Old Wine in New Bottles:
New Graphic Symbols for Chanting
the Modal Motifs of Jewish Liturgy

A Thesis Submitted to the College of
Graduate Studies and Research
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
in the Department of Religion and Culture
College of Arts and Science
University of Saskatchewan
Saskatoon, SK, Canada

by
Cantor Neil L. Schwartz

Copyright © Neil L. Schwartz, May 2013. All Rights Reserved.
PERMISSION TO USE

In presenting this M.A. Thesis in partial fulfillment of the requirements for a Master of Arts degree from the University of Saskatchewan, I agree that the Libraries of this University may make it available for inspection, after one year from the date of submission. I further agree that permission for copying of this thesis in any manner, only in part, for scholarly purposes may be granted by the Dean of the College of Graduate Studies and Research, after one year from the date of submission. It is understood that any copying or publication or use of this M.A. Thesis or parts thereof for financial gain shall NOT be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan for any scholarly use which may be made of any material in my M.A. Thesis.

DISCLAIMER

Reference in this M.A. Thesis to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by the University of Saskatchewan. The views and opinions of the author expressed herein do not state or reflect those of the University of Saskatchewan, and shall not be used for advertising or product endorsement purposes.

Requests for permission to copy or to make other uses of materials in this thesis, only in part, after one year from date of submission, should be addressed to:

Dean
College of Graduate Studies and Research
University of Saskatchewan
107 Administration Place
Saskatoon, Saskatchewan S7N 5A2
Canada
Old Wine in New Bottles: New Graphic Symbols for Chanting the Modal Motifs of Jewish Liturgy

Abstract

Two challenges exist for learning Jewish Liturgical Chant: the fact that traditional modal chants are relatively inaccessible for those who do not read notated music, and the problem of how to indicate phrases within liturgical texts for those who do not know Classical Hebrew grammar. This presentation and analysis of Simanei Nusach, a new system of graphic symbols for Jewish Liturgical Chant, addresses both of these concerns.

If an adult lay religious leader is learning to lead worship services, and he or she does not read notated music, the primary methodology for learning has been rote memorization of modal musical motifs. Sources of these traditional modal musical motifs have been an experienced teacher, recordings, teaching software, and Internet resources on Jewish Liturgical Chant.

If a person who is leading Jewish worship services does not know Hebrew grammar, the only indications for phrasing liturgical texts have been commas in Jewish prayerbooks, and the musical lines of the modal musical motifs. Some modal motifs indicate that the chant begins a sentence or continues a thought, while other motifs indicate the end of a phrase or a sentence.

During the 800's C.E. in Israel, a family of Biblical scholars addressed these concerns for chanting the Hebrew Bible. These Masoretes developed a system of graphic symbols indicating punctuation of Biblical phrases, accentuation of words, and the chant of the Bible texts. These Trope symbols in a printed Jewish Bible also serve as a teaching tool for Biblical Cantillation.

At the turn of the 21st century, there was no widely-accepted set of graphic symbols that shows the phrasing and modal musical motifs of chanted Jewish liturgy. While preparing teaching materials for adult lay religious leaders who do not read notated music, this author developed a new set of graphical symbols, Simanei Nusach (Symbols of Prayer-chant), to indicate the modal musical motifs and the Hebrew text phrasing of Jewish Liturgical Chant.
# Table of Contents

Permission and Disclaimer ................................................................. i

Abstract .............................................................................................. ii

Table of Contents ................................................................................. iii

Preface and Acknowledgements ............................................................. iv

Thesis Summary, Question, and Hypothesis .............................................. vi

Chapter 1 – Introduction and Historical Background ................................. 1
  1.1 Introduction and reasons for creating new graphic symbols ................ 1
  1.2 Terminology, abbreviations, and transliteration ................................. 3
  1.3 Historical background of Jewish community migrations .................... 7

Chapter 2 – Education Trends for Cantillation and Liturgy ......................... 14
  2.1 New demographics affecting education since the 1970’s ....................... 14
  2.2 Standards for complex materials with lay religious leaders .................. 18
  2.3 Printed, recorded, software and Internet resources for Chant ................. 21
  2.4 Semiotics and Musical Semantics are new research areas .................... 24

Chapter 3 – Hebrew Grammar and Biblical Cantillation .............................. 31
  3.1 Linguistic concepts in Hebrew Biblical & Liturgical texts .................... 31
  3.2 Structure and Development of the Hebrew Bible ................................. 35
  3.3 Innovations of the Masoretes for vowels and Trope ............................. 40
  3.4 Applications of the Trope to six Cantillation Systems ......................... 43
  3.5 Musical realization of accentuation and punctuation ............................ 48

Chapter 4 – Structure of Jewish Liturgy and Prayer-modes .......................... 53
  4.1 Weekly and yearly cycles of Jewish Liturgy ....................................... 53
  4.2 Development of Jewish Liturgy and the prayerbook ............................. 59
  4.3 Modal Music in some ancient religions and cultures ............................ 63
  4.4 Musical structures of several Jewish Prayer-modes .............................. 68
  4.5 Applications of the Prayer-modes to Liturgical Texts ............................ 76

Chapter 5 – Analysis of Simanei Nusach for Liturgical Chant ...................... 81
  5.1 Graphics and function of Biblical Ta’amei HaMikra (Trope) .................. 81
  5.2 Nusach motifs show punctuation and meaning of prayer-texts ................. 83
  5.3 New system of graphic symbols for Jewish Prayer-modes ...................... 87
  5.4 Simanei Nusach show syntax and chanting of Liturgy texts ................... 91
  5.5 Use of Simanei Nusach in new educational software ............................ 95

Summation ......................................................................................... 99

Appendices ......................................................................................... 103

Bibliography ....................................................................................... 225
Preface and Acknowledgements

In traditional Jewish worship services, Biblical texts and liturgical texts are chanted in Hebrew. These chants are based on Jewish prayer-modes, using musical motifs within these modes to express the meanings of Biblical and liturgical texts. Notated music on staff-lines was not yet available when these chants were developed, and electronic recording equipment has only been available for somewhat over a century. *How were the ancient oral traditions of sacred chant passed on during the frequent migrations of Jewish communities?*

A system of *graphic symbols* that communicate punctuation, accentuation, and intonation (or chanting) was applied during the 800's C.E. in Tiberias to the texts of the Hebrew Bible. These "Trope" Cantillation symbols help codify the *meaning* of Biblical texts, by establishing accepted *phrasing* and *accents* of the Hebrew. Vowels were also added to the consonant Bible text at this time, and a system of marginal notes was developed by the Tiberian Masoretes for the entire Hebrew Bible (in Codex format) to provide a detailed system of *textual emendation.*

Until the end of the 20th century, there was no widely-accepted system of graphic symbols for Hebrew texts of traditional Jewish Liturgical Chant. There was one attempt in the 1970's to establish such a system, but this was not generally accepted. There were no known attempts to use graphic symbols in liturgical teaching software, nor for online teaching of Jewish liturgy.

New graphical symbols discussed in this M.A. Thesis were developed for Hebrew liturgical texts, to give visual clues about musical motifs in the chants of the Prayer-modes. These new symbols are assigned to the texts phrase-by-phrase, so they also (like Biblical Trope) serve to delineate the punctuation and syntax of the Hebrew prayer-texts, thus indicating aspects of their meaning. It is hoped that in the future, this new system of graphical symbols, *Simanei Nusach* (Symbols of Prayer-chant), will find acceptance and use not only in the teaching software that currently incorporates their use, but also in the general teaching of Jewish Liturgical Chant.

This document contains context for the analysis of this new graphic system. Chapter 1 presents introductory material and a brief historical background to provide context for Jewish chant. Chapter 2 shows why this new system of graphic symbols is needed to teach lay leaders Jewish Liturgical Chant. Chapter 3 is background material on Classical Hebrew for all types of Jewish chant, and Cantillation of the Hebrew Bible as the context for Jewish Liturgical Chant.
Chapter 4 presents the structure of Jewish Liturgy, and the modal chant of musical motifs as the context for this new graphical system. Chapter 5 presents an analysis of the use, functions, details, and revised schema of *Simanei Nusach*, the new system of graphic symbols developed by this author for teaching and chanting the modal musical motifs of Jewish liturgy.

---

When acknowledging those who contributed to an endeavor, an author may forget someone important who made a significant contribution. Despite this risk, one can only attempt to thank those who have provided ideas, reactions, information, suggestions, and comradeship during the long journey of this M.A. Thesis. If anyone is inadvertently neglected in this acknowledgement, please accept this author's humble apologies and sincere thanks for your contributions.

Dr. David Kaplan, Graduate Advisory Committee Chair and M.A. Thesis Supervisor  
Dr. Mary Ann Beavis, Graduate Chair, Department of Religion and Culture  
Dr. Michael Cichon, Graduate Advisory Committee member  
Dr. Christian Eberhart, Graduate Advisory Committee member  
Dr. Murray Scharf, External Reader when this M.A. Thesis is defended  
Faculty of the Department of Religion and Culture at the University of Saskatchewan  
Kathe Harder, Departmental Secretary, and Nadine Penner, Administrative Support  
Dr. James Mullens, who encouraged cross-cultural research on musical modes  
Staff of libraries at the University of Saskatchewan and St. Thomas More College  
University of Saskatchewan staff who helped format printed and electronic versions  
Faculty of the Jewish Theological Seminary, and Cantorial colleagues  
Tom Buchler and Sidney Wharton of Kinnor Software  
Rabbi Paul Drazen and leaders of United Synagogue for Conservative Judaism  
Adult lay religious learners in the IMUN Program of United Synagogue  
Faculty, Staff, and online Trope and Nusach students of Hebrew College in Boston  
Board of Trustees and congregants of Congregation Agudas Israel in Saskatoon  
Members of various Muslim, Hindu, and Christian communities in Saskatoon, SK  
Individuals who read and critiqued parts or all of this M.A. Thesis during revisions  
Family members and friends who shared suggestions and provided encouragement

Note: "Old Wine in New Bottles" is a reversal of a phrase in Matthew 9:17, Mark 2:22, and Luke 5:37. In this context, "old wine" is Jewish sacred chant, and "new bottles" are the modern technologies such as teaching software and *Simanei Nusach* graphic symbols.
Thesis Summary:
An academic analysis of a new system of graphic symbols, Simanei Nusach (Symbols of Prayer-chant), for the text phrasing and modal musical motifs of Jewish Liturgical Chant.

Thesis Question:
How can basic modal musical motifs of Jewish Musical Prayer-modes (Nusach HaT'fillah) be shown in a new system of graphic symbols, based on the Trope of Biblical Cantillation?

Hypothesis:
It is possible to represent basic modal musical motifs that are chanted in Jewish liturgy through a system of graphic symbols that reflect the phrasing and meaning of Hebrew liturgical texts.

Cantor Neil Schwartz teaching the United Synagogue IMUN Program to adult lay leaders in July 2005 at Camp Ramah in the Berkshires, with six of his first seven new graphic symbols.
Chapter 1 – Introduction and Historical Background

1.1 Introduction and reasons for creating new graphic symbols

Biblical and liturgical chants are used during worship in Jewish communities worldwide. There is increasing interest of lay religious leadership to chant from the Hebrew Bible and prayerbooks. Graphic symbols (Trope) in the Hebrew Bible show punctuation and accents, thereby codifying meaning. New graphic symbols were developed by this author for Jewish Liturgical Chant to show text phrasing and modal musical motifs. These new symbols have been incorporated in teaching software¹, and used during online teaching² of sacred chant.

1.1.1 Why graphic symbols were created for Jewish Liturgical Chant

This M.A. Thesis presents a new system of graphical symbols for Jewish liturgy, and an analysis of how they function to indicate the phrasing and meaning of Hebrew prayers. The impetus for developing this new system arose during intensive summer retreats, in which this author taught adult lay religious leaders how to chant Biblical and liturgical texts. These advanced learning retreats were the annual IMUN Program of United Synagogue, which met during the summers of 1991 through 2008 at Camp Ramah in the Berkshires. This author was the Lead Teacher during the summer of 2003, summers 2005-2008, and Winter 2009.

It became clear that only about half of these adult students could read notated music. For those who could not read notated music, their main resources for learning the chant of these Biblical and liturgical texts were class work, recorded examples prepared by this author, and computer teaching software³. Biblical texts are marked with graphic symbols called "Trope" that were developed 1,200 years ago. Students could learn to chant these symbols, and then use those symbols and musical motifs to chant various texts of the Hebrew Bible. The challenge for teaching Jewish Liturgical Chant was to find a way to communicate the text phrasing and modal musical motifs through the visual means of graphic symbols, rather than through rote learning.

In 2003, there were no widely-accepted graphic symbols available for Hebrew liturgical texts. One serious attempt was made in the 1970’s to establish graphic symbols⁴, but it did not receive wide acceptance among Jewish professionals. It also was not suitable for new teaching

---

³ Buchler, *Tefillah Trainer™*, Kinnor, op cit.
software\textsuperscript{5} that was being developed in 2004 and 2005. By the summer of 2005, this author had developed a pilot system of seven new graphic symbols that were used in the \textit{IMUN Program}. By the summer of 2007, eighteen new graphic symbols were used for modal musical motifs in \textit{Tefillah Trainer\textsuperscript{TM}}, the new software program for teaching Jewish Liturgical Chant.

This M.A. Thesis is an analysis of these new graphic symbols, how they indicate phrases of Hebrew liturgical texts, and how they indicate the modal musical motifs of chanted Jewish liturgy. Background material includes information on teaching sacred chant, Hebrew grammar, Biblical Cantillation, structure of Jewish Liturgy, and modal musical motifs of liturgical chant. To set the context for these, this Introduction will provide brief historical background on the migrations of the Jewish People through the centuries, and how that has affected sacred chant.

There are boundaries for the scope of this paper. Temporal boundary: the music of ancient Israel is mentioned briefly only as it is relevant to the development of Jewish Liturgical Chant. Spatial boundary: in the discussion of other cultures' modal music that shares characteristics with Jewish sacred music, the music of China and Japan are not included. Academic boundary: semiotics and musical semantics are only two vehicles for analysis of the functions of Simanim. Jewish boundary: sacred music of Eastern European Ashkenazic Jewry and their descendants. Musical boundary: \textit{a capella} single-line sacred chant; not harmony, rhythm, nor instruments.

1.1.2 Some necessary characteristics of new graphic symbols

Biblical Cantillation symbols show punctuation, accentuation, and intonation (chant motifs) for the texts of the Hebrew Bible. Based on that system of graphic symbols developed in the 800's C.E. by the Tiberian Masoretes, the following criteria and characteristics were necessary for the development of new Simanei Nusach graphic symbols of Jewish Liturgical Chant:

1) They must be relevant to all basic musical motifs of liturgical chant
2) They must function similarly in all musical modes of \textit{Nusach HaT'fillah}
3) They must reflect the phrasing and punctuation of liturgical texts
4) They must work in teaching software and online education formats
5) They must be placed directly on the Hebrew liturgical texts that are chanted
6) Ideally their shape would reflect their motivic musical functions in phrases
7) They must be easily learned by lay leaders who do not read notated music

\textsuperscript{5} Buchler, \textit{Tefillah Trainer\textsuperscript{TM}}, Kinnor, \textit{op cit.}
1.2 Terminology, abbreviations, and transliteration

Within the related fields of Religion and Culture, an academic paper such as this contains specialized terms. It is worthwhile to mention how certain terms are being used in this paper, because in other contexts these same terms may have different meanings.

1.2.1 Specialized Terminology used in this M.A. Thesis

Cantor: In the Jewish religion, a professionally trained Cantor is a fully-certified clergy-person. There are lay leaders who are called "Cantor" in their congregations, but it is the combination of professional training and accreditation by one of the three professional cantorial groups that conveys status as clergy for taxes and pensions.

Trope: In the field of Jewish sacred chant, "Trope" is one of the terms that designate the graphic symbols in a printed Hebrew Bible. This is a group of 27 symbols above and below the Hebrew words, and their functions are to delineate the punctuation, accentuation, and intonation (chant) of the various sections in the Hebrew Bible.

Bible books: In the Hebrew Bible, the number of separate books is often presented as only 24, rather than 39. The following books are considered to be only one: 1 & 2 Samuel, 1 & 2 Kings, 1 & 2 Chronicles, Ezra & Nehemiah, and the 12 Minor Prophets.

Music modes: The discussions in this thesis refer to medieval modes of music, which are not the same as the ancient Greek modes. Another term for the medieval musical modes is the "Ecclesiastical modes", as they were an element of medieval Church music.

Arvit: Two terms are used to designate the evening service of Weekday, Sabbath, and Festivals: Arvit and Ma'Ariv. Both come from the root word for "evening". The term Arvit is usually combined with the occasion: Arvit L'Shabbat, Arvit L'Chol.

Root/Radical: Hebrew words are built on a Shoresh or "root" that is usually three consonants. Words are formed when vowels and affixes are added to the basic root. The term for these consonants is the word "radicals", as found in Hebrew grammar books.

Melody: There are underlying musical modes of chant, the musical motifs that comprise these modes, and metric melodies sung with a rhythmic "beat". "Melody" is used for music with time signatures, measures with bar lines, and a strong rhythm.

Hindustani: In the fields of World Music and Indian Music, the term "Hindustani" is used as a valid descriptive word for the Ragas of northern India (versus "Carnatic" for the Ragas of Southern India), even though this term is apparently not used elsewhere.

Affect: With the accent of the first syllable, this is a noun referring to the experience of emotion, as opposed to a cognitive experience that is intellectual in nature. Both terms, affective and cognitive, come to the study of liturgy from psychology.

HaShem Malach The Nusach (Prayer-mode) for the Friday evening Kabbalat Shabbat is named after the first two Hebrew words of Psalms 97, 99, and 93. The substitute word "HaShem" is used for God's name out of respect for religious concerns of readers.
1.2.2 Abbreviations and Typographic conventions

This document has been written with few abbreviations. The most commonly used are these:

- **B.C.E.** Before Common Era, rather than the religious "B.C." (Before Christ)
- **C.E.** Common Era, rather than the Latin religious "A.D." (Anno Domine)
- **ACC** American Conference of Cantors, Reform professional association
- **CA** Cantors Assembly, Conservative professional association of Cantors
- **RA** Rabbinical Assembly, Conservative professional association of Rabbis
- **HUC** Hebrew Union College - Jewish Institute of Religion (Reform) New York
- **JTS** Jewish Theological Seminary in New York, and its Cantorial School
- **YU** Yeshiva University's Cantorial School in New York City (Orthodox)
- **NFTY** National Federation of Temple Youth, Reform Movement youth group
- **JSM** Journal of Synagogue Music, published by the Cantors Assembly
- **MCW** Michigan-Claremont-Westminster computer code for Classical Hebrew

There are some typographic conventions that have been used in this document which may be somewhat different from standard usage. In each case, there are reasons for the usage chosen herein, and these have been discussed with members of the Graduate Advisory Committee.

1. **Serial or "Oxford" comma:**

   In a series of items, the pattern will usually be: "X, Y, and Z" for the sake of clarity.

2. **Comma or period outside of closing quotation mark:**

   In the direct quotations from books or articles in this paper, the comma or period is inside the ending quotation mark, in accordance with standard usage.

   However, there are many places where quotation marks are being used to identify or translate a term, or to highlight a certain concept. In these cases, where there is a comma or a period after such a "highlighting", it is outside of the quotation marks. This is to ensure clarity of phrasing, and to facilitate usage of the specialized terms.

3. **Italics versus "quotation marks":**

   In general, the pattern is to use italics for non-English terms, and to use quotation marks for highlighting terms or concepts and for translating non-English terms.

   Underlining is avoided, because it may be tagged as hyperlinks in the electronic version of this thesis. **Bold** font is used for headings and for important phrases.

4. **Capitalization and U.S. spellings:**

   Objects, rituals, and concepts that are specific to the field of Jewish religion and Jewish religious music are capitalized. "Jewish Liturgical Chant" is capitalized as is "Biblical Cantillation", because these are specific forms of Jewish sacred music.

   The issue of Canadian spellings versus U.S. spellings was discussed with members of the Graduate Advisory Committee. Apparently, at least in the field of religious studies, U.S. spellings have become accepted at some Canadian institutions.
1.2.3 Transliteration System used in this M.A. Thesis

Transliteration has a variety of functions, and different types of transliteration are meant for different situations. There are several forms of "scientific transliteration", and their purpose is to enable a reader to reconstruct the spelling of the original language. Other forms of transliteration are meant to be practical, often for the purpose of singing in another language. This thesis does not use the scientific transliteration systems that are found in many scholarly books, articles, and papers. There is no need for the Hebrew spelling to be reconstructed from this transliteration.

Since there is a dearth of Hebrew literacy among many congregants in most denominations, transliteration is essential for them to participate in sections of Jewish Liturgy that are sung by everyone. The issue is simply one of inclusion – without a clear, simple transliteration of texts that are sung as a group, many congregants would not be able to participate in worship services.

The transliteration system that is used in this thesis is based on the principles of clarity and simplicity. The source for this system is the standard style of transliteration found in many new prayerbooks and most settings of Hebrew vocal music, including many from Israel. As can be seen in Appendix B, there is ongoing controversy about the best way to transliterate the letters Chet (ח) and Chaf (כ), and for the sake of simplicity they are both "Ch" in this thesis.

Consonants:

<table>
<thead>
<tr>
<th>Consonants</th>
<th>Silent</th>
<th>(slight glottal stop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alef</td>
<td>Silent</td>
<td>&quot;B&quot; as in &quot;boy&quot;</td>
</tr>
<tr>
<td>Beit</td>
<td>&quot;V&quot;</td>
<td>as in &quot;very&quot;</td>
</tr>
<tr>
<td>Veit</td>
<td>&quot;G&quot;</td>
<td>as in &quot;golf&quot;</td>
</tr>
<tr>
<td>Gimmel</td>
<td>&quot;D&quot;</td>
<td>as in &quot;dog&quot;</td>
</tr>
<tr>
<td>Dalet</td>
<td>&quot;H&quot;</td>
<td>as in &quot;happy&quot;</td>
</tr>
<tr>
<td>Hei</td>
<td>&quot;Y&quot;</td>
<td>as in &quot;very&quot;</td>
</tr>
<tr>
<td>Vav</td>
<td>&quot;Z&quot;</td>
<td>as in &quot;zebra&quot;</td>
</tr>
<tr>
<td>Chet</td>
<td>&quot;Ch&quot;</td>
<td>as in &quot;Bach&quot;</td>
</tr>
<tr>
<td>Tet</td>
<td>&quot;T&quot;</td>
<td>as in &quot;tent&quot;</td>
</tr>
<tr>
<td>Yod</td>
<td>&quot;Y&quot;</td>
<td>as in &quot;yellow&quot;</td>
</tr>
<tr>
<td>Kaf</td>
<td>&quot;K&quot;</td>
<td>as in &quot;kitten&quot;</td>
</tr>
<tr>
<td>Chaf</td>
<td>&quot;Ch&quot;</td>
<td>as in &quot;Bach&quot;</td>
</tr>
<tr>
<td>Chaf Sofit</td>
<td>&quot;ch&quot;</td>
<td>(final form)</td>
</tr>
<tr>
<td>Lamed</td>
<td>&quot;L&quot;</td>
<td>as in &quot;lake&quot;</td>
</tr>
<tr>
<td>Mem</td>
<td>&quot;M&quot;</td>
<td>as in &quot;moon&quot;</td>
</tr>
<tr>
<td>Mem Sofit</td>
<td>&quot;m&quot;</td>
<td>(final form)</td>
</tr>
</tbody>
</table>

Please see Appendices B-1 and B-2 for orthography of Hebrew consonants.
<table>
<thead>
<tr>
<th>Consonant</th>
<th>Pronunciation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nun</td>
<td>&quot;N&quot;</td>
<td>&quot;not&quot;</td>
</tr>
<tr>
<td>Nun Sofit</td>
<td>&quot;n&quot;</td>
<td>(final form)</td>
</tr>
<tr>
<td>Samech</td>
<td>&quot;S&quot;</td>
<td>&quot;sun&quot;</td>
</tr>
<tr>
<td>Ayin</td>
<td>Silent</td>
<td>(slight glottal stop)</td>
</tr>
<tr>
<td>Pei</td>
<td>&quot;P&quot;</td>
<td>&quot;puppy&quot;</td>
</tr>
<tr>
<td>Fei</td>
<td>&quot;F&quot;</td>
<td>&quot;fair&quot;</td>
</tr>
<tr>
<td>Fei Sofit</td>
<td>&quot;f&quot;</td>
<td>(final form)</td>
</tr>
<tr>
<td>Tzadi</td>
<td>&quot;Tz&quot;</td>
<td>&quot;cats&quot;</td>
</tr>
<tr>
<td>Tzadi Sofit</td>
<td>&quot;tz&quot;</td>
<td>(final form)</td>
</tr>
<tr>
<td>Kof</td>
<td>&quot;K&quot;</td>
<td>&quot;kitten&quot;</td>
</tr>
<tr>
<td>Reish</td>
<td>&quot;R&quot;</td>
<td>&quot;road&quot;</td>
</tr>
<tr>
<td>Shin</td>
<td>&quot;Sh&quot;</td>
<td>&quot;shut&quot;</td>
</tr>
<tr>
<td>Sin</td>
<td>&quot;S&quot;</td>
<td>&quot;sun&quot;</td>
</tr>
<tr>
<td>Tav</td>
<td>&quot;T&quot;</td>
<td>&quot;tent&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vowels</th>
<th>Pronunciation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamatz Gadol</td>
<td>&quot;a&quot;</td>
<td>&quot;ah&quot;</td>
</tr>
<tr>
<td>Patach</td>
<td>&quot;a&quot;</td>
<td>&quot;ah&quot;</td>
</tr>
<tr>
<td>Chafat Patach</td>
<td>&quot;a&quot;</td>
<td>&quot;ah&quot;</td>
</tr>
<tr>
<td>Patach-Yod</td>
<td>&quot;ai&quot;</td>
<td>&quot;ah-ee&quot;</td>
</tr>
<tr>
<td>Segol</td>
<td>&quot;e&quot;</td>
<td>&quot;eh&quot;</td>
</tr>
<tr>
<td>Chafat Segol</td>
<td>&quot;e&quot;</td>
<td>&quot;eh&quot;</td>
</tr>
<tr>
<td>Tzeirei Chaser</td>
<td>&quot;ei&quot;</td>
<td>&quot;ey&quot;</td>
</tr>
<tr>
<td>Tzeirei Malei</td>
<td>&quot;ei&quot;</td>
<td>&quot;ey&quot;</td>
</tr>
<tr>
<td>Chirik Chaser</td>
<td>&quot;i&quot;</td>
<td>&quot;ee&quot;</td>
</tr>
<tr>
<td>Chirik Malei</td>
<td>&quot;i&quot;</td>
<td>&quot;ee&quot;</td>
</tr>
<tr>
<td>Cholam Chaser</td>
<td>&quot;o&quot;</td>
<td>&quot;oh&quot;</td>
</tr>
<tr>
<td>Cholam Malei</td>
<td>&quot;o&quot;</td>
<td>&quot;oh&quot;</td>
</tr>
<tr>
<td>Cholam-Yod</td>
<td>&quot;oi&quot;</td>
<td>&quot;oy&quot;/&quot;oh-ee&quot;</td>
</tr>
<tr>
<td>Kamatz Katan</td>
<td>&quot;o&quot;</td>
<td>&quot;oh&quot;</td>
</tr>
<tr>
<td>Chafat Kamatz</td>
<td>&quot;o&quot;</td>
<td>&quot;oh&quot;</td>
</tr>
<tr>
<td>Kubutz</td>
<td>&quot;u&quot;</td>
<td>&quot;oo&quot;</td>
</tr>
<tr>
<td>Shuruk</td>
<td>&quot;u&quot;</td>
<td>&quot;oo&quot;</td>
</tr>
<tr>
<td>Shuruk-Yod</td>
<td>&quot;ui&quot;</td>
<td>&quot;oo-ee&quot;</td>
</tr>
<tr>
<td>Sh'va Na</td>
<td>(')</td>
<td>&quot;about&quot;</td>
</tr>
</tbody>
</table>

"Consonant-Vowels"^8:  

<table>
<thead>
<tr>
<th>Consonant</th>
<th>Pronunciation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alef</td>
<td>&quot;a&quot;</td>
<td>initial/medial &quot;ah&quot;</td>
</tr>
<tr>
<td>Hei</td>
<td>&quot;a&quot;</td>
<td>final vowel &quot;ah&quot;</td>
</tr>
<tr>
<td>Vav</td>
<td>&quot;o&quot;/&quot;u&quot;</td>
<td>&quot;oh&quot;/&quot;oo&quot;</td>
</tr>
<tr>
<td>Yod</td>
<td>&quot;i&quot;/&quot;ei&quot;</td>
<td>&quot;ee&quot;/&quot;ey&quot;</td>
</tr>
</tbody>
</table>

^7 Please see Appendix B-4 "Hebrew Vowels".  
^8 Discussed in Section 3.3.2 below.
1.3 Historical background of Jewish community migrations

The Jewish People have come to be known as the "People of the Book," and many Jewish sacred texts have been developed through the centuries. Whenever Jewish communities have migrated from one home to another during the last two millennia, two sacred books in particular have always accompanied them: the Hebrew Bible, and the Jewish prayerbook. These books are used in public and private Jewish worship, and they are found in synagogues and homes.

How and why are Jewish history and migrations relevant to learning about Jewish sacred chants? The answer is simply that the places Jews have lived, peoples among whom they have lived, and surrounding cultures in which they have lived have affected the character of Jewish chants. Certain aspects of Jewish sacred music have remained constant through the ages, from the Middle Eastern origins to the many places in which Jews lived throughout history. Other aspects of Jewish sacred chants have been affected and modified by the surrounding cultures.

1.3.1 How is the history of Jewish migrations relevant to chant?

Hebrew is an ancient Semitic language used for Jewish sacred texts that are chanted by Jews throughout the world. Similarly, underlying musical modes and modal motifs of Biblical Cantillation and Jewish Liturgical Chant reflect a Middle Eastern style of music that has been modified by the places, peoples, and cultures among whom Jews lived through the centuries.

Western music is based primarily on scales comprised of whole-tones (whole steps) and semi-tones (half-steps) as the intervals between adjacent notes. These notes are arranged within an "octave" of eight tones, and the interval relations within a given octave are usually the same in the octave(s) below and in the octave(s) above.

This is not the case for many of the musical modes that underlie the traditional music found in many other cultures. From North Africa, Egypt, the Balkans, the Levant, Mesopotamia, and Persia, to Central Asia and Northern India, modal music is not based on a series of scales whose intervals repeat in each octave. Rather, musical modes are comprised of modal musical motifs. Intervals in the motifs define the intervals in an entire mode, which is notated as a "modal scale". The "core scale" is simply a convenient way to compare the intervals in various musical modes.

---

9 Using the names of notes, an ascending "C Major" scale is presented as "C - D - E - F - G - A - B - C"", and the notes of two consecutive octaves are presented as "C - D - E - F - G - A - B - C - D - E - F - G - A - B - C". The "C Major" scale is also the medieval "Ionian Mode", which can be produced by playing all the white keys from "C" to the next "C" above it on a piano or electronic keyboard, and this repeats in the octaves above and below.
This non-Western phenomenon of "motifs define a mode" rather than "intervals define a scale" can be seen in the modal music of Hindu Ragas, Arabic Maqamat, and Jewish chant for Biblical Cantillation and Nusach HaT'fillah (Musical Prayer-modes). The modal musical motifs chanted for a given text at a given time of day, week, and season have specific intervals between their notes. When these motifs are combined into a particular musical mode, the pattern of those intervals establishes the underlying "scale" of the mode. These intervals can then be presented as ascending and descending scales. Both are needed: the intervals of whole-tones, semi-tones, and "microtones" may be different as the motifs of a musical mode ascend or descend.

Like the motifs and modes of Middle Eastern music, the music of Jewish Liturgical Chant can have different intervals between notes above and below the octave of a core eight-note scale. There are other aspects of Jewish sacred music that are more characteristic of modal Middle Eastern music than scalar Western music. The time of day and week appropriate for chanting a given mode, and the mood inherent in each musical mode, are more characteristic of Middle Eastern music than Western music.

As Jews migrated during the centuries throughout Europe and beyond, the surrounding cultures also brought the influences of Western music into Jewish sacred music. Since the graphic symbols being presented in this thesis are based on the modal musical motifs of sacred chant, it is important to trace these migrations and to see the different cultures with which the Jewish People has interacted, in order to appreciate the musical influences of those cultures.

The Jewish community for which Biblical and liturgical chant is being discussed in this thesis is the Eastern European Ashkenazic tradition as chanted in North America among all religious denominations of Judaism. There are also practitioners of this ubiquitous musical tradition in Europe, Israel, South America and South Africa.

1.3.2 Where and among whom have Jewish communities lived?

The Jewish People moved from being a Middle Eastern culture, to a worldwide culture, and now to both of these in the last century. The Torah is written in Biblical Hebrew and the Siddur is written in Rabbinic Hebrew, both of which are slightly different from Modern Israeli Hebrew\(^{10}\). The fact that Hebrew has few major changes after 2,000 years of Diaspora living is a remarkable aspect of Jewish tradition and continuity.

---

Biblical Cantillation is the oldest form of Jewish music, and some of the musical motifs of liturgical chant or Nusach HaT'fillah may be derived from Cantillation motifs. Cantillation and Nusach HaT'fillah have both been affected by the music of the surrounding cultures through the ages. However, basic patterns within the motifs of Jewish sacred music are similar across the spectrum of world Jewish communities.

One reason for this is the fact that both Cantillation and Nusach HaT'fillah function as a subtle system of punctuation and accentuation for Biblical and liturgical texts. They both use modal musical motifs to reflect the phrasing and meaning of Jewish sacred texts. As a result of these functions, patterns of chant have similarities among most Jewish communities. The TaNaKh is the same for all Jews, and until recently, most Siddurim were similar in content.

An approach to Jewish history is to study the large currents of activity and conflict among the nations surrounding Israel in ancient days. Similar currents of conflict and cultural contact among the host nations of the Diaspora have affected Jews for the last 2,000 years. There are disagreements among scholars about many suggested dates before the turn of the Common Era, including whether or not the Biblical record reflects actual historical events. There is more consensus among scholars for dates of Jewish historical events during the last two millennia.

The roots of Jewish sacred music developed in the environment of the Middle East. The Land of Israel was a crossroads for ancient trade in all directions: from the Mediterranean Sea and the Red Sea, and by land from Africa, Asia, and Europe\textsuperscript{11}. Trade brings cultural influence, including the sharing of musical traditions. During centuries of Jewish life in Israel and Judea, it is logical to guess that there may have been influences on Jewish music from the Egyptians, Babylonians, Persians, Greeks, and traders from Central Asia, India, North Africa, and Europe.

Well before the Roman Diaspora at the turn of the Common Era, Jewish trading posts\textsuperscript{12} existed throughout the Mediterranean Basin and around the Black Sea. The Assyrian Empire scattered the inhabitants of the Northern Kingdom in 721 BCE, but the Babylonian Empire kept the Jews together as a community in Exile after the destruction of the Southern Kingdom in 586 B.C.E. Persia allowed a return to the Land of Israel, and the fact that many did not return laid the groundwork for the ensuing 1500 years\textsuperscript{13} of a strong Babylonian Diaspora community.

\textsuperscript{13} ibid.; page 11
Hellenism had an extensive impact on the Jewish community of Judea after Alexander the Great conquered the Middle East and Western Asia in the 300's B.C.E. New laws that became the Mishnah were developed beginning in the Second Commonwealth, during the Hasmonean Kingdom. After the Romans destroyed the Second Temple in 70 C.E., a portable form of the Jewish religion remained, Rabbinic Judaism, which continued to develop in the Diaspora.

It took almost 1,000 years for European Jews to migrate from Italy through France and into Germany. Jews also followed the Arab conquests across North Africa and into Spain with the expansion of Islam during the 700's C.E. In many places where Jews settled, they encountered ancient Jewish trading communities. Everywhere they settled, their religious practices, sacred texts, and Middle Eastern sacred music went with them into these new lands.

The long journey from Italy to France to Germany brought Jews into contact with European music\textsuperscript{14}, such as that of German "Minnesingers" and French "Troubadours". This had a large impact on Central European styles of Biblical Cantillation\textsuperscript{15}, and on the development of MiSinai Melodies\textsuperscript{16}. Centuries of relatively stable life in Moslem Spain reinforced the Middle Eastern aspects of Jewish sacred music\textsuperscript{17} as it developed in that Arabic environment.

As a result of persecutions during the Crusades and the Black Death, Jews from Western and Central Europe fled to Eastern Europe during the second millenium of the Common Era. On two occasions during the Middle Ages, this migration was at the invitation of Polish kings\textsuperscript{18}, who welcomed Jews with experience in commerce, medicine and science. Klezmer music and Ashkenazic liturgical chant both flourished in Poland\textsuperscript{19} and in other areas of Eastern Europe.

Through trade contacts and migrations, there may have been Middle Eastern influences at work in the musical culture of Eastern Europe. Patterns of Jewish chant developed in Central Europe were brought into Eastern Europe. Some aspects of Jewish chant changed in this new environment, mainly from modes in a "Major" modality to those in a "Minor" modality. Key elements did not change during the centuries of migrations into Eastern Europe, such as the use of modal musical motifs to indicate the phrasing of Biblical and liturgical Hebrew texts.

\textsuperscript{14} Werner, Eric. \textit{A Voice Still Heard: Sacred Songs ...}. University Park, PA: Pennsylvania State Univ. Press, 1976
\textsuperscript{15} Avenary, Hanoch. \textit{The Ashkenazi Tradition of Biblical Chant}. Tel Aviv: Tel Aviv University, 1978
\textsuperscript{16} Werner, \textit{Voice Still Heard (1976) op cit.}, Chapter 3.
\textsuperscript{17} Levine, Joseph. \textit{Synagogue Song in America}. Crown Point, IN: White Cliffs Media, 1989; page 82
\textsuperscript{18} Casimir the Great (1333-1370) issued Charters of protection
Jews who were exiled from Spain in 1492 found refuge in the Ottoman Empire, where they were welcomed for their commercial experience\(^{20}\). In these lands of the eastern Mediterranean and the Black Sea, Sefardic Spanish refugees found Eidot HaMizrach Jewish communities\(^{21}\) that had lived there for many centuries under Arab rule. This led to interactions in the modal aspects of Jewish music, as once again the Middle Eastern characteristics of Jewish music flourished in this primarily Muslim environment.

As they entered into the modern period in Europe through social emancipation after the French Revolution, Jews interacted more with their surrounding cultures. Reform Jews in Germany introduced organs and choirs to some large synagogues. German Jewish immigrants brought these to North America in the 1840's as they established the Reform Movement. At the turn of the 20th century, two million Eastern European immigrants brought a more traditional form of Judaism to North America, which became the Orthodox and Conservative Movements.

These migrations caused an increase in the influence of Western music upon Jewish sacred music. This affected liturgical chant more than Biblical chant, and after World War II, new Cantorial Schools provided continuity. Some details of these developments are explored in Chapter 2, in the context of the question "Who wants to learn chanting of Jewish worship?"

\section*{1.3.3 When were the Hebrew Bible and Jewish Liturgy organized?}

Parallel timelines\(^{22}\) can indicate some background information on Jewish sacred texts, their authors, and their times of origin. The context of Jewish migrations and the surrounding nations discussed above will put the Torah and the Siddur into their historical contexts. Details of the development of both sacred texts will be found in Chapters 3 and 4 below. This introductory presentation is for the purpose of identifying the general historical context as background for those later detailed discussions\(^{23}\).

