>
<th>Blasts</th>
<th>Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE BLOWING OF THE SHOFAR (Sitting Blasts)</td>
<td>90</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>MUSAF, LEADER'S REPETITION (Standing Blasts)</td>
<td>90</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>(AFTER FULL KADDISH)</td>
<td>90</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>(AFTER THE RABBIS' KADDISH)</td>
<td>30</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Totals</td>
<td>300</td>
<td>100</td>
<td>30: 10 x a, 10 x b, 10 x c</td>
</tr>
</tbody>
</table>