The Sof'rim (Scribes) were active in Judea during the Hellenistic Period, and early Midrash\(^{24}\) commentaries were being developed there by the turn of the Common Era. New laws expanding upon the Torah were developed by the Tannaim\(^{25}\), and many of these laws were compiled by the

\begin{itemize}
  \item \(20\) This experience of Sefardic Jews parallels the experiences of Ashkenazic Jews in Poland.
  \item \(21\) Morocco, Tunisia, Egypt, Yemen, Syria, Turkey, Iraq, Iran, Caucuses Mts., Afghanistan, and Central Asia
  \item \(23\) See development of the Hebrew Bible in Section 3.2, and of Jewish liturgy and the Siddur in Section 4.2 below.
  \item \(24\) Exegetical stories and commentaries on the Torah and other Biblical books.
  \item \(25\) Rabbis of the Mishnaic Period (200 B.C.E. - 200 C.E.)
\end{itemize}
Amoraim during the next few centuries, as the Babylonian and Palestinian Talmud. Memories of ancient Temple sacrifices were kept alive in the Talmud, and in Jewish liturgy as it developed.

The rest of the Hebrew Bible (Prophets and Writings) was stabilized or canonized near the turn of the Common Era. The major outlines of Jewish liturgy were codified in Israel during the first and second centuries C.E., and this process continued in Babylonian Talmudic academies. Like the Torah and the Oral Law, there were many centuries of oral transmission before Jewish liturgy was finally written down. Rav Amram Gaon in Babylonia compiled the first Siddur in the late 800's, in the form of a Responsa to questions from a Spanish Jewish community, and Rav Saadia Gaon wrote another Siddur a few decades later in a similar manner.

During the 800's, vowels and punctuation symbols were added to the consonantal Hebrew Bible text by the Masoretes in Tiberias. The first fully pointed Hebrew Bible is dated about 930 C.E. (Aleppo Codex), and the earliest remaining complete Hebrew Bible is the Leningrad Codex of 1009. Development of Jewish law did not stop with the Babylonian Talmud. The Rishonim and Achronim continued to develop new law codes, of which the Shulchan Aruch is the best known. These law codes have additional details of how to conduct Jewish worship. A more recent law code, the Mishnah Berurah, presents useful details for Jewish liturgy.

As the Reform and Conservative movements grew in North America, new developments entered the contents of liturgy. The Triennial Cycle of Torah chanting was codified by the Rabbinical Assembly in the 1980's, and many new Siddur text translations are gender-sensitive. New Tikkunim and Siddurim mark fine points of Classical Hebrew grammar, such as Kamatz Katan and Sh'va Na (Sounded Sh'va). Chapter 2 presents details about Cantorial Schools, and the shift from mostly professional-led worship to increasing lay leadership. This change helped motivate the development of the graphic symbols Simanei Nusach presented in Chapter 5.

26 Rabbis of the Talmudic Period (200 C.E. - 500 C.E.)
27 The main Babylonian academies were at Sura and Pumbeditha
28 Discussed in Section 4.2.2 as a "Responsum" to the community of Barcelona.
30 Written by Joseph Caro in the 1500's, with a gloss by Moshe Isserles for the Ashkenazic community.
31 Written in the late 1800's by Israel Meir HaKohen, also known as the Chafetz Chayyim.
32 The 1st third of each portion is in Year 1, 2nd third in Year 2, and 3rd third in Year 3 of this Triennial Cycle.
33 Such as the 1998 edition of the Conservative Siddur Sim Shalom, and the 2007 Reform Siddur Mishkan Tefilah.
Conclusion to Chapter 1

Chapter 1 has set three types of context for the analysis of Simanei Nusach, Symbols of Prayer-chant. The first context is a brief description of why there was a need to create these graphic symbols for Jewish Liturgical Chant. They were a response to this author's realization during a series of intense "sacred music learning retreats" that many adult lay religious leaders do not read notated music.

The second context is the specialized terminology, abbreviations, typographic conventions, and the transliteration system that are used in this thesis. The use of modern "prayerbook style" transliteration rather than "scientific style" reflects the fact that there is no intention in this thesis to "reconstruct" the spelling of the Hebrew words, and the additional reality that many Hebrew terms used have acquired "standard" transliterations in much of the literature.

The third context is an explanation of why the history of Jewish migrations is relevant to a study of Jewish chant motifs, a brief presentation of Jewish migrations throughout history, and a brief introduction to the organization of the Hebrew Bible and Jewish liturgy in the context of those migrations. The most important aspect of this historical context is the concept that the sacred music of Judaism is a Middle Eastern style of music that has been influenced by music of the cultures among which the Jewish People have lived worldwide through the centuries.
Chapter 2 – Education Trends for Cantillation and Liturgy

2.1 New demographics affecting education since the 1970’s

Standard questions during analysis of a subject are, “Who?”, “What?”, “When?”, “Where?”, “Why?”, and “How?”. Three questions are addressed to give background material and context for these graphic symbols. “What?”, “When?”, and “Why?” are discussed for Hebrew grammar and Bible Cantillation in Chapter 3, and for liturgy structure and Nusach HaT’fillah (Musical Prayer-modes) in Chapter 4. “How?” these graphic symbols function is addressed in Chapter 5 for the ways they show sacred times, liturgy structure, text phrasing, mood, and text meaning.

That leaves the questions “Who?” and “Where?” for Chapter 2. One can ask, “Who leads Jewish Liturgical Chants?” “Who teaches others to lead these chants?” “Where are these sacred chants taught and learned?” “Where are they chanted in Jewish worship services?” One answer may seem obvious – worship is usually experienced in a synagogue. However, there are other settings where Jewish worship is experienced37, and it is often led by lay leaders in those places.

2.1.1 Prior to 1970's many JTS students had Yeshiva backgrounds

The Cantorial School of Jewish Theological Seminary in New York City is the alma mater of this author. Several leaders of the established German-American Jewish community helped fund and organize the Jewish Theological Seminary (JTS) at the turn of the 20th century to train new Rabbis for the Eastern European immigrants. As early generations of Rabbinical School graduates spread through North America, they established the "balance between tradition and modernity" that remains a hallmark of Conservative Judaism in the 21st century.

After World War II, in light of the destruction of the European Jewish community and the murder of most European Cantors during the Holocaust, the Cantors Institute was established at JTS38. Its early generations of students often had Yeshiva educational backgrounds, and many of them came to JTS with prior Judaic knowledge and often with many liturgical skills. By the late 1970's, it was more common for students to arrive with an undergraduate college education.

---

37 Chavurot, Independent Minyanim, summer camps, youth groups, etc., discussed in Section 2.1.3 below.
38 The JTS Cantorial School curriculum in the 1970's consisted of three main subjects: Judaic study (especially Hebrew and Liturgy), general music study (including theory and sight-singing), and Jewish music study. This included sacred music, Jewish secular music, choral conducting, music programming, and music education. In recent years there are courses in Jewish education, and Chaplaincy training is arranged with other institutions.
2.1.2 There were three Cantorial Schools, and now there are more

Forty years ago there were three main choices for "cantorial school education" to become a professional cantor. Reform is Hebrew Union College - Jewish Institute of Religion (HUC-JIR), Orthodox is Yeshiva University (YU), and Conservative is the Jewish Theological Seminary (JTS). All three are located at the New York City (Manhattan) campus of each institution\(^\text{39}\).

There are now Cantorial Training programs at the Academy for Jewish Religion (AJR) in New York, and Hebrew College in Boston (non-denominational). These programs stress the academic cooperation of Rabbinical and Cantorial students, hoping to facilitate professional relationships among clergy in synagogues. There are also several Cantorial training programs in other educational settings, offering opportunities that are unique to their smaller programs.

These professional training programs share certain key elements. Except for HUC, YU, and JTS, all say they are "non-denominational" or "post-denominational" or "trans-denominational". All of these training programs now offer (to some extent) training for the dual role of "Cantor-Principal" to prepare their students for a tighter job market that demands multiple skills. All of these programs urge their students to take at least one unit of Clinical Pastoral Education (CPE).

The time-honored practice of becoming a Cantor through apprenticeship to an experienced Cantor is still being practiced. Members of both the Cantors Assembly (CA, Conservative) and the American Conference of Cantors (ACC, Reform) who were trained this way have become respected leaders in the North American Cantorate.

There are two newer avenues towards cantorial training that are not offered by all of these programs. Both the CA and the ACC of now offer "Cantorial Certification" as a new option for membership, in the context of pulpit experience for several years. The "Certification" process involves intense training with a mentor or through an accepted alternate program, such as the Online Program of Hebrew College (in Boston) of which this author is a Faculty member.

When a person who has undertaken all of the required study for Certification feels that he or she is ready to be tested, there is an examination involving "book learning" and professional skills. Those who pass this examination are then welcomed into the CA or the ACC with the same status as any graduate of a formal Cantorial School.

\(^{39}\) For several years, the Reconstructionist Rabbinical College and Gratz College (both in Philadelphia) shared a Cantorial training program. This program is no longer in operation.
Another avenue towards "para-professional" lay religious leadership is offered by some of the denomination-based schools and "trans-denominational" schools. Students who prefer this approach make up much of the "student body" for the Hebrew College Online courses taught by this author. These lay leaders may not plan to become Cantors, but they have responsibilities in their synagogues, and they choose to improve their chanting skills through online education.

2.1.3 Shift in worship leadership from clergy to laity in many settings

During the 1970's, a shift began from "clergy-led" worship services to "lay-led" worship in several types of settings. Initially this was a phenomenon of the "Chavurah" Movement, which was groups of families who gathered to share holiday and life-cycle celebrations, and who often shared regular Shabbat worship. Many if not most of these groups were lay-led, and they often met in homes rather than in a synagogue building.

Chavurot have changed somewhat during the last 40 years, and there are some synagogues in the religiously liberal movements that have invited a Chavurah to meet in one section of the building, often conducting their own lay-led service while the clergy is conducting the "main service" in the Sanctuary. At the turn of the 21st century, perhaps the "Independent Minyan" Movement is the modern-day version of the original Chavurot, complete with sharing meals, holiday celebrations, life-cycle events, and lay-led services.

The turmoil of the late 1960's and early 1970's, as the Viet Nam War concluded, had as a spin-off the concept of "do-it-yourself" in many aspects of life, as seen in The Whole Earth Catalog of that era. In this spirit, three volumes of the Jewish Catalog were published by the Jewish Publication Society, beginning in 1973. These provided resources for a new generation of activist Jews to observe many traditional rituals with new spiritual approaches.

In addition, after Israel won the Six Day War in June of 1967, in the context of the "Black Power" movement associated with battles for Civil Rights, many people who might have been private about their Jewish identity began to affirm that identity. The concept of a Ba'al T'shuvah (Master of the Return, fem. Ba''alat T'shuvah) was one way that the Jewish community could understand the phenomenon of seeing significant numbers of younger Jews becoming more observant of Jewish laws and rituals than their parents' generation had been.

---

These college-age students and "young married" couples looked for ways to bring the new spirit of the "liberated 1970's" into their Jewish lives, and some of them found that by becoming Orthodox or Chassidic. However, most young folks were not willing to change their lives quite this much, and they found connections to their Jewish identities through the new Jewish music that was becoming popular during the 1960's and 1970's. This was "folk-rock" music for which the texts were verses from the Hebrew Bible and from the traditional Jewish liturgy.\footnote{Unfortunately these "free-standing" short melodies do not always fit well into the surrounding prayer-modes.}

One pioneer of singing sacred texts to guitar music was Shlomo Carlebach\footnote{Active from the 1950's until his death in 1994.}, and another was Debbie Friedman\footnote{Active from the 1970's until her death in 2011.}. A significant boost to this phenomenon was provided by Israel in the form of the Hassidic Song Festivals that served as a forum for creating this new type of Jewish music. One rule was that the Hebrew text had to come from the Hebrew Bible or prayerbook, and from 1969 until the mid-1980's these competitive festivals generated dozens of folk-rock melodies that are still sung in the synagogues of most denominations.\footnote{Nurit Hirsh won First Place in the First Hassidic Song Festival with an Oseh Shalom that is still very popular.}

### 2.1.4 Effects of Jewish summer camps and youth groups on lay leaders

Initially, the two main loci of musical creativity were the Reform (through NFTY, its youth group) and Orthodox communities. The transformation of the Conservative Movement liturgy by this music took place via Jewish summer camps, especially Camp Ramah, the "official camp" of Conservative Judaism\footnote{About a dozen sites in the U.S., Canada, and Israel, and administered under the educational auspices of JTS.}. Songs that were composed, recorded, and taught by young Reform musicians were immediately popular at the Camps Ramah. From there they were brought back at each summer's end to the mainstream Conservative synagogues. The fact that these melodies are "upbeat" made them popular with many congregants, and this still happens today.

This transfer of new songs to "home synagogues" occurs because at many Jewish summer camps, the campers and their college-age Staff share worship services each Shabbat. The same mechanism works for another vehicle that spreads contemporary music rapidly – Jewish Youth groups. At Youth conventions in all Jewish denominations, new melodies are included in the worship services, and young leaders participating in these services take these melodies back to their home synagogues. There continues to be "cross-over" among the denominations, where melodies originally created for Orthodox or Reform are now sung in most synagogues.
Through the 1970's and the 1980's there was some resistance on the part of some Cantors to these musical innovations. However, it became clear that this contemporary style of music was appealing to the "demographic" that is sought by every synagogue - young families. One question facing clergy is how to find a balance between the preference for participatory, modern melodies, and the centuries-old traditional musical structure of Nusach HaT’fillah.

2.1.5 Response of Movements and Cantorial Schools to new interest

One result arose from this combination of the new "do-it-yourself" Judaism among younger folks (part of the 1970's liberation and egalitarianism), and popular participatory music coming into the traditional liturgy from many new sources in Israel and North America. As young folks experienced the summer camps, youth groups, and early Chavurot where they participated in the leadership of Jewish worship using these new melodies, they began to seek opportunities to also participate in the leadership of worship services in their home synagogues.

Since the 1990's, United Synagogue of Conservative Judaism offered the IMUN Program, which was held each summer at a Camp Ramah. This was intense teaching of synagogue skills (Biblical Cantillation and Jewish Liturgical Chant) in a week-long "boot-camp" retreat setting. During Shabbat at the end of the week's study, participants shared their new skills together.

The Reform Movement offers two programs, aimed at different groups of lay leaders. For those who read notated music, there is Mifgash Musicale, and for those who do not read music, there is the Hadracha Program. These are both more extended than the IMUN model. They are intense, but not with the "boot-camp" type of pressure that resulted from learning so much new material in so few days. Similar teaching programs are offered by other Jewish organizations, and workshops are taught annually at conferences of Jewish educators and song-leaders.

2.2 Standards for complex materials with lay religious leaders

It is logical to appreciate the desire for participation in worship on the part of congregations, and to support the desire for leadership of Jewish worship by increasing numbers of interested lay religious leaders. On the other hand, there are some considerations and consequences that bear exploring. There is a large body of knowledge that is necessary to learn in order to lead

---

46 This can be seen in many articles by Conservative Cantors in the Journal of Synagogue Music.
47 Originally named "IMUN LeImmunim", and extant from 1991 until 2009.
48 Such as at CAJE (Coalition for the Advancement of Jewish Education) and now at NewCAJE for Jewish educators, and at the "Hava NaShir" (literally "Come Let Us Sing") retreat for Jewish song-leaders.
Jewish worship: Hebrew grammar, liturgical structure, musical modes and motifs of Nusach HaT'fillah, and more. Logical questions are: "How much can and should a lay leader learn?" and "Does it matter if lay leaders chant worship services without knowing grammar and music?"

This is background for the Simanei Nusach symbols discussed in Chapter 5. The reason for developing these graphical symbols was to give visual indications of modal musical motifs for those who do not read notated music. These symbols also delineate phrasing in liturgical texts, and this function has been expanded. There remains the question, "Will these graphic symbols help lay leaders learn Jewish Liturgical Chant in an accurate, traditional manner?"

2.2.1 Details of Hebrew grammar, Cantillation and Liturgy are extensive

The term "Classical Hebrew" can refer to both "Biblical Hebrew" as found in the Hebrew Bible (TaNaKh) and Mishnaic / Rabbinic Hebrew as found in early Jewish liturgy. Both types of "Classical Hebrew" changed and developed over time\(^49\), with subtle changes in the phonology and pronunciation, and other changes in the grammar and syntax. There are many similarities in grammar between Modern Israeli Hebrew and Classical Hebrew, and there are also grammar issues that are specific to the Hebrew of the TaNaKh (Hebrew Bible), Siddur and Machzor\(^50\).

Chapter 3 presents Biblical Cantillation as a system of punctuation and accentuation, and chanting the Trope symbols is an expression of those functions. It is less known that the musical motifs within Nusach HaT'fillah (Musical Prayer-modes) also function to delineate phrases in Hebrew liturgical texts, as will be discussed in Chapter 4. Lay religious leaders may understand that Nusach musical motifs indicate the "liturgical occasion", the "section of a service", and the "mood" of a text, but the concept of "Nusach motifs as phrase markers" may be less familiar.

Most congregations have standards for the level of accuracy expected from those who chant from the Torah scroll or the Haftarah Prophetic reading. These may include accurate consonants and vowels, proper phrasing, fluency, and approximation of the Trope motifs. The congregation has the Torah text in "book form" with vowels and Trope, so congregants can follow along to see if the Biblical text is being chanted accurately. Standards for prayer chant may be lower than those of Biblical chant, because fewer congregants know those musical oral traditions.

---

\(^49\) Hoffman, Joel. *In the Beginning: Short History ... Hebrew Language*. New York: NYU Press, 2004; Chap. 6
\(^50\) Brettler, *Biblical Hebrew* (2002), op cit.,
2.2.2 With fewer professional *Hazzanim*, musical traditions are being lost

Ideally there is a partnership between a Rabbi and a *Hazzan* for planning and conducting all worship services. Each has specialized training – Jewish Law and homiletics for a Rabbi, and sacred and secular Jewish music for a *Hazzan*. No public document addresses the reality that in some synagogues the Rabbi plans the contents of worship services, and the *Hazzan* plans music for those contents. In other synagogues *both* the Rabbi and *Hazzan* plan all the contents of the liturgy, and they discuss how the texts are presented (chant, melody, choral, or English reading).

When a lay person leads worship, the term for that role is *Shali-ach Tzibbur* (literally the "sender" of prayer for the congregation). Technically when a professional *Hazzan* is leading prayers, he or she is fulfilling the role of *Shali-ach Tzibbur*, but practically this term is reserved for a person who is not a professional Cantor. One responsibility of a *Hazzan* on the staff of a synagogue is to train interested lay leaders how to chant the modes and motifs of liturgy.

One reality of congregational life in ritual areas, especially for the melodies of worship, is the concept *Minhag HaMakom* (the custom of this place). This powerful force might dictate the chanting of specific musical motifs and congregational melodies that may not be the generally accepted musical tradition for those texts. Local *traditions* (with a "small t") often supersede general *Traditions* (with a "capital T") for liturgical chant. A constant challenge for prayer-leaders is to balance local musical traditions against the introduction of newer melodies.

Similar issues affect choices of sacred music in some churches, as hymnals are revised with modern language, new music, and the music of many cultures. There are aspects of worship for which there may be similar *Minhag HaMakom* controversies in churches and in synagogues: singing a choral setting versus a congregational melody or a Hymn, a traditional melody versus a contemporary version, and the ambience of an "upbeat" mood versus a "solemn" mood.

Others aspects of worship are more germane to synagogues than to churches, such as the balance between Hebrew and English. These also include the balance between liturgical texts chanted by the prayer-leader versus metric melodies sung by the congregation, the use of *Nusach HaT'fillah* for specific liturgical texts, and whether some prayer-texts are said silently by the congregation or presented in another manner (such as responsive English reading).

---

51 When a lay religious leader serves as *Shali-ach Tzibbur*, it is hoped that this person pronounces Hebrew fluently and accurately, and that the given set of prayers will be chanted within the traditional musical modes and motifs.

2.2.3 Tension in synagogues between innovation and traditional chanting

Among the unique challenges of sacred music in some synagogues, there are some factors present that are specific to Jewish life in North America since World War II. Congregants often prefer congregational melodies versus the chanting of prayers by the Hazzan. Many factors led to a lesser value being placed on "the traditional chant for a particular prayer at a given time" as specified by modal musical motifs of Nusach HaT’fillah. These include fewer people who carry the "tonal memories" of previous generations, little transmission of those "tonal memories" to younger Jews, and less value on the concept of "sacred time" in the lives of many modern Jews.

Beyond the issue of "chanting Shabbat Nusach and melodies during Tuesday morning and evening services" are some specific issues with congregational melodies. A traditionally-trained Hazzan may experience challenges from congregants wanting bouncy metric melodies whenever possible. If the music of a melody does not match the accents, phrasing, Nusach mode, “mood” and meaning of a liturgical text, some Cantors try to dissuade congregants from such melodies.

This phenomenon is not restricted to any denomination – Hazzanim in all denominations share the frustration53 of balancing the traditional Nusach HaT’fillah modes and musical motifs with the constant requests for congregational melodies. One prayer-text may appear in several places through the liturgy, and it traditionally may be chanted in a different manner in each place, or there may be various metric melodies that are appropriate in each place. There is a tendency for congregants in synagogues of all denominations to prefer one favorite melody for a given text, and to urge the singing of that one melody wherever this text appears in the liturgy.

2.3 Printed, recorded, software and Internet resources for Chant

In small synagogues, there may not be a Cantor, or a Rabbi in very small synagogues. On the other hand, in large synagogues, even a large professional staff cannot be present for every Weekday service and every home-based Memorial Service when there is a death. Therefore, whether one is discussing small synagogues or large ones, increasing interest on the part of lay religious leaders to lead some worship services helps meet the religious needs of the synagogue and the professional responsibilities of its clergy.

The liturgical complexity of Jewish worship and this increased lay interest caused a need for new educational materials to train non-professional lay prayer-leaders. Originally these

---

53 Reflect in many articles in the Journal of Synagogue Music and conversations at professional conventions.
materials consisted of printed books, vinyl records, and cassette recordings. Toward the end of the 20th century there were sets of teaching CDs and the early Internet websites. Now in the early 21st century it is possible to obtain mp3 audio files\textsuperscript{54} and educational computer software\textsuperscript{55} for Biblical Cantillation and Jewish Liturgical Chant training.

### 2.3.1 A few books on Cantillation, and even fewer on chanting Nusach

This presentation of available resources is not a Literature Review, but rather it is integral to the development of the Simanei Nusach graphic symbols. One reason that they were developed is the fact that there are relatively few resources available for teaching Jewish Liturgical Chant to lay leaders. The bibliography for this paper has many entries that might seem useful, but the majority of them are scholarly, meant only for professionals, or entirely out of print.

Of the books on Biblical Cantillation listed in the bibliography, only a few\textsuperscript{56} are easily available. There are other books still in print that are harder to find\textsuperscript{57}, and others that are scholarly works or completely out of print. Compared to these few books about Cantillation, there is a paucity of books about Nusach HaT’fillah. The only books meant for a lay audience are the volumes of Pinchas Spiro (and their CDs)\textsuperscript{58}, published by the Cantors Assembly.

Andrew Bernard wrote a book on Nusach for the HUC-JIR Cantorial School\textsuperscript{59}, and Charles Davidson wrote a series of books for the JTS Cantorial School\textsuperscript{60}. These books are challenging for the average lay person, and reading notated music is essential. Books of notated liturgical music by other Cantorial School faculty include A. Katchko\textsuperscript{61} and I. Alter\textsuperscript{62} of Hebrew Union College (Reform), N. Schall\textsuperscript{63} of Yeshiva University (Orthodox), and Y.L. Ne'eman\textsuperscript{64} (in Israel).

\textsuperscript{54} Goffin, Sherwood. *Be a Ba’al Tefillah*. www.Davka.com
\textsuperscript{55} Buchler, Tefillah Trainer\textsuperscript{TM}, Kinnor, op cit.
\textsuperscript{58} Spiro, Pinchas. *Musical Siddur series*. These will be discussed in Section 5, at the end of Section 5.2 below.
2.3.2 Recorded materials and teaching software increasingly available

Before Cantorial Schools, there were three main ways for an average person to learn how to chant Jewish liturgy: listening to 78 rpm and 33 rpm recordings of pre-WW II "star Cantors", attending worship and concerts in which these Hazzanim sang, and apprenticeship with a Cantor who was willing to be a mentor. Among early teaching records were those of Avraham Davis, and Saul Wachs recorded a large set of teaching cassette tapes for United Synagogue in 1982. Chadish Media also produced teaching cassettes in the 1980's, and CDs were recorded for all of the Pinchas Spiro Musical Siddurim and Machzorim published by the Cantors Assembly.

The American Conference of Cantors completed a project to record every Torah reading throughout the year onto CDs, but there has been no project for liturgical chant from the Reform Movement as of December 2012. The main purveyors of Jewish educational software (Davka and T.E.S.) both offer CDs and mp3 disks of Biblical and liturgical chant, and sets of teaching CDs are available from Israel for the liturgies of the entire yearly religious cycle.

There is a built-in problem with many of these recorded materials. For many CDs and mp3 recordings of traditional liturgical chant, there is one male voice, and it is usually recorded using an Ashkenazic pronunciation. This reflects the reality that a large portion of the market for such products is Orthodox and Chassidic, whereas the more religiously liberal synagogues usually chant the Hebrew liturgical texts in a Sefardic pronunciation. There are some recorded materials now being produced to meet these needs, but even the newer audio materials are usually in one voice and one speed – it is a limitation of that technology.

2.3.3 Software and Internet resources vary in sophistication and usability

This same issue of one voice chanting in one speed and in Ashkenazic pronunciation also affects some of the teaching software available from T.E.S. and Davka. Most available software is simply a set of mp3-based recordings packaged in a software format. There are specific mp3 products for Bar/Bat Mitzvah teaching, and other such products that seem more useful for adult students interested in learning how to participate in worship and to lead portions of the services. There are also several developers working on "apps" for iPads, iPods, and iPhones (and other mobile devices), but most of these are still being refined.

---

66 These books (and their CDs) are listed separately in the Bibliography of this thesis.
There are three software companies producing teaching products that compete with each other. Kinnor⁶⁸ produces Trope Trainer™ for Biblical Cantillation, and Tefillah Trainer™ for Jewish Liturgical Chant. Kol Korei and Koltor offer software products for teaching Biblical Cantillation. The products of each company have their strengths, and "price points" vary among their various software packages. It is the opinion of this author that the products of Kinnor Software are most extensive and flexible. The use of the Simanei Nusach symbols in Tefillah Trainer™ teaching software will be discussed in Chapter 5.

Among the Internet-based resources, not all the audio material presented in all the websites is clear, or even in keeping with the traditions of Nusach HaT’fillah. Some websites use Nusach motifs that are not in keeping with Ashkenazic tradition for a given text⁶⁹, while other sites offer melodies that may not be the best choice⁷⁰ for a given type of worship service. A problem for all printed, recorded, software and Internet resources is having the flexibility to meet the varying needs of Minhag HaMakom in each synagogue.

2.4 Semiotics and Musical Semantics are new research areas

This thesis is a presentation and analysis of new graphic symbols for liturgical chant. With one exception⁷¹ (which was not widely accepted by Cantors), there have been no such symbols in the entire 2,000 years that Jewish liturgy has been chanted worldwide. How does one begin to understand and evaluate this new system of graphic symbols that represent an oral tradition? How are these symbols related to the symbolic language of music, and to the use of symbols in general, to indicate meaning for an auditory religious phenomenon?

Ecclesiastes 1:9b claims "There is nothing new under the sun!" With all due respect to the author of Kohelet, these symbols are something new – this system of graphic symbols did not exist before 2005. This thesis is an attempt to answer questions such as "What do they mean?" "Why were they invented?" "How do they function?" "Who uses them?" "Where can they be seen in use?" "When are they used?" "How do they contribute to dissemination of knowledge?" "Can graphic symbols adequately indicate modal musical motifs for lay prayer-leaders?"

⁶⁸ Kinnor Software is available at "www.Kinnor.com"
⁶⁹ SiddurAudio presents the Hazi Kaddish prayer for Shabbat Shacharit with the Nusach for Friday evening, as is commonly found in synagogues. However, the Hazi Kaddish before Musaf is chanted in the traditional manner.
⁷⁰ VirtualCantor presents two versions of the Hazi Kaddish before Shabbat Musaf. One is chanted in traditional Nusach (HaShem Malach mode), and the other is chanted with the Nusach of Friday evening, as is common.
⁷¹ Discussed in some detail in Section 5.2.3 below.
There is a theoretical framework for the analysis of the *Simanei Nusach* graphic symbols, and it is present throughout this thesis. Jewish sacred chant has been an expression of Jewish religion for over two millennia, and it is only since the early 20th century that scholars have produced books and articles which meet the criteria of modern academia. There is a small but growing set of scholarly books and articles that are best categorized as Jewish ethnomusicology.

Dr. Johanna Spector taught ethnomusicology in the Cantorial School of JTS for over thirty years. She taught this author that Arabic *Maqamat* are related to Jewish sacred music, both Biblical Cantillation and Jewish Liturgical Chant. Jewish ethnomusicology is an academic endeavor that provides one theoretical framework for the analysis of the *Simanei Nusach*.

Within the field of Jewish ethnomusicology, the specific approach of this author has been the study of Trope and *Nusach* motifs as a basis for understanding Jewish sacred music. This was not emphasized in the late 1970's at the JTS Cantorial School, and it is not a major aspect of scholarly writing in this field. There are just enough academic books and articles on this subject to provide a theoretical framework for the work in this thesis. There is a need for more research on the subject using this new approach, and this thesis will contribute to that.

These graphic symbols are a useful teaching tool, but they are also much more than that. While assigning them to notated chants in teaching software, this author has grappled with the larger issues of how modal musical motifs function in Jewish Liturgical Chant. Connections with Biblical Cantillation motifs were expected, and also with the musical modes of *Maqamat*. Connections with other characteristics such as delineation of time and mood in *Maqamat* and Hindustani Ragas were not expected. This may be a new area of study for ethnomusicology.

To provide a larger point of view that is more familiar to the academic world, the fields of semiotics and musical semantics are also providing a theoretical framework for the analysis for the new graphic symbols that were developed by this author. These fields have many areas of overlap with other disciplines: linguistics, neurobiology, sociology and psychology are only some of the related fields mentioned in academic works about these two fields of study.

The contents of this thesis are not meant to teach a course in Jewish sacred music. They present enough background material to provide context for the functions of the *Simanei Nusach* Symbols of Prayer-chant. Many details have been omitted, and there is a logical progression.
from Hebrew grammar to Cantillation motifs, to liturgy structure, to Nusach modes, and to the Simanim graphic symbols. Along this journey the watchword is: "It is all about the motifs!"

2.4.2 Semiotics = signification in the generation of meaning in levels

There are multiple levels of meaning in any symbolic system. The field of semiotics offers approaches to ascertain what those levels of meaning might be, and how they are generated by symbols. A definition of musical semiotics is "the study of music as sign and communication." Dr. Tarasti continues, "... music as a sign provides an ideal case of something meaningful and communicative, and thus of something semiotical par excellence."

A third quotation from Tarasti is particularly relevant for Jewish sacred chant: "... music almost never functions without the support of other sign systems." Biblical chant provides the "other sign system" of the Trope symbols, which most people think are only chant indicators, but which in reality are also punctuation and accentuation indicators.

Two aspects of "musical semiotics" seem relevant for chanting Jewish sacred texts, P'shat and D'rash, especially for Biblical texts. The "discursive" or "surface" level of meaning seems similar to the concept of P'shat (plain meaning / translation) of a given text. This would be the equivalent of a literal translation in a Bible or prayerbook, rather than a "paraphrased" version. The "narrative" or "deeper" level of meaning seems similar to the concept of D'rash (abstract meaning / explanation) of a given text. Essentially, D'rash (or Midrash) is exegesis of texts.

There are Bible translations that are not literal, but rather "paraphrases" in English that show the underlying meaning of the original language (in the opinion of the editors). One potential problem with this type of English version is its susceptibility to polemic, and that can also hold true for an English "paraphrase" of a Hebrew prayerbook text. One might view the huge corpus of ancient and modern Midrash (exegetical Bible stories) as "narrative semiotics."

From this "Jewish understanding" of semiotics, it may be plausible to suggest that musical modes and motifs of Nusach Ha'T'fillah serve as a "signification of meaning generated in prayer-texts" through their functions as discussed throughout this thesis. It is a "discursive" level of meaning when the modes and musical motifs of Nusach identify the liturgical occasion and the

---

73 *ibid*.; page 4.
74 *ibid*.; page 5.
section of a worship service, and it is a "narrative" level of meaning when those same modes and musical motifs indicate the phrasing and "mood" of a prayer-text, and thus its meaning.

2.4.3 Musical Semantics = the patterning of fluid musical meanings

Musical Semantics is a field that involves cognitive musicology and neuromusicology, both of which involve study of how the human brain processes music and emotion. Ole Kühl says:

"... there seems to be such a thing as emotive schemas, guiding our behavior ..."

"... explain, or at least describe, how ... emotion can be put into ... music by the sender, how it can be contained in the message, and how it can be taken out ... by the receiver."\(^77\)

This implies that the "sender" knows what is being sent; that the prayer-leader has an idea of what the words mean, and how to express that meaning through the choice of modal musical motifs. It implies that the "message" contains emotions. They are far more powerful than the cognitive aspect of the text, which may not have much meaning even if the congregation knows what it says. It implies that the "receiver" perceives the emotions of the message, and that the chant has an effect. If it does not, there likely will be a push for participatory metric melodies.

"musical meaning is fluid. This means that some of the properties of the structure of musical content remain stable, while others fluctuate from person to person, from situation to situation, and from time to time."\(^78\)

**Person:** This can mean three congregants in the same pew experiencing the liturgical chant differently; one finds no meaning and is bored, one feels comforted by the sound of the chant, and one understands the text and the music at a cognitive level that provides religious meaning.

**Situation:** This can mean that the same choice of chant versus congregational melody may work differently for a mother in different situations. When her children are with her in a service, she appreciates an upbeat melody that engages them. When her children are in babysitting or at a kids' service, she may appreciate a more relaxing melody\(^79\), or perhaps the chant of the Cantor.

**Time:** The Hatzi Kaddish text is identical on Friday evening, Shabbat morning for Musaf, and Saturday afternoon, but the mood is very different each time. Friday begins Shabbat, Saturday morning is "peak mood", and Minchah is near end of Shabbat.\(^80\) These times are best reflected


\(^79\) The melodies of Shlomo Carlebach or Debbie Friedman for V'sham'ru, rather than the Moshe Rothblum setting.

\(^80\) Discussed in Section 4.4.5 in the context of how Nusah reflects the moods of sacred times.
by chanting this exact same text with three completely different modalities – relaxed minor on Friday evening, upbeat Major for Musaf, and in a plaintive Minor on Shabbat afternoon.

The most complete presentation for the "state of the discipline" (as of 1992) was Monelle81. On page 28 he quotes the ethnomusicologist Bruno Nettl as suggesting that the linguistics term phoneme be used for music in these ways: "Pitch phoneme", "rhythmic phoneme", "harmony phoneme", and "structure phoneme". On page 75 he quotes Charles Seeger as suggesting:

"... a musical phoneme would be a single note (toneme) [sic] ... several phonemes are combined to form a morpheme ... In music, a morpheme would be a motif, a pattern of design, ..."

This makes sense as a way to describe modal musical motifs in many cultures and religions, and in Biblical Cantillation and the modes of Nusach HaT'fillah in particular for Judaism.

In Figure 3.6 on page 77, Monelle shows short musical motifs of Plain-chant (scandicus, climacus, torculus, and porrectus) that are strikingly similar to Simanei Nusach musical motifs. These are presented as examples of "musical morphemes", as described by Charles Seeger. In Figure 6.17 on page 189, there is a graphic representation of a ritual song from Veracruz.

<table>
<thead>
<tr>
<th>Musical motives</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>noun</td>
<td>phrase</td>
<td>participle</td>
<td>verb</td>
</tr>
</tbody>
</table>

| prepositional   |

Figure 6.18 then adds a line of music, labeling one music motif as "A", the second as B", etc. This same "mapping" of texts and their musical motifs could be done for Ta'amie HaMikra and Bible texts in Cantillation, and for Simanei Nusach and prayer texts in Jewish Liturgical Chant.

This is an example of "language semantics" and "musical semantics" in relationship with each other. This relationship seems germane to Biblical Cantillation, where Trope function as punctuation. There is an intersection between "language syntax" and "musical syntax" for the texts of the Hebrew Bible. Tiberian Masorites developed Ta'amie HaMikra (Trope symbols) during the 800's C.E. to preserve their understanding of Biblical texts and to codify them.

There are scholars who strongly suspect "all might not be as it seems" in the results of this process82. There is a Trope named R'vi-a, and it represents a "comma" at the end of a phrase in

---

a Biblical text. There are other places where only a single word is marked with this R'vi-a, and in many of those places the word is not a "one-word phrase" that would logically have a comma.

This discussion is relevant to the analysis of how the Simanei Nusach graphic symbols show meaning in the liturgical texts of Jewish worship. If the 1,200 year-old Trope might not match every detail of punctuation in the Hebrew text of the Bible, how can one hope to delineate the phrasing of liturgical texts? The age-span\(^{85}\) from the earliest prayers to the most recent ones is wider than the age-span of the Hebrew Bible texts. All Jewish communities share the Hebrew Bible, but no Masoretes codified Jewish liturgy so that all communities share identical prayers.

The new Simanei Nusach symbols are a teaching tool which provides a graphic indication of musical motifs and text phrasing, but they carry no "authority" as do the Masoretic Trope. The phrasing and modal musical motifs discussed below in Chapter 5 reflect generally accepted Ashkenazic tradition for liturgical chant, as taught in several Cantorial Schools. Any Hazzan could make different choices of musical motifs for text phrases marked with the Simanim.

2.4.4 Some layers of "signification" in Simanei Nusach graphic symbols

In Chapter 5, some details of the development, functions, practical use, and application in teaching software will be addressed for the new graphic symbols. As a transition to upcoming background material in Chapters 3 and 4, here is a brief description of the Simanei Nusach in light of the discussion above about Semiotics and "musical semantics".

There are 18 new graphic symbols, and their shapes each reflect an aspect of their musical and phrasing functions. This set of 18 graphic symbols represents a corresponding set of up to 18 musical motifs within the underlying mode of a particular Nusach HaT'fillah. These modal musical motifs identify liturgical occasions ("when"), sections of services ("what"), text moods ("how"), text phrasing, and text meanings.

Like Biblical Trope symbols, the names and shapes of these graphic symbols do not change, nor do their functions as phrase indicators. However, like Trope symbols, the Simanei Nusach graphic symbols take on many different musical values within various musical modes of Nusach HaT'fillah. Using the language of musical semantics one can say, "Nusach modes present the mood of a given prayer-section for a given liturgical occasion, and Nusach motifs present the emotions within the particular prayer-texts."

\(^{85}\) Over 2,000 years from 2nd Temple prayers still being chanted to current changes and additions in new Siddurim.
There is a special term for the relationship between sacred Hebrew texts and the chanting of those texts. Curt Sachs\textsuperscript{84} introduced the concept of chanted music being either "logogenic" or "melogenic" in nature. "Logogenic" music follows the accents and syntax of the text in a non-metric manner, and the inherent rhythms of the word accents are reflected in the musical motifs of the chanted text. "Melogenic" music follows the (metric) rhythm of the music itself, and the accents of the words conform to the beat of the music regardless of their own accents.

In traditional Jewish prayer-chant, the chants of Nusach HaT’fillah (Musical Prayer-modes) and its musical motifs are “logogenic” in nature. Metric congregational melodies (that invite the participation of the congregation) are “melogenic” or “melody-born” in nature, regardless of the actual accents in the Hebrew texts. The discussion of musical semantics in Section 2.4.3 above provides an indication of how emotions can be mediated by a choice of sacred music. There are also other tools available in several related fields within sociology, anthropology, and psychology that could be applied to the analysis of the new Simanei Nusach graphic symbols.

**Conclusion to Chapter 2**

Chapter 2 summarized some aspects of the intended audience for which the new Simanei Nusach graphic symbols were created. There is a strong tendency towards "democratization" of religious leadership in synagogues of all sizes and denominations. This is partly a result of the influence from Jewish summer camps and youth groups, and partly from the entire society becoming more "do-it-yourself" (such as booking flights).

With many details to learn for Hebrew and sacred chant, there may be a lesser value being placed on "the traditional chant for a particular prayer at a given time" in the new environment of significant lay leadership. An example of this is an increase in the singing of congregational melodies, rather than the chanting of liturgical texts using modal motifs. There are other factors at work also, such as demographic shifts among congregants and changes in religious needs.

Chapter 2 presented some of the resources that are currently available for learning liturgical chant outside of a formal program, including printed, recorded, software, and Internet resources. The last section of this chapter briefly explored the two concepts of "semiotics" and "musical semantics", and drew tentative connections between those areas of study and the "signification" inherent in the new Simanei Nusach graphic symbols.

\textsuperscript{84} "The Rise of Music in the Ancient World" (1943), pp. 41, 42, and 52.
Chapter 3 – Hebrew Grammar and Biblical Cantillation

3.1 Linguistic concepts in Hebrew Biblical & Liturgical texts

Hebrew is an ancient language that has reinvented itself as a modern language in the State of Israel. There are distinct periods in the development of Hebrew through three millennia, from Biblical and Rabbinic Hebrew through Medieval and Modern Hebrew\(^85\). These periods are also related to where the people who spoke, read and wrote Hebrew were living, and to the ways in which they used Hebrew as a spoken and written language.

The linguistic concepts phonology, orthography, morphology, and syntax are background and context for the use of Classical Hebrew in Jewish Liturgy. Hebrew is a "dense" language in which prefixes and suffixes are separate words in English translation, so the morphology of Classical Hebrew directly affects its syntax. The syntax of the texts dictates the "parsing" of sentences into phrases, which are delineated by the modal musical motifs of Jewish Liturgical Chant. These motifs are indicated by the new system of Simanei Nusach graphical symbols.

3.1.1 Phonology: the sound patterns of a language

Phonology is the study of phonemes or units of sound\(^86\) that combine in patterns to convey meaning in a language. Three main areas of phonological study for any given sound are the place of articulation\(^87\), the manner of articulation\(^88\), and whether the sound is voiced or unvoiced. There are also issues involved with the transition between one sound and another in speech.

According to some scholars, the phonology of Hebrew has changed somewhat during the three millennia of its existence as a language\(^89\). A look at how English has changed since the days of Chaucer shows that some change seems inevitable. Biblical Hebrew (BH) experienced relatively few changes during the transition to Mishnaic / Rabbinic Hebrew (RH) at the turn of the Common Era. The differences between 7th century Medieval Hebrew (MH) and Modern Israeli Hebrew (MIH) are smaller than the changes in English during the last millennium\(^90\).


\(^{87}\) The interaction between the tongue and the other physical components of the vocal tract (lips, teeth, palate, etc.). Terms for these interactions include: bilabial, dental, alveolar, palatal, velar, glottal, and pharyngeal.

\(^{88}\) How the airstream is modified as it passes through the oral cavity to produce a particular sound. Terms for this aspect of vocal production include: stop, plosive, fricative, sibilant, nasal, lateral, liquid, and glide.


3.1.2 Orthography: written presentation of a language

Orthography is the study of *graphemes* or units of writing\(^{91}\) that convey meaning in any language. Most languages have a close relationship between phonemes and graphemes. During the Biblical Period and early Rabbinic Period, there were only consonants in the Hebrew *K'tiv Arami* (square Aramaic) orthography. Modern *Torah* scrolls are still handwritten with quill and ink on parchment\(^ {92}\) with only consonants – there are no vowels and no punctuation marks.

An issue with the orthography of Hebrew is that the differences between several pairs of consonants\(^ {93}\) are very small. These orthographic issues are crucial for the proper pronunciation of Hebrew, for the chanting of Biblical and liturgical texts. When mistakes are made because the *Torah* reader or Service leader confuses two consonants, the meaning of the text can change. To intercept these potential pronunciation problems, many teachers insist that students of all ages *read aloud* the Hebrew text that they are learning, *before* attempting to chant that text.

Vowels were eventually added to the Hebrew Biblical text\(^ {94}\), and they are also used in the liturgical texts found in prayerbooks. These are dots and dashes that indicate vowel sounds, mostly under the Hebrew consonants (*sublinear*). The simplicity of this system presents an orthographic problem for the pronunciation of Hebrew, because these vowel symbols are very small\(^ {95}\) and quite similar to each other. Mistakes in meaning can arise from mispronunciations, such as changes in gender, tense (aspect), and relationships among words in a Hebrew phrase.

3.1.3 Morphology: the structure of linguistic units as words

Morphology is the study of *morphemes* or minimal meaningful units\(^ {96}\) of a language that can combine to form words. In most languages, words are formed by combinations of roots and affixes (*prefixes, infixes, and suffixes*) that are related by specific grammar rules. This is particularly important for Classical Hebrew, where a single three-consonant root\(^ {97}\) combined with various affixes can generate over 200 related verbs, nouns, adjectives and adverbs through the *conjugation* of verb forms and the *declension* of noun forms.

\(^{92}\) Please see Appendix B-1, "Hebrew Alef-Bet" and Appendix E-5 "Scroll and Sofer Tools"
\(^{93}\) Please see Appendix B-2, "Similar Consonants".
\(^{94}\) Discussed in Section 3.3 below.
\(^ {95}\) Please see Appendix B-4, "Hebrew Vowels".
\(^ {97}\) Please see Appendix B-8 and B-9, "K.D.Sh. Root".
The Hebrew term for the three-consonant “root” of Hebrew words is *Shoresh*, which means “root” but which can also mean “basis”, “origin”, and “source”\(^98\). Another English term for the three-letter root of Hebrew words is “stem”\(^99\), and an English term for each consonant in a root is “radical”—usually three per root\(^100\), but sometimes two or four. Among resources on Hebrew grammar, there are various designations\(^101\) of the individual radicals within a three-letter root.

Hebrew prefixes\(^102\) include a definite article (… יִנַּה), conjunction (… ו), and the “bound prepositions” (… ב, … כ, … ל) = (in ...), (as ...), and (to ... or (for ...), among other parts of speech. In the “future tense” (“imperfect aspect”) of verbs, prefixes can indicate 1\(^{st} \)/ 2\(^{nd} \)/ 3\(^{rd} \) person, masculine / feminine / common gender, and singular / dual / plural number. These are often summarized by the acronym “PGN” for person, gender, and number.\(^{103}\) Many of these prefixes are useful for determining where phrases begin in Biblical and l texts.

The most important aspect of Hebrew morphology is its affect on the "density" of Biblical and liturgical texts, and how that affects Hebrew syntax. Hebrew prefixes and suffixes are often separate words in English translation\(^104\). It may take three or four English words to translate one Hebrew word, if it has both a prefix and a suffix. A combination of “prefix + root + suffix” can contain an entire short phrase in a single Hebrew word, such as *V’ahavta* ("and you shall love").

This results in a "dense"\(^105\) language, where meaning is conveyed by only a few syllables per word and only a few words per phrase. This works partly because of the Hebrew vowels, which facilitate subtle changes in the meaning of otherwise similar words. One Hebrew root generates many verbs, nouns, adjectives and adverbs from the interaction of vowels, prefixes, and suffixes with the same three root consonants\(^106\). This interaction may be more characteristic of Semitic languages than many other languages, because of the clear "root" structure. This also affects the syntax of Classical Hebrew, which differs from that of Indo-European languages.

---


\(^{99}\) There may be some ambiguity among scholars whether "root" and "stem" are both the same as *Shoresh*.


\(^{101}\) These include: “I”, “II”, and “III”; “R₁”, “R₂”, and “R₃” (for "Radical 1", etc.); and the three Hebrew letters of the word *Po-ai* ("verb") = *Pey* (פ), *Ayin* (ע), and *Lamed* (ל). cf. Waltke & O'Connor, *ibid.*, page 34.

\(^{102}\) Please see Appendix B-6, "Hebrew Prefixes Chart".

\(^{103}\) The “PGN” must “agree” between subjects and verbs, nouns and adjectives, and other word combinations.

\(^{104}\) As mentioned in the introductory paragraphs of Section 3.1 above.

\(^{105}\) Please see Appendix B-5, "English Word-Length Differences".

\(^{106}\) An example of vowels interacting with consonants is in Appendix B-3, "English Words from Two Consonants".
3.1.4 Syntax: how words combine as phrases and clauses

Syntax is the process by which words are joined together\textsuperscript{107} to form sentences in a language. Every language has its own rules for how words are joined into phrases, phrases into clauses, and clauses into sentences. In the Hebrew Bible and Jewish liturgy, there is a direct correlation between the syntax of phrases and the chanting of the sacred texts with modal musical motifs.

In syntax of Classical Hebrew, the usual word-order is “verb – subject – object” (“VSO”), as opposed to the order “subject – verb – object” (“SVO”) of many Indo-European languages. With the verb at or near the beginning of a sentence, subsequent phrases are often modifiers of the main verb, or the subject or the object of the verb. The term complement is used for phrases or words that interact with the verb in a sentence\textsuperscript{108}. A single Hebrew word, often with both a prefix and a suffix surrounding its root, can essentially function as a complete phrase\textsuperscript{109}.

Hebrew conjunctions and prepositions\textsuperscript{110} are used to parse a sentence into phrases\textsuperscript{111}, and to parse phrases into segments and "word-pairs". “Word-pairs” include verb / subject, verb / direct object, preposition / object, noun / adjective, verb / adverb, and noun / appositive (David the King). Other word-pairs are merisms such as “day and night”, hendiadys such as “formless and void”, words repeated for emphasis such as Mot Yamut (dead, very dead), and S’michut pairs of nouns (absolute / construct) that show possession or description without the word “of” between the two nouns\textsuperscript{112}, such as B’nei Yisrael (Children of Israel) or Torat Emet (Torah of Truth).

The most important aspect of Hebrew syntax is how it affects the chanting of Biblical and liturgical texts. In the Hebrew Bible, Cantillation symbols (Trope) indicate relationships among phrases, and also relationships between pairs of words. This system is reflected in the chanting of the Cantillation motifs, assigned in the 800’s C.E. by the Tiberian Masoretes\textsuperscript{113}. The Simanei Nusach graphic symbols also delineate phrasing in the texts and in the modal musical motifs of Jewish Liturgical Chant, following the logical syntax of the Classical Hebrew prayer-texts.

\textsuperscript{109}Please see Appendix B-16, "V’ahavta with Parts of Speech" and B-17, "V’ahavta Sentence Diagrams".
\textsuperscript{110}Please see Appendix B-10, "Prepositions and Conjunctions" and B-13, "Learning a Hebrew Text".
\textsuperscript{111}Two types of prepositions in Hebrew are “bound” as prefixes to Hebrew roots (or connected with a hyphen called a “Makkeif”), and “free-standing” as separate words. These indicate “relative position” in time and in space: the relative physical position (such as “between”), and the direction of movement (such as “from”).
\textsuperscript{113}Discussed in Section 3.3 below.
3.2 Structure and Development of the Hebrew Bible

The oldest and most basic sacred text of Judaism that has survived relatively intact is the Hebrew Bible. It is the source of many texts included in traditional Jewish liturgy, especially the Psalms. During the cycle of the religious year, including Weekdays, Shabbat, and the texts of various Jewish holy day liturgies, about half of the Psalms are chanted in whole or in part. Other Biblical texts are included verbatim as prayer-texts\textsuperscript{114}, especially from the Torah. More important than the role of the Hebrew Bible as a source of Jewish prayer-texts is its role in the development of Jewish sacred chant (and Christian sacred chant, via Plain-song).

Chapter 3.1 briefly discussed the effects of morphology on the syntax of Classical Hebrew, and this issue informed the phrasing of Biblical texts long before it had an affect on the texts of Jewish liturgy. The characteristic of “much meaning conveyed by few words” led to the system of vowels and Cantillation marks\textsuperscript{115} developed by the Tiberian Masoretes. In turn, this later led to the phrasing and modal musical motifs of Jewish Liturgical Chant, which are indicated by the new graphical symbols Simanei Nusach (Symbols of Prayer-chant) developed by this author.

3.2.1 The Hebrew Bible is in the chronological order of its development

Before discussing details of how the Tiberian Masoretes assigned vowels for pronunciation and Trope symbols for punctuation, accentuation, and chanting of the Biblical text, there are two preliminary subjects worth discussing briefly. One is answering the basic question, “What is the Hebrew Bible?” and the other is a brief exploration of its development during the first millenium B.C.E. This discussion will cover only “basics” as background for the work of the Masoretes.

The Hebrew term for the Bible is an acronym; TaNaKh (or TaNa”Kh) is an abbreviation of the first letters in the Hebrew words for the three sections\textsuperscript{116} of the traditional Hebrew Bible\textsuperscript{117} – Torah, N’vi-im, and K’tuvim. The caveat “traditional” is added, because the Old Testament of the Christian Bible is not in the same order as the Hebrew Bible. Thus the term TaNaKh is not appropriate as a “descriptive title” for the Christian Old Testament.

\textsuperscript{114}These include V’sham’ru (Ex. 31:16-17) and Vaychulu (Gen. 2:1-3) on Shabbat evening, and V’ahavta (Deut. 6:4-9), V’hayah (Deut. 11:13-21), and VaYomer (Num. 15:37-41) every morning and every evening year-round.

\textsuperscript{115}To be discussed in detail in Sections 3.3 and 3.4 below.

\textsuperscript{116}Please see Appendix C-1 “TaNa”Kh (Hebrew Bible) Structure”

\textsuperscript{117}The “T” in TaNaKh is from Torah (“Teaching”), the first five books of the Hebrew Bible and the Old Testament (O.T.). The “N” in TaNaKh is from N’vi-im, (“Prophets”), the second section of the Hebrew Bible. The “Kh” or “K” (same consonant Kaf/Chaf) in TaNaKh is from K’tuvim (“Writings”), the third section of the Hebrew Bible.
The three “Poetic Books” at the beginning of K’tuvim are Psalms, Proverbs, and Job. In Hebrew their names are T’hillim, Mishlei, and Iyyov respectively, and the first letters of these Hebrew names have been rearranged to form the acronym EMeT to identify the poetic texts of these three books, and their unique system of Trope which differs from the "Prose Books".

The five books chanted on Jewish holy days are called the Chameish M’gillot (Five Scrolls) in Hebrew, and they will be described below. Their Trope symbols are chanted with different musical modes than those of the Torah or the Prophetic books. In the order that they appear in the Hebrew Bible, these are the Song of Songs, Ruth, Lamentations, Ecclesiastes, and Esther.

3.2.2 The Old Testament rearranges these in the order of their events

For almost 2,000 years, the Hebrew Bible has been organized into the order in which the books were most likely written. The Christian Old Testament rearranges the order of the books to reflect the approximate chronology of their subject matter. The traditional order of the books in the TaNaKh reflects two important aspects of the context for Biblical chant, and for the Jewish Liturgical Chant that is based on the older Biblical Cantillation.

The first is the fact that Jews have continued to study the Hebrew Bible in the order in which it was both compiled orally and eventually written. This gives a linear character to the development of the sacred Biblical text. The second is the fact that the books of the Torah and Prophets are chanted weekly, while the Chameish M’gillot are in their calendrical order through the religious year for the specific Jewish holy days during which these five books are chanted.

3.2.3 Torah is used liturgically, as are Prophets and "Five M'gillot"

In most synagogues worldwide, one highlights of the Shabbat morning worship service is the chanting from the Torah scroll. The five books of the Torah are divided into 54 Sidrot (singular Sidrah or “Torah Portion”), one for each week of a “full lunar year” (13 months). A "full year" only happens about one of every three years (seven times in a 19-year cycle), so up to seven pairs of Sidrot may be combined throughout the religious year during the remaining 12-month years. The number of “Combined Portions” (M’chubarim) also depends on how many holy days fall during Shabbat in a given year\textsuperscript{118}, because each of them has a special Torah portion.

\textsuperscript{118} Most of the holy days can fall on Shabbat, except for Purim. There is also usually a Shabbat in the middle of the week-long Hanukkah, Passover, and Sukkot, and twice each year Rosh Chodesh will fall on Shabbat. For some of these there is a different Torah Portion entirely, and for others there is an extra "Maftir" Torah reading.
The Torah\textsuperscript{119} is chanted in a particular modality in a given type of community, and the Trope (Cantillation symbols) in a printed Chumash serve as a guide to the musical motifs of that chant. Several sub-sections of the weekly Torah Portion are chanted, usually seven and an extra Maftir. This is followed by a Haftarah chanting from a Prophetic book, and the Prophetic subject matter is usually related to that of the Torah Portion\textsuperscript{120}. For many young people celebrating the rite of passage known as Bar / Bat Mitzvah, this Haftarah is a large part of their public chanting.

Five books in K'tuvim are chanted for liturgical purposes during the annual cycle of holy days. The Chameish M'gillot (Five Scrolls) and their occasions are as follows: Shir HaShirim (the Song of Songs) during Pesach (Passover), Rut (Ruth) during Shavuot (Feast of Weeks, the Spring Harvest), Eichah (Lamentations) during Tisha B'Av (9th Day of the summer month Av), Kohelet (Ecclesiastes) during Sukkot (Feast of Booths, the Fall Harvest), and M'gillat Ester (theScroll of Esther) during Purim (early Spring).

Three of these occasions are the Shalosh R'galim (Three Pilgrimage Festivals), during which pilgrims brought sacrifices to the Tabernacle and later to the Temple in Jerusalem (per Ex. 23, Lev. 23, Num. 28-29, Deut. 16). Pesach, Shavuot, and Sukkot mark points in the agricultural cycle of harvests, and they have historical connections to the Exodus from Egypt, the Divine encounter at Mt. Sinai, and the forty years of wandering in the Sinai Wilderness. These ancient agricultural and historical connections are reinforced by the lyrical chant of their Biblical books.

The chanting various books of the Hebrew Bible in a liturgical context can be summarized with a list of the six types of Biblical chant in almost every type of Jewish community. These are Torah, Torah chant on the High Holy Days (Yamim Nora-im), Prophetic books (Haftarah), Esther, Eichah, and three books chanted on the Three Pilgrimage Festivals (Shalosh R'galim) which are Shir HaShirim, Ruth, and Kohelet ("RaKaSh" is one abbreviation for these).

Details of several musical aspects inherent in these six types of Biblical Cantillation will be found in Section 3.5 below. Chapter 4 will discuss how the structure of Jewish liturgy is also related to the cycle of the Jewish religious year. Some aspects of the relationships between the musical motifs within these six systems of Biblical Cantillation and the musical motifs within the "Musical Prayer-modes" of Nusach HaT'fillah will be discussed in Chapter 5.

\textsuperscript{119} Please see Appendices C-3, "Torah Scroll and Model Torah" and C-5, "Handwritten Scroll and Sofer Tools".
\textsuperscript{120} Please see Appendix C-2, "Why Chant Torah?"
3.2.4 Development of the Hebrew Bible over many centuries

There is scholarly debate about the dating of individual books within the TaNaKh, and about the dates when the three sections were redacted and codified. However, there is much scholarly agreement about the idea that there were oral traditions for many centuries among various groups in ancient Israel, and that is was during the first millennium B.C.E. that these oral traditions were set in written form. Dead Sea Scrolls fragments from almost every book\(^\text{121}\) of the Hebrew Bible indicate that most of the written TaNaKh texts were completed near the turn of the Common Era.

The "Documentary Hypothesis" is one specific scholarly approach to the Hebrew Bible as it applies to the Torah in particular. Julius Wellhausen proposed in the 19th century that there were four editors or redactors for four streams\(^\text{122}\) of oral tradition. "J" was the "Yahwist" who reflects traditions of the Southern Kingdom, "E" was the "Elohist" who reflects traditions of the Northern Kingdom, "P" was the "Priest" who wrote the cultic and genealogical material, and "D" was the "Deuteronomist" responsible for the Book of Deuteronomy.

For several decades, this version of the Documentary Hypothesis has been challenged by a somewhat different idea\(^\text{123}\). This newer approach agrees that (at least) four separate streams of oral tradition contributed to the eventual redaction of the Torah text. However, there may not have been single authors of the component texts, nor a single Redactor for the entire Torah text.

One area of possible future research is the correlation of the Masoretic Cantillation symbols relative to the syntax of various Hebrew Bible texts. This could include an examination of the relationship between the Tiberian Trope and the "streams of tradition" identified by scholars of the Hebrew Bible. An aspect of the more recent version of the Documentary Hypothesis is the manner in which various Bible passages have different Hebrew writing styles. This might be reflected in the Trope assigned by the Tiberian Masoretes, since the punctuation functions of the Trope purportedly reflect the syntax of the Hebrew texts. It is possible that the correlation of the "Trope syntax" and the "text syntax" might not be as close as the system is supposed to be.


\(^{122}\) In its original form, this "J-E-P-D" Documentary Hypothesis reflects different styles of writing found in the *Torah*. These are separate versions of the same story, such as the Creation narrative in Gen. 1:1 – 2:3 versus Gen. 2:4 – 2:25, which seem contradictory in their details. These are also interwoven stories such as the Flood narrative in Gen. 6:5 – 9:17, where the "J" version speaks of a 40-day Flood and "P" of a 150-day Flood.

3.2.5 Theories about the *Torah* include Tetrateuch, Pentateuch, Hexateuch

There is scholarly disagreement about which Biblical books should properly be considered to be the original *Torah*. There are three choices: the *Pentateuch* as we now know the "Five Books of Moses", a *Tetrateuch* of Genesis through Numbers\textsuperscript{124}, and a *Hexateuch* of Genesis through Joshua\textsuperscript{125}. There are also disagreements about dating the various books of the Bible.

Since Jewish religious tradition has universally accepted the *Pentateuch* as the *Torah* for two millennia, these concepts of *Tetrateuch* and *Hexateuch* will not change the way anyone chants the *Torah* in synagogues. They remain issues of scholarly debate, but for the purposes of this thesis it is instructive how far-reaching debate can get in the field of Bible scholarship. This will have an impact in Chapter 4, where the development of Jewish liturgy is discussed.

The removal of the *Musaf* *Amidah* section in some Reform and Reconstructionist liturgies reveals that issues of identifying religiously accepted sacred texts are somewhat contentious. Since these same "content" differences are also relevant for the chanting of Jewish liturgy, these ongoing issues directly affect the preparation of modern teaching materials. This in turn has had an impact on making the new *Simanei Nusach* graphic symbols of liturgical modal musical motifs relevant for those denominations that have abridged their liturgies.

There are two issues that are relevant for both Biblical and liturgical texts, and for chanting both. There are *boundaries* for identifying what is considered a sacred text – ancient boundaries for the Hebrew Bible, and ongoing boundaries for Jewish liturgy. The second issue of when a particular text became sacred has an effect on how it is chanted, for both Bible and liturgy. Just as there is disagreement on dating the books of the Hebrew Bible, there is similar disagreement on dating many elements of traditional Jewish liturgy.

This is compounded by a tendency in the development of modern prayerbooks to both add and remove texts\textsuperscript{126}. As new texts are added, Cantors and other prayer-leaders are responsible to chant these in the appropriate *Nusach HaT'fillah* (Musical Prayer-modes) of the surrounding sections of liturgy. If this is not accomplished, many functions of the modal musical motifs in *Nusach* will not be effective: identifying sacred time, sections of liturgy, and moods of prayers.

\textsuperscript{124} This concept links Deuteronomy with Joshua, Judges, Samuel, and Kings as the "Deuteronomistic History".

\textsuperscript{125} This concept links Deut. only with Joshua. See Van Der Toorn, *Scribal Culture* (2007) op cit., Chapter 6.

\textsuperscript{126} As will be discussed in Section 4.2.3 below.
3.3 Innovations of the Masoretes for vowels and Trope

For many centuries, the Hebrew Bible existed in writing as a consonantal text handwritten on parchment scrolls. It was the responsibility of community leaders to communicate the Oral Tradition of pronunciation and chanting through the generations. The combination\(^{127}\) of three-consonant roots and prefixes or suffixes presents Classical Hebrew as a "dense" language, and slight changes in pronunciation can cause large changes in meaning. As life grew tenuous, a system was needed to codify the pronunciation, punctuation, and meaning of the Hebrew Bible.

3.3.1 Transmission of the ancient consonantal TaNaKh texts

The Torah scroll used during worship services in synagogues is handwritten\(^{128}\) by a Sofer in columns with a quill and hand-made black ink on large rectangular pieces of parchment. These are sewn together with animal sinews into a long scroll that is attached onto two wooden rollers, and this sacred scroll is protected (with the other Torah scrolls) in an Aron HaKodesh (the Holy Ark), a special cabinet at the front of a synagogue sanctuary.

The Torah scroll contains only the consonantal Hebrew Torah text\(^{129}\), with two types of spaces that indicate breaks in the text\(^{130}\). There are no "dots and dashes" for the vowels, and no Trope symbols for accents and punctuation. When a person prepares to chant from the Torah scroll, he or she uses a Tikkun, a large book with parallel columns. One has the "Torah scroll text" and the other column has the "Chumash text" with vowels and Cantillation symbols. The Torah reader follows in the scroll with a pointer (often silver) during the public chanting.

3.3.2 Two early attempts for accentuation and punctuation

Four Hebrew consonants were given the additional role of "vowel-letters" before the turn of the Common Era. This transformation can be dated to this time-period because these letters appear as vowels in many of the Dead Sea Scroll texts, although the manner in which they are used sometimes differs from their use in later Hebrew consonantal texts\(^{131}\). These four vowel-letters are called matres lectionis (mothers of reading) in Latin and Immot HaK’ri-ah in Hebrew.

---

\(^{127}\) Discussed above in Section 3.1.3, in the context of morphology.

\(^{128}\) Please see Appendix C-4, "Development of Masoretic Tradition", for a short summary of the ensuing discussion.

\(^{129}\) See "R-D Words from Two Consonants" in Appendix B-3. These 24 words form homonyms, homophones, and homographs. The three-letter roots in the consonantal Torah scroll text present similar challenges of meanings.

\(^{130}\) A Stumah (closed space) is nine letter-spaces long with text on both sides, and a P’tuchah (open space) is open on the end, like a paragraph ending in English. There are no other types of break in the handwritten Torah text.

\(^{131}\) Hoffman, ... Beginning (2004) op cit.; pg. 150 and Sáenz-Badillos, History ... Hebrew Language (1993) op cit.
These four "vowel-letters" are Alef (א), Hey (ה), Vav (ו), and Yod (י). Alef (א) and Hey (ה) show the "ah" sound at the beginning and end of words, Yod (י) shows the "ee-ey" sound (usually not the "eh" sound), and Vav (ו) shows the "oh-oo" sound\textsuperscript{132}. These match the three vowel categories of Semitic languages: "ah" (a), "ee-ey" (i-e), and "oh-oo" (o-u).\textsuperscript{133}

Even with the addition of these four dual-function Immot HaK'ri-ah, the consonantal Torah and other Bible texts were transmitted mainly through chanted Oral Traditions, which preserved the pronunciation and meaning of these sacred texts. Eventually the Jewish communities that preserved these Oral Traditions came under attack, and there was concern that the oral "chain of transmission" of these traditions could be broken. A more detailed method of notating vowels and punctuation was needed, without making changes to the accepted consonantal Torah text.

There were two attempts to do this during the second half of the 1st Millennium C.E., one in the Babylonian Jewish community and one in northern Palestine. The Babylonian system used dots and other symbols for vowels above the consonants, where there is already a horizontal bar of ink for most consonants. They also used tiny Hebrew letters for the names of several Trope.

Another pre-Tiberian system of Trope symbols and vowels was organized in Palestine, and it shared some of the same problems as the Babylonian attempt. Again, the vowels and Trope were above the Hebrew consonants, where it is hard to see them against the heavy top bar of ink. There were fewer Trope symbols, and these were mostly Disjunctive (Separator) symbols.

\subsection{Masoretic 9th century innovations for a vowel system}

During the 800's C.E., a family of Masoretes worked on a system of graphic symbols for vowels and Cantillation in Tiberias, a city in the Galilee. While there were four generations of a single family working on the details of this new system, the names that are best known are Aharon ben-Moshe ben-Asher and his father Moshe ben-Asher (ben is "son")\textsuperscript{134}.

The solution of the Masoretes was to assign dots and dashes as symbols for vowels within the Biblical text. These are directly below the existing consonants (two are in other places), and this did not require changes in the consonants of the sacred texts. By adding vowels and thereby fixing the meaning of the Hebrew words, the Masoretes ensured that the Biblical texts would be

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{132} In Modern Israeli Hebrew these four vowel-letters are still often used. The dots and dashes of Hebrew vowels do not appear in most printed Hebrew writing found in newspapers, fiction and non-fiction books, and letters.
\item \textsuperscript{133} Kittel, Hoffer, & Wright. \textit{Biblical Hebrew} (2nd Ed.). New Haven: Yale University Press, 2005; pages 5 - 7.
\item \textsuperscript{134} There is another known Masorete, Moshe ben-Naftali, who also worked in Tiberias on a similar new system of graphic symbols. His system has been compared to that of the ben-Asher family as a source of variant readings.
\end{itemize}
\end{footnotesize}
codified for future generations as they had received it. Their new vowel system was legible and logical, and it spread rapidly through the medieval Jewish communities of Europe and Asia\textsuperscript{135}.

The orthography of the Masoretic vowels may be related to their phonology. The three vowel-classes in Semitic languages were mentioned in Section 3.3.2 just above. Three aspects of vowel production are the horizontal point (front, central, or back) in the oral cavity, the vertical level of the tongue (high, mid, or low), and if the lips are rounded. The Masoretic symbols for the "open front" vowels "eh", "ei", and "ee" are (☼), (☽), and (☽) respectively. These correspond to the tip of the tongue being in low, medial, and high positions respectively, while the jaw remains in a stable position for all three of these vowel sounds.

3.3.4 Masoretic innovations for punctuation and accents

Vowels can help differentiate meaning among words that share the same three-consonant roots, and sometimes also the same prefixes or suffixes. The Tiberian vowel system enabled the Masoretes to codify the pronunciation (and the meaning) of individual words in the Hebrew text of the Bible. However, they needed another set of graphic symbols to elucidate the punctuation, accents, and syntax (and thus the meaning) of verses, clauses, and phrases within the texts.

These same Masoretes also added Cantillation symbols that serve as punctuation marks and as accentuation, further codifying the Biblical texts. There are 27 graphic Trope symbols, with slightly more than half above the letters and slightly fewer than half below the letters (next to the vowels). There two categories: "Disjunctives" ("Separators") and "Conjunctives" ("Joiners")\textsuperscript{136}. Two-thirds of the 19 Disjunctive Trope symbols are supralinear (placed above the consonants), while six of the eight Conjunctive Trope symbols are sublinear (below the consonants).

There is a question whether the Masoretes were using their new graphic symbols for vowels and Trope to record the Oral Tradition of pronunciation and meaning they inherited, or if they were proactively establishing a standard of pronunciation, thus codifying their understanding of the Hebrew Bible for the future. The Tiberian Masoretes may have been doing both of these simultaneously, by codifying the vowels, accents, and phrasing of the "received tradition". The fact that their system of vowels and Trope became accepted by virtually all Jewish communities worldwide indicates that it effectively communicates the meanings of the Biblical texts.

\textsuperscript{135} Please see Appendix C-6 for images of the Aleppo Codex (930 C.E.) and the Leningrad Codex (1009 C.E.).
\textsuperscript{136} Please see Appendices C-7, C-8, C-9, and C-10 for visual presentation of these Cantillation symbols.
3.3.5 Masoretic apparatus for textual emendations

The legacy of the Tiberian Masoretes goes beyond their creation of a useful graphic system for Hebrew vowels and Trope symbols. They had other ways of ensuring that the Hebrew Bible text would not be changed in the future. At the end of each Biblical book they listed the number of *parashiyot* / *sidrot* (paragraph sections), verses, and words in that book – the *Masorah Finalis* (end-notes – *Mf*). The Masoretes also devised a system of textual emendation whereby they identified perceived corruptions in the received Biblical text, and put the "proper reading" in the margins of the text\(^\text{137}\) - the *Masorah Parva* (Lesser Tradition – *Mp*), also known as *K'ri / K'tiv*.

All this was done in "Codex" form, not in the sacred scrolls. A parchment Codex has top and bottom margins on every page, and margins alongside each column of Hebrew text. These vertical margins were used for emendation of words in every Biblical book. The most useful of these is the system of *K'ri / K'tiv* (chanted versus written) notes in the *Masorah Parva*. Certain word frequencies are also listed in the “Mp” of some Codices. In the top and bottom margins of certain Bibles are more extensive notes called the *Masorah Magna* (Greater Tradition – *Mm*)\(^\text{138}\). Notes in the “Mm” include the frequency of phrases, and comparative texts in various Bibles.

3.4 Applications of the Trope to six Cantillation Systems

It is worthwhile to ask the question, “*Why* is it important to chant aloud these Biblical texts in Jewish public worship?” The answers to this basic question will have echoes in Chapter 4, where similar issues will be discussed for Jewish Liturgy. The chanting of Cantillation motifs for the Hebrew Bible is related to how the motifs in Nusach HaT'fillah reflect the punctuation and syntax of Jewish Liturgy. Masoretic Trope are related to the new Symbols of Prayer-chant.

The first answer to the question “Why chant Bible?” is to beautify the religious experience of public worship. The concept *Hiddur Mitzvah* (beautify a ritual) is pervasive throughout all denominations of Judaism\(^\text{139}\), and chanting sacred texts is one good way to fulfill that tendency. Chanting also provides a “horizontal” connection with Jewish communities worldwide who are chanting similar Biblical texts each *Shabbat*, and a “vertical” connection with twenty centuries of Jewish ancestors who chanted these same sacred texts from *Torah* scrolls and Hebrew Bibles.

---


\(^{139}\) Please see Appendix C-2, "Why Chant Torah?"
There are “affective” aspects of chanting the Hebrew Bible, such as the fact that music can convey more emotion than speech, and it is easier to project the voice while singing or chanting than merely speaking. There are “cognitive” aspects of Biblical chant also, such as the fact that the cycles of Torah and Prophetic readings (and also the Festival-based Chameish M’gillot) reinforce where a community is at any time in the cycle of a religious year.

3.4.1 Punctuation is indicated by Disjunctives and Conjunctives

Issues of accentuation, punctuation, and intonation are addressed by the system of Ta’amei HaMikra and the chanting thereof in any given Biblical book. Ta’amei HaMikra are first and foremost an exquisite system of punctuation for the Hebrew Bible. They are also, by virtue of their placement within each word, a system of accentuation. Lastly (and least importantly), they happen to indicate the musical motifs of Biblical chant for various books of the TaNaKh.

There are 19 “Disjunctive” or “Separator” Trope symbols, and 8 “Conjunctive” or “Joiner” Trope symbols140. One way of illustrating this phenomenon in the Hebrew Bible is to examine Numbers 25:9b. The Hebrew for how many Israelites died in a plague is “ar-ba-ah v’es-rim alef.” That can mean two different numbers: “ar-ba-ah — v’es-rim alef” means 20,004 people, but “ar-ba-ah v’es-rim — alef” means 24,000 people. Because the two Trope symbols on the word-pair “ar-ba-ah v’es-rim” are a Conjunctive ("Joiner") and Disjunctive ("Separator") pair, the meaning is therefore “24,000” Israelites who died.

While Biblical parallelism is easiest to see in the three Poetic Books and in poetic passages embedded in the Prose Books, there is parallelism in many prose passages also. Many verses have a significant division between their two main clauses, because the second clause restates the idea carried in the first clause. That main “dividing point” is marked by the Trope Etnachta ("Rest"), and it looks like a tiny wishbone under a word near the middle of a Biblical verse.

Within each clause (the “a” and “b” halves of a verse), there are likely to be phrases. These can be strings of words, or a single Hebrew word with a prefix and/or a suffix. Often these are prepositional phrases (either word-strings or single words with affixes), and often the function of these subordinate phrases is to modify a verb, a subject noun, or an object noun (or pronoun). The Disjunctive Trope help visually and musically delineate141 these phrases within verses.

---

140 Please see Appendices C-7, "Biblical Cantillation Trope Families", and C-8, "Trope Families with Word Boxes".
141 Please see Appendices C-13, "Disjunctive Trope Hierarchy" and C-14, "Disjunctive Phrase Levels".
The goal of “recursive dichotomy” among Biblical Trope\textsuperscript{142} is to identify “word-pairs” in Biblical texts. Given the syntax structure of "VSO" (verb - subject - object), word-pairs can include verb - subject, verb - direct object, preposition - object, noun - adjective, verb - adverb, noun - appositive, “hendiadys”, “merisms”, emphasized pairs, and S’michut pairs of nouns in the absolute - construct relationship. These word-pairs are all marked by pairs of Conjunctive and Disjunctive Trope symbols, and this aspect of punctuation is mediated by the Trope symbols.

### 3.4.2 Accentuation is indicated by placement over or under syllables

There are two types of primary accents in Hebrew: Mil’ra or “Ultima” (“Tonic” in some grammar books), and “Mil’el” or “Penultimate” (“Pre-Tonic” in the same books). Occasionally there is a primary accent three syllables from the end of a word, and the technical term for that situation is “Pro-Pre-Tonic” in some books of Hebrew grammar. In the Hebrew Bible, these are marked by the placement of a Trope over or under the accented syllable\textsuperscript{143}.

From discussions over the years with various Hebrew scholars, it seems that about ± 80% of Classical Hebrew words have the final (Mil’ra) primary accent, and perhaps ± 20% have the penultimate (Mill’el) primary accent. This author is not aware of studies that have been done on this subject, but the issue of accentuation can literally change the meaning of a Biblical text.

The first word of Deut. 6:5, a passage included in the evening and morning public worship service, is V’-a-hav-ta (And you shall love), referring to loving God. If the accent is placed on the penultimate syllable (V’-a-HAV-ta), this word means “You used to love God”, which implies that one no longer needs to love God. If the accent is placed on the final syllable (V’-a-hav-TA), the meaning is “You shall love God”, implying to do so forever.

### 3.4.3 Musical chant reflects which Biblical book is being chanted

Before addressing the “Levels of Pausal Power” among the main “Disjunctive” Trope, it is useful to briefly review the occasions on which various Biblical books are chanted throughout the cycle of a Jewish religious year\textsuperscript{144}. For the purpose of this short review, the familiar terms “Major” and “Minor” will be used to describe the musical tonality of each chant system.

\textsuperscript{142} Discussed in Section 3.1.4 above.

\textsuperscript{143} For some longer Hebrew words, there is a secondary accent closer to the beginning of the word. In a Mil’ra (Ultima) accented word, the secondary accent will be three syllables from the end of the word, and in a Mill’el (Penultimate) accented word, the secondary accent will be four syllables from the end of the word. Secondary accents are marked by either a Conjunctive Trope, or by a Meteg (a vertical line under an accented consonant).

\textsuperscript{144} Discussed in more detail in Section 3.5 below.
The Torah is chanted every Shabbat morning, and in many synagogues it is also chanted on Shabbat afternoon and on Monday and Thursday mornings (ancient market days). The modality for Torah chant is generally “Major” (really the HaShem Malach mode)\textsuperscript{145}. The Torah is chanted on the High Holy Days of Rosh Hashanah and Yom Kippur with a special Cantillation mode.

On Shabbat, Torah Festivals, the New Moon, Fast Days, and High Holy Days, a Prophetic Portion (Haftarah) is chanted following the Torah reading. The theme of this Prophetic passage usually echoes the theme of the Torah reading, and this may be a source for the Old Testament and corresponding New Testament passages read in many churches on Sundays. In the Eastern European Ashkenazi tradition, Haftarah is chanted in a Minor modality in most communities.

The Book of Esther is chanted from a handwritten parchment M’gillah scroll on Purim, and its modality is both Major and Minor. Eichah (Lamentations) is of course chanted in a mournful Minor modality, and Shir HaShirim (on Pesach), Rut (on Shavuot), and Kohelet (on Sukkot) are in the same lyrical chant which alternates between Minor and Major phrases. Since these three books are chanted on the Shalosh Regalim Festivals, they share the same modality of chant.

The purpose of reviewing how the underlying modality changes among the chant of these various Biblical books is two-fold. This illustrates how modal music of Biblical chants identifies a section of the Hebrew Bible, and the special occasion during which it is chanted. The musical mode underlying each type of chant also reflects the mood in each type of Biblical book, and the mood of the occasion on which it is chanted (in addition to punctuation and accentuation).

Some of these are more obvious, such as the "happy" Book of Esther versus the "mournful" Book of Lamentations. Other differences are more subtle, such as the "Major" narrative Torah versus the "Minor" Prophetic books. This is similar to what the modal musical motifs of Nusach HaT'fillah do for Jewish Liturgical Chant, as shown by the graphic symbols of Simanei Nusach.

3.4.4 Main Disjunctives have hierarchical "pausal power" in Bible texts

There are two types of Disjunctive or "Separator" Trope: those that end phrases or clauses (Silluk, Etnachta, Segol, Zakeif Katon, and R’vi-a), and those that end word-pairs and segments (Tip’cha, T’vir, Pashta, Zarka, Azla, Gershayim, T’lishah G’dolah, Pazeir, Munach L’Garmeih). Some Cantillation symbols have different names among scholars, such as Dr. Joshua Jacobson\textsuperscript{146}.

\textsuperscript{145} Please see Appendix C-12, "Notated Music for Torah Trope".
\textsuperscript{146} Jacobson, Chanting the Hebrew Bible (2002), pp. 397-399.
These Disjunctives are in a hierarchy, with four “Levels of Pausal Power”. *Silluk* functions at the end of a verse as a “period”, *Etnachta* functions near the middle of a verse as a “semicolon”, *Zakeif Katon* is a type of “comma”, *Segol* is another level of “comma” or another “semicolon”, and *R’vi-a* (also called *R’vi-i*) is yet another (weaker) level of “comma”\(^\text{[147]}\). All of the other Disjunctive Trope are "Separators", but they are not equivalent to punctuation marks.

Among the five “Main Disjunctive Trope” or “phrase / clause ending Trope”, there are three levels of “Pausal Power”. *Silluk* and *Etnachta* are Level 1 (strongest), *Segol* and *Zakeif Katon* are Level 2 (less strong), and *R’vi-a* is Level 3 (yet less strong). *Silluk* marks the end of a verse, like a "period". *Etnachta* shows the transition between two clauses, like a "semicolon". *Segol*, *Zakeif Katon*, and *R’vi-a* are “commas” to show the ends of phrases, segments, and word-pairs.

*Simanei Nusach* have a similar function in the phrasing of liturgical texts. In Chapter 5, a correlation will be drawn between some of these Disjunctive Trope (*Silluk*, *Etnachta*, *Zakeif Katon*, and *R’vi-a* in particular) and the main "Disjunctive" Simanim (*Dark Square*, *Dark Circle*, *Two Lines*, and *Letter "X"* in particular). These show how *Simanei Nusach* for phrasing Jewish liturgy are related to the 1200-year-old *Ta’amei HaMikra* for phrasing the TaNaKh.

3.4.5 Other Disjunctives show sub-segments and delineate word-pairs

Among the remaining Disjunctive Trope that are not “phrase enders”, several subdivide the “Main Disjunctive” Trope phrases into segments. Here too there is good correlation between the new graphic symbols of *Simanei Nusach* and these "Separator" Trope that define shorter phrases, text segments, and word-pairs\(^\text{[148]}\). One difference is that *Simanei Nusach* mark entire phrases of liturgical text, while *Ta’amei HaMikra* are on almost every word of the Bible text.

Thus *Tip’cha* is the Level 2 divider within *Silluk* and *Etnachta* phrases, *Zarka* is the Level 3 divider within *Segol* phrases, and *Pashta* is the Level 3 divider within *Zakeif Katon* phrases. All the other Disjunctive Trope are “Level 4” which has the least “Pausal Power”, and many of them serve as "sub-dividers within several of the Level 3 and Level 2 segments\(^\text{[149]}\).

There are six common Conjunctives ("Joiners") and two rare ones, so several Conjunctive Trope appear with multiple Disjunctives. For example, *Munach* (backwards “L” under a word) is the Conjunctive with six different Disjunctives, and it has a different musical motif for each

\(^{147}\) Please see Appendix C-13, "Disjunctive Trope Hierarchy".

\(^{148}\) Please see Appendix C-15, "Trope Order and Four Steps".

\(^{149}\) Please see Appendix C-14, "Disjunctive Phrases Levels".
type of Trope pairing. A “string” of several Conjunctive Trope can lead to a single Disjunctive. The “word-pairs”\textsuperscript{150} are usually marked by the pairing of a Conjunctive and a Disjunctive Trope.

This more detailed discussion about the accent and \textit{punctuation functions} of the Trope or \textit{Ta’amei HaMikra} will be relevant to the discussion in Chapter 5 of \textit{phrasing functions} in the new “Simanei Nusach” graphic symbols for Jewish liturgy. The next discussion in Section 3.5 about the \textit{musical motifs} of Trope will also be directly relevant to the way in which the \textit{musical motifs} of Jewish Liturgical Chant function within the Nusach HaT'fillah Prayer-modes.

3.5 \textbf{Musical realization of accentuation and punctuation}

\textit{Ta’amei HaMikra} function as markers of Biblical accents, punctuation, and syntax, and the chant of their musical motifs reflects the text phrasing and word accents. For Conjunctives and many Disjunctive Trope, this happens through a “leading tone” at the end of the musical motif. This “leading tone” is a musical indication that another musical motif will follow immediately.

There is a strong connection between the shapes of the Trope symbols devised by the Masoretes and the ancient melodies of the Cantillation motifs. If one notates the music of a Ashkenazic (Eastern European) Torah Trope motifs, and then "connects the dots" of the note-heads on the staff lines, the result looks a lot like the shapes of many Cantillation symbols.

These melodic motifs primarily indicate which word syllables are accented, and where the phrase divisions fall in the texts. They also indicate which words the Masoretes wanted to emphasize, by choosing one possible Trope symbol rather than another of the same "pausal power" or Level. The Trope system is not entirely "mechanistic", but also somewhat artistic.

3.5.1 \textbf{Torah Chant is Mixolydian & HaShem Malach Modes & Maqam Rast}

There is a comment in the Babylonian \textit{Talmud}\textsuperscript{151} that "one must keep the right hand clean for ... signing the Torah chant." This meant that a person who knew the chant of the Torah would stand to the side of the person who was chanting from the scroll. The Tomech (helper) would move his right hand to indicate the shape of the melodic motifs for each word and phrase of the Torah reading. This is "Chironomy", and variations of this kinesthesic system are still used during the Torah chanting in some synagogue settings (mostly Eidot HaMizrach) today.

\textsuperscript{150} Categories of "word-pairs" are listed in Section 3.1.4 above.
\textsuperscript{151} Babylonian Talmud, Tractate B'rachot, folio 62b.
The underlying musical mode of regular Torah chant in the Eastern European Ashkenazic tradition is similar to the medieval Mixolydian Mode, which is all the white keys on a keyboard from “G” to the “G” an octave higher (no accidentals – sharps or flats). In Nusach Ha’T’fillah (the Musical Prayer-modes) of Jewish Liturgical Chant, this musical mode is called HaShem Malach, and its “resting point” is the 5th scale degree, while its “lowered 7th” scale degree is different from the Major scale. This modal scale also underlies Raga called Khamaj, and Maqam Rast (in some of its forms). Some scholars identify other Maqamat as Torah chant.

There are "special" Torah-chant motifs chanted throughout the religious year. These have some parallels in Jewish Liturgical Chant. Specific modal musical motifs are unique to certain times of year and to the modes of Nusach chanted during those times of year. When these are chanted by a knowledgeable Hazzan or prayer-leader for a congregation whose members are familiar with these motifs, it is clear what holy day or liturgical occasion occurs at that time.

3.5.2 Prophetic Chant is Aeolian & Magein Avot Modes & Maqam Nahawand

The modality of the Prophetic or Haftarah chant is specifically in the “Natural Minor” scale. The musical mode of regular Haftarah chant in the Eastern European Ashkenazic tradition is the medieval Aeolian Mode, which is all the white keys on a keyboard from “A” to the “A” an octave higher (no accidentals). In the Nusach Ha’T’fillah (Musical Prayer-modes) of liturgical chant, this musical mode is called Magein Avot, and its “resting point” is the 4th scale degree.

In Section 4.4.1, the HaShem Malach mode was identified as the musical mode underlying "If I Were a Rich Man" in Fiddler on the Roof. In “Sabbath Prayer” the protagonist Tevye and his wife Golda sing a duet blessing for their daughters. The music of this song is in the same “plagal” version of the Magein Avot mode that is used in Haftarah chant and sections of Jewish liturgy. This modal scale also underlies Raga Asavari and Maqam Nahawand (most forms).

3.5.3 Other Biblical books are chanted in four different systems

The other four Tiberian systems for chanting various Biblical books can be described as alternating between Major and Minor in the chant of their main Trope phrases. This “Major” may be Mixolydian mode / HaShem Malach mode with its lowered 7th scale degree, and this “Minor” is the Natural Minor of the Aeolian Mode / Magein Avot mode. To present the chant...
of these other books, it is useful to briefly introduce the concept of “tetrachords” as “building blocks” for the modes that underlie both Biblical and liturgical chant in Jewish sacred music\textsuperscript{154}.

When one studies Arabic Maqamat, it is striking to see how clearly the musical structure of each Maqam depends upon the tetrachords from which it is built. A “tetrachord” is a series of four consecutive scale degrees, and two tetrachords make up an octave. For Arabic Maqamat, a given combination of tetrachords yields one particular Maqam, but changing just one of those tetrachords (usually the "upper" tetrachord) yields a different (and related) Maqam.

Using this concept of tetrachords, here is a summary of the Cantillation of these other books. A Zakeif Katan phrase is the "upper tetrachord", and a Silluk segment is the "lower tetrachord". Esther is Major for Zakeif Katan and Minor for Silluk; Eichah is Minor for both Zakeif Katan and Silluk; High Holy Days Torah is Minor for Zakeif Katan and Major for Silluk; and Ruth / Kohelet / Shir HaShirim is Minor for Zakeif Katan and Major for Silluk. These differences in chanted modalities identify the holy days on which these Biblical books are chanted, just as the differences in Nusach HaT'fillah modes and motifs identify sacred times for Jewish worship.

3.5.4 Musical motifs for Disjunctives lead to a modal "resting point"

The concepts of a “leading tone”\textsuperscript{155} and a “resting point” have been briefly mentioned above in the discussion about the various musical modes that underlie Biblical (and liturgical) chant. These two aspects of the modes are found specifically in their musical motifs, and this also is a common feature of Biblical Cantillation and Jewish Liturgical Chant. In both musical systems, the leading tone at the end of a musical motif\textsuperscript{156} indicates that the text continues forward.

The "resting point" for a chanted Trope motif is related to its "level of pausal power"\textsuperscript{157}. A Silluk functions like a "period" in English, so its resting point is the Tonic ("Do" in Solfeggio). An Etnachta is the strongest main divider (functioning like a semi-colon), so its resting point is at the main resting point of the underlying musical mode for a particular type of Cantillation. A Zakeif Katan, Segol, R'vi-a, or T'vir usually end with a leading tone as their resting point, since each of these ends a subordinate phrase and the text continues forward. These considerations are also present in the modal musical motifs of Nusach HaT'fillah, and they function similarly.

\textsuperscript{154} These will be discussed in more detail in Section 4.4.3 below, in the context of Nusach HaT'fillah.
\textsuperscript{155} Briefly mentioned at the beginning of Section 3.5 above.
\textsuperscript{156} Please see Appendix C-12 for notated music of Torah Cantillation, according to Rosowsky and Binder.
\textsuperscript{157} Discussed in Section 3.4.4 above for the Disjunctive Trope.
3.5.5 This thesis studies the Eastern European Ashkenazic tradition

Each of the musical modes can be thought of as a “skeleton” of sorts, and the motifs within them for chanting the Trope of various Biblical books can be thought of as the “muscles” that animate a particular skeleton in a specific way. This approach works for Biblical chant, where the motifs are the Ta’amei HaMikra or Trope. It will be shown in Chapters 4 and 5 that this approach also works for Jewish Liturgical Chant, using the motifs of Nusach HaT’fillah.

There is an underlying musical mode for each of the six Cantillation systems in a particular type of Jewish community, and at least two dozen individual Trope motifs are based on that underlying musical mode. There half-a-dozen categories of musical modes underlying liturgical chant, with a dozen to two dozen musical motifs in each specific musical mode (and sub-mode) in each type of Jewish community worldwide.

One difference between Ta’amei HaMikra and Simanei Nusach is that there is an individual musical motif for each Biblical word and its Trope symbol (Ashkenazic tradition), while each musical motif of Jewish Liturgical Chant extends over an entire phrase in a liturgical text. One similarity between these symbols of Biblical and liturgical chant is that for each graphic symbol, its shape, name, and phrasing function remain the same in every modality. The change is the modal musical motif associated with that symbol in each Trope system or each Nusach mode.

The specific type of Jewish community for which Biblical and liturgical chant is discussed in this thesis is the Eastern European Ashkenazic tradition as chanted in much of North America and some of Europe and Israel. There are also practitioners of this musical tradition in South America, South Africa, and Israel, and it is ubiquitous among North American denominations.

In each type of Jewish community and its traditions of sacred music, there are six systems of Biblical chant for the Torah, Haftarah, Esther, Eichah, Festival M’gillot, and often (but not always) High Holy Days Torah. Ashkenazic musical systems tend to be more elaborate than the Sefardic and Eidot HaMizrach systems, with separate musical motifs for each Trope symbol. There are fewer distinct motifs in other communities, and the musical range is more narrow.

---

158 25 Trope in each of 6 types of Biblical books = a minimum of 150 Trope motifs per type of Jewish community.
159 15 Simanim in each of 12 modes and sub-modes in liturgical chant = a minimum of 180 motifs in 1 community.
160 There are different traditions of Jewish sacred music among the Central European, Western Sefardic, Yemenite, and various Eidot HaMizrach or Eastern Sefardic traditions of North Africa and the Middle East. These Jewish communities once extended from Morocco eastward to Central Asia, and northward to the Caucasus Mountains.
161 Among some Eidot HaMizrach communities there is a tradition to chant Torah with Trope motifs from various Maqamat for specific Torah Portions, a practice that is not found among Ashkenazim.
Conclusion to Chapter 3

Chapter 3 set an important context for the study of all Jewish sacred chant – characteristics of the grammar in the sacred texts that are to be chanted. Without some sense of the structure and meaning in a Biblical or liturgical text, it is difficult to communicate the text through chant. The study of Hebrew grammar is pertinent to Biblical Cantillation and Jewish Liturgical Chant.

The first aspect of this "grammar context" for sacred chant was an introduction to aspects of Hebrew phonology, orthography, morphology, and syntax. Phonology and morphology can affect pronunciation, orthography can interfere with pronunciation, and syntax is related to the proper phrasing of the Hebrew texts. The second aspect of context in this background material was additional details about roots and affixes, Masoretic vowels, accentuation, punctuation, and some differences between Semitic and Indo-European syntax structure.

Discussions about the structure and development of the Hebrew Bible provided background for the work of the Tiberian Masoretes in the 800's C.E. These scholars developed a workable system of vowels that were added to the existing consonantal Bible text, and a system of Trope symbols showing punctuation, accentuation, and intonation (sacred chant).

Chapter 3 explored the Cantillation system of the Hebrew Bible to set the context for later discussions about the modal musical motifs of Jewish Liturgical Chant. The Hebrew Bible text sets the precedent for the parallelism found in many liturgical texts. Biblical Cantillation sets the precedent for the manner in which musical motifs within a mode show the punctuation and thus the meaning of sacred texts, an approach that is important for Jewish Liturgical Chant.

The Middle Eastern idea that different musical modes are appropriate for different occasions is first shown in Biblical Cantillation. Six different sets of music values are chanted for the same 27 Trope graphic symbols, depending on the type of Biblical book and on the specific "liturgical occasion" (such as a Festival) during which a given book is chanted.

Based on the underlying grammar and syntax of Classical Hebrew, the concepts behind the system of Biblical Cantillation have historically informed the sacred chant of Jewish liturgy. The concepts behind traditional Jewish prayer-chant have in turn informed the development of the new Simanei Nusach graphical symbols as visual indicators of phrasing and modal motifs.
Chapter 4 – Structure of Jewish Liturgy and Prayer-modes

4.1 Weekly and yearly cycles of Jewish Liturgy

Chapter 3 presented a discussion about the effects of morphology on the syntax of Classical Hebrew, as it appears in Biblical texts and in Jewish liturgical texts. There was a discussion of the structure and development of the Hebrew Bible, and a presentation of the work done by the Tiberian Masoretes in the 800’s C.E. on Hebrew vowel symbols and on the Ta’amei HaMikra (Trope symbols) for the accents, punctuation, and chant of various Biblical texts.

In Chapter 4, the structure and development of Jewish Liturgy will be explored briefly. Some related musical modes of other cultures will be introduced, and the Nusach HaT’fillah (Musical Prayer-modes) of Jewish sacred music will be presented and applied to the sections of liturgical texts. Chapter 5 will present the new graphic system of Simanei Nusach (Symbols of Prayer-chant), together with an analysis of their functions and their use in teaching software.

4.1.1 Basic structure underlying Jewish worship-services

Virtually every Jewish worship service has a similar three-part structure, and every morning and evening service has a fourth part within that structure. There is a Preliminary Section, an Amidah (Standing Silent Meditation) that may be repeated aloud, and a Concluding Section. In every evening and morning service there is also a Sh’ma uVirchoteha (Sh’ma and its Blessings) section between the Preliminary Section and the Amidah.

In addition to daily worship services and weekly Sabbath services, there are four other categories of “holy days” or “liturgical occasions” in the religious year. These are the Yamim Noraim (Days of Awe), Shalosh R’galim (Three Pilgrimage Festivals), ancient “minor holy days”, and modern “minor holy days” (20th century). There are three worship services during the “sunset-to-sunset” day for each of these: Arvit (evening), Shacharit (morning, usually with a Torah Service and a Musaf Amidah, and often the Hallel Psalms), and Minchah (afternoon).

The starting point for any discussion about Jewish liturgy is to identify the times of day, week, month, and year when worship services occur. Each of these services has its own unique liturgical texts, and often its own special modal chants. The role of Jewish Liturgical Chant in identifying each of these sacred times will be discussed in Section 4.5 below.
4.1.2 Daily cycle of three Jewish worship-services

The first Creation story (Genesis 1:1 – 2:3) ends the creation of each day with a phrase, “There was evening and there was morning, the _X_ day.” This is a “religious source” for the fact that the “Jewish day” begins at sunset and ends at the following sunset. The first service of the daily cycle is Arvit (also called Ma’ariv) every evening. The name Arvit is taken from the Hebrew word Erev for “evening”, and the alternate term Ma’ariv has the same three-letter root.

There is a “Creation – Revelation – Redemption” cycle reflected in the prayers that surround the Sh’ma itself in the “Sh’ma and its Blessings” section. After a responsive “Call to Worship” (Bar’chu / Baruch Atah) that opens the Sh’ma Section in Arvit and Shacharit, there is a Creation-theme prayer followed by a Revelation-theme prayer. The Sh’ma and its three paragraphs appear next, and then there is a Redemption-theme prayer in both Arvit and Shacharit. There is also an additional prayer in the evening service that asks for protection during the night.

Every Amidah begins with the same set of three paragraphs and ends with another set of the same three paragraphs (thematically if not literally), but the middle portion can be different. The Weekday Amidah begins with three prayers about the Patriarchs (and the Matriarchs in religiously liberal liturgy), God’s heroic deeds, and God’s Holiness. These are followed on Weekdays by thirteen short petitionary prayers for personal and communal well-being. These are then followed by three ending prayers, asking God to accept our worship, thanking God for doing so, and requesting peace. This Weekday Amidah structure of “3 - 13 - 3” prayers (19 in total) is modified on Shabbat, Festivals, and other holy days to a “3 - 1 - 3” structure of prayers.

The Sh’ma Section is included only in Arvit and Shacharit, but not in the Minchah Service. The Sh’ma verse and its three paragraphs are the central pivot of this section. The first verse (Deut. 6:4) is a one-sentence summation of Jewish theology: "Hear, O Israel, the Lord is our God, the Lord is One!" In first paragraph (Deut. 6:5-9) V’ahavta (And you shall love), verse 8 specifies that one should "teach these words when lying down (in the night) and arising (in the morning).” Biblical scholars understand this to be a merism that means “Teach these words all the time!” It also became a reason to include the Sh’ma in the Arvit and Shacharit services but not in Minchah, since this verse only refers to evening and morning.

---

162 Please see Appendices D-3 and D-4 for the structure of the Weekday services.
163 Please see Appendix B-15 for a fairly literal translation of Deuteronomy 6:4-9.
4.1.3 Shabbat worship-services and their sections

Just as the Weekday Shacharit is longer than the Weekday Arvit Service, on Shabbat all worship services are more elaborate and therefore longer. In traditional communities where the Shabbat is observed strictly, many Jewish people do not work, do not use money, do not drive, do not use electronic technology, etc. This leaves time for relaxation, reading, a “Shabbat nap”, leisurely special meals, and plenty of time for longer worship services.

Shabbat evening begins just before sunset Friday with several home rituals. Candles are lit and a blessing is said on the children. The Kiddush is chanted over wine to sanctify the Sabbath, and a blessing is said on a braided egg bread called Challah. In some synagogues, these “home rituals” of Friday evening are duplicated either before or after the Friday evening service.

Here is the structure of the Friday Evening Service. The Preliminary Section is called the Kabbalat Shabbat (Receiving the Sabbath), and it includes Psalms 95-99, a hymn (L’cha Dodi), and Psalms 92-93. The Sh’ma Section of Arvit L’Shabbat is similar to the Weekday Arvit. The Silent Amidah of Shabbat has a different structure from that of Weekday services. The thirteen Petitionary Prayers in the middle are replaced by a single prayer (with three or four paragraphs). The Shabbat Evening Service concludes with a brief review of this central Amidah prayer, the Kiddush (Holiness of the Sabbath) over wine or grape juice, and concluding prayers and hymns.

Shabbat morning begins with a longer Preliminary Service of blessings and Psalms. The main Shacharit Service has a longer version of the Sh’ma Section, and an Amidah that might be repeated aloud. The Torah scroll and the Prophetic Haftarah are chanted, and a D’var Torah (Torah Commentary or Exegesis) or sermon is given. An Additional Musaf Amidah (“3–1–3” structure) is chanted in traditional synagogues, because there was an extra sacrifice offered on Shabbat morning at the ancient Temple in Jerusalem. The Musaf service concludes with several hymns and other congregational melodies, and there is usually social time or lunch afterwards.

Shabbat Minchah opens with Psalm 145 and additional Biblical verses. There is a short Torah Reading, and the Minchah Amidah has the same “3–1–3” structure of the other Shabbat Amidah Sections. After sunset on Saturday evening, the Weekday Arvit Service has several additional Biblical verses. A Havdalah (Separation) ceremony with a braided candle, wine, and sweet spices marks the end of Shabbat, and this can be done in synagogues and homes.

---

164 Please see Appendix C-5 and C-6 for the structure of the Shabbat services.
4.1.4 The High Holy Days or Days of Awe

The Yamim Noraim (literally “Days of Awe”, the “High Holy Days” or “High Holidays”) occur each Autumn, in September or occasionally in early October. They are Rosh HaShanah (“Head of the Year”), the Aseret Y’mei T’shuvah (Ten Days of Repentance), and Yom Kippur (“Day of Atonement”, a 25-hour Fast Day). Except in the Reform Movement, Rosh HaShanah is observed for two days, including in the State of Israel. These are the most important liturgical changes that have a direct impact on how the traditional High Holy Days liturgy is chanted. One function of the Nusach HaT’fillah (Musical Prayer-modes) is to delineate each of these sections.

Arvit for Rosh HaShanah is distinguished by its musical mode and motifs, with few text changes. Shacharit includes Piyyutim (medieval religious poems) in the Sh’ma Section of the traditional liturgy, and in the Shacharit Amidah (“3-1-3” format) for all denominations. There is no Hallel Section (Psalms 113-118) on the High Holy Days. During the Torah Service, after the Prophetic Reading, the Shofar (a ram’s horn or an antelope horn) is sounded in a specific set of piercing blasts. All the denominations except Reform include a Musaf Additional Service, which has three central prayers (thus a “3 – 3 – 3” structure, rather than the "3-1-3” Amidah on other holy days) built around Biblical verses about God’s Sovereignty, Remembrance, and Shofar verses. Rosh HaShanah Minchah has fewer text changes than the Musaf Service, and the relatively short Minchah Amidah is similar to that of the Shacharit Amidah.

Yom Kippur Evening begins the 25-hour fast with the Kol Nidrei (All Vows), and there is a long section of S’lichot (Penitential prayers) that is repeated throughout the ensuing worship services until the following sunset. Shacharit includes Piyyutim as on Rosh HaShanah, and the S’lichot section is added to the Shacharit Amidah. The Torah Service includes Yizkor (Memorial prayers of remembering the departed), and the traditional Musaf Additional Service (“3-1-3” structure) includes S’lichot prayers and the Avodah section retelling the ancient Temple worship.

The Yom Kippur Minchah Service includes a Torah Portion, and the Haftarah (Prophetic Portion) is the entire Book of Jonah. The N’ilah (Concluding Service) is unique to Yom Kippur; it has a special set of musical motifs, and its Amidah changes the Hebrew text from “May we be inscribed in the Book of Life” to “May we be sealed in the Book of Life.” Yom Kippur ends with a Weekday evening service, followed by Havdalah and one last sounding of the Shofar.

---

165 See Appendices C-7 through C-9 for Rosh HaShanah services, and C-10 through C-12 for Yom Kippur.
4.1.5 The Three Pilgrimage Festivals

The Shalosh R’galim (Three Pilgrimage Festivals) are mentioned several times in the Torah, in every book except Genesis. These Biblical sources use various names for the Pilgrimage Festivals, perhaps reflecting different streams of Oral Tradition that were later redacted into the Torah text. All three Pilgrimage Festivals (Pesach in Spring, Shavuot in early Summer, and Sukkot in Autumn) have agricultural aspects related to the ancient cycle of harvests in the Land of Israel. They also have historical aspects related to the religious events of the Exodus from Egypt, the Mt. Sinai encounter with God, and the 40 years of wandering in the Sinai Wilderness.

The structure of Shalosh R’galim worship services is similar to the traditional Shabbat liturgy. Hallel (Psalms 113-118) is added between the Shacharit Amidah and the Torah Service, and the Musaf Amidah mentions the additional sacrifices for each of these Festivals. There are several days of Chol HaMoed (Intermediate Festival Days) during the weeklong Festivals of Pesach and Sukkot, and these usually include a Shabbat Chol HaMoed that contains elements of the Festival liturgy and its unique modal chants. Yizkor Memorial prayers are included during the final day of Pesach, the second day of Shavuot, and on Sh’mimi Atzeret.

On the Festival of Sh’mimi Atzeret (Eighth Day of Assembly) near the end of Sukkot, there is a special elaborate melody for prayers asking God for rain to fall in Israel during the coming Winter months. The final Festival in the week of Sukkot is Simchat Torah (Joy of the Torah), added to the religious calendar during the Middle Ages. The chanting of Deuteronomy in the Torah scroll is concluded and the Book of Genesis is begun on the same day, thereby renewing the yearly Torah-reading cycle.

4.1.6 The Minor Holy Days – Ancient and Modern

Among the “ancient minor holy days”, one is mentioned in the Torah along with Shabbat and the “major holy days” (High Holy Days and Pilgrimage Festivals). This is Rosh Chodesh, literally “Head of the Month” but translated as “New Month” or “New Moon” semi-festival. During the Torah Service on the Shabbat preceding Rosh Chodesh, a special prayer is added announcing the Hebrew name of the coming month and the day of the week on which it will arrive. It is a “musical custom” to chant part of this public announcement with a "signature melody" from whatever holy day is to be celebrated in the coming month.

---

166 Exodus 23, Leviticus 23, Numbers 28-29, and Deuteronomy 16.
Like the *Shalosh R’galim* Festival (but unlike the *Yamim Nora-im* Days of Awe), *Rosh Chodesh* liturgy adds a slightly shorter version of the *Hallel* Psalms. There is one additional paragraph in the *Shacharit Amidah*, and there is a longer “middle prayer” in the *Musaf Amidah* (different on Weekday *Rosh Chodesh* and *Shabbat Rosh Chodesh*). There are special Festival musical modes and motifs chanted on the *Shalosh R’galim*, and some Cantors also chant these same modes and motifs on *Rosh Chodesh*, especially during the *Musaf Amidah*.

The other “minor holy days” are not mentioned in the *Torah*. *Chanukkah* is the “Festival of Lights” or the “Festival of Religious Freedom”, and the name literally means “Rededication” of the ancient Temple in Jerusalem (in approximately 165 B.C.E.) after the desecrations of the Syrian-Greek invading army. The liturgical additions for *Chanukkah* are one extra paragraph in the *Amidah*, and the *Hallel* Psalms chanted during the *Shacharit Service* after the *Amidah*.

*Purim* has one liturgical change – an additional paragraph in the Weekday *Amidah* – and *Hallel* Psalms are not added in the *Shacharit* service during Purim. *Tisha B’Av* is the only 25-hour Jewish Fast Day other than *Yom Kippur*. It commemorates the destruction of the First Temple in 586 B.C.E. by the Babylonians, the destruction of the Second Temple in 70 C.E. by the Romans, and other terrible events in the history of the Jewish People.

In the 20th century, new “minor holy days” have been added to the religious year, but many Orthodox Jews have not yet accepted some of these. The relatively new “minor holy day” that is most widely accepted is *Yom HaShoah* (Holocaust Remembrance Day); its full name in Israel is “Day of Commemorating the Holocaust and the Resistance”. Thus far there have been few changes to the traditional liturgy that have gained common usage, but there are Holocaust Memorial Services in many communities.

The other 20th century occasion that is widely observed (but not among some Orthodox and Chassidic Jews) is *Yom HaAtzma-ut* (Israel’s Independence Day) celebrated on the 5th of Iyyar, which was May 14th in 1948 when Israel became an independent nation. Conservative and Reform prayerbooks have added a new prayer to the Weekday and *Shabbat Amidah* with the *Chanukkah* and *Purim* additions, and there is a custom to chant *Hallel* Psalms on this occasion. There is a *Yom Yerushalayim* (Jerusalem Day), but it is not widely observed outside Israel.

---

167 Unlike *Chanukkah*, *Purim* cannot fall on *Shabbat*.
168 *Siddur Mishkan Tefilah* of the Reform Movement has a prayer on page 555 to insert into the *Amidah*. 58
4.2 Development of Jewish Liturgy and the prayerbook

Jewish liturgy existed long before there were written or printed prayerbooks. The Mishnah (Palestine, 200 B.C.E. – 200 C.E.) and the Talmud (Babylonia, 200’s – 500’s C.E.) both give information about the worship that accompanied the animal sacrifices at the ancient Temples in Jerusalem. When those Temples were destroyed, chanted worship in synagogues replaced the animal and cereal sacrifices, and Jewish liturgy continued to develop in the ensuing centuries.

Biblical Cantillation modes and motifs were discussed in Chapter 3 above in the context of the structure and development of the Hebrew Bible. Similarly, the presentation of the structure and development of Jewish liturgy in this chapter forms the context for discussing the musical modes and motifs of Jewish Liturgical Chant in Sections 4.4 and 4.5. That in turn will provide the background for discussing the new Simanei Nusach graphic symbols in Chapter 5 below.

4.2.1 Biblical period - Israelite religion or Biblical Judaism

There is some controversy among scholars and Jewish religious leaders about the proper term for the religious practices of the ancient Israelites. Is the suitable term “Israelite cultic religion”, or “Biblical Judaism”? In the opinion of many religious leaders who see a connection between both the practices and the religious values of the ancient Israelites, the term “Biblical Judaism” (at least from the Babylonian Exile onwards) is preferred.

The TaNaKh, Mishnah and Talmud tell of animal and cereal sacrifices that were offered at the portable Tabernacle and later at the Temple(s) in Jerusalem. There were separate roles for two categories of Jewish Priests: Kohanim (descendants of Aharon) and L’vi-yim (Levites, descendants of the Tribe of Levi). As an ancient way to involve lay leaders from towns outside of Jerusalem, groups of “Ma’amadot” (community helpers) went to Jerusalem and participated in the Temple sacrificial rituals, while their home community gathered for religious rituals.

According to Psalm 150 and other sources, some of the instruments used in Temple worship included harps and lyres, drums and cymbals, silver trumpets and the Shofar (ram’s horn), and small wind instruments. After the destruction of the Second Temple by the Romans in 70 C.E.,

---

170 In 586 B.C.E., when the ancient First Temple in Jerusalem was destroyed by the Babylonians.
171 A significant role of the Levitical priests was chanting the Temple liturgy. According to Rabbinic writings, most of their chants seem to have been Biblical texts and Psalms. Some Psalms that were chanted on specific occasions in the ancient Temple are chanted in synagogues on those same occasions today, such as Psalm 92.
it was not until the 19th century in Germany that religiously liberal Jewish communities began to once again use musical instruments during worship (the organ). Since the late 20th century, some liberal synagogues also use piano, guitar, instrumental ensembles, and folk-rock bands.

4.2.2 Rabbinic Judaism and the Jewish Diaspora experience

There is scholarly debate about whether the institution now known as the “synagogue” was developed by the Babylonian Jewish community during the Babylonian Exile, or whether it is a later development. There is also debate173 about the extent to which there were synagogues in Judea during the time of the Second Temple. In the Diaspora, such religious functions as Torah reading and the developing liturgy were more prominent. By the time the Second Temple was destroyed, the institution of the synagogue was established in Judea, and also in the Diaspora.

There is also scholarly dispute about the time, place, and manner of development for the post-Temple Jewish liturgy. Rabban Gamliel II is given credit174 by many sources for codifying the basic structure of the liturgy175 in the First Century C.E. Within this general framework of Jewish Liturgy, only the Chatimah (ending formula or Seal) was originally specified, and this "summarizing phrase" identifies the theme of each prayer. This is part of the Keva (obligatory) prayers, as opposed to the R’shut (optional) prayers such as Piyyutim that were added later.

The Hazzan (Prayer-Leader) apparently had the freedom to improvise liturgical text within the theme of a particular prayer, as long as this fit into the rubric that was specified by the early Rabbis. Gradually favorite texts coalesced for each prayer, and this became the accepted Oral Tradition of Jewish liturgy during centuries of oral transmission throughout the Middle East, North Africa, and Europe. The first written prayerbook was a long reply to a question.

The Jewish scholarly academies in Babylonia maintained consistency of practice during the first millennium C.E. through a system of Sh’eilot and T’shuvot (Questions and Responses) that is called the Responsa literature. In the late 860’s C.E., the Jewish community of Barcelona sent a question to the Sura Academy in Babylonia, asking about the contents of the prayers.

175 Mishnah B’rachot 1.4 and its commentary in the Babylonian Talmud B’rachot 11b outline the structure of the Sh’mu uVirchoteha Section. Mishnah B’rachot 4.3 mentions 18 blessings in the Weekday Amidah, while the Babylonian Talmud Tractate B’rachot (28b - 29a) expands this to 19 blessings on Weekdays. This same source also mentions seven blessings in the Shabbat Amidah and nine blessings in the Rosh HaShanah Musaf Amidah.
This was answered by Rav Amram Gaon, and his Responsum was the first written list of prayers, essentially a prayerbook\(^\text{176}\). A similar prayerbook was prepared decades later by Rav Saadia Gaon for another Jewish community, and these two documents became the basis for subsequent printed Siddurim (plural of Siddur or “Order”, for Weekday and Sabbath).

Another type of prayerbook is called a Machzor (“Cycle”, plural Machzorim). There were originally Machzorim for all Festival liturgies, but now this term usually used for the High Holy Days prayerbook\(^\text{177}\). There are many Piyyutim (religious poems, often in the form of alphabetic acrostics) that were added to the High Holy Days liturgy (and to parts of the Festival liturgies) during the Medieval Period, primarily in Palestine and Europe.

4.2.3 Liturgical changes in prayerbooks of modern Jewish denominations

In addition to Piyyutim that were added to the liturgy during the Middle Ages, especially for the High Holy Days liturgy, there were also “set melodies” that collectively are called “MiSinai Tunes” from the same time-period in Germany. Many of these 1000-year-old melodies are in a Major modality, although the Yom Kippur Kol Nidre melody is in a modal form of Minor. Many of these are congregational melodies, but most of them are not “metric” or "rhythmic" in style.

The Middle Ages brought persecution and expulsions from Western and Central Europe to Eastern Europe. However, in the 18\(^{th}\) century European Jews began to experience some social and intellectual acceptance from the Haskalah (Jewish Emancipation and Enlightenment). The response of some Jewish communities was to modernize and liberalize traditional Jewish liturgy, initially in the German Reform Movement.

Prayerbooks were printed with translations, mixed choirs and sermons in the vernacular were added to the worship services, and “objectionable” texts were removed from the Siddur. These included references to the ancient sacrifices, Chosen People, Return to Zion, and most of the Piyyutim that had been added to High Holy Days and Festival liturgies over the centuries.

In North America during the 19\(^{th}\) and 20\(^{th}\) centuries, this process continued in the Reform Movement. The Conservative and Reconstructionist Movements have had differing responses to the process of modernizing their liturgies. Also, there have been interesting developments in this ongoing modernization process since the establishment of the modern State of Israel.

\(^{176}\) Millgram, Jewish Worship (1971), op cit.; pages 384-388.

\(^{177}\) Please see Appendix D-1, "Development of Jewish Liturgy", for a summary of this Section 4.2 discussion.
Reform Judaism now refers to Israel in its liturgies, and the Conservative Movement has always done so. Ancient sacrifices are not mentioned in Reform prayerbooks, and they are mentioned in the past tense in most Conservative Siddurim and Machzorim. A recent tendency in most Jewish denominations is a move towards more traditional liturgy. For example, the new Conservative High Holy Days Machzor has reinstated several traditional prayers and Piyyutim\textsuperscript{178}.

Except for the Orthodox and Chassidic groups, the most striking change in the liturgical texts of the religiously liberal movements has been an effort to translate the masculine-oriented Hebrew texts into gender-neutral English. This is also affecting the text of the original Hebrew, both through additions of “the Matriarchs” into the Amidah of several modern prayerbooks, and the occasional changing of certain Hebrew words entirely to create an egalitarian text.

4.2.4 Implications of tradition and change for teaching software

It is interesting to see prayers being added back into the liturgy, while simultaneously there are efforts to meet the needs of 21\textsuperscript{st} century congregants who want egalitarian language. This has had a direct effect on the teaching software in which the Simanei Nusach graphic symbols are being used. Details of this software will be discussed in Chapter 5, but this is an appropriate place to address the specific issue of traditional liturgy with egalitarian language.

In each category of prayers, musical settings have been notated for the Orthodox, Chassidic, Conservative, and Reform Siddurim (Prayerbooks). The starting point is a traditional Orthodox set of Hebrew texts, and the matching traditional English translations. Using MCW (Michigan-Claremont-Westminster) Hebrew coding, this author changes the given Orthodox Hebrew text as needed to match the prayerbooks used in each of the other denominations.

For many prayers, the nexus of "tradition and change" plays out as follows. There can be four slightly different Hebrew texts for the same prayer as it appears in the prayerbooks of each denomination. However, there will usually be only two versions of the English translation; one shared by Orthodox and Chassidic, and the other by Conservative and Reform prayerbooks. Or, the Hebrew text of the Conservative and Orthodox prayerbooks might match, while the English translations of the Conservative and Reform prayerbooks are similar. Clearly, there are several approaches among the denominations to issues of liturgical texts in Hebrew and in English.

\textsuperscript{178} Feld, Edward, ed. Mahzor Lev Shalem. New York: Rabbinical Assembly, 2010
4.3 Modal Music in some ancient religions and cultures

There are several similarities in how the musical modes of Arabic Maqamat and Hindustani \textit{Ragas} function relative to how the modes of \textit{Nusach Ha'Tfillah} function in Jewish liturgy. This comparison can be extended to modal music of the Roma (Gypsies), Persian \textit{Dastgah}, Turkish \textit{Mugam}, Byzantine Tones, and the medieval Church Modes. This is background material for the structure of musical modes and motifs of \textit{Nusach Ha'Tfillah} in Sections 4.4 and 4.5 below.

There are many characteristics of Jewish sacred music that have more in common with its Middle Eastern origins than with the music of the European cultures in which Jews lived for the last two millennia. This was explored above in Chapter 1.3 and will also be discussed below. The "Eastern" modal characteristics of Jewish sacred music determine the modal musical motifs of \textit{Nusach Ha'Tfillah}. These in turn gave rise to the \textit{Simanei Nusach} system of graphic symbols.

4.3.1 Similarities exist among the musics of disparate Eurasian cultures

An examination of the \textit{Ragas} found in Northern India and the \textit{Maqamat} found in Arabic music shows that there are similarities among them: single-line vocal chant, tetrachords, use of microtones, mostly oral transmission of texts and melodies, and a relationship between time of day and a given chant. This discussion begins with "microtones" as an element of modal music.

One way to think of \textit{microtones} is that they are “in the cracks between the keys” of a piano keyboard, and therefore they are smaller (or larger) than a “half step” or semi-tone. The most common microtones among many cultures are a “quarter-flat” interval and a “quarter-sharp” interval, with the “quarter-flat” predominating. The music symbol for a normal “flat note” is “♭”, and for a “quarter-flat” symbol there is a slanted slash in the vertical stem. The music symbol for a normal “sharp note” is “♯” with two vertical strokes, and for the most common “quarter-sharp” symbol there is only one vertical stroke through the two horizontal strokes.

In Western music, there is only one possible note between “C♭” and “D♯” on a piano keyboard, and that is called either “C♯” or “Db” (depending on the “key signature” for its scale). However, with the quarter-tones, there are three possible notes between C♭ and D♯: C♯, “C quarter-sharp”, C♯ or Db, “D quarter-flat”, D♯.
The *Ragas* of Northern India use fewer microtones than the *Maqamat* of Arabic music, and the *Nusach HaT’fillah* modes of Jewish Liturgical Chant use even fewer microtones. The main Jewish communities whose sacred music contains microtones are those who lived among Arab or Muslim communities in Yemen, North Africa (Morocco, Tunisia, Egypt), the Levant (Syria, Lebanon), Asia Minor / S.E. Europe (Turkey, the Balkans), Mesopotamia (Iraq, Kurdistan), Persia (Iran, Afghanistan), the Caucasus Mountains, and Central Asia (especially Uzbekistan). Most of the surviving members of these ancient Jewish communities now live in Israel, where their *Eidot HaMizrach* music is enriching the unique sound of modern Israeli music.

### 4.3.2 Relationships of *Maqamat* & *Ragas* to Byzantine & Jewish music

Reference was made above to the medieval modes *Mixolydian* (*HaShem Malach* mode) and *Aeolian* (*Magein Avot* mode), both of which underlie the musical motifs of Biblical chants. This section will present the full set of medieval modes. They provide one way of comparing and understanding the modal music of the other cultures being discussed here. Please note: these scales are only for the sake of “a familiar context”. The modal music of Arabic, Hindu, and Jewish music is *not* based just on scales, but rather on the *musical motifs* that define each mode. For these modes, their **underlying scales are derived from** their *musical motifs*.

The scale pattern for each medieval mode\(^{179}\) is “all the white keys from \(x\) to \(y\)” on a piano keyboard. Here are the scales and their names in those terms: “\(C\)” to “\(C\)” is *Ionian*, “\(D\)” to “\(D\)” is *Dorian*, “\(E\)” to “\(E\)” is *Phrygian*, “\(G\)” to “\(G\)” is *Mixolydian*, and “\(A\)” to “\(A\)” is *Aeolian*. In the *Nusach HaT’fillah* of Jewish sacred music, two of these medieval modes have a *raised interval*, and three modes have the same scale format as the medieval modes with which they are related.

Details will be presented below showing how these medieval modes are slightly changed when they are compared to the Musical Prayer-modes of *Nusach HaT’fillah*. "Tetrachords" are the “building blocks” which combine to form the scales that underlie musical modes. These “building blocks” are *defined by the intervals* found in the musical motifs of each mode. Two tetrachords of four notes each are “stacked” consecutively to make up the *octave* of a modal scale. The lower tetrachord defines which “family” of musical modes is used for a given text.

---

\(^{179}\) Here are the scale intervals for these musical modes. The *Ionian* mode is the same as the Western Major scale (“\(1 – 1 – .5 – 1 – 1 – .5\)”), the *Dorian* mode is like Minor but with a raised 6\(^{th}\) (“\(1 – .5 – 1 – 1 – 1 – .5\)”), the *Phrygian* mode has a lowered 2\(^{nd}\) (“\(.5 – 1 – 1 – .5 – 1 – 1\)”), the *Mixolydian* mode is like Major with a lowered 7\(^{th}\) (“\(1 – 1 – .5 – 1 – 1 – .5\)”), and *Aeolian* mode is the “natural Minor” scale (“\(1 – .5 – 1 – 1 – .5 – 1\)”).
One of the musical modes of Jewish sacred chant, called *Ahavah Rabbah*, is closely related to an Arabic *Maqam* called *Hijaz*¹⁸⁰. *Maqam Hijaz* is a “modified Phrygian mode” because the “raised 3rd scale degree” is *not* part of the medieval Phrygian mode. The “lower tetrachord” of *Maqam Hijaz* has four notes whose scale degrees are “Do” or “1”, lowered “Re” or “2”, raised “Mi” or “3”, and “Fa” or “4”. There is a haunting or yearning ambience in this progression.

These translate into “scale intervals” for this tetrachord of “.5 – 1.5 – .5”, which is a striking modification of the first tetrachord in medieval Phrygian (“.5 – 1 – 1”). Combining the lowered 2nd scale degree of Phrygian with a “raised 3rd scale degree” gives the unique “step-and-a-half” interval that is characteristic of *Maqam Hejaz* in Arabic music, *Raga Bhairav* in the music of Northern India, and the *Ahavah Rabbah* mode in Jewish Liturgical Chant.

This "step-and-a-half" interval, influenced by Arabic *Maqam Hijaz*, is important in Jewish Liturgical Chant for several reasons. The *Ahavah Rabbah* mode in which this interval appears has two forms - for Weekday and *Shabbat* prayers. This interval is used in the *S'lichah* mode (or "Ukrainian Dorian" variant) on the High Holy Days, between the 3rd and 4th scale degrees. It is in the "lower tetrachord" of the "plagal" *Magein Avot* mode in the Friday evening service.

4.3.3 Historical influences on interactions of Eurasian cultures and religions

There were significant trade interactions among the ancient inhabitants of Eurasia since the earliest times¹⁸¹, before recorded history. Archeologists have found evidence of trade relations among far-flung groups that may go back thousands of years. Trade routes extended from the Far East, through the Middle East, and to Europe¹⁸² long before the establishment of nations and empires that later struggled for control of the overland and sea-borne trade routes.

Another factor in the interaction among groups of people was the migration of populations from Central Asia into Europe¹⁸³ and other areas of Eurasia, and other major migrations that took place in Eurasia during many millennia. Theories about the spread of Proto-Indo-European and Semitic languages¹⁸⁴ indicate some possible geographic aspects of these migrations, and modern tools of DNA analysis are also being used to track the movements of large populations.

---

¹⁸⁰ *Hijaz* is the name of a large area in western Saudi Arabia along the Red Sea that contains Mecca and Medina.
A third historical influence on the spread of cultures and religions throughout Eurasia is the history of invasions and conquest among nations and empires. Geographic “pivot-areas” or “gateways” such as Persia, Egypt, and the Balkans may have had a strong influence on India, the Middle East, and much of Europe, controlling the movements of populations and armies.

The spreading of Christianity and Islam during the 1st millennium C.E. also was a vehicle for cultural interactions. Jewish communities conducted trade the length of Eurasia, and the Roma (Gypsies) were in constant movement through Asia and Europe. This mobility may have also fostered the influence of musical styles and modes among disparate populations.

Some or perhaps all of these pre-historic and historic influences may be involved with the phenomenon that modal music of disparate cultures seems to share many of the same musical characteristics. Where instruments are used, each cultural group seems to have examples of stringed, wind, and percussion instruments. Vocal music in most of the groups researched for this thesis seems to share characteristics of single-line, time-bound presentation, with some groups using microtones more than other groups. Oral tradition is a vehicle of transmission for both texts and music, since few cultural groups developed methods of written music notation.

4.3.4 Musical modes of Maqam, Raga, and Nusach reflect time and mood

Three important functions for Nusach HaT’fillah are to identify the “liturgical occasion” in terms of time of year, time of month, time of week, and time of day; to identify the sections of liturgy being chanted within each type of worship service; and to use the phrasing of modal musical motifs to help express the meaning of Hebrew texts as they are used in Jewish liturgy. There are similar characteristics in the modal music of many other Eurasian cultures.

Perhaps as a “summation” or “result” of these three functions, the musical motifs of Nusach HaT’fillah have another less-known affect on Jewish worship. They reflect the “mood” of the worship experience in the context of its time-bound nature. While will be discussed in greater detail below, it is mentioned here in the context of the modal music in other cultural traditions. Music as an indicator (or agent) of “mood” is a powerful cultural and religious phenomenon. The flow of traditional chant and a bouncy congregational melody affect people differently!

187 Such as Radinites, Jewish traders who brought goods from Japan and China to Europe during the Middle Ages.
188 Please see Appendix D-2, “Why Chant Prayers?”
Religious and cultural modal music of Northern India (Ragas), the Middle East (Maqamat), and Europe (Church Tones) are all related to specific times of day for the chanting of specific musical modes\textsuperscript{189}, as are the modes of Nusach HaT'fillah in Jewish Liturgical Chant. Some of these cultures also have colors associated with specific times of day and musical modes, but this does not seem prevalent in Jewish and Christian sacred modal music.

However, there are specific colored vestments that are worn by some priests and ministers during certain “liturgical seasons” of a religious-year cycle. Perhaps color associated with time and sacred music is present in some types of Christianity. In traditional Judaism, it is customary to wear the color white on Yom Kippur (Day of Atonement), a period of asking for forgiveness.

4.3.5 Examples of similar musical modes among various Eurasian cultures

Two musical modes are ubiquitous across the length of Eurasia from Northern India through the Middle East and across Europe. These are the Mixolydian mode (like a Major scale with a lowered 7\textsuperscript{th}) and the Aeolian mode (the natural Minor scale). In any given cultural and religious tradition, specific musical motifs within these modes will differ. In the Nusach HaT'fillah of Jewish sacred music, there are sub-modes within the Magein Avot mode (like Aeolian mode).

These two musical modes are chanted in synagogues every Shabbat for the Torah Reading and the Haftarah or Prophetic Reading. These were discussed in some detail above\textsuperscript{190}, in the context of Biblical Cantillation. In light of the previous paragraph above, it may bear some speculation about this connection with the modal music of other cultures and religions. Perhaps there are undiscovered reasons for many cultures sharing some of the same musical modes.

To conclude Section 4.3, here are some modes in various cultures whose underlying modal scales are similar to the Mixolydian and Aeolian modal scales.

\textbf{Mixolydian:} Northern India (Raga Khamaj), Persia (Dastgah Homayun), Arabia (Maqam Rast), Turkey (Mugam Rast), the Tones and Plainchant of Orthodox, Ukrainian Catholic, and Roman Catholic sacred music, and the HaShem Malach mode chanted in Nusach HaT'fillah.

\textbf{Aeolian:} Northern India (Raga Asavari), Persia (Dastgah Dashti), Arabia (Maqam Nahawand), Turkey (Mugam Bayati), somewhat in the Tones of Orthodox and Catholic sacred music, and the Magein Avot mode (with its several sub-modes) chanted in Nusach HaT'fillah.


\textsuperscript{190} Discussed in sections 3.5.1 and 3.5.2 above.
4.4 Musical structures of several Jewish Prayer-modes

In this Section of Chapter 4, previous discussions about modal music – scales and motifs – will be applied to the specific musical modes of Nusach HaT'fillah\(^{191}\). There are references to the above examination of the similarities among the musical modes that appear in several Eurasian cultures, and there will also be occasional references to the discussions in Chapter 3 about how musical modes underlie the musical motifs of Biblical Cantillation.

In Section 4.5, this discussion about the musical modes and motifs in Nusach HaT'fillah will be applied to sections of Jewish worship services. That presentation refers to Section 4.1 above, where the structure of Jewish liturgy was discussed in the context of various liturgical occasions. This is all background to how the Simanei Nusach graphic symbols function within these modes and modal musical motifs of Nusach HaT'fillah in Jewish Liturgical Chant.

4.4.1 Nusach HaT'fillah is built on modal scales and musical motifs

Unlike scales in Western music, the intervals among the notes shown on a scale in modal music are often different above the octave and below the octave. An example in Jewish sacred music is the mode known as HaShem Malach. It is used for the Psalms of Kabbalat Shabbat on Friday evenings, and it is famous as the mode underlying Tevye's song "If I Were a Rich Man" in Fiddler on the Roof. The second line of vocables rises and returns o rest on the 5th ("Sol").

Presented as a scale in the "key of G", the basic octave of this mode looks identical to the medieval Mixolydian mode, which is shown as all the "white keys" on a piano keyboard from "G" to "G" (G - A - B - C - D - E - F - G). Notice the "F natural" in the Mixolydian mode, rather than the "F sharp" one would expect in a Western "G Major" scale. The HaShem Malach mode tends to rest on the 5th scale degree, or "Sol" in solfeggio. This aspect of the HaShem Malach mode appears in some pausal motifs when this mode is chanted on Friday evenings.

However, above the octave (the high "G"), the Jewish HaShem Malach mode has the notes "G - A - B flat" rather than the "G - A - B natural" that is within the basic octave scale. Below the octave (the low "G"), the HaShem Malach mode has the lower notes "E - F sharp - G" rather than the notes "E - F natural - G" that were within the main octave of the modal scale. From three notes below the octave to three notes above the octave, the notes of the HaShem Malach mode are: "E - F sharp - G - A - B - C - D - E - F - G - A - B flat".

\(^{191}\) Please see Appendix E-2, "Medieval Modes and Nusach Modes".
In previous discussions about musical modes that are used in the music of Eurasian cultures, there were references to “scale degrees”, “scale intervals”, and “tetrachords” as elements of modal structure. However, it is unintentionally misleading to conceive of musical modes with only these concepts. In the musical modes of the cultures and religions mentioned above, the “real work” of modal chant takes place among musical motifs, not in the underlying scales.

The musical motifs of individual Cantillation symbols show the punctuation, accents, and chant of the TaNaKh within the underlying musical modes of each chant system. As attention now turns to modes and musical motifs of Jewish Liturgical Chant, the 18 new graphic symbols represent the modal musical motifs within the modes and "sub-modes" of Nusach HaT’fillah.

Despite this discussion about musical motifs being more important than the underlying modal scales, one still needs a convenient comparative way to see how the musical modes are constructed. The most efficient way to present this information is to rely on “scale degrees”, “scalar intervals”, and “tetrachords” based on the medieval modes. Then one can examine the changes made to some of those modes in Jewish Liturgical Chant. It is important to state at this point "a specific musical mode of Nusach HaT’fillah is a combination of modal musical motifs whose intervals can be shown in the form of their underlying modal scale."\(^{192}\)

### 4.4.2 Scales underlying Nusach modes are similar to medieval modes

The Nusach HaT’fillah modes will be reviewed in the order that they are used for chanting various sections within traditional Shabbat Jewish liturgy. The order this time is: Mixolydian (HaShem Malach mode), Aeolian (Magein Avot mode), modified Phrygian (Ahavah Rabbah mode), modified Dorian (S’lichah mode), and Ionian (source of the five notes in the Pentatonic mode). The musical motifs in these modes are shown by the Simanei Nusach graphic symbols.

The HaShem Malach mode is “straight Mixolydian” which sounds like a Major scale, but which has a lowered 7th scale degree. Its “scalar intervals” are “1–1–.5–1–1–.5–1” and it is easily identified by playing all the “white keys” on a keyboard from “G” to “G”. There is a customary “modulation” in the HaShem Malach mode to a higher musical phrase in Major, based on the 4th scale degree and returning to the 2nd scale degree. There are notes above and below the octave that have different intervals, as seen in Section 4.4.1 above. These different intervals are important in the musical motifs that comprise the total HaShem Malach mode.

---

\(^{192}\) An original formulation of this author; this exact wording was not taken from any other source.
The Magein Avot mode is “straight Aeolian” which sounds like the “natural Minor” scale, and it has several “sub-modes” which are chanted for the sections of various types of worship service. Its “scalar intervals” are “1–.5–1–1–.5–1–1” and it is most easily identified by playing all the “white keys” on a piano keyboard from “A” to “A”. There is a common “modulation” in the Magein Avot mode to a higher musical phrase in Major, based on the 5th scale degree in the “authentic” ("Do" to the upper "Do") version of this musical mode.

The Ahavah Rabbah mode was discussed briefly near the end of Section 4.3.2 above, in the context of its related “Maqam Hijaz” in Arabic musical modes. Following the rubric used here, this is a “modified Phrygian” mode (which has a lowered 2nd scale degree) with a raised 3rd scale degree. Its “scale intervals” are “.5 – 1.5 –.5–1–.5–1–1” and it is most easily identified by playing the “white keys” on a piano keyboard from “E” to “E” but with a “G♯” for the raised 3rd scale degree. There is a customary “modulation” in the Ahavah Rabbah mode on Shabbat to a higher phrase in Major or Minor on the 4th scale degree, and returning to the 5th scale degree.

The S’lichah mode (also called “Ukrainian Dorian”) is a “modified Dorian” mode with a raised 4th scale degree. Its “scalar intervals” are “1–.5 – 1.5 –.5–1–.5–1–1” and it is identified by playing the “white keys” on a piano keyboard from “D” to “D” but with a “G♯” for the raised 4th scale degree. There is a customary “modulation” in the S’lichah mode to a higher phrase in Major, based on the 4th scale degree and returning to the 7th scale degree below the Tonic.

Finally, the Pentatonic mode is a five-note subset of the "Ionian" mode (Major scale). For this mode it is easier to specify the scale degrees of its five notes: “3, 4, 5, 6, 8” and possibly adding “2” and “3” above the octave. This is not a musical mode for which there is a tradition of modulation on any scale degree. Once again, the above description of these “modal scales” underlying the Nusach HaT’fillah of Jewish sacred chant are only a convenient way to compare musical modes. The musical motifs within each mode are the real "definition" of a mode, and it is the combination of those musical motifs that show the intervals of the underlying scale.

4.4.3 Like Maqamat and Ragas, Nusach modes are built on tetrachords

“Tetrachords” were introduced above in the context of the Cantillation motifs used for chanting various Biblical books. The more detailed discussion below will include a musical example of how a mode changes when a different “upper tetrachord” is “stacked” on the “lower tetrachord” that is being used to define the “musical family” of a mode.
This concept of “tetrachords” will also figure into a discussion about authentic and plagal versions of a musical mode. A clear way to illustrate this structure of a “family-defining” lower tetrachord and a “mode-specific” upper tetrachord is by presenting the first two phrases of the “Miserlu”, a popular Greek folk-dance melody. In the key of “C”, which by itself has no sharp or flats, here are the first two lines of music, written with in 4/4 time with the names of the notes:

\[
\begin{align*}
& \text{C-C \text{-} D♭ \text{-} E♭ \text{-} F} \quad \text{//} \quad \text{G-G-G-A♭ \text{-} B♭ \text{-} A♭} \quad \text{//} \quad \text{G} ; \\
& \text{(lowered 7th)} \\
& \text{C-C \text{-} D♭ \text{-} E♭ \text{-} F} \quad \text{//} \quad \text{G-G-G-A♭ \text{-} B♭ \text{-} A♭} \quad \text{//} \quad \text{G} . \\
& \text{(raised 7th)}
\end{align*}
\]

Here are these same two lines of music written instead with scale degrees:

\[
\begin{align*}
& \text{1-1 \text{-} 2♭ \text{-} 3♯ \text{-} 4} \quad \text{//} \quad \text{5-5-5-6♭ \text{-} 7♭ \text{-} 6♭} \quad \text{//} \quad \text{5} ; \\
& \text{(lowered 7th)} \\
& \text{1-1 \text{-} 2♭ \text{-} 3♯ \text{-} 4} \quad \text{//} \quad \text{5-5-5-6♭ \text{-} 7♭ \text{-} 6♭} \quad \text{//} \quad \text{5} . \\
& \text{(raised 7th)}
\end{align*}
\]

Here are the corresponding rhythms for these same two lines of music:

\[
\begin{align*}
& \text{♩-♩ \text{-} ♩-♩} \quad \text{//} \quad \text{♩-♩-♩-♩♭ \text{-} ♩-♩♭} \quad \text{//} \quad \text{♩} ; \\
& \text{(lowered 7th)} \\
& \text{♩-♩ \text{-} ♩-♩} \quad \text{//} \quad \text{♩-♩-♩-♩♭ \text{-} ♩-♩♭} \quad \text{//} \quad \text{♩} . \\
& \text{(raised 7th)}
\end{align*}
\]

The first line of music is the Arabic Maqam Hijaz, with the lower tetrachord in the djin\textsuperscript{193} (from the Greek genus) Hijaz and the upper tetrachord in Nahawand. The second line of music is in the Maqam Hijaz-Kar, with both the lower tetrachord and the upper tetrachords in Hijaz (with the characteristic “step-and-a-half” between the 2\textsuperscript{nd} and 3\textsuperscript{rd} notes in both tetrachords).

The same opportunity to modify the upper tetrachord of a particular mode is also available in the Ahavah Rabbah mode (similar to Maqam Hijaz) in Nusach HaT’fillah. This appears only in the more elaborate “High” Ahavah Rabbah modal musical motifs chanted on Shabbat. The range of the "Low" Ahavah Rabbah mode that is chanted on Weekdays does not extend beyond the lower tetrachord by more than two notes in either direction.

Modal music of Hindu Ragas, Arabic Maqamat, and Nusach HaT’fillah share the aspect of changing intervals above and below the scale of the basic octave. They also share the concept of tetrachords as "building blocks" of available notes. It is possible that these three types of modal music might also share the concept of "authentic" and "plagal" versions, though not those terms.

4.4.4 Some musical modes exist in "authentic" and "plagal" versions

There is another “structural” concept that is relevant to musical modes, their scales and their motifs. This is related to the discussion about tetrachords in Section 4.4.3 above, and it is in the musical modes of both Biblical Cantillation and Jewish Liturgical Chant. For the scales of many musical modes, there is an authentic version that goes from “Do” to “Do” (from scale degree “1” to scale degree “8”), and a plagal version that goes from “Sol” to “Sol” (from scale degree “5” below the Tonic or “Do” to scale degree “5” above the “Do”).

This involves a discussion of “resting tones” and "chant tones", and questions of where the finalis or “end note” might be in any particular musical mode. This author works with “movable Do” rather than “fixed Do”, and thus these syllables of Solfeggio can be easily transposed to any musical key that is comfortable. In the key of "G", the "Do" is "G" and the "Sol" is "D"; in the key of "D", the "Do" is "D" and the "Sol" is "A", in both Major and Minor.

A given musical mode of Nusach HaT’fillah can exist in both authentic and plagal forms. The best example of this is the Magein Avot mode (Aeolian or “natural Minor”), which has several sub-modes as will be seen in Section 4.5.4 below. The Magein Avot mode is named for a prayer in the short set of paragraphs immediately after the silent Amidah in the Friday Evening service. In this section it is an “authentic” mode that extends from “Do” to the upper “Do”, with a “resting point” of “Sol”, and it modulates to the relative Major from the 5th scale degree.

This same Magein Avot mode is used in its “plagal” form for the Sh’mah uVirchoteha (Sh’mah and its Blessings) section in the main body of the Friday Evening service. In this section194, the roles of musical motifs in the functions of a mode become apparent. The “Opening” motif jumps from the low “Sol” to “Do” in its first two notes, and one of the “Pausal” modal motifs descends back to the low “Sol” (lower 5th scale degree). However, the finalis (ending note) is “Do”.

There is a relationship between the "authentic" versus "plagal" structure of the Magein Avot mode and the discussion about tetrachords just above. In the "Authentic" version, the bottom tetrachord was "Do - Re - Mi - Fa" and the upper was "Sol - La - Ti - Do". In the plagal version of this same mode, the lower was "Sol - La - Ti - Do" and the upper was "Re - Mi - Fa - Sol", resting on "Do" as the finalis.

194 Please see Appendices E-8 for "plagal" and E-9 for "authentic" versions of the Magein Avot mode.
4.4.5 *Nusach* modes can indicate "mood" and "sacred time"

The average Jewish congregant might say that the Trope in the Biblical texts show how it is chanted. Most congregants do not know the detailed apparatus of punctuation and accentuation delineated by Trope, and how Cantillation helps identify and express the meaning of the Biblical texts. If one were to ask those congregants why Hebrew prayers are chanted rather than simply spoken, the answer is might be, “To add beauty to the worship services.” Again, that is only one of the several functions fulfilled by the modes and motifs of Jewish Liturgical Chant.

Every *change of liturgical text* in every Jewish holy day is reflected through *changes in the liturgical chants* of those texts. It is the *chanting* of Jewish liturgical texts in the traditional modes and motifs of each religious occasion that *signals and identifies these changes in texts* to the congregation. In addition, the *same prayer-text* might be chanted with *different modal musical motifs* on different religious occasions, and the *chant defines those occasions*.

Each “Musical Prayer-mode” is composed of many musical motifs within an underlying scale structure. These reflect the *general liturgical occasion*, the *time* in which a Weekday, Shabbat, or Festival worship service is being chanted, and *which part* of each service is being chanted. It is the *musical motifs* within each *Nusach HaT’fillah* (Musical Prayer-mode) that are unique to each *liturgical occasion*, each *worship service*, and each *section within* the liturgy.

Abraham Joshua Heschel said in *The Sabbath* that Judaism brought to the world the concept that “Sacred Time takes precedence over Sacred Space”.

"Judaism is a religion of time aiming at the sanctification of time ..."
"Judaism teaches us to be attached to holiness in time ... to sacred events ..."
"Jewish ritual may be characterized ... as architecture of time ..."
"... observances ... depend on a certain hour of the day or season of the year."

"The meaning of the Sabbath is to celebrate time rather than space."
"... on the Sabbath we try to become attuned to holiness in time."

"New in the teaching of Judaism was that the idea of holiness was gradually shifted from space to time, from the realm of nature to the realm of history, from things to events."

[ *italic emphasis* is reproduced from Heschel's original text ]

---

195 Please see Appendix D-2 "Why Chant Prayers?"
197 *ibid*, Prologue, page 8
198 *ibid*, Prologue, page 10
199 *ibid*, Chapter 9, page 79
It could be said that were this not the case, Judaism may not have survived the 1,900 years of Exile from the Land of Israel. It is the concept of Sacred Time that was totally portable, no matter where Jewish communities were established throughout the world. This is reflected in the ways that Jewish liturgy portrays Sacred Time, and in the ways that Jewish Liturgical Chant identifies a particular period of Sacred Time through sacred rituals and specific liturgical texts.

One of the main functions of Nusach HaT'fillah (Musical Prayer-modes) and their musical motifs is to identify the “liturgical occasion” in terms of time of year, time of month, time of week, and time of day. The musical motifs and their underlying modes of Nusach HaT'fillah help to make sense of the cycle of liturgical occasions, just as the various Trope systems and their underlying modes indicate what Biblical books are chanted for which Jewish holy days. In a sense, Trope and Nusach work together to identify Jewish sacred time.

A second main function of the modes within Nusach HaT'fillah and their musical motifs is to identify the sections of liturgy being chanted within each type of worship service. A service can be as short as 15 minutes on a Weekday afternoon or as long as four hours on Yom Kippur morning. The “musical clues” of the traditional modes and motifs must be presented in a way that congregants can sense a flow within the liturgical texts throughout a worship service.

The third main function of the modes within Nusach HaT'fillah and their musical motifs is to help identify the phrases and thereby to express the meanings of the Hebrew texts as they are used in Jewish liturgy. This is a function of the musical motifs within each musical Nusach mode, just as pairs of Conjunctive and Disjunctive Trope express the meaning in Biblical texts.

There is more freedom in Jewish Liturgical Chant than in Biblical chant. The Masoretes assigned their Trope 1,200 years ago based on a received tradition, and Trope carry authority of that “codified Oral Tradition”. Liturgy is also chanted in phrases, and the Simanei Nusach visually delineate the phrases of modal chant. This is in the context of agreed-upon traditional musical modes and their motifs within the Eastern European Ashkenazic tradition.

The musical modes of Nusach HaT'fillah reflect the moods intrinsic in Jewish liturgical occasions. This discussion will give examples of how various moods inherent in the musical modes of Nusach HaT'fillah reflect the changing moods of the Shabbat 24-hour time-period, and the moods of the extended High Holy Days period covering several days. Like the way Nusach identifies sacred time, portraying mood is also an aspect of Maqamat and Ragas.
On Shabbat, there is a cycle of moods that a traditional family (and Jewish community) experiences, and the musical motifs of Nusach HaT'fillah reflect and reinforce these moods. The chanted liturgy of Friday evening begins as "upbeat" in HaShem Malach, and continues as restful in the "plagal" Magein Avot mode. Shabbat morning uses the Yishtabach sub-mode as a restful approach to the Sh'ma Section, and the more elaborate version of Ahavah Rabbah for the Amidah. The Torah is chanted in HaShem Malach, and the Haftarah in plagal Magein Avot. At Minchah the mood turns somber with another Minor sub-mode, because Shabbat will soon end.

There is a similar progression of mood changes mediated by the musical prayer-modes of Nusach HaT'fillah during the High Holy Days period. Arvit for Rosh HaShanah is chanted in a joyous Major, with a familiar and recurring “MiSinai Tune” congregational melody. Shacharit is chanted in a unique sub-mode of Minor, and the Amidah is also. Torah is chanted with a special mode, and the Musaf Amidah includes HaShem Malach motifs for the laudatory prayers.

By contrast, Yom Kippur is chanted in a somewhat more subdued manner, appropriate for asking forgiveness of misdeeds. Kol Nidre is a MiSinai melody, and the S'lichot Section has its own S'lichah mode (Minor with a raised 4th). Yizkor memorial prayers are somber, and Musaf contains highlights that have special melodies. For the Neilah closing service, the mood turns more upbeat as the congregation approaches the end of the 25-hour fast. There is a sense that prayers have been answered, and the modal chants reflect that belief and that positive mood.

Here is a short summary of the “mood-indicating” aspects inherent in Nusach HaT’fillah. HaShem Malach is usually laudatory and upbeat, and the S’lichah Mode (Ukrainian Dorian) is usually solemn and plaintive. The Ahavah Rabbah mode has a perfunctory Weekday version and a celebratory Shabbat version. The Magein Avot mode has several sub-modes; Weekday “Study Mode Minor” is perfunctory, while the Yishtabach sub-mode for Shabbat is elaborate.

Section 4.4 has presented many of the musical structures of Nusach HaT’fillah: musical motifs, scales, intervals, tetrachords, authentic and plagal forms, resting points, and comparisons with the medieval modes and musical modes of other cultures. This section has also reviewed and given examples of the functions of Nusach HaT’fillah: identifying Sacred Time within the Jewish religious calendar and the regular week, specifying various sections of the liturgy, and showing the meanings and moods of prayer texts through phrasing and modal musical motifs.

---

200 Please see Appendices E-6 through E-14 for notated music to see how the modal motifs change during Shabbat.
201 Please see Appendix D-13 and D-14, "Shabbat Services with Nusach" and "Shabbat Shacharit with Nusach".
4.5 Applications of the Prayer-modes to Liturgical Texts

To explore the functions of Simanei Nusach graphic symbols in Chapter 5, it must first be clear which musical modes and motifs of Nusach HaT’fillah are applied to which liturgical occasions and which sections of liturgy. Chapter 4 presented the structure of Jewish liturgy, and Section 4.4 detailed the structures and functions of Nusach “Musical Prayer-modes” and their motifs. The task of this Section 4.5 is to integrate these structures and functions.

For every prayer and Nusach mode, the traditional pattern is for the prayer-leader to begin a prayer aloud and soften to a quiet murmur, let the congregation "murmur along", and then chant the end section aloud. The dynamic (volume) is "medium", and the tempo (speed) varies with the liturgical occasion. Weekday is fairly fast, but Shabbat and Festivals are usually leisurely.

In this section, the modes and their musical motifs are discussed in the order “more simple to more complex”, so that it will be clear how they relate within the structure of Jewish liturgy. These are not just “scales” (like the medieval modes) but “groups of modal motifs” that combine to define their underlying scales. The order of presentation in this section will be Pentatonic mode, S’lichah mode, Ahavah Rabbah mode, HaShem Malach mode, and Magein Avot mode.

4.5.1 The "Pentatonic" mode and the S'lichah mode have specific uses

A “Musical Prayer-mode” of Nusach HaT’fillah may be deemed “a group of musical motifs that define the intervals of a scale.” The ethnomusicologist Abraham Zvi Idelsohn said:

“A mode … is composed of a number of motives … within a certain scale. The motives have different functions. There are beginning and concluding motives, and motives of conjunctive and disjunctive character.”

To restate this: “A mode is not simply a scale but rather a unique group of musical motifs with phrasing functions. These motifs collectively indicate the intervals of their underlying scale.”

In this context, it makes sense that intervals between notes above the octave or below the octave can be different from the intervals between those same notes within the octave of the given underlying modal scale. This can be seen in the motifs of the Pentatonic mode, which is mainly chanted for the Amidah of the Weekday morning (Shacharit) and Afternoon (Minchah) services. It is also chanted for the Brachot (Blessings) after the Haftarah (Prophetic Reading).

---

202 This is an original definition by the author, based on a composite of many sources but quoting none exactly.
Within the notes of a Major scale (Ionian mode), the notes in the Pentatonic mode are “E”, “F”, “G”, “A”, and “C” which correspond to the scale-degrees “3, 4, 5, 6, 8” in the main octave. Above the octave there are motifs with the notes “D” and “E”, the scale-degrees “2” and “3” (or possibly “9” and “10”). The finalis (end-point) for the Closing motif in the Weekday Amidah is “5” (‘Sol’ in Solfeggio), and it is “3” (or “Mi”) in most of the Brachot after the Haftarah. There is no modulation is this mode. There are about eight musical motifs in the Amidah version of the Pentatonic mode, and about a dozen modal motifs chanted for the Brachot after the Haftarah.

4.5.2 The S’lichah mode is used heavily during the High Holy Days

There is some controversy among scholars of Jewish music over the S’lichah (Penitential) mode. For those who agree that this is actually a separate musical mode, there are a variety of other names that are used to identify it. However, there are also some scholars who feel that this is only a “variant” set of motifs that appear within other modes of Nusach HaT’fillah, such as in the Kabbalat Shabbat Psalms. The name for this mode / variant acceptable to many scholars is “Ukrainian Dorian”, because it is the medieval Dorian mode with a raised 4th scale-degree.

In the 3rd Edition of the “Harvard Dictionary of Music”, the article on “Gypsy Music” has a notated musical example that identifies this “Dorian mode with a raised 4th” as the “Gypsy Scale”. In the modal music of Northern India this mode is Raga Todi, and in Arabic music this mode is Maqam Nakriz. Research will be ongoing to see if motifs of this mode appear in the chants of the Roman Catholic, Ukrainian Catholic, and/or Eastern Orthodox churches. This mode is similar to Maqam Nakriz in Arabic music, and it may not have an equivalent Raga.

In the Nusach HaT’fillah of the High Holy Days, most of the Penitential prayers in the Yom Kippur “S’lichot Section” are chanted with this mode, hence the name “S’lichah mode”. On both Rosh HaShanah and Yom Kippur, a penitential prayer “Avinu Malkeinu” (“our Father, our Ruler”) is chanted with the motifs of this mode. There are about 15 musical motifs, including several in modulation to “relative Major”. In the opinion of this author, the “S’lichah mode” seems to be a fully developed musical mode of Nusach HaT’fillah, and not just a variant within other musical modes such as HaShem Malach.

---

204 Please see Appendices E-5, “Music for Low A.R. and Pentatonic” and D-15, “Weekday Services with Nusach”.
4.5.3 The Ahavah Rabbah mode is chanted on Weekdays and Shabbat

There are two versions of the Ahavah Rabbah mode, a more simple version chanted on Weekdays, and a more elaborate version chanted on Shabbat. This musical mode has been discussed in Section 4.3.2 above, and its unique characteristic is the “step-and-a-half” between the lowered 2nd and raised 3rd scale degrees. Since the Ahavah Rabbah mode is a modification of the medieval Phrygian mode, it has the colloquial name “Freigish” among Yiddish-speakers of an older generation. This mode is similar to Maqam Hijaz in Arabic music and to Raga Bhairav in Hindustani music, and it does not seem to appear in Catholic Church chants.

The Weekday version can be called "Low" Ahavah Rabbah, because its modal motifs have a narrow range (a fifth, or at most a sixth). Its tessitura (where most of the notes lie) is in the bottom tetrachord of the underlying scale, modulation is not included, and movement between notes is diatonic (step-wise) rather than in large leaps. Low Ahavah Rabbah is chanted for the Sh’mu uVirchoteha section of Arvit and Shacharit on Weekday evenings and mornings. Of the 18 modal musical motifs for which Simanei Nusach symbols are available in any given mode, only about a dozen motifs are chanted in the Weekday “Low” Ahavah Rabbah mode.

This same musical mode is chanted differently on Shabbat, and the differences illustrate how it is musical motifs within an underlying scale that determine the nature of a musical mode. Here are several characteristics of the "High" Ahavah Rabbah version of this same mode. Its motifs have a wide range – at least an octave, often more. There is no clear “tessitura” because the entire range of notes is used in various motifs. The 4th scale degree serves as a “pivot point” for modulations to higher musical phrases in both Major and Minor, and both modulations return to the 5th scale degree. It is common to move between notes with “jumps” of a fourth, a fifth, and even an octave among the motifs within the Shabbat “High” Ahavah Rabbah mode.

This version of Ahavah Rabbah is chanted for parts of the Sh’mu uVirchoteha section on Shabbat morning, and for most of the Amidah in Shacharit and Musaf. An experienced lay prayer-leader might use most of the 18 musical motifs for which symbols of Simanei Nusach are available. A professional Hazzan might use over 30 elaborate musical motifs for the same texts. This phenomenon can be seen in the notated music published by various Cantors during the 20th century for Shabbat services.

---

208 Please see Appendices E-5, E-12, and E-13 for notated music motifs of both Ahavah Rabbah mode versions.
4.5.4 The HaShem Malach mode is chanted for "laudatory" occasions

It was mentioned above that the underlying scale of the HaShem Malach mode and the Mixolydian mode are similar. However, there are notes both above and below the “main scale” of the HaShem Malach mode that have different intervals among them than these same notes within the main scale. This can best be seen by presenting note names of the main HaShem Malach octave scale from “G” to “G” with no sharps and flats, and then repeating them together with the additional notes in the underlying modal scale that are above and below the octave:


The upbeat and laudatory “mood” of the HaShem Malach mode is one of its salient features. It is used for chanting the Preliminary Service on Friday evening, the Kabbalat Shabbat Psalms. In this use of HaShem Malach, there is a common modulation on the 4th scale degree to another phrase in Major, which then returns to the 2nd scale degree. The “resting point” on which several of the “Pausal” motifs end is the 5th scale degree, similar to the term “dominant” in discussions of Church modes and Plainchant.

The “Ukrainian Dorian variant” discussed in Section 4.5.2 provides motifs that add “a dash of spice” to Kabbalat Shabbat. In many sections of liturgy where it seems that the chant is in Major (with a raised 7th), the chant is actually a version of the HaShem Malach mode. This is found at the beginning of the Shabbat Amidah in Shacharit and Musaf, and on Rosh HaShanah.

4.5.5 The Magein Avot mode in Minor has several sub-modes

The Magein Avot mode has several “sub-modes” that are used in various liturgical settings throughout the year. Here is a listing of the main “sub-modes”: “Study Mode Minor” for Weekdays (and other times), Yishtabach mode for the Sh'ma uVirchoteha section of Shabbat Shacharit, a special mode for Shabbat Minchah, Hallel motifs for Psalms 113-118 on Festivals, and several distinct sub-modes that are chanted during sections of the High Holy Days services and during worship services on the Three Pilgrimage Festivals (Pesach, Shavuot, and Sukkot). “Authentic” and “plagal” versions are chanted in two parts of the Friday Evening service.

---

209 Discussed in Section 4.4.1 above.
210 Please see Appendix E-6 and the left-hand column of Appendix E-7 for the notated motifs.
211 As discussed in Section 4.4.4 above. Please see Appendices E-4, E-8, E-9, and E-10 for notated motifs.
The characteristics that all of these “sub-modes” have in common is that they are all based on a “Natural Minor” scale (Aeolian mode). What makes them all different is the fact that each sub-mode has a different set of modal musical motifs. The basic patterns and functions for some of these musical motifs will be discussed in Chapter 5 below. There are Opening, Continuing, Extension, Elaboration, Modulation, Medium Pausal, Strong Pausal, Penultimate, and Closing motifs in all the Musical Prayer-modes or Nusach Ha'T’fillah discussed in Section 4.5 above.

Since there are several sub-modes of Magein Avot, it is not possible to detail all the note ranges, modulations, movement between pitches, and other characteristics discussed above for the other “main modes” in the Nusach Ha'T'fillah. In general it can be stated that musical modes chanted on Shabbat evening, Shabbat morning, Festivals, and the High Holy Days have more motifs and they are more elaborate, while musical modes chanted on Weekdays (such as "Study Mode Minor") and on Shabbat afternoon have fewer motifs and they are more simple.

**Conclusion to Chapter 4**

Chapter 4 has provided context about the structure and development of Jewish liturgy. The structure of liturgy is important, because one main function of the Nusach HaT'fillah Musical Prayer-modes is to delineate that structure musically. Modal musical motifs change with the time of day, week, month, and year, and from section to section in the same worship service. A prayer may be chanted one way at one point, and later in a different Nusach in another point.

The development of Jewish liturgy has an impact on how it has come to be chanted. In the areas of Jewish settlement in Northern and later in Eastern Europe, the ancient Middle Eastern style of liturgical chant was modified by the currents of medieval European music. However, in areas where Jews lived among Muslims in Spain, North Africa, the Middle East, and later the Ottoman Empire, the Middle Eastern aspects of Jewish Liturgical Chant were reinforced.

Chapter 4 also presented information on the structure of Nusach HaT'fillah and the modal musical motifs that are the components of a given Nusach mode. The context for this discussion was a review of some modes in other cultures in which there are similarities of musical modes. These included discussion of Arabic Maqamat and Hindustani Ragas. Similarities among these three musical forms – Nusach, Maqamat, and Ragas – include chanting on one melodic line; the correlation of specific modes with specific times of day, week, month, and year; the underlying musical structure of tetrachords; and the concept that a musical mode can be indicative of mood.
Chapter 5 – Analysis of Simanei Nusach for Liturgical Chant

5.1 Graphics and function of Biblical Ta’amei HaMikra (Trope)

The first two sections of this chapter are a brief review of the material that was discussed in Chapters 3 (Trope) and 4 (Nusach) above. Section 5.3 presents details about the functions of the graphic symbols and where they are placed in the liturgical texts, and Section 5.4 elaborates on their punctuation and syntax aspects. Section 5.5 discusses aspects of assigning the graphic symbols in liturgical texts, and notating their musical motifs in a teaching software program.

5.1.1 Ta’amei HaMikra indicate punctuation, accentuation, and chant

The Cantillation symbols of the Hebrew Bible were discussed in Chapter 3 above, and their source was identified as four generations of the ben-Asher family working in Tiberias during the 800's C.E. They added graphic symbols to the consonantal text of the Hebrew Bible for vowels, punctuation, accents, and chanting, and they built on the work of other Jewish communities in Babylonia and Palestine. They reflected the received Oral Tradition (Masorah) of the past, and they codified their understanding of the texts for the future through their graphic symbols.

The main function of Biblical Cantillation symbols is to indicate punctuation and syntax of the Hebrew Bible (TaNaKh) text, and thereby to codify its meaning. The Tiberian Masoretes used their graphic symbols to indicate the primary accent of each Hebrew word by placing a Trope symbol above or below the accented syllable. They used a second Trope (or a Meteg accent) to indicate some secondary accents in words of three or more syllables. There is a Cantillation symbol on almost every word of Biblical text, and these indicate Biblical chants.

Trope appear in the liturgy of some Jewish prayerbooks (Siddurim) where Biblical texts have been quoted in the liturgical text. In addition, Psalms have their own set of Trope which differ from those used in the 21 "Prose" books. When Psalms are quoted in a Siddur (Weekday, Shabbat, Festivals) or in a Machzor (High Holy Days prayerbook), their Cantillation symbols are not included, and they are chanted in Nusach motifs or sung to metric melodies. Dozens of Biblical verses are quoted throughout Jewish liturgy, compiled in paragraphs or inserted within liturgical passages, and Trope symbols are seldom used for these short Biblical quotations.

212 In Siddur Sim Shalom (1985): V’sham ’ru (Ex. 31:16-17) and Vaychulu (Gen. 2:1-3) on Shabbat evening, and V’ahavta (Deut. 6:4-9), V’hayah (Deut. 11:13-21), and VaYomer (Num. 15:37-41) every morning and evening.
5.1.2 Shapes of Ta'amei HaMikra reflect shapes of their musical motifs

"Chironomy" hand-signals for Torah chant were being used in Talmudic times, and in some Jewish communities they are used today. There may be a connection between musical motifs of Biblical chant (for indicating phrasing) and the shape of the "Chironomy" hand-signals done by the Tomech or "Helper" (possibly a Gabbai functionary). Graphical symbols were developed for punctuation, accentuation, and chant in Babylonia and Palestine during the 600's – 800's C.E. Perhaps the shapes of these Trope were related to the "musical line" of their chanted motifs.

One aspect of Trope not discussed previously is the names of Masoretic symbols. These reflect a mixture of Hebrew and Aramaic, and each name carries a meaning related to the shape of the Trope symbol, its punctuation function, or its common musical motif. As stated above, there may be relationships between the "musical line" of a common motif and the shape of a Trope, and the name usually highlights one of these three specific aspects. Darga is a "zigzag" backwards "Z" shape, its name means "step-wise" (from the root word for "steps"), and its musical motif is usually "diatonic" ("step-wise").

5.1.3 This system of "Masoretic accentuation" has endured for 1200 years

When one asks, "How is a R'via chanted?" the answer depends on two questions: "R'via for Torah, Haftarah, Eichah, Ester, High Holy Days Torah, or Festival M'gillot?" "R'via for which of these Bible books among the Jews of what community?" One similar question must be asked about chanting the various musical motifs of each graphic symbol in the new Simanei Nusach: "Which Musical Prayer-mode of Nusach HaT'fillah is being used for a given liturgical occasion, time, Liturgy section, and text?" There are only 18 new symbols, but there are over a dozen modal musical motifs that can be chanted for each one, depending on the time of week and day, the section of worship text, and the musical mode and sub-mode of each Nusach.

The "bottom line" about Biblical Cantillation is that the Masoretes perceived problems with transmission of an Oral Tradition for chanting a consonantal text. They solved those problems brilliantly by inventing vowels and Trope symbols that are still used 1,200 years later, together with an apparatus of notes for textual emendation. They preserved the "received Hebrew text" and codified it for the future. In a modern era of notated music, recordings, and software, Trope symbols are easily taught. How can a set of new graphic symbols be used to preserve and teach phrases of liturgical chant, especially to lay religious leaders who do not read notated music?
5.2 *Nusach* motifs show punctuation and meaning of prayer-texts

Section 2.4 above presented a brief introduction to semiotics and musical semantics. The musical motifs within the liturgical modes of *Nusach HaT'fillah* function as phrase-markers within the texts of Hebrew prayers. This may be one "signification of meaning" for *Simanei Nusach* graphic symbols, a concept of semiotics. *Nusach* modes and music motifs also identify sacred times, sections of liturgy, and the moods inherent in liturgical texts. These functions may be more in keeping with the concerns of musical semantics that were discussed in Chapter 2.

5.2.1 There are clauses, phrases, and word-pairs in the prayerbook texts

Unless a person who is leading Jewish worship knows Hebrew very well, there are few clues in the presentation of liturgical texts on a prayerbook page that indicate the logical phrasing and punctuation. Various *Siddurim* and *Machzorim* offer fewer or more of commas within sentences, and there may be clues about Hebrew phrasing in the punctuation of the English translation.

There are a few *Siddurim* and *Machzorim* that "stack" the phrases of the Hebrew texts. In 1961, the Rabbinical Assembly published a Conservative Weekday *Siddur* in which both the Hebrew and English are "stacked" by phrases on facing pages. In 1981 Koren Publishing issued a Hebrew *Siddur*, with "stacked" Hebrew phrases; this was reissued in 2009 with "stacked" English translation. In the 1980's Metsudah Publications issued Weekday and *Shabbat "Linear" Siddur*, and "Linear" High Holy Days and Three Festival sets of *Machzorim*.

In 1998, ArtScroll published a set of linear *Siddurim* with transliteration (Ashkenazic) and translation, and they pioneered an effective "Interlinear translation". Reconstructionist Movement affiliates have recently produced *Siddurim* with a four-column format across each two-page spread, offering transliteration and two alternate translations. Two new *Siddurim* of the Reform Movement, *Mishkan Tefilah* (2007) in America and *Forms of Prayer* in Britain (2008), both at first glance seem to be "linear", but their "word-wrap" is not consistent.

---

These resources are useful, especially for lay prayer-leaders who might not have a high level of knowledge about the grammar and meaning of the prayer-texts. Just like Torah Cantillation, chanting liturgy in Hebrew with incorrect phrasing can lead to changes in meaning of the text. If a lay prayer leader knows basic Hebrew grammar, then prepositions and conjunctions help with phrasing and identifying word-pairs such as subject-verb, verb-object, and preposition-object.  

5.2.2 Musical motifs in a Nusach mode reflect the delineation of phrases

In a traditional style of liturgical chant during Jewish worship, the congregation may read or quietly murmur the text of a given paragraph, and the Shali-ach Tzibbur then chants aloud the last full sentence or two along with the concluding B’rachah (Blessing). This "concluding formula" is called the "Chatimah" (literally "Seal"), and it has the form "Praised / Blessed are You, God, __________." This is a summary about the subject of that entire prayer or section.

Regardless of the modal musical motifs chanted for the previous paragraph (or paragraphs) in a section, there is a special motif assigned by Oral Tradition for this concluding formula. This motif is usually used even when the rest of that paragraph has been sung to a congregational melody, rather than chanted with Nusach motifs. This is just one type of phrase in the text of Jewish Liturgy that is delineated by the choice of specific musical motifs, and those motifs differ when the same text is used for varying other liturgical occasions.

The Chatimah (concluding formula) of the Creation paragraph near the beginning of the Evening Service always has the same Hebrew text: "Praised are You, God, Who brings the Evening." These exact same words are chanted in the Low Ahavah Rabbah mode (or usually in Study Minor) on Weekday evenings, in the "plagal" version of the Magein Avot mode on Shabbat evening, in the HaShem Malach mode on evenings of the High Holy Days, and in a sub-mode of the Minor Magein Avot mode on Festival evenings.

In each situation, the modal musical motifs have five simultaneous functions: they identify the "liturgical occasion" (Weekday, Shabbat, High Holy Days, Festival), time of day (Evening), the section of the service (Sh'ma and its Blessings), mood of the occasion (perfunctory Weekday, restful Shabbat, laudatory High Holy Days), and that this is the concluding formula phrase.

There is a need to identify the logical phrases in the Hebrew text of the liturgy. Whether or not one knows Hebrew grammar, has access to the "linear" prayerbooks discussed above, or

---

221 Please see Appendix E-1, "Nusach Problem-Solving Issues".
follows the commas in a prayerbook text, there is still the issue of which phrases are chanted as "Openers", "Linkages", "Pausals", and "Closers" to identify the syntax of the Hebrew texts.

To answer the question asked at the end of Section 5.1 above, these new graphic symbols are crafted to reflect the "commonly-accepted Ashkenazic tradition of musical modes and their motifs, for particular liturgical texts as chanted on given occasions." Like the Biblical Trope symbols, these symbols preserve and teach the musical motifs of Jewish Liturgical Chant.

5.2.3 Teaching Jewish Prayer-chant to those who do not read music

There was one early attempt to develop a set of graphical symbols for chanting musical motifs in Jewish liturgy. This was presented by Cantor Reuven Frankel to the 29th Cantors Assembly Convention in the Catskill Mountains on May 12, 1976, during a workshop entitled "A New Approach to Teaching Nusah Hatefillah" [sic].

Cantor Frankel attempted to do with his "Nusah-Trope" what the Babylonian scholars tried to do with their version of Biblical Cantillation symbols. He gave names to different types of musical motifs, and the shapes of the symbols he proposed were derived from the first letter of these alphabetical "motif names" (using a unique stroke from each letter).

Cantor Frankel also used another characteristic of Cantillation symbols. He devised a symbol (based on his "motif names") for most words in each prayer. The result is similar to the problems of the Trope devised by the Babylonian scholars. The Babylonian Trope were all above the words, along with their version of the vowels.

The result was too many symbols where the square Hebrew consonants already have much ink. Tiberian Trope are more legible because they are split between those above the words (supra-linear) and those below the words (sub-linear). By placing so many "Nusah-Trope" symbols above the words of liturgical text, Cantor Frankel reduced the legibility of the texts.

On the other hand, Cantor Frankel was definitely "on the right track" with the functions of his "Nusah-Trope" for phrasing the prayer-texts and for accenting the words. Here is a quote from page 150 of his article in the "Proceedings" of the 1976 Cantors Assembly Convention:

---

223 Please see Appendix F-2 for examples of Babylonian and Tiberian Trope, and for Frankel's "Nusah-Trope".
224 Please see Appendix F-3 and F-6 for examples of the difference in legibility between the two systems.
"You will notice that the Nusah-Trope notation is placed in such a way that it determines the accent, it determines the phrasing of the melody, and it determines the phrasing of the words."²²⁵

It was decided during 2005, early in the development of the new Simanei Nusach graphic symbols, that they would be "motif-based" by phrases rather than by words. The fact that both Frankel's "Nusah-Trope" and the new "Simanei Nusach" delineate text phrases is very important. This punctuation function within Jewish Liturgy is derived from the "punctuation function" of the Biblical Trope symbols in the Hebrew Bible²²⁶.

There is another type of system for indicating Nusach motifs, but this does not use graphic symbols. Cantor Pinchas Spiro prepared a series of books published by the Cantors Assembly, each of which is called a "Musical Siddur" (or for High Holy Days, a "Musical Machzor"). In each book has the text for a particular set of worship services (Weekday, Shabbat, High Holy Days, Festivals), and interwoven lines of notated music for most of the Hebrew prayer-texts.

In the second book of this "Musical Siddur" series, "Preliminary Service for Sabbath and Festivals"²²⁷, Cantor Pinchas Spiro used only the English letters "a" through "e" and the number "2" to indicate musical motifs that he called "themes", set up as "Statement" and "Resolution" musical phrases²²⁸. This worked for the Shabbat Preliminary Service, traditionally chanted in HaShem Malach mode, because there are few musical motifs in this section of the service.

However, Cantor Spiro did not use his system of indicating the musical motifs within the Nusach HaT'fillah of any other service. This does not appear in any of his other books, and the probable reason is simple. There are too many musical motifs in the other modes of Nusach HaT'fillah chanted during other liturgical occasions for this to be a workable system.

By publishing the Spiro "Musical Siddur" series in print and as a set of recorded CDs, the Cantors Assembly met the primary objective of "addressing multiple VAK learning modalities" (Visual, Auditory, and Kinesthetic). Those who can read notated music have the interwoven

²²⁵ Frankel, Proceedings (1976) ibid., page 150.
²²⁶ There has been one other attempt to devise a useable set of graphic symbols for delineating the musical motifs of liturgical chant. Cantor Joel Caplan has taught at the JTS Cantorial School, and his students indicated to this author that he was using a preliminary set of symbols for musical motifs. He indicated to this author and to the Tefillah Trainer™ developer that his symbolic system was not fully developed, and that he is supportive of the new Simanei Nusach graphic symbols developed by this author and discussed in this thesis.
²²⁸ He identified three "sub-themes" ("a", "b", "c") for the "Statement" phrase and two "sub-themes" ("d", "e") for the "Resolution" phrase, a "combination" alternative ("a/b"), and an alternative ending ("E2") musical motif.
lines of "music staff and notes" available, those who need a little help with details of the Hebrew texts have Spiro's meticulous transliteration under the music notes, and those who cannot read notated music (or even those who do) have the recorded CDs as a learning tool.

5.3 New system of graphic symbols for Jewish Prayer-modes

At the end of Section 5.1 above, after a brief review of how Trope symbols function in the Hebrew Bible to codify punctuation, accents, and meaning, the question was asked:

"How can a set of new graphic symbols be used to preserve and teach the phrases of Jewish Liturgical Chant, especially to those lay religious leaders who do not read notated music?"

The brief review above included how the musical motifs in the prayer-modes of Nusach HaT'fillah delineate times, sections, phrases, moods, and the meaning of liturgical texts. The answer to this question\(^{229}\) was given in Section 5.2: "... new graphic symbols have been crafted to reflect the "commonly-accepted Ashkenazic tradition of musical modes and their motifs, for particular liturgical texts as chanted on given occasions."

The rest of Chapter 5 will examine more details of the Simanei Nusach graphic symbols, including how they have been applied in the Tefillah Trainer™ teaching software program.

5.3.1 Like Trope, Simanei Nusach reflect punctuation within liturgical texts

Disjunctive Trope symbols show separations and relationships among clauses, phrases, segments, and word-pairs, as discussed in Chapter 3 above. These same relationships exist in liturgical texts of the prayerbook, but except for Cantor Frankel's attempt in the 1970's, there have been no graphic symbols that have received widespread acceptance for showing those relationships in Hebrew liturgical texts.

In Chapter 2, a distinction was made between the training available in Cantorial Schools (reading notated music is a requirement) and other forms of training available for lay religious leaders (who may or may not read notated music). The Simanei Nusach graphic symbols were originally developed to meet the needs of lay leaders in the United Synagogue IMUN Program, half of whom did not read music. It soon became clear that in each mode of Nusach HaT'fillah only less complex musical motifs would be taught, and these needed graphic symbols.

\(^{229}\) At the end of Section 5.2.2 above.
The original seven graphic symbols in 2005 reflected general "phrasing" motif categories of "Opening" (*Dark Triangle*), "Linkages" such as "Continuation" (*Left Arrow*) and "Extension" (*Tilde*), "Medium Pausal" (*Double Lines*), "Strong Pausal" (*Dark Circle*), "End Blessing" (*Asterisk*), and "Closing" (*Dark Square*). At that time it was determined that the Opening, Linkages, and End Blessing motifs were "Conjunctive" (Joining) functions, and the two Pausals and the Closing were "Disjunctive" (Separating) functions. This reflects how these musical motifs and their symbols originally delineated punctuation and syntax within the Hebrew texts.

These original seven *Simanei Nusach* were experimentally used in the *Tefillah Trainer™* teaching software that was being developed by Kinnor Software. The Weekday services were the first for which music was notated, and these have a smaller number of musical motifs. As the *Shabbat* sections of the Liturgy were notated using their Musical Prayer-modes and motifs of *Nusach HaT'fillah*, it became clear that additional graphic symbols were needed to reflect the range of modal musical motifs in the *Nusach HaT'fillah* modes of *Shabbat*.

This led to adding new *Linkage* symbols (*Left Hook*, *Infinity*, and the *Up Arrow* for *Modulations upward*) and new *Pausal* symbols (the *Letter X* for *Penultimates*, the *Triple Lines* for longer *Medium Pausals*, and the *Down Arrow* for *Modulations downward*). Copyright is shared by this author and Thomas Buchler, the developer of the *Tefillah Trainer™* software, because Tom helped identify shapes that could be used for these additional symbols.

**5.3.2 Ta'amei HaMikra are on each word to show segments and word-pairs**

There were now (2006) over a dozen *Simanei Nusach* graphical symbols, and it was time to "beta-test" them with adult students. During the *IMUN Program* of that summer, a discussion took place about where these symbols should be placed relative to the Hebrew liturgical texts. It was decided to place just one symbol over the first word of each Hebrew phrase.

In some paragraphs of the liturgy, there is subtle musical transition to the *Nusach* mode and motifs that will be chanted in the next section. This is called "anticipation", and it happens several times during the course of a complete *Shabbat* Morning worship service. In order to assign symbols for the motifs of both musical modes in one prayer, three of the original seven *Simanim* (*Dark Triangle*, *Dark Circle*, and *Dark Square*) were used in an "open" or "outline" form. These became the *Open Triangle*, *Open Circle*, and *Open Square*, and they have the functions *Secondary Opening*, *Secondary Strong Pausal*, and *Secondary Closing*. 
There are two strong similarities between the Ta'amei HaMikra of Biblical Cantillation and the Simanei Nusach of liturgical chant. For Trope, each graphic symbol takes on a variety of musical motif values as it functions in a "system" of Cantillation (Torah, Haftarah, Esther, Lamentations, ...). For these new Simanim, each graphic symbol takes on a variety of musical motif values as it functions within a "musical mode" of Nusach HaT'fillah (HaShem Malach, Magein Avot, Ahavah Rabbah, Pentatonic, ...).

Another similarity between Trope and Simanim is that the name, shape, and syntax function of each graphic symbol do not change, even as various musical motif values are represented by that symbol. This holds true for the 27 Cantillation symbols of various Biblical texts (using the Masoretic Trope), and in the modal Nusach chant for various liturgical occasions and service sections (delineated by the 18 Simanei Nusach symbols) through the Jewish religious year. The Trope are applied to six types of books in chanting the Hebrew Bible, and the new Simanim are applied (so far) to over a dozen musical modes and sub-modes for Jewish Liturgical Chant.

5.3.3 Simanei Nusach delineate entire phrases in the syntax of Hebrew liturgy

The last two Simanei Nusach symbols were added in 2007\textsuperscript{230}, bringing the number of new graphic symbols to 18. This number was dictated by a balance between two conflicting factors. The more elaborate musical modes of Nusach HaT'fillah needed enough graphic symbols for their melismatic modal musical motifs. However, the intended audience of teaching software in which these Simanim were now being used was lay prayer-leaders rather than professionals.

These last two new symbols were both Linkages: Elaboration Upward (the Upward U) and Elaboration Downward (the Downward U). These additional symbols were needed because the modal musical motifs are complex for the liturgy of Shabbat, High Holy Days, and the Three Festivals, even when one is notating only their most basic motifs. The more elaborate style of chanting on these liturgical occasions is part of the "celebratory mood" that is conveyed by the Nusach HaT'fillah through its motifs.

An article by Baruch Cohon\textsuperscript{231} has been one of the "foundational documents" for analysis of the musical motifs within the modes of Nusach HaT'fillah. Based on work of A.Z. Idelsohn, Cantor Cohon presents this over-arching structure for the modal musical motifs of Nusach:

\begin{center}
\textsuperscript{230} Please see Appendix F-10, Simanei Nusach with Linkages 2007\textsuperscript{"}.
\end{center}

The 2007 set of Simanei Nusach has now been refined and changed considerably. It is less derivative of the Trope terms "Conjunctive" and "Disjunctive", and more attentive to terms for Nusach motifs: "Openings", "Linkages", "Pausals", and "Closings". Sub-types of "Linkages" (or "Intermediates") now include "Continuations", "Extensions", and "Elaborations". Sub-types of "Pausals" now include "Modulations" and "Penultimates".

5.3.4 Simanei Nusach indicate "musical functions" of modal musical motifs

In 2011 three factors converged to cause this reassessment of the original functions signified by the Simanei Nusach. These were: 1) analysis of these new graphical symbols in the context of this thesis; 2) preparing music notation and assigning Simanim for a few hundred High Holy Days prayers in Tefillah Trainer™ teaching software; and 3) teaching High Holy Days Nusach online to Hebrew College (Boston) students using Tefillah Trainer™ software as a resource. The result was discovering that some "Linkage" or "Intermediate" musical motifs function as a Conjunctive or as a Disjunctive phrase-marker, depending on the syntax of the Hebrew text.

Among Simanei Nusach symbols that always function as Disjunctives or Separators, several Simanim can be compared with Disjunctive Trope, because their "phrase-identifying" functions are similar. The Dark Square (Closing) has the function of a Silluk (or Sof Pasuk), a period at the end of a Bible verse. The Dark Circle (Strong Pausal) has the function of an Etnachta (a "semi-colon" marking the approximate midpoint of a Bible verse). The Double Lines (Shorter Medium Pausal) functions as a Zakeif Katon (a "comma" ending a phrase), while the Triple Lines (the Longer Medium Pausal) functions as a Zakeif Gadol (an elaborate "comma" motif).

5.3.5 Graphic symbols are placed at the beginning of each Hebrew text phrase

The decision was made during the summer 2006 to place one Siman (singular of Simanim or Simanei Nusach) above the first word of a phrase in liturgical text, and in the corresponding place in the notated music of the liturgical chant for that text. The Hebrew text itself is "stacked" by logical phrases, using the "Michigan-Claremont-Westminster" (MCW) computer code for the Hebrew texts. These are three Universities where a useful Hebrew coding system was refined during the 1980's, and MCW code is used by the Jewish Publishing Society for their TaNaKh.

---

This author knows how to read and write in MCW code, and it is used to "stack" the logical phrases of Hebrew text one above another in the upper portion of the Tefillah Trainer™ software screen. When the Simanim are assigned based on their musical motifs to delineate phrases of the Hebrew text, there is usually a Siman over the first word of each line in the "stacked" Hebrew. This is transferable to prayerbooks which print "blocks" of prayer-text; these small symbols can be handwritten above lines of Hebrew to show where each phrase and its musical motif begins.

Section 5.3 introduced details about the Simanei Nusach, and traced the development of this new system. Section 5.4 addresses details about "music syntax" and "text syntax", and Section 5.5 describes how the Simanim symbols are applied in Kinnor's teaching software. Additional points: The first is how the shapes were chosen for some of the original graphic symbols. They were taken from common symbols on most electronic devices: the "Start" button (Triangle), "Pause" button (Double Lines), and "Stop" button (Square). Other shapes reflect the "prevailing direction" of the musical line in each type of motif, or its punctuation function.

Second point: there are ambiguities in the phrasing of the Hebrew liturgical texts, which is why commas in one Siddur may differ from those in another. When Simanim are assigned to a Hebrew prayer-text, several Siddurim are consulted to arrive at a consensus for the best phrasing. However, a Hazzan or any other prayer-leader who knows Hebrew could disagree with these phrasing decisions, and he or she could also make different choices of the assigned motifs. The bottom line is that Siman motifs are "suggestions" based on tradition, but not "requirements".

5.4 Simanei Nusach show syntax and chanting of Liturgy texts

One term that has not been introduced to the discussion about chanting the Nusach motifs (represented by the Simanei Nusach) is the concept of "Psalmody", and with that the use of a "reciting tone" or "chant tone". Both of these terms refer to the chanting of multiple syllables (or multiple words) on one musical note, with an Opening musical motif leading to that note, some sort of "Linkage" motif, and a Pausal musical motif concluding the phrase of text.

Most of the musical motifs notated for the musical modes of Nusach HaT'fillah do not look "Psalmodic" by themselves, but "in practice" as applied to the phrases of liturgical texts, there often are "reciting tones" or "chant tones" notated. This is also a characteristic of Christian Plain-chant, which may be closely related to Cantillation and to Nusach motifs233.

233 Several books on Plainchant or Gregorian Chant were consulted on this, and they are in the Bibliography.
5.4.1 Main motifs within Nusach are Opening, Linking, Pausal, and Closing

Some details of the "phrasing functions" delineated by Simanei Nusach were discussed in Section 3.3 above. In this additional exploration of that important subject, the basic "underlying structures" of musical motifs are identified as "Openings", "Linkages", Pausals" and "Closings". While this approach does not reflect verbatim any particular scholarly approach, it has proven to be a useful "skeleton" on which to hang specific types of Simanei Nusach musical motifs. These also reflect the earliest stages in the development of the Simanim symbols during 2005.

The Opening motif that is marked with the Dark Triangle is usually the first musical motif of the end-portion in each paragraph of prayer that is chanted by the leader. In most Siddurim, there is a mark in the margin or in the Hebrew text to show where the Shali-ach Tzibbur usually begins to chant. In the Tefillah Trainer software, there is internal coding that changes the font to bold for the sentences that are usually chanted aloud by the prayer-leader. The Triangle (both Dark and Open) faces to the left, because Hebrew is written from right to left.

Several types of Linkage motifs will be discussed below, so only the above-mentioned Continuation motif will be discussed here. This is signified with a Left Arrow ("right-to-left" Hebrew), and the musical chant of the Continuation motif is often "Psalmodic" with a "chant tone" as discussed above. This symbol is also used to signify a Re-opening motif in certain musical modes of Nusach, such as the High Ahavah Rabbah mode chanted on Shabbat morning.

The "Pausal Power" of various Disjunctive Cantillation motifs was discussed in Chapter 3, and equivalent Simanei Nusach "Disjunctive" motifs were identified above. It is interesting to note that Cantor Cohon considers Pausals to be one type of "Intermediate" motif, whereas in the opinion of this author they are an important category by themselves. The Strong Pausal signified by the Dark Circle (equivalent to Etnachta of Biblical Trope) is usually placed near the middle of a sentence, but there are sentences in which the division of "main clauses" is not equal (as there are in the Hebrew Bible). The Closing signified by the Dark Square (equivalent to Silluk or Sof Pasuk in Trope) is almost always the final motif of any passage, especially if the Asterisk was used on the Chatimah (the summarizing "Seal") in the Penultimate text.

---

234 Discussed in Section 5.4.2 below.
235 Discussed in Section 5.3.4 above.
5.4.2 Additional motifs are Extension, Elaboration, Modulation and Penultimate

The structure of "phrase function" signification in this system uses additional "Linkage" musical motifs for the chant of some text phrases. While these may seem somewhat elaborate by comparison to the very basic motifs mentioned just above, these in fact are just a few of the possible motifs that are chanted for these same texts by a professional Cantor.

In many musical modes of *Nusach HaT*f*illah*, a second "continuation" motif has a higher set of middle notes. As the High Holy Days chants were notated, it became clear that there was a pattern of a *Left Arrow* (Continuation) followed by *Double Lines* (Shorter Medium Pausal), then another phrase with a *Hook* (Continuation Upward) followed by *Triple Lines*" (Longer Medium Pausal). This musical pattern reflects a characteristic of Classical Hebrew syntax, whereby a statement is made, and the same idea is reiterated in slightly different language.

"Modulations" are specific to the musical modes and motifs of *Shabbat*, High Holy Days, and Festivals. Chapter 4 had some discussion about the typical scale degrees for each musical mode of *Nusach HaT*f*illah* from which a Modulation can be "launched" and to which the chant "Returns". The corresponding places in the liturgical texts are marked with the *Up Arrow* and the *Down Arrow*. While these motifs are types of *Linkages* or "Intermediate Phrases", the *Up Arrow* is a Conjunctive musical motif, and the *Down Arrow* is a Disjunctive musical motif.

In addition to the *Asterisk* symbol which is usually used for the *Chatimah* ("Seal" or *Ending Blessing*), the *Letter X* is a specific type of *Medium Pausal* that is usually used for a *Penultimate* (Pre-Concluding) musical motif. For the High Holy Days musical modes and motifs, the three "Open" symbols are used for additional motifs. Originally they were meant for those situations in which a paragraph begins in one *Nusach* mode and ends in another. *Open Triangle*, *Circle*, and *Square* were used for the mode that was ending, and *Dark Triangle*, *Circle*, and *Square* for the new mode. These "Open" symbols now can represent additional modal musical motifs.

5.4.3 Original schema was 9 or 10 Conjunctives and 8 or 9 Disjunctives

During early development of these *Simanei Nusach* graphic symbols, a copyright / patent request\(^\text{236}\) was prepared in June 2007 (cf. § 5.3.3). Except for changing the *Asterisk* or *Ending Blessing* motif to be a Disjunctive, the original 2007 schema of Disjunctive *Simanim* had not changed. To review: *Double Lines* as "Shorter Medium Pausal", *Triple Lines* as "Longer

\(^{236}\) Please see Appendix F-10, "Simanei Nusach with Linkages 2007".
Medium Pausal", *Letter X* as either "Medium Pausal" or "Penultimate", *Dark Circle* as "Strong Pausal", *Dark Square* as "Closing", *Open Circle / Open Square* as "Strong Pausal" and "Closing" respectively in a different *Nusach*, and *Down Arrow* as "Return from Modulation" were all seen to function as Disjunctive motifs. The changes are in the functions of the Conjunctive *Simanim*.

**5.4.4 Revised schema is 9 pairs of Simanim; more are now Disjunctives**

The revised schema has been used for over a year during "hands-on" teaching in workshops and online courses. The first step in refining the original system functions was a review of the above-mentioned literature on the general subject of *Nusach HaT'fillah* and its modal musical motifs. The second step was making decisions about which set of "general terms" in this field were most descriptive of the syntax functions portrayed by these modal musical motifs.

The result of this study was the following "general set" of musical motif terms: "Openings", "Continuations", "Intermediates", "Modulations", "Pausals", "Penultimates", and "Closings". This was refined to include two types of "Intermediates", "Extensions" and "Elaborations", and two more types of "Pausals", namely "Strong Pausals" and "Weak Pausals". This latter term was changed to "Medium Pausals" in 2012, because the six "dual-function" symbols are all "Weak Pausals" when they function as Disjunctives.

**5.4.5 In revised schema, some Simanim can be Conjunctives or Disjunctives**

The largest change in the *Simanei Nusach* between 2007 and 2012 was the realization that some "Linkage" motifs – Continuations, Extensions, Elaborations, and Modulations – function as either Conjunctive (Joining) musical phrases, or as Disjunctive (Separating) musical phrases. This is different from the *Ta'amei HaMikra* symbols for punctuation and chanting the Hebrew Bible. *Trope* are either Conjunctives or Disjunctives, and that structure delineates the levels of punctuation. *Simanei Nusach* are on phrases within Jewish liturgy, and the syntax of Hebrew liturgy is not as clear-cut as that of the Bible. Thus six of the "Linkage" graphic symbols now have either a Conjunctive or Disjunctive function, as needed to phrase the texts.

Further analysis of the *Simanim* for this thesis resulted in complete connections between the functions of the 18 new *Simanei Nusach* and the 1200-year-old *Ta'amei HaMikra* (Trope) of the Tiberian Masoretes. For the Opening Conjunctives, *Dark Triangle* is like *Mapach* and *Open Triangle* is like *Kadma*. The "Linkage" motifs function as either Conjunctives or Disjunctives.

---

237 Please see Appendices F-5, "Simanei Nusach with Linkages - 2012", and F-12, "S. N. with Trope - 2012".
For Continuations, Left Arrow is like Munach and Hook is like Mer'cha. For the two Extensions, Tilde is like Pashta and Infinity is like Munach L'Garmeih. For the two Elaborations, Upward "U" is like Pazeir and Downward "U" is like T'lisha G'dolah. For the Modulations, Up Arrow is like Zarka and Down Arrow is like Segol.

The end result of these revisions is a new way of thinking about these 18 graphic symbols that represent modal musical motifs. Rather than "half Conjunctive and half Disjunctive", these symbols now fall into nine pairs. Half of the symbols still represent Disjunctive musical motifs, but only three of the other nine are always Conjunctives (Dark Triangle, Open Triangle, and Up Arrow). The other six (once only Conjunctives) are now able to function in either a Conjunctive or a Disjunctive manner for any given musical motif on a given phrase of liturgical text.

5.5 Use of Simanei Nusach in new educational software

This final Section of this final Chapter will show the steps that are involved in applying the graphic symbols of Simanei Nusach to the educational software in which they are being used. Among the decisions that must be made are: what modal musical motifs should be assigned to which Simanim, where are the phrase-breaks in the liturgical text, how can word accents and details of Hebrew grammar be shown through the notes of the modal musical motifs, what key should be used for the music notation to minimize accidentals (sharps and flats) and ledger lines, and how can the musical motifs and the graphic symbols express the meaning of the liturgy text?

5.5.1 Liturgy is “stacked” by phrases and Simanei Nusach are assigned

Hebrew "phrase-marking" in Jewish prayerbooks was discussed above238. When new prayer-texts are sent to this author for musical notation and assignment of graphic symbols, the first task is to review the text to see if it came "already stacked" into logical phrases. If the phrases are not already set, then their "word-wrap" can be modified by use of the MCW computer code discussed above. If modifications should be made to an Orthodox Hebrew prayer-text or its English translation (to make it gender-neutral), that can also be done using the MCW coding.

In a new paragraph or section of liturgy, assigning the Simanim symbols to Hebrew phrases happens in one of two ways. It is efficient to notate the music as it is commonly chanted, then derive modal musical motifs from the music notation. By examining the phrasing functions of these motifs, the next step is to decide which musical motifs are represented by which graphic

---

238 Discussed in Section 5.2.1 above.
symbol of Simanei Nusach. The other way of assigning graphic symbols is to first examine the phrases within the Hebrew prayer-text, decide which phrases need "Disjunctive" Simanei Nusach that have various levels of "pausal power", and then fill in the other modal musical motifs.

5.5.2 Application of motif symbols depends on syntax functions in text

As of late 2012, over 1,200 separate prayers have been notated in written music, with their Simanei Nusach symbols representing modal musical motifs in over 20 modes and sub-modes of Nusach HaT'fillah. The number of prayers is so large because each prayer has been prepared for Orthodox, Conservative, Reform, and Chassidic versions of its text and music motifs. This is (so far) only for the Shabbat and Weekday worship services; when the High Holy Days and Festivals are completed, there will likely be over 1,000 additional prayers.

The process of examining the Hebrew text for it phrases, notating those phrases as strings of music notes, changing those strings of notes into modal musical motifs, and assigning the Simanei Nusach graphic symbols has provided a new view into the content and structure of Jewish liturgy. It is clear that Jewish Liturgical Chant is logogenic, with phrasing and accents of the Hebrew sacred texts providing the basis for the modal musical motifs of the chant. It is also clear that one function of these modal motifs is to punctuate and explicate these texts.

5.5.3 Notation of liturgical music and assigning of Simanei Nusach

Some questions are asked before any liturgical music is notated. "What musical mode of Nusach HaT'fillah is usually chanted for this liturgical occasion, for this time of day, and for this section of the worship service?" "Are there text passages that would be usually sung with a congregational melody rather than chanted with the modal motifs of Nusach HaT'fillah?" "Are Hebrew phrases in this section of liturgy somewhat short or particularly long?" "Are musical motifs chanted on this liturgical occasion basic (such as on Weekdays) or more elaborate (such as on Shabbat or Festivals)?" "What are the most common modal musical motifs\(^\text{239}\) chanted for this section of the liturgy?" "Which musical motifs are appropriate for lay leaders to learn?" "Do the basic modal musical motifs flow logically to express the text phrasing and meaning?"

A single-level line of musical notes is put onto the music staff, rests are added to indicate phrasing, and accented notes are lengthened by adding a dot. This single-level line of music notes is changed into modal musical motifs for that prayer using keystrokes to raise and lower

\(^{239}\) Please see Appendix F-7 for a "screen-shot" of the Tefillah Trainer™ software.
notes within the music staff, and to add accidentals (sharps and flats) as needed. The "key" is chosen so that most of the musical motifs fit on the music staff lines, with minimal ledger lines.

Finally, the graphic symbols of the Simanei Nusach are "pasted in" at the beginning of each modal motif in the music, and they appear in the same place in the Hebrew text. Every attempt is made to avoid repeating the same note on consecutive "cadences" (Pausals), and to ensure a "smooth flow" from one musical motif to the next.

5.5.4 Functionality of graphic symbols for music readers and non-readers

Whether or not a person who is learning to chant Jewish prayers reads notated music, there is still the issue of addressing the Hebrew text to communicate its meaning to the congregation. Unless one is fluent in Hebrew as a second language, chances are that some visual clues for the phrasing would be quite useful. This is the main functionality of Simanei Nusach that works equally well for music readers and those who do not read music.

There are two crucial ways in which Trope and Simanim are similar. The 27 Trope symbols are divided into 19 Disjunctives ("Separators") and 8 Conjunctives ("Joiners"), and these same categories are pertinent to the Simanim. There are nine Simanim that are always Disjunctives, three that are always Conjunctives, and six that can function either way (depending on the syntax of the text and the flow of the modal musical motifs). These Disjunctive / Conjunctive functions are the basis of the "punctuation" or "phrasing" function that is similar in both sets of symbols.

Another way in which Ta'amei HaMikra and Simanei Nusach are similar is that a single set of 27 Trope or 18 Simanim symbols can be chanted in many different ways. Each type of Jewish community worldwide has six ways of chanting Biblical Trope for six types of Biblical books. So far there are a dozen different ways of chanting the 18 Simanim for various times, occasions, and sections of the Jewish liturgy. However, the punctuation functions of the symbols remain the same even as the musical motifs change, both for Biblical Trope and liturgical Simanim.

More analysis can be done on these Simanei Nusach graphic symbols, in terms of semiotics and musical semantics, and as the study of modal musical motifs in Jewish ethnomusicology. There are also other related fields of study listed below in the Summation under the category of Assumptions and Limitations. There is much material on this subject to engage this author for years to come – "May it come to pass" in the future.

Please see Appendices F-8, "Psalm 92 Text ..." and F-9, "Hashkiveinu Music" for the uses of Simanei Nusach.
Conclusion to Chapter 5

Chapter 5 has applied the discussions of the previous four chapters to a detailed analysis of the *Simanei Nusach* Symbols of Prayer-chant. A comparison was made between the functions of the *Ta'amei HaMikra* (Trope) of Biblical Cantillation and the functions of these new *Simanim*. There are logical phrases in the text of Jewish liturgy that can be identified by the chanting of modal music motifs. Like Biblical Trope, *Simanei Nusach* symbols have logical shapes, and the order of their application to texts helps reinforce the musical line of a given modal chant.

While there are many similarities in function between the 1200-year-old Masoretic Trope and the new *Simanei Nusach* symbols, an important difference is the fact that Trope appear on most words of the Hebrew Bible, while *Simanei Nusach* appear at the beginning of text phrases. This is partly due to the fact that the number of graphic symbols would become unmanageable where there an attempt to have one for each word, and partly from the nature of liturgical chant itself – it flows in somewhat longer phrases than the compact Hebrew text of the Bible.

The last portion of this final chapter was devoted to details on the development and recent revision of these graphic symbols, and to an explanation of how these new graphic symbols are applied to the prayer-texts and modal music of a teaching software program. Comparisons were made symbol-by-symbol between Trope and *Simanim*, and these can be seen as a chart in one of the last Appendix pages. It remains to be seen what the future will bring for the use of these new graphic symbols. According to the adult students who have been using them, they seem to be serving as a useful visual aid for the phrasing and modal motifs of Jewish Liturgical Chant.
Summation, Appendices, and Bibliography

**Thesis Question** answered:

How can basic modal musical motifs of Jewish Musical Prayer-modes (*Nusach HaT'fillah*) be shown in a new system of graphic symbols, based on the Trope of Biblical Cantillation?

Musical motifs of Jewish Musical Prayer Modes can be shown through 18 graphic symbols that represent syntactical and musical values in each Prayer Mode (*Nusach HaT'fillah*).

**Hypothesis** correct (within limitations):  
It is possible to represent basic modal musical motifs that are chanted in Jewish liturgy through a system of graphic symbols that reflect the phrasing and meaning of Hebrew liturgical texts.

**Development and implementation of Simanei Nusach graphic symbols indicate that it is possible, within the limitations listed below, to represent modal musical motifs of Jewish Liturgical Chant through symbols that reflect the phrasing and meaning of Hebrew texts.**

**Assumptions and Limitations**

There are three limitations on the statement just above. The first is that it reflects certain assumptions about the nature of Jewish liturgy, the functions of communal worship, and some characteristics of the lay religious leaders for whom the Simanei Nusach graphic symbols were developed. These assumptions were only partially addressed in this thesis, and they provide a limitation on the functionality of the Simanei Nusach system of graphic symbols.

The second limitation is that this system of symbols was constructed for the liturgical chant of Eastern European *Ashkenazic Nusach HaT'fillah*, not for the *Sefardic* and *Eidot HaMizrach* traditions. Like the Biblical Cantillation of *Sefardic* and *Eidot HaMizrach* communities, their liturgical chant has fewer motifs, and there may be microtones in the *Eidot HaMizrach* chant. It is likely that only the more basic graphic symbols would be applicable to their liturgical chants.

The third limitation interacts with the first one listed above. Research and analysis were done using the tools of Jewish ethnomusicology and the fields of both semiotics and musical semantics. Additional research and analysis tools are available in other related fields, including social constructivism, linguistic structuralism, and the sociology and psychology of religion.

Social constructivism posits the collaborative creation of a culture of shared artifacts with shared meanings. This is relevant for using new graphic symbols in a religious musical milieu. Saussure's concept of signifier and signified and Chomsky's approach to deep structure were discussed in Section 2.4 above, although neither scholar was mentioned by name. These can be related to "logogenic" chant as described by Curt Sachs, discussed in Section 2.4.4 above.
In the discussion about musical semantics in Section 2.4.3 above, a contrast was drawn between communal prayer as a cognitive act versus as an affective or emotional act. The latter function also informed the discussion of "mood" in Section 4.4.5 above, showing how chanted liturgy traditionally reflects various moods of sacred times. However, there is a third aspect of how worship functions in the Jewish community. Appendix F-2 asks and answers the question "Why pray?" with the concept (among others) of "vertical connections" back through time, and "horizontal connections" to every other Jewish community currently praying at a given time.

This is a sociological phenomenon, and together with cognitive and emotional aspects of Jewish Liturgical Chant, it forms the third function of worship in any Jewish community. The nature of this chant mediates elements of "authenticity" with past musical traditions, and it also mediates elements of "commonality" with other Ashkenazic congregations worldwide.

The lay religious leaders who study the chanting of Jewish liturgy bring a great variety of backgrounds to that study, and they also have varied goals. Not only do some lay leaders read notated music while others do not, but some plan to actively lead worship while others do not. The IMUN Program no longer meets, and the Simanei Nusach are now being taught in online courses through Hebrew College to a self-selecting set of adult students. To adequately gauge the effectiveness of these graphic symbols for this variety of student backgrounds and goals, it would be necessary to conduct surveys and interviews, and this is left for future research.

Three general propositions may be drawn from the totality of this thesis. The first is that Hebrew grammar and pronunciation do matter for chanting any sacred text with meaning. The second is that chanting the Hebrew Bible in phrases with Trope symbols is a useful model for chanting Jewish liturgy in phrases. The third is that new graphic symbols representing modal musical motifs seem to help lay leaders learn to chant prayers with good phrasing and meaning, even if they do not read notated music nor understand all the words in the Hebrew liturgical text.

These three propositions lead to a crucial question for this analysis of the Simanei Nusach graphic symbols. Are these new graphic symbols functional to help lay leaders become more competent leaders of Jewish worship? Do these new graphic symbols "signify meaning" for the phrasing of Hebrew prayer-texts and for the chanting of Ashkenazic modal music motifs? If so, then perhaps there are additional future uses to which these symbols could be put.
In Section 1.1.2 at the beginning of this thesis, seven criteria and characteristics were listed as being necessary for the new Simanei Nusach graphic symbols of Jewish Liturgical Chant:

1) They must be relevant to all basic musical motifs of liturgical chant
2) They must function similarly in all musical modes of Nusach HaT'fillah
3) They must reflect the phrasing and punctuation of liturgical texts
4) They must work in teaching software and online education formats
5) They must be placed directly on the Hebrew liturgical texts that are chanted
6) Ideally their shape would reflect their motivic musical functions in phrases
7) They must be easily learned by lay leaders who do not read notated music

Within limitations, the new graphic symbols seem to be meeting these seven criteria. Here are some specific limitations that inform the functionality for each of these characteristics:

1) ... relevant to all basic musical motifs = in the Ashkenazic tradition, not others (so far)
2) ... function similarly in all musical modes = they function more easily in some modes
3) ... reflect the phrasing and punctuation = choices are made based on one interpretation
4) ... work in teaching software and online = hard to learn many motifs for each symbol
5) ... placed directly on the ... texts that are chanted = colleagues could make other choices
6) ... shape would reflect their ... functions in phrases = inconsistent pre- and post-revision
7) ... learned by lay leaders who do not read notated music = see #4 (same issue for Trope)

The analysis contained in this thesis indicates that the revisions made to the functions of the graphic symbols in Spring 2012 have been appropriate and useful. During an online course on Shabbat Nusach in Spring Term 2013, students did not complain that there was a mis-match between the stated functions of several symbols and their actual functions relative to the syntax of the Hebrew liturgical texts. There were comments that the Simanei Nusach symbols on some prayers that were notated in 2007 and 2008 did not seem to work as well as more recent prayers, and these issues will be addressed when the Tefillah Trainer™ software is revised in the future.

Perhaps there are really three "audiences" for Simanei Nusach graphic symbols, rather than the two identified in this analysis. According to anecdotal evidence from the adult students who use them, these new symbols seem to meet the original goal of indicating which musical motif is traditionally chanted on which words, especially for those who cannot read notated music. For
this audience, they provide the "V" (Visual) in the goal of approaching all three of the "V-A-K" (Visual-Auditory-Kinesthetic) learning modalities.

For those learners who do read notated music, these graphic symbols seem to provide new information about the phrasing of the Hebrew liturgical texts. While student reactions were not incorporated in the writing of this thesis, positive reactions have been expressed during online class discussions and in written course evaluations. Again, there is an extra Visual modality that gives cues on the phrasing of Jewish liturgy for lay leaders who may not have the Hebrew skills to understand everything that they are chanting. There is also the function of a graphic symbol as reminder of a musical motif that one has learned, since a prayerbook does not contain music.

The third possible audience for these graphic symbols might be average "congregants in the pews," if a prayerbook were printed with these symbols on the Hebrew texts. If these graphical symbols were consistently printed with the Hebrew of a prayerbook, congregants might begin to see some patterns in the symbols as they hear patterns in the chanting of the Prayer-leader. This might be another avenue to increase "literacy" and interest in the Jewish Liturgy, and it might help to make attendance at worship services more meaningful for congregants.

There is an important bit of introspection that is a direct result of the analysis that was done on these new graphic symbols, and also the process of writing this thesis. Mention was made of the scholarly disagreement about the intentions of the Tiberian Masoretes as they crafted their Ta'améi HaMikra for the punctuation, accentuation, and intonation of the Hebrew Bible. Were they reflecting the Oral Tradition that they received, were they establishing for the future their own concept of what the TaNaKh text means, or were they doing both simultaneously?

The same question can be asked about the work that this author has been doing since 2005, developing the Simanei Nusach graphic symbols and assigning their musical motifs within the Prayer-modes of Nusach HaT'fillah. Is this author distilling the learning, teaching, and pulpit experience of 30 years into an authentic reflection of the Eastern European Ashkenazic tradition for Jewish Liturgical Chant? Is this author also stating through choices of symbols and modal musical motifs the way that he thinks Jewish liturgy should be chanted? Other Hazzanim have set their musical ideas in print or recordings – the musical ideas of this Hazzan are notated in teaching software and indicated through Simanei Nusach symbols. Time will reveal the future!
## Appendices

### Appendix A  –  Glossary of Terms for Grammar and Jewish Chant

<table>
<thead>
<tr>
<th>Appendix B- 1</th>
<th>Hebrew Alef-Bet Consonants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix B- 2</td>
<td>Similar Hebrew Consonants</td>
</tr>
<tr>
<td>Appendix B- 3</td>
<td>English Words from two Consonants</td>
</tr>
<tr>
<td>Appendix B- 4</td>
<td>Tiberian Hebrew Vowels</td>
</tr>
<tr>
<td>Appendix B- 5</td>
<td>English Word-Length Differences</td>
</tr>
<tr>
<td>Appendix B- 6</td>
<td>Hebrew Prefixes Chart</td>
</tr>
<tr>
<td>Appendix B- 7</td>
<td>Hebrew Suffixes Chart</td>
</tr>
<tr>
<td>Appendix B- 8</td>
<td>Prayer with K.D.Sh. Root</td>
</tr>
<tr>
<td>Appendix B- 9</td>
<td>K.D.Sh. Root Chart</td>
</tr>
<tr>
<td>Appendix B-10</td>
<td>Prepositions and Conjunctions</td>
</tr>
<tr>
<td>Appendix B-11</td>
<td>Hebrew Phrasing and Punctuation</td>
</tr>
<tr>
<td>Appendix B-12</td>
<td>Hebrew Grammar Issues Chart</td>
</tr>
<tr>
<td>Appendix B-13</td>
<td>Learning a Hebrew Text</td>
</tr>
<tr>
<td>Appendix B-14</td>
<td>V’ahavta in Three Forms</td>
</tr>
<tr>
<td>Appendix B-15</td>
<td>V’ahavta in Hebrew and English</td>
</tr>
<tr>
<td>Appendix B-16</td>
<td>V’ahavta with Parts of Speech</td>
</tr>
<tr>
<td>Appendix B-17</td>
<td>V’ahavta Sentence Diagrams</td>
</tr>
</tbody>
</table>

### Appendix C  –  Chapter 3-b  –  The Hebrew Bible and Cantillation Systems

<table>
<thead>
<tr>
<th>Appendix C- 1</th>
<th>TaNa”Kh (Hebrew Bible) Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix C- 2</td>
<td>Why Chant Torah?</td>
</tr>
<tr>
<td>Appendix C- 3</td>
<td>Torah scroll and Model Torah</td>
</tr>
<tr>
<td>Appendix C- 4</td>
<td>Development of Masoretic Tradition</td>
</tr>
<tr>
<td>Appendix C- 5</td>
<td>Handwritten scroll and Sofer tools</td>
</tr>
<tr>
<td>Appendix C- 6</td>
<td>Aleppo Codex and Leningrad Codex</td>
</tr>
<tr>
<td>Appendix C- 7</td>
<td>Biblical Cantillation Trope Families</td>
</tr>
<tr>
<td>Appendix C- 8</td>
<td>Trope Families with &quot;Word Boxes&quot;</td>
</tr>
<tr>
<td>Appendix C- 9</td>
<td>Cantillation Trope Families numbered</td>
</tr>
<tr>
<td>Appendix C-10</td>
<td>Trope Family Variations numbered</td>
</tr>
<tr>
<td>Appendix C-11</td>
<td>&quot;Carpet Page&quot; and printed Chumash</td>
</tr>
<tr>
<td>Appendix C-12</td>
<td>Notated Music for Torah Trope</td>
</tr>
<tr>
<td>Appendix C-13</td>
<td>Disjunctive Trope Hierarchy</td>
</tr>
<tr>
<td>Appendix C-14</td>
<td>Disjunctive Phrases Levels</td>
</tr>
<tr>
<td>Appendix C-15</td>
<td>Trope Order and &quot;Four-Steps&quot;</td>
</tr>
</tbody>
</table>
Appendix D – Chapter 4-a – Structure and Development of Jewish Liturgy

Appendix D- 1 – Development of Jewish Liturgy
Appendix D- 2 – Why Chant Prayers?
Appendix D- 3 – Sections of Weekdays Services
Appendix D- 4 – Structure of Weekday Shacharit
Appendix D- 5 – Sections of Shabbat Services
Appendix D- 6 – Structure of Shabbat Shacharit
Appendix D- 7 – Sections of Rosh HaShanah Services
Appendix D- 8 – Structure of Rosh HaShanah Evening
Appendix D- 9 – Structure of Rosh HaShanah Morning
Appendix D-10 – Sections of Yom Kippur Services
Appendix D-11 – Structure of Kol Nidrei Evening
Appendix D-12 – Structure of Yom Kippur Morning
Appendix D-13 – Shabbat Services with Nusach
Appendix D-14 – Shabbat Shacharit with Nusach
Appendix D-15 – Weekday Services with Nusach

Appendix E – Chapter 4-b – Structure of Jewish Musical Prayer-modes

Appendix E- 1 – Nusach "Problem-Solving" Issues
Appendix E- 2 – Medieval Modes and Nusach Modes
Appendix E- 3 – Questions about Modes and Motifs
Appendix E- 4 – Music for Study Mode Minor
Appendix E- 5 – Music for Low A.R. and Pentatonic
Appendix E- 6 – Music for HaShem Malach Mode
Appendix E- 7 – Motifs for H.Malch. and Yishtabach
Appendix E- 8 – Music & Motifs for Plagal Magein Avot
Appendix E- 9 – Music for Authentic Magein Avot
Appendix E-10 – Music for Yishtabach Sub-Mode
Appendix E-11 – Hatzi Kaddish symbols Yishtabach mode
Appendix E-12 – Motifs for Low and High Ahavah Rabbah
Appendix E-13 – Music for High Ahavah Rabbah
Appendix E-14 – Motifs for Shabbat Minchah Minor

Appendix F – Chapter 5 – Simanei Nusach Development for Liturgical Chant

Appendix F- 1 – Simanei Nusach revised chart 2012
Appendix F- 3 – Hatzi Kaddish compare 1976 & 2007
Appendix F- 4 – Ahavah Rabbah music 1976 & 2007
Appendix F- 5 – Simanei Nusach with Linkages 2012
Appendix F- 6 – Yismach Moshe compare 1976 & 2007
Appendix F- 7 – Yismach Moshe text, music, screenshot
Appendix F- 8 – Psalm 92 text with Simanei Nusach
Appendix F- 9 – Hashkiveinu music, S.N. from software
Appendix F-10 – Simanei Nusach with Linkages 2007
Appendix F-11 – Simanei Nusach revised 2012
Appendix F-12 – Simanei Nusach with Trope - 2012
Appendix A – Vocabulary Related to Jewish Sacred Chant

Sacred and Secular Times

*Shabbat*  
Sabbath, sunset Friday to sunset Saturday; weekly day of rest  

*Shabbatot*  
Plural of *Shabbat* [ see list of "Special *Shabbatot*" below ]  

*Chol*  
Weekday, secular; a "single full day" is sunset to the next sunset  

*Yom*  
Literally "day", also "daytime", often in a word-pair "Yom ______"  

*Chodesh*  
Literally "month", either 29 or 30 days, starts on the New Moon  

*Shanah*  
Literally "year", 12 months with a 13th added 7 times in 19 years  

*Chag*  
Plural is *Chagim*; Holiday in general, not used for High Holy Days  

*Mo'ed*  
Plural is *Mo'adim*; Festival, Three Pilgrimage Festivals in the Torah  

*Z'man*  
Plural is *Z'manim*; Literally "time", often indicates "sacred time"  

*Ta'anit* or *Tzom*  
Fast Day, sunrise to sunset (except *Tisha B'Av* and *Yom Kippur*)

Sacred Occasions in the Torah

*Shabbat*  
Plural is *Shabbatot*; - see "Sacred and Secular Times" above  

*Yamim Nora'im*  
High Holy Days in the Fall; *Rosh HaShanah* and *Yom Kippur*  

*Rosh HaShanah*  
Jewish New Year in the Fall, for introspection and repentance  

*Yom Kippur*  
Day of Atonement in the Fall, for requesting forgiveness of sins  

*Shalosh Regalim*  
Three Pilgrimage Festivals: *Pesach*, *Shavuot*, and *Sukkot*  

*Chol HaMoed*  
Intermediate Days in the week-long Festivals *Pesach* and *Sukkot*  

*Pesach*  
Passover, Festival of Freedom in the Spring; Exodus from Egypt  

*S'fira* *HaOmer*  
Daily counting of the 7 weeks / 49 days from *Pesach* to *Shavuot*  

*Shavuot*  
Festival of Weeks in late Spring; marks Receiving *Torah* at Sinai  

*Sukkot*  
Festival of Booths during Fall Harvest; Forty Years of Wanderings  

*Sh'mini Atzeret*  
Eighth Day of Assembly, at end of *Sukkot*; pray for rain in Israel  

*Rosh Chodesh*  
New Month, one or two days; occurs monthly at the New Moon

Sacred Occasion not in the Torah

*Elul*  
Month before *Rosh HaShanah*; a Shofar is blown on Weekdays  

*Slichot*  
Penitential prayers on a Saturday night before *Rosh HaShanah*  

*Aseret Y'imei T'shuvah*  
Ten Days of Repentance, *Rosh HaShanah* to *Yom Kippur*  

*Hoshana Rabbah*  
7th Day of *Sukkot*, last day of *Chol HaMoed*; *Lulav* processions  

*Simchat Torah*  
Joy of the *Torah* after *Sukkot*; finish and restart *Torah* chant cycle  

*Chanukkah*  
Festival of Rededication; marks victory of Maccabees in 164 BCE  

*Tu Bi'Sh'vat*  
15th Day of the month *Sh'vat*; the New Year of Trees (for tithing)  

*Purim*  
Feast of Esther, marks deliverance of Persian Jewry from harm  

*Lag BaOmer*  
Literally "33rd Day of the *Omer*"; a relaxing of religious restrictions  

*Tish'ah B'Av*  
9th Day of the month *Av*; 25-hour Fast, ancient Temples destroyed  

*Tu B'Av*  
15th Day of the month *Av*; little-known holiday about earthly love

Minor Fasts and New Sacred Occasions

*Ta'anit Esther*  
Fast of Esther, a daytime fast during the day before *Purim*  

*Ta'anit B'chorim*  
Fast of the Firstborn, a daytime fast during the day before *Pesach*  

*Yom HaShoah*  
Holocaust Remembrance Day, in memory of Six Million Jews killed  

*Yom HaZikaron*  
Israel's Memorial Day, in memory of fallen soldiers in Israel's wars  

*Yom HaAtzma'ut*  
Israel Independence Day, honoring establishment of Israel in 1948
Yom Y'rushalayim  Jerusalem Day; Jerusalem was reunited during 1967 Six Day War
Shiv'a Asar b’Tammuz  17th of month Tammuz; Romans breached Jerusalem's walls
Tzom G'dalyah  Fast of Gedalyah, Governor of Judea before the Babylonian Exile
Asarah b'Tevet  10th Day of the month Tevet; Babylonia began siege of Jerusalem

Special Shabbatot through the year

Shabbat Rosh Chodesh  Sabbath that is also the New Month; includes Hallel Psalms
Shabbat M'varchim  Sabbath before a Rosh Chodesh; announcement of New Month
Shabbat Shuvah  Sabbath of Return, between Rosh HaShanah and Yom Kippur
Shabbat Chol HaMoed  Sabbath during the five Intermediate Days of Sukkot
Shabbat Chanukkah  Sabbath during week-long holiday of Chanukkah; with Hallel
Shabbat Shirah  Song of the Sea (Ex. 15) and Song of Deborah (Judg. 5) chanted
Shabbat Sh'kalim  Sabbath before Purim when Ex. 30 is chanted, about a "head-tax"
Shabbat Zachor  Sabbath just before Purim when Dt. 25 is chanted, about Amalek
Shabbat Parah  Sabbath before Pesach when Num. 19 is about the "red heifer"
Shabbat HaChodesh  Sabbath before Pesach when Ex. 12 is about the "First Month"
Shabbat HaGadol  Sabbath just before Pesach, with a Prophetic reading about Elijah
Shabbat Chol HaMoed  Sabbath during the four Intermediate Days of Pesach
Shabbat Chazon  Sabbath of Rebuke before Tisha B'Av; near end of "Three Weeks"
Shabbat Nachamu  Sabbath of Consolation after Tisha B'Av; begins "Seven Weeks"

Life Cycle Events at Home and in Synagogue

Y'leidah  Giving birth to a baby girl or a baby boy, and prayers for health
Brit Milah  Circumcision of a baby boy at eight days old, giving of his name
Simchat Bat  New home naming ceremony for a baby girl at one month old
Pidyon HaBen  Redemption of first-born son - purely ceremonial (seldom done)
Bar / Bat Mitzvah  Coming-of-Age ceremony at age 13, chanting Bible and Prayers
Aufruf  Ceremony on a Sabbath before a wedding for a bride and groom
Chatunah  General term for Jewish wedding; Eirusin and Kiddushin combined
Eirusin  Betrothal or Engagement, also first part of Wedding ceremony
Kiddushin  Jewish Wedding ceremony, with blessings, Ketubah, and Ring(s)
R'fu-ah Sh'leimah  Prayers for complete healing, especially Mi SheBeirach prayer
Kavod HaMeit  Funeral practices: Taharah (washing) and Tachrichim (shrouds)
K'vurat HaMeit  Burial in sanctified ground, preferably within 24 hours of death
Shiva  Seven-day period of intense mourning, with services in the home
Sh'loshim  Thirty days of less severe mourning, back to work but no parties
Yahrtzeit  Anniversary of death, marked by Mourners' Kaddish and a candle

Rituals at Home and in Synagogue

Hadlakat Neirot  Lighting the Shabbat or Festival candles before sunset at home
M'varchim Y'ladim  Blessing sons and daughters, especially in Shabbat Eve rituals
Kiddush L'Shabbat  Blessing the evening or day of Shabbat over wine or grape juice
N'tilat Yadayim  Ritual handwashing before eating bread, particularly on Shabbat
Birkat HaLechem  The HaMotzi Lechem blessing over bread that begins a full meal
Z'mirot  Songs sung at the Shabbat table during the three leisurely meals
Birkat HaMazon  Grace After meals, four paragraphs chanted (with some additions)
Sheva B'rachot  Additional prayers at wedding meal, also chanted under a Huppah
Seuda Sh'lishit: Third meal on Shabbat afternoon, with quiet songs and study.
Havdalah: Separation ceremony at end of Shabbat; braided candle & spices
K'tri-at haTorah: Chanting from the Torah scroll, followed by a Prophetic Haftarah
T'ki-at Shofar: Blowing a ram's horn (or an antelope horn) during Rosh HaShanah
Tashlich: Ceremony on Rosh HaShanah of "throwing away sins" into water
Na-anu-im: Waving Lulav-and-Etrog set in all directions during Sukkot prayers
Hoshanot: Processions near end of Sukkot services with Torah and Lulavim
Hakafot: Seven times carry and dance with Torah scrolls on Simchat Torah
Hadlakat Neirot: Lighting the Hanukkah candles for eight nights; a family gathering
Seder L'Tu BiSh'vat: Ritual meal for Tu BiSh'vat, based on 7 species of Israeli produce
Mishloach Manot: Sharing gifts of Hamentashen and food in celebration of Purim
B'dikat Chameitz: Search for leavened foods after the house is cleaned for Pesach
Seder L'Pesach: Passover Seder with ritual foods, retelling of Exodus from Egypt
Bikkurim: First Fruits, a harvest ceremony in some synagogues and in Israel

Ritual Objects in Synagogue and at Home

Sefer Torah: Torah scroll, the Five Books of Moses handwritten on parchment
Rimonim / Keter: Silver ornaments on top of a Torah scroll, usually with small bells
Choshen / Yad: Silver breastplate on a covered Torah scroll, and reading pointer
Me'il / Avnet: Cloth mantle over Torah Scroll, and cloth binder or belt for scroll
M'gillat Esther: Book of Esther handwritten on a parchment scroll, in a cylinder
Shulchan: Table on the Bimah (platform) upon which the Torah is chanted
Amud: Smaller podium at which prayers are led and sermons are given
Aron HaKodesh: Cabinet (usually built-in) in which the Torah Scrolls are protected
Ner Tamid: Eternal Light (over the Ark / Aron HaKodesh) always kept burning
Parochet: Curtain in front of the Torahs in an Ark, usually inside the doors
Huppah: Wedding canopy, may be stationary or portable, for weddings only
Mizrach: Plaque on eastern wall, for which way to pray towards Jerusalem
Menorah: Seven-branch candelabrum near Ark, ancient symbol of Judaism
Degel Yisrael: Flag of the State of Israel, often in a sanctuary with a national flag
M'zuzah: Small case on doorpost with handwritten parchment of Deut. 6:4-9
Luach: Religious calendar in book form or wall-poster form, listing rituals
Pushka: Yiddish term for Tzedakah (Charity) Box in synagogue and homes
Shofar: Ram's horn (or antelope horn) blown in Elul and Rosh HaShanah
Sukkah: Outdoor temporary booth for meals during Sukkot Harvest Festival
Lulav: Palm frond bound together with 2 willow twigs and 3 myrtle twigs
Etrog: Citron from the Middle East, waved with the Lulav during Sukkot
Hanukkiah: Nine-branched candle-holder (also called a Menorah) for Hanukkah
Grager/Ra'ashan: Yiddish and Hebrew for a noisemaker used during Purim reading
Kara-ah: Segmented plate used during ritual portion of a Passover Seder
Kos Yayin: Decorated wine cup (often silver) for Kiddush prayer on occasions
B'samim: Decorated container for sweet-smelling spices used for Havdalah
Neirot Shabbat: Two or more candles lit before sunset of Fridays, lasting 4+ hours
Neir Havdalah: Braided candle used for Havdalah ceremony, representing "Chol"
Neirot Hanukkah: Small candles lit during Hanukkah celebration, lasting 30+ minutes
Yahrtzeit Licht: Yiddish for candle lit on anniversary of a death, lasting 24+ hours
Ritual objects worn by a person

**Kippah / Yarmulke**  
Hebrew and Yiddish for a skullcap worn to show respect for God

**Tallit / Tzitzit**  
Rectangular garment with four knotted fringes (Tzitzit) in corners

**Arba Kanfot**  
Undergarment worn by traditional boys and men with four fringes

**Atarah**  
Decorated "collar" portion of a Tallit (may have a B'rachah on it)

**T'fillin**  
Leather boxes with parchment strips, worn on arm and forehead

**Kittel**  
White light robe worn by prayer-leader(s) during High Holy Days

Synagogue Personnel

**Rabbi**  
Spiritual leader and Halachic authority for a specific congregation

**Rav / Rebbe**  
Spiritual leader and authority for an extensive Jewish community

**Hazzan**  
Hebrew for Cantor, professional clergy specializing in Jewish music

**Gabbai**  
Lay leader(s) who help with aspects of Torah Service and worship

**Shamash**  
Lay leader with particular responsibility for books and ritual items

**Nasi / Parnas**  
In some communities, a lay leader who has financial authority

**M'nahel / M'nahelet**  
Hebrew term for a Principal / Director of a Jewish religious school

**Moreh / Morah**  
Hebrew for a male or female teacher or tutor in a religious school

**Ba'al Korei / K'riah**  
Two alternate terms for a male who chants from a Torah scroll

**Ba'alat Korei / K'riah**  
Two alternate terms for a female who chants from a Torah scroll

**Ba'al T'fillah**  
Any male person leading the Hebrew chanting of Jewish liturgy

**Ba'alat T'fillah**  
Any female person leading the Hebrew chanting of Jewish liturgy

**Shaliach Tzibbur**  
Literally "Emissary for the Congregation", leader of prayer service

**Ba'al Shacharit**  
Person who leads the Shacharit service for the High Holy Days

**Ba'al T'ki-ah**  
Person who sounds the Shofar during High Holy Days services

Jewish Sacred Books

**Pentateuch**  
Five Books of Moses in book form, with Prophetic Haftarah readings

**Chumash**  
Same as Pentateuch, plural is Chumashim, in Hebrew and English

**TaNa"Kh**  
Hebrew Bible in book form, acronym for Torah & N'vi-im & K'tuvim

**N'vi-im**  
Prophetic books in middle portion of TaNaKh, source of Haftarot

**K'tuvim**  
Writings in last portion of TaNaKh, with Psalms and Festival books

**Chameish M'gillot**  
Five Scrolls / Books in K'tuvim, chanted on major & minor holidays

**RaKa"Sh**  
Ruth / Kohelet / Shir HaShirim, chanted on 3 Pilgrimage Festivals

**Tikkun**  
Book with parallel columns of Torah in Chumash and STa"M font

**Midrash**  
Exegetical commentaries on the Torah and other Biblical books

**Mishnah**  
Updated laws compiled in Israel from c. 200 B.C.E. to c. 200 C.E.

**Gemara**  
Commentaries on the laws of the Mishnah, compiled in the Talmud

**Talmud**  
Mishnah and Gemara together, compiled in Babylonia c. 500 C.E.

**Septuagint**  
Greek translation of Hebrew Bible, compiled over several centuries

**Targum**  
Aramaic translation of Hebrew Bible, chanted in some communities

**Mikrot Gedolot**  
Hebrew Chumash text with several commentaries, including Rashi

**Pirkei Avot**  
"Sayings of the Fathers", chapters of Mishnah read during Shabbat

**Siddur**  
Literally "Order", prayerbook for Weekdays, Shabbat, and Festivals

**Siddurim**  
Plural of Siddur, facing pages of Hebrew and English or all Hebrew

**Machzor**  
Literally "Cycle", prayerbook for High Holy Days (and Festivals)

---

241 Four Torah passages are: Deut. 6: 4-9, & 11: 13-21, and Ex. 13: 1-10 & 13: 11-16.
Machzorim  
Plural of Machzor, in a set of 5 for High Holy Days and Festivals

Haggadah  
Literally "Retelling", booklet with ritual texts of the Passover Seder

Shulchan Aruch  
Law Code of 1500's, compiled by Joseph Karo & Moses Isserles

Mishnah Berurah  
Law Code of 1800's by Hafetz Hayyim, based on Shulchan Aruch

Structure of Jewish Liturgy Sections

Arvit  
Evening service, also called "Ma'ariv"; ideally chanted after sunset

Birchot HaShachar  
First part of Preliminary service for Shacharit; blessings and texts

P'sukei D'Zimra  
Second part of Shacharit Preliminary service; Psalms and texts

Shacharit  
Morning service; term for entire morning and for a specific section

Sh'ma uVirchoteha  
Sh'ma Section, chanted only during Arvit and Shacharit services

Amidah  
Standing silent prayers, repeated aloud in Shacharit and Minchah

Sh'moneh Esrei  
Weekday Amidah, with 13 petitionary prayers in the middle section

Bakashot  
Petitionary prayers in Weekday Amidah, personal and communal

T'fillat Sheva  
Shabbat and Festival Amidah, with a single (long) central prayer

Hallel  
Psalms 113 - 118, chanted on Shalosh R'galim and at other times

Hotza'at HaTorah  
Removing the Torah Scroll(s) from the Ark, and Torah procession

K'ri-at HaTorah  
Chanting from the Torah Scroll(s) and the Haftarah Prophetic text

Hachnasat HaTorah  
Torah procession, and returning the Torah Scroll(s) to the Ark

Musaf  
Additional service in traditional liturgy; extra sacrifice in the Temple

Minchah  
Afternoon service, ideally chanted before sunset; Temple sacrifice

Kabbalat Shabbat  
Preliminary service for Friday evening; Psalms 95-99 and 92-93

Mei-ein Sheva  
Section of four prayers after the end of the Friday evening Amidah

Piyyutim  
Religious poems (often acrostics) added to the core liturgy texts

Yizkor  
Memorial prayers on Yom Kippur and Three Pilgrimage Festivals

S'lichot  
Section of penitential prayers, repeated throughout Yom Kippur

Vidui  
Core prayers in S'lichot penitential prayers, during Yom Kippur

N'ilah  
Extra Concluding service, chanted only at the end of Yom Kippur

Tachanun  
Penitential prayers near end of Weekday Shacharit and Minchah

Kinot  
Elegies / mournful poems and songs chanted softly on Tisha B'Av

Evening Prayers - Chol & Shabbat

L'cha Dodi  
Kabbalat Shabbat acrostic hymn by Shlomo Alkabetz, 1500's C.E.

Bar'chu / Baruch  
"Call to Worship", statement by prayer-leader and cong. response

HaMa'ariv Aravim  
"Creation" paragraph at beginning of Sh'ma uVirchoteha section

Ahavat Olam  
"Revelation" paragraph just before the three paragraphs of Sh'ma

K'ri-at Sh'ma  
Deut. 6:4-9, Deut. 11:11-13 on "obey", Num. 15:37-41 on "fringes"

V'ahavta  
Deut. 6:4-9 on "love God", "teach God's Words", and "as a symbol"

Emet VeEmunah  
"Redemption" paragraph after Sh'ma, "Exodus" with "Mi Chamocha"

Hashkiveinu  
Second prayer after Sh'ma in evening only, on "protection at night"

V'sham'ru  
Ex. 31:16-17 on "Shabbat as a symbol of Covenant and Creation"

Hatzi Kaddish  
Aramaic prayer that concludes Sh'ma Section and starts Amidah

Avot / Imahot  
God Who was in relationship with our Patriarchs (and Matriarchs)

G'vurot  
God Who does deeds of sustenance, healing, and deliverance

K'dushat HaShem  
God's Holiness, silent in traditional evening services, aloud in some

K'dushat HaYom  
Central part of Shabbat Amidah, reference to Creation (Gen. 2:1-3)

Avodah  
First of three ending Amidah prayers, asking God to accept prayer
Ya'aleh v'Yavo  Seasonal addition to Avodah on Rosh Chodesh and Chol HaMoed
Hoda'ah  Middle of three ending Amidah prayers, thanking God for miracles
Al HaNissim  Seasonal addition to Hoda'ah for Hanukkah and Purim deliverance
Birkat Shalom  Prayer for peace at the end of every Amidah, short form in evening
Elohai N'ierzor  Meditation of a Talmudic Rabbi after Amidah, with "Oseh Shalom"
Kaddish Shaleim  Aramaic Doxology at end of a major section within Jewish liturgy
Kiddush  Prayer over wine or grape juice signifying the holiness of Shabbat
S'fira HaOmer  Daily counting of the seven weeks between Pesach and Shavuot
Aleinu  Prayer ending every service, both particularistic and universalistic
Kaddish Yatom  Mourners' Kaddish, said on Yahrtzeit and during mourning period
Yigdal  Closing hymn on Shabbat, based on Maimonides' Articles of Faith

Morning Prayers - Chol & Shabbat

Birchot HaShachar  Morning blessings chanted at beginning of first Preliminary Service
Baruch SheAmar  Starts second Preliminary Service, "We will praise with Psalms"
Ashrei  Psalm 145 (& extra verses), an important P'sukei D'Zimra Psalm
Yishtabach  Concludes second Preliminary Service, "We praised with Psalms"
Hatzi Kaddish  Aramaic prayer that ends one Section and starts the next section
Bar'chu / Baruch  "Call to Worship", statement by prayer-leader and cong. response
Yotzer Or  "Creation" paragraph at beginning of Sh'ma section, about "light"
Ahavah Rabbah  "Revelation" paragraph just before the three paragraphs of Sh'ma
K'ri at Sh'ma  Deut. 6:4-9, Deut. 11:11-13 on "obey", Num. 15:37-41 on "fringes"
V'ahavta  Deut. 6:4-9 on "love God", "teach God's Words", and "as a symbol"
Emet v'Yatziv  "Redemption" paragraph after Sh'ma, "Exodus" with "Mi Chamocha"
Avot / Imahot  God Who was in relationship with our Patriarchs (and Matriarchs)
G'vurot  God Who does deeds of sustenance, healing, and deliverance
K'dushat HaShem  Central part of Shabbat Amidah, refers to Revelation, Ex. 31:16-17
K'dushat HaYom  Avodah  First of three ending Amidah prayers, asking God to accept prayer
Ya'aleh v'Yavo  Seasonal addition to Shabbat Amidah, refers to Revelation, Ex. 31:16-17
Hoda'ah  Middle of three ending Amidah prayers, thanking God for miracles
Al HaNissim  Seasonal addition to Hoda'ah for Hanukkah and Purim deliverance
Birkat Kohanim  Priestly Blessing from Num. 6:24-26, only during Amidah Repetition
Birkat Shalom  Prayer for peace at the end of every Amidah, long form in morning
Elohai N'ierzor  Meditation of a Talmudic Rabbi after Amidah, with "Oseh Shalom"
Kaddish Shaleim  Aramaic Doxology at end of a major section within Jewish liturgy
Birchot HaTorah  Blessings chanted by an honoree who is called for a Torah Aliyah
Birchot HaHaftarah  Blessings chanted by the "Maftir" honoree before/after a Haftarah
Birkat HaGomeil  Blessing said by survivor of a dangerous situation, cong. response
Mi Shebeirach  Blessing for Torah Aliyah honorees and asking healing for the sick
Eil Malei Rachamim  Prayer asking God's care for departed souls during a Yahrtzeit
Birkat HaChodesh  Monthly prayer announcing the day(s) when the next month begins
Aleinu  Prayer ending every service, both particularistic and universalistic
Shir Shel Yom  "Psalm for the Day", said either at end of service or in Preliminary
Kaddish Yatom  Mourners' Kaddish, said on Yahrtzeit and during mourning period
Adon Olam  Closing hymn on Shabbat, God's Vastness and God's Immanence
Jewish Holiday Individual Prayers

T’fillat Tal  
Piyyut chanted on Pesach asking that dew fall on Israel in summer

Akkadum  
Long acrostic Piyyut chanted on Shavuot before the Torah reading

T’ki-at Shofar  
Sounding the Shofar daily (except Shabbat) during the month Elul

Kol Nidrei  
Legal formula at beginning of Yom Kippur regarding vows not kept

Untaneh Tokef  
Highlight of High Holy Days Musaf, about God determining our fate

Malchuyot  
Sovereignty verses and prayers in Rosh HaShanah Musaf Amidah

Zichronot  
Remembrance verses / prayers in Rosh HaShanah Musaf Amidah

Shof’rot  
Shofar-theme verses / prayers in Rosh HaShanah Musaf Amidah

Avinu Malkeinu  
Penitential verses chanted on High Holy Days (and on Fast Days)

Avodat HaCohen  
Temple Service of the High Priest in Yom Kippur Musaf Amidah

Ashamnu  
Vidui, central part of forgiveness prayers chanted on Yom Kippur

Al Cheit  
Communal chanting of forgiveness prayers, while hitting the chest

Duchenen  
Priestly Blessing (Num. 6:24-26) when chanted aloud by Kohanim

N’tilat Lulav  
Waving of Lulav and Etrog during Sukkot; four directions, up, down

Hoshannah  
Procession of Torah scroll and Lulavim near end of Sukkot service

T’fillat Geshem  
Piyyut chanted on Sh’mini Atzeret asking for winter rains in Israel

Atah Horeita  
Verses chanted on Simchat Torah for Hakafot, Torah processions

HaNeirot Hallalu  
Passage chanted during Hanukkah candle-lighting about the ritual

Maoz Tzur  
Poem chanted on Hanukkah, often during evening candle-lighting

Additional Synagogue Terminology

Beit K’nesset  
Hebrew for "Synagogue" (Greek Synagoga), "House of Assembly"

Ashkenazi  
Traditions of Jews from Central and Eastern European ancestry

Sefardi  
Traditions of Jews from pre-1492 Spanish (& Middle East) ancestry

Eidot HaMizrach  
Communities of the East: North Africa, Middle East, Central Asia

Minyan/Minyanim  
Quorum of ten adult Jews for chanting Torah and complete service

B’rachah/B’rachot  
Liturigical formula said for thanking God or on doing a ritual action

Mitzvah/Mitzvot  
A commanded action, a good deed, fulfilling a ritual, or an honor

Halachah/Halachot  
The system of Jewish laws that regulates all aspects of daily living

Minhat/Minhagim  
Customs that often have almost the same authority as Jewish laws

Bimah  
Raised area (in front or in the center) where service is conducted

Sefer / S’farim  
Book(s) in general, usually sacred books, printed or in scroll form

Dikduk  
Grammar of Classical Hebrew, needed for proper meaning of texts

D’var Torah  
Exegetical lesson specifically related to the weekly Torah Portion

P’shat / Drash  
Plain meaning or translation, versus underlying meaning in a text

Simcha  
A happy occasion, usually associated with a happy life-cycle event

Chayyav  
Level of obligation or privilege for a Torah honor or leading worship

Amein  
Congregational response to a blessing; means "I believe this also"

Masoretic Text  
Text of Hebrew Bible with vowels and Trope of Tiberian Masoretes

STa"M  
Handwritten text of a scribe for Sifrei Torah, T’fillin, and M’zuzot

Sofer  
A trained scribe who writes and corrects Torah scrolls and T’fillin

Pasul  
A Torah scroll that has become unfit for use due to damaged texts

Ta’amet HaMikra  
Symbols for punctuation, accents, and chant in a printed Bible text

Ta’amet EMe”T  
Different Trope for the Poetic Books of Job, Proverbs, and Psalms
Torah Reading Ritual Terms

Eitz Chayyim
One of the two wooden rollers for the parchment of a Torah scroll

Klaf / Klfim
The parchment on which the Torah text is handwritten with a quill

Lein / Leynen
Yiddish term for chanting the consonantal text from a Torah scroll

Trope \ Trop
English/Yiddish term for Masoretic symbols of Biblical Cantillation

Chironomy
Hand motions of a "helper" to indicate Trope motifs of Torah chant

Sidrah / Parashah
One of the 54 annual Torah portions, or a paragraph section within

Haftarah/Haftarot
Prophetic reading whose theme reflects a Sidrah, or a time period

Arba Parshiyot
Four special Torah readings from before Purim to before Passover

Pasuk / P'sukim
Individual verse(s) of Biblical text, found by Book, chapter, number

Perek / P'rakim
Section(s) of Biblical verses, usually a paragraph within a chapter

Stumah / P'tuchah
Spaces between sections in a handwritten consonantal Torah text

K'ri / K'tiv
A word as it is to be chanted, versus how that same word is written

Parashat HaShavua
The particular Torah Portion (and Haftarah) for a given Shabbat

Triennial Cycle
Rabbinical Assembly division of Torah into three years of readings

Hakafah
Hebrew term for the procession of Torah scroll(s) during services

Aliyah/Aliyot
Hebrew term for the procession of Torah scroll(s) during services

Oleh / Olah
Person (male/female) who is called up to chant the Torah blessings

Levi
Descendant of another ancient Priests, often given the second Aliyah

Yisrael
A Jewish person who is not a descendant of the Temple Priesthood

Rishon/Sheini
First and second Aliyah to the Torah when not a Kohein or a Levi

Hosafah/Acharon
Extra Aliyah added to a Torah reading / the last extra Aliyah added

Mafitir
Repetition of last Torah verses for a person chanting the Haftarah

Chazak ...
"Strength ..." formula chanted by all at the end of a Book of Torah

Hagbahah
Lifting a Torah scroll and displaying the text after all Torah reading

Magbiah
Person who does the ritual of lifting a Torah scroll at end of reading

G'litlah
Binding a Torah scroll with a soft "belt" and covering with a mantle

Goleil/Golelet
Person who does the ritual of binding and covering a Torah scroll

M'chubarim
Combined Torah Portions, up to seven pairs in a 12-month year

Aseret HaDib'rot
Ten Commandments, chanted twice in Torah with elaborate Trope

Shirat HaYam
Song of the Sea in Exodus 15, chanted with a special set of motifs

Masa-ot
"Journeys" in Numbers 33:10-46 with Shirat HaYam melodic motifs

Tochecha
Passage(s) of "curses" in Torah, usually chanted softly and quickly

Chatan Torah
Congregant honored with the final Aliyah of Deut. on Simchat Torah

Chatan B'reishit
Congregant honored with the first Aliyah of Gen. on Simchat Torah

Mafskkim/M'lachim
Two terms for Disjunctive or "Separator" Trope, "lords" or Pausals

M'shartim/M'chabrim
Two terms for Conjunctive or "Joining" Trope, "servants"/ helpers

Ta'amei Elyon
Elaborate "upper" Trope to combine verses in Ten Commandments

Tagim
Decorative "crowns" on several consonants in STa"M Torah script

---

242 Additional Torah terms may be found under "Ritual Objects" and elsewhere above.

243 These are listed above under "Special Shabbatot through the year".

244 Additional Aliyot: Sh’lishi = 3rd, R’vi-i = 4th, Chamishi = 5th, Shishi = 6th, Sh’vi-i = 7th.

245 Exodus 20: 2 - 14/17 and Deuteronomy 5: 6 - 18/21, which are not identical texts.
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chatimah</td>
<td>The &quot;seal&quot; or summary &quot;Baruch Atah ...&quot; at the end of a prayer text</td>
</tr>
<tr>
<td>Matbe-ah Shel T'fillah</td>
<td>Obligatory basic structural elements of traditional Jewish liturgy</td>
</tr>
<tr>
<td>Piyyut/Piyutim</td>
<td>Religious poem added to liturgy structure, often in an acrostic form</td>
</tr>
<tr>
<td>Chova / R'shut</td>
<td>Obligatory structural prayers versus permissible additional prayers</td>
</tr>
<tr>
<td>Keva / Kavanah</td>
<td>Regular praying of a set liturgy vs. spontaneous devotion in prayer</td>
</tr>
<tr>
<td>Tirchat HaTzibbur</td>
<td>An action, noise, or situation that is bothersome for a congregation</td>
</tr>
<tr>
<td>Hafsaakah</td>
<td>Interruptions during a service section (in Amidah or Sh'ma Section)</td>
</tr>
<tr>
<td>Minhag HaMakom</td>
<td>Religious customs of a particular community, carrying great weight</td>
</tr>
<tr>
<td>T'fillah/T'fillot</td>
<td>An individual prayer, a prayer section or service, prayer in general</td>
</tr>
<tr>
<td>Chazarat HaShatz</td>
<td>Leader's repetition of an Amidah after congregation says it silently</td>
</tr>
<tr>
<td>Hechi K'dushah</td>
<td>First three Amidah prayers chanted aloud, then the rest said silently</td>
</tr>
<tr>
<td>Nusach HaT'fillah</td>
<td>Musical Prayer-modes showing liturgy structure, mood, &amp; occasion</td>
</tr>
<tr>
<td>MiSinai Melody</td>
<td>Prayer melodies from medieval Germany for old, important prayers</td>
</tr>
<tr>
<td>Niggun/Niggunim</td>
<td>Song(s) without words, some with syllables, originally by Chassidim</td>
</tr>
<tr>
<td>Hazzanut</td>
<td>Cantorial recitatives that &quot;paint meaning of prayers through music&quot;</td>
</tr>
<tr>
<td>Melisma</td>
<td>Many notes on one syllable, usually stepwise, a form of elaboration</td>
</tr>
<tr>
<td>Cadence</td>
<td>Musical indicator of pause/stop at the end of a phrase or sentence</td>
</tr>
<tr>
<td>Acrostic</td>
<td>Poetic text with first letters in alphabetical order or spelling a name</td>
</tr>
<tr>
<td>Authentic Mode</td>
<td>Mode whose motifs move from Tonic &quot;Do&quot; to &quot;Do&quot; an octave higher</td>
</tr>
<tr>
<td>Plagal Mode</td>
<td>Mode whose motifs move from low &quot;Sol&quot; to &quot;Sol&quot; above Tonic &quot;Do&quot;</td>
</tr>
<tr>
<td>Maqam/Makaam</td>
<td>Modes and motifs in Arabic music, usually including microtones</td>
</tr>
</tbody>
</table>

Additional Liturgy terms may be found under "Structure" and elsewhere above.
Appendix B  –  Chapter 3-a

Classical Hebrew for Cantillation and Liturgy

<table>
<thead>
<tr>
<th>Appendix B-1</th>
<th>Hebrew Alef-Bet Consonants</th>
<th>pg. 115</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix B-2</td>
<td>Similar Hebrew Consonants</td>
<td>pp. 116-17</td>
</tr>
<tr>
<td>Appendix B-3</td>
<td>English Words from two Consonants</td>
<td>pp. 118-19</td>
</tr>
<tr>
<td>Appendix B-4</td>
<td>Tiberian Hebrew Vowels</td>
<td>pg. 120</td>
</tr>
<tr>
<td>Appendix B-5</td>
<td>English Word-Length Differences</td>
<td>pg. 121</td>
</tr>
<tr>
<td>Appendix B-6</td>
<td>Hebrew Prefixes Chart</td>
<td>pp. 122-23</td>
</tr>
<tr>
<td>Appendix B-7</td>
<td>Hebrew Suffixes Chart</td>
<td>pp. 124-25</td>
</tr>
<tr>
<td>Appendix B-8</td>
<td>Prayer with K.D.Sh. Root</td>
<td>pg. 126</td>
</tr>
<tr>
<td>Appendix B-9</td>
<td>K.D.Sh. Root Chart</td>
<td>pg. 127</td>
</tr>
<tr>
<td>Appendix B-10</td>
<td>Prepositions and Conjunctions</td>
<td>pp. 128-29</td>
</tr>
<tr>
<td>Appendix B-11</td>
<td>Hebrew Phrasing and Punctuation</td>
<td>pg. 130</td>
</tr>
<tr>
<td>Appendix B-12</td>
<td>Hebrew Grammar Issues Chart</td>
<td>pg. 131</td>
</tr>
<tr>
<td>Appendix B-13</td>
<td>Learning a Hebrew Text</td>
<td>pg. 132</td>
</tr>
<tr>
<td>Appendix B-14</td>
<td>V’ahavta in Three Forms</td>
<td>pp. 133-35</td>
</tr>
<tr>
<td>Appendix B-15</td>
<td>V’ahavta in Hebrew and English</td>
<td>pg. 136</td>
</tr>
<tr>
<td>Appendix B-16</td>
<td>V’ahavta with Parts of Speech</td>
<td>pg. 137</td>
</tr>
<tr>
<td>Appendix B-17</td>
<td>V’ahavta Sentence Diagrams</td>
<td>pg. 138</td>
</tr>
<tr>
<td>Appendix B-18</td>
<td>Two Types of Transliteration</td>
<td>pg. 139</td>
</tr>
<tr>
<td>Name</td>
<td>Shape</td>
<td>Sound</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Alef</td>
<td>א</td>
<td>silent</td>
</tr>
<tr>
<td>Beit</td>
<td>ב</td>
<td>B</td>
</tr>
<tr>
<td>Gimel</td>
<td>ג</td>
<td>G</td>
</tr>
<tr>
<td>Dalet</td>
<td>ד</td>
<td>D</td>
</tr>
<tr>
<td>Hei</td>
<td>K</td>
<td>H</td>
</tr>
<tr>
<td>Vav</td>
<td>ו</td>
<td>V</td>
</tr>
<tr>
<td>Zayin</td>
<td>ז</td>
<td>Z</td>
</tr>
<tr>
<td>Chet</td>
<td>ח</td>
<td>Ch</td>
</tr>
<tr>
<td>Tet</td>
<td>ט</td>
<td>T</td>
</tr>
<tr>
<td>Yod</td>
<td>י</td>
<td>Y</td>
</tr>
<tr>
<td>Kaf</td>
<td>כ</td>
<td>K</td>
</tr>
<tr>
<td>Lamed</td>
<td>ל</td>
<td>L</td>
</tr>
<tr>
<td>Mem</td>
<td>מ</td>
<td>M</td>
</tr>
<tr>
<td>Nun</td>
<td>נ</td>
<td>N</td>
</tr>
<tr>
<td>Samech</td>
<td>ס</td>
<td>S</td>
</tr>
<tr>
<td>Ayin</td>
<td>ע</td>
<td>silent</td>
</tr>
<tr>
<td>Pei</td>
<td>פ</td>
<td>P</td>
</tr>
<tr>
<td>Tzadi</td>
<td>צ</td>
<td>Tz</td>
</tr>
<tr>
<td>Kof</td>
<td>ק</td>
<td>K</td>
</tr>
<tr>
<td>Reish</td>
<td>ר</td>
<td>R</td>
</tr>
<tr>
<td>Shin</td>
<td>ש</td>
<td>Sh</td>
</tr>
<tr>
<td>Tav</td>
<td>ת</td>
<td>T</td>
</tr>
</tbody>
</table>
Differences in Hebrew consonants

<table>
<thead>
<tr>
<th>“Tails”</th>
</tr>
</thead>
<tbody>
<tr>
<td>ת — ה</td>
</tr>
<tr>
<td>T ≠ Ch</td>
</tr>
<tr>
<td>ר — ל</td>
</tr>
<tr>
<td>Z ≠ V</td>
</tr>
<tr>
<td>מ — נ</td>
</tr>
<tr>
<td>f ≠ ch</td>
</tr>
<tr>
<td>נ — מ</td>
</tr>
<tr>
<td>ch ≠ D</td>
</tr>
<tr>
<td>ב — כ</td>
</tr>
<tr>
<td>K ≠ B</td>
</tr>
<tr>
<td>ג — ד</td>
</tr>
<tr>
<td>N ≠ G</td>
</tr>
<tr>
<td>י — וי</td>
</tr>
<tr>
<td>V ≠ Y</td>
</tr>
<tr>
<td>זה — לח</td>
</tr>
<tr>
<td>ch — D</td>
</tr>
<tr>
<td>כ — מ</td>
</tr>
<tr>
<td>F ≠ Ch</td>
</tr>
<tr>
<td>ד — ה</td>
</tr>
<tr>
<td>n ≠ Z</td>
</tr>
<tr>
<td>ר — כ</td>
</tr>
<tr>
<td>R ≠ V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>י — ר</td>
</tr>
<tr>
<td>V ≠ Y</td>
</tr>
<tr>
<td>מ — נ</td>
</tr>
<tr>
<td>ch ≠ D</td>
</tr>
<tr>
<td>ב — כ</td>
</tr>
<tr>
<td>K ≠ H</td>
</tr>
<tr>
<td>זה — לח</td>
</tr>
<tr>
<td>ch — R</td>
</tr>
<tr>
<td>ג — ד</td>
</tr>
<tr>
<td>n ≠ V</td>
</tr>
<tr>
<td>ת — ה</td>
</tr>
<tr>
<td>T ≠ Ch</td>
</tr>
<tr>
<td>ר — ל</td>
</tr>
<tr>
<td>Z ≠ V</td>
</tr>
<tr>
<td>מ — נ</td>
</tr>
<tr>
<td>f ≠ ch</td>
</tr>
<tr>
<td>נ — מ</td>
</tr>
<tr>
<td>ch — D</td>
</tr>
<tr>
<td>ב — כ</td>
</tr>
<tr>
<td>K ≠ B</td>
</tr>
<tr>
<td>ג — ד</td>
</tr>
<tr>
<td>N ≠ G</td>
</tr>
<tr>
<td>י — וי</td>
</tr>
<tr>
<td>V ≠ Y</td>
</tr>
<tr>
<td>זה — לח</td>
</tr>
<tr>
<td>ch — D</td>
</tr>
<tr>
<td>כ — מ</td>
</tr>
<tr>
<td>F ≠ Ch</td>
</tr>
<tr>
<td>ד — ה</td>
</tr>
<tr>
<td>n ≠ Z</td>
</tr>
<tr>
<td>ר — כ</td>
</tr>
<tr>
<td>R ≠ V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>י — ר</td>
</tr>
<tr>
<td>ch ≠ n</td>
</tr>
<tr>
<td>בא — כ</td>
</tr>
<tr>
<td>Ch ≠ N</td>
</tr>
<tr>
<td>ד — ה</td>
</tr>
<tr>
<td>R ≠ V</td>
</tr>
</tbody>
</table>

Copyright 2012 © Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Differences in Hebrew consonants</th>
<th>Angles</th>
<th>Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ס — מ</td>
<td>ד — ה</td>
</tr>
<tr>
<td></td>
<td>S ≠ m</td>
<td>M ≠ T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tz ≠ silent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ch ≠ K</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n ≠ tz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tz ≠ silent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ס — ת</td>
<td>ד — ה</td>
</tr>
<tr>
<td></td>
<td>S ≠ T</td>
<td>M ≠ T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ch ≠ H</td>
</tr>
<tr>
<td>Dots</td>
<td>כ — ב</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F ≠ P</td>
<td>Ch ≠ K</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V ≠ B</td>
</tr>
</tbody>
</table>
|                                  | /
|                                  | ש — ש                                      | /
|                                  | T = T                                      | k ≠ ch                                   |
|                                  |                                            | S ≠ Sh                                   |
| Rotation                         | ט — פ                                      | /
|                                  | T ≠ F                                      | T ≠ V                                    |
|                                  |                                            | Ch = Ch                                  |

Copyright 2012 © Cantor Neil Schwartz
24 English words based on two consonants **R** & **D**  
(organized alphabetically according to **parts of speech**)  

| **R a i D** | verb - present tense | raid |
| **R a D i o** | verb - present tense | radio |
| **R e a D** | verb - **present** tense | read |
| **R e a D** | verb - **past** tense | read |
| **R e D o** | verb - present tense | redo |
| **R i D** | verb - “remove” | rid |
| **R i D e** | verb - present tense | ride |
| **R o D e** | verb - past tense | rode |
| **R e D** | adjective - color | red |
| **R e a D y** | adjective - description | ready |
| **R e e D y** | adjective - quality | reedy |
| **a R i D** | adjective - quality | arid |
| **R u D e** | adjective - quality | rude |
| **R a i D** | noun - activity | raid |
| **R a D i o** | noun - thing | radio |
| **R a D i i** | noun - plural “radius” | radii |
| **R a D** | noun - dose of radiation | rad |
| **R e e D** | noun - thing | reed |
| **R i D e** | noun - transportation | ride |
| **R o D** | noun - thing | rod |
| **R o a D** | noun - thing | road |
| **R o D e o** | noun - activity | rodeo |
| **R a D** | exclamation - slang | rad (!) |
| **R o o D** | noun - ¼ acre (Brit.) | rood |
**same** Spelling, **same** Sound, **different** parts of speech = **Homonyms**

<table>
<thead>
<tr>
<th>Word</th>
<th>Part of Speech</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>raid</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>raid</td>
<td>noun</td>
<td>activity</td>
</tr>
<tr>
<td>radio</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>radio</td>
<td>noun</td>
<td>thing</td>
</tr>
<tr>
<td>ride</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>ride</td>
<td>noun</td>
<td>transportation</td>
</tr>
</tbody>
</table>

**different** Spelling, **same** Sound, **different** Meaning = **Homophones**

<table>
<thead>
<tr>
<th>Word</th>
<th>Part of Speech</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>read</td>
<td>adjective</td>
<td>color</td>
</tr>
<tr>
<td>read</td>
<td>verb</td>
<td>past tense</td>
</tr>
<tr>
<td>rode</td>
<td>verb</td>
<td>past tense</td>
</tr>
<tr>
<td>road</td>
<td>noun</td>
<td>thing</td>
</tr>
<tr>
<td>read</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>reed</td>
<td>noun</td>
<td>thing</td>
</tr>
</tbody>
</table>

**same** Spelling, **different** Sound, **different** Tenses = **Homographs**

<table>
<thead>
<tr>
<th>Word</th>
<th>Part of Speech</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>read</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>read</td>
<td>verb</td>
<td>past tense</td>
</tr>
</tbody>
</table>

**different** Spelling, **different** Sound, **related** Meaning = **polysemous** pairs

<table>
<thead>
<tr>
<th>Word</th>
<th>Part of Speech</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ride</td>
<td>verb</td>
<td>present tense</td>
</tr>
<tr>
<td>rode</td>
<td>verb</td>
<td>past tense</td>
</tr>
<tr>
<td>reed</td>
<td>noun</td>
<td>thing</td>
</tr>
<tr>
<td>reedy</td>
<td>adjective</td>
<td>quality</td>
</tr>
</tbody>
</table>

*Copyright 2012 © Cantor Neil Schwartz*
<table>
<thead>
<tr>
<th>Diphthong</th>
<th>&quot;Half&quot; Vowel</th>
<th>Short Vowel</th>
<th>Long Vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>בּ/יָ</td>
<td>אָ</td>
<td>ב</td>
<td>בּ</td>
</tr>
<tr>
<td>&quot;ai&quot; (&quot;ah-ee&quot;)</td>
<td>&quot;a&quot; (&quot;ah&quot;)</td>
<td>&quot;a&quot; (&quot;ah&quot;)</td>
<td>&quot;a&quot; (&quot;ah&quot;)</td>
</tr>
<tr>
<td>Patach–Yod</td>
<td>Chataf–Patach</td>
<td>Patach</td>
<td>Kamatz–Gadol</td>
</tr>
<tr>
<td>צַ/ח</td>
<td>אָ</td>
<td>ב</td>
<td>בּ</td>
</tr>
<tr>
<td>&quot;e&quot; (&quot;eh&quot;)</td>
<td>&quot;e&quot; (&quot;eh&quot;)</td>
<td>&quot;ei&quot; (&quot;ey&quot;)</td>
<td></td>
</tr>
<tr>
<td>Chataf–Segol</td>
<td>Segol</td>
<td>Tzeirei–Malei / Tzeirei</td>
<td></td>
</tr>
<tr>
<td>צַ/ח</td>
<td>ב</td>
<td>בּ</td>
<td></td>
</tr>
<tr>
<td>&quot;b’...&quot;</td>
<td>&quot;i&quot; (&quot;ee&quot;)</td>
<td>&quot;i&quot; (&quot;ee&quot;)</td>
<td></td>
</tr>
<tr>
<td>Sh'va Na</td>
<td>Chirik</td>
<td>Chirik–Malei</td>
<td></td>
</tr>
<tr>
<td>צַ/ח</td>
<td>ב</td>
<td>בּ</td>
<td></td>
</tr>
<tr>
<td>&quot;oi&quot; (&quot;oy&quot;)</td>
<td>&quot;o&quot; (&quot;oh&quot;)</td>
<td>&quot;o&quot; (&quot;oh&quot;)</td>
<td>&quot;o&quot; (&quot;oh&quot;)</td>
</tr>
<tr>
<td>Cholam–Yod</td>
<td>Chataf–Kamatz</td>
<td>Kamatz–Katan</td>
<td>Cholam–Malei / Cholam</td>
</tr>
<tr>
<td>צַ/ח</td>
<td>ב</td>
<td>בּ</td>
<td></td>
</tr>
<tr>
<td>&quot;oi&quot; (&quot;oo-ee&quot;)</td>
<td>&quot;u&quot; (&quot;oo&quot;)</td>
<td>&quot;u&quot; (&quot;oo&quot;)</td>
<td></td>
</tr>
<tr>
<td>Shuruk–Yod</td>
<td>Kubutz</td>
<td>Shuruk</td>
<td></td>
</tr>
</tbody>
</table>

Format Copyright 2012 © Cantor Neil Schwartz
This is weird, but interesting!

Eonvereye woh cna raed tihs, rsaie yuor rhigt hnad.

Cna yuo raed tihs? Olny 55 plepoe otu of 100 cna.

I cdnuolt blveiee taht I clud aulaclty uesdnatnrld waht I wsa rdanieg. Teh phaonmneal pweor of teh hmuan mnid! Aoccdrnig to a rsaerech sudty at Cmabirgde Unervtisgy, it dsenov tmtaeq in waht oerdh teh lleetrx in a wrod aer, teh olny iproamntnt tihng is taht teh frsit adn lsat lleetrx be in teh rghit pclaes. Teh rset cna be a taotl mses adn yuo cna silt raed it whotuit a pboerlm. Tihs is bouseae teh huamm mnid deos nto raed ervey lleetr by istlef, btu teh wrod as a wlohe.

Azanmig huh? Yaeh, adn I awlyas tghuhot slpeing wsa ipmorantt!

While I don't know who the Internet author is for the above piece of "enlightening literature", I will give credit where credit is due to Dina Maiben for the following way of presenting a very significant difference between English and Hebrew reading cues.

\[
\begin{align*}
th \_ & \_ t \\
th \_ gh \\
th \_ \_ gh \\
thr \_ \_ t \\
th \_ \_ ght \\
thr \_ \_ gh \\
thr \_ \_ gh \_ \_ t
\end{align*}
\]

With just two initial sounds "th" and "r", and just two ending sets of consonants "t" and "gh" (usually part of its previous vowel), it is possible to distinguish these English words by their lengths, even without their vowels. As we saw above, the mind can fill in the missing English vowels based on word-length and context.

Hebrew is a system of three-letter roots with prefixes and suffixes, and most Hebrew vowels are dots and dashes around the square consonants, so many Hebrew words are similar in length. Combined with the fact that a single Hebrew root can yield dozens of different words (depending on the prefixes, suffixes & vowels), together with letters which look similar and subtle vowels, Hebrew does not offer very many clear visual cues for decoding in the way that English does.

One solution to this challenge is to learn the most common prefixes and suffixes, and then to learn the most common prepositions and conjunctions. This approach will help deal with several aspects of reading Hebrew:

1. When prefixes and suffixes are recognizable, one only has to concentrate on the root of a given word and the vowels which go with those root letters.

2. When a goal is to "parse" a verse (split it into clauses, phrases, segments and word-pairs), prepositions and conjunctions are useful "phrase-markers".

3. It is more effective to chant from the Bible or prayerbook when one has a sense of the meaning of the text, and knowing some basic grammar will help!

Copyright 2012 © Cantor Neil Schwartz
Hebrew Prefixes show *Definite Article, Conjunctions, Prepositions, & “Future Tense”.*

<table>
<thead>
<tr>
<th>comments</th>
<th>parts of speech</th>
<th>Root Letter</th>
<th>Root Letter</th>
<th>Root Letter</th>
<th>Hebrew Prefix</th>
<th>English meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>most often used</td>
<td>Definite Article</td>
<td>נ</td>
<td></td>
<td></td>
<td>נ</td>
<td>the</td>
</tr>
<tr>
<td>depends on next consonant</td>
<td>Definite Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>the (alt. form)</td>
</tr>
<tr>
<td>most often used</td>
<td>Conjunction</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>and or but</td>
</tr>
<tr>
<td>next consonant has Silent Sh'va</td>
<td>Conjunction</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>and (alt. form)</td>
</tr>
<tr>
<td>depends on next consonant</td>
<td>Conjunction</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>other forms</td>
</tr>
<tr>
<td>most often used</td>
<td>Preposition</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>in by with</td>
</tr>
<tr>
<td>combined “double prefix”</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>in the by the</td>
</tr>
<tr>
<td>depends on next consonant</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>other forms</td>
</tr>
<tr>
<td>most often used</td>
<td>Preposition</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>to for</td>
</tr>
<tr>
<td>combined “double prefix”</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>to the for the</td>
</tr>
<tr>
<td>depends on next consonant</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>other forms</td>
</tr>
<tr>
<td>most often used</td>
<td>Preposition</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>like as</td>
</tr>
<tr>
<td>combined “double prefix”</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>like the as</td>
</tr>
<tr>
<td>depends on next consonant</td>
<td>Preposition &amp; Article</td>
<td>נ</td>
<td>ג</td>
<td>נ</td>
<td>נ</td>
<td>other forms</td>
</tr>
<tr>
<td>may also be גֵּרַת</td>
<td>Preposition</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>from</td>
</tr>
<tr>
<td>taken from יָשָׂר</td>
<td>Pronoun or Conjunction</td>
<td>נ</td>
<td></td>
<td>נ</td>
<td>נ</td>
<td>that who</td>
</tr>
</tbody>
</table>

*Copyright 2010 © Cantor Neil Schwartz*
Hebrew Prefixes show Definite Article, Conjunctions, Prepositions, & "Future Tense".

<table>
<thead>
<tr>
<th>comments</th>
<th>Person / Gender / Number</th>
<th>ל Root Letter</th>
<th>י Root Letter</th>
<th>ו Root Letter</th>
<th>Hebrew Prefix</th>
<th>English meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;common&quot; gender</td>
<td>1st / c. / sg.</td>
<td>... א</td>
<td>I will ...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;common&quot; gender</td>
<td>1st / c. / pl.</td>
<td>... ב</td>
<td>we will ...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(אח)</td>
<td>2nd / m. / sg.</td>
<td>... ט</td>
<td>you will ... (m. sg.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(א)</td>
<td>2nd / f. / sg.</td>
<td>... י</td>
<td>you will ... (f. sg.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ mixed gender</td>
<td>2nd / m. / pl.</td>
<td>... ב</td>
<td>you will ... (m. pl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less often used</td>
<td>2nd / f. / pl.</td>
<td>... י</td>
<td>you will ... (f. pl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(האר)</td>
<td>3rd / m. / sg.</td>
<td>... י</td>
<td>he will ... (m. sg.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ה)</td>
<td>3rd / f. / sg.</td>
<td>... ה</td>
<td>she will ... (f. sg.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ mixed gender</td>
<td>3rd / m. / pl.</td>
<td>... י</td>
<td>they will ... (m. pl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Present Tense&quot;</td>
<td></td>
<td>&quot;Present Tense&quot; beginnings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st, 2nd, 3rd</td>
<td>both genders, sing. &amp; plural</td>
<td>... ק</td>
<td>present tense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st, 2nd, 3rd</td>
<td>depends on next consonant</td>
<td>... ק/ק</td>
<td>other forms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st, 2nd, 3rd</td>
<td>both genders, sing. &amp; plural</td>
<td>... ק</td>
<td>passive &quot;command&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st, 2nd, 3rd</td>
<td>both genders, sing. &amp; plural</td>
<td>... ק</td>
<td>reflexive verb form</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question Prefix form

... ק/ק "Is ... ?"
Hebrew **Suffixes** show **Plurals; Person/Gender/Number for Possessives of Nouns, Objects of Verbs & Prepositions, Subjects of Verbs, “Present” & “Past Tense” of Verbs.**

<table>
<thead>
<tr>
<th>English meaning</th>
<th>Hebrew Suffix</th>
<th>יرب Root Letter</th>
<th>ו Root Letter</th>
<th>ד Root Letter</th>
<th>Person / Gender / Number</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>masculine plural</td>
<td>ים # ...</td>
<td></td>
<td></td>
<td></td>
<td>some masc. feminine</td>
<td>nouns have endings</td>
</tr>
<tr>
<td>feminine plural</td>
<td>רת ...</td>
<td></td>
<td></td>
<td></td>
<td>some fem. masculine</td>
<td>nouns have endings</td>
</tr>
<tr>
<td>1 sg. = me / my, mine</td>
<td>וי ...</td>
<td></td>
<td></td>
<td></td>
<td>1st / c. / sg.</td>
<td>“common” gender</td>
</tr>
<tr>
<td>1 pl. = us / our, ours</td>
<td>גו ...</td>
<td></td>
<td></td>
<td></td>
<td>1st / c. / pl.</td>
<td>“common” gender</td>
</tr>
<tr>
<td>2 sg. = you m./ your, yours</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>2nd / m. / sg.</td>
<td>( molto)</td>
</tr>
<tr>
<td>2 sg. = you f./ your, yours</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>2nd / f. / sg.</td>
<td>( molto)</td>
</tr>
<tr>
<td>2 pl. = you m./ your, yours</td>
<td>בק ...</td>
<td></td>
<td></td>
<td></td>
<td>2nd / m. / pl.</td>
<td>+ mixed gender</td>
</tr>
<tr>
<td>2 pl. = you f./ your, yours</td>
<td>בק ...</td>
<td></td>
<td></td>
<td></td>
<td>2nd / f. / pl.</td>
<td>less often used</td>
</tr>
<tr>
<td>3 sg. = him / his, his</td>
<td>ז ...</td>
<td></td>
<td></td>
<td></td>
<td>3rd / m. / sg.</td>
<td>( molto)</td>
</tr>
<tr>
<td>3 sg. = her / her, hers</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>3rd / f. / sg.</td>
<td>( molto)</td>
</tr>
<tr>
<td>3 pl. = them / their, theirs</td>
<td>ח ...</td>
<td></td>
<td></td>
<td></td>
<td>3rd / m. / pl.</td>
<td>+ mixed gender</td>
</tr>
<tr>
<td>3 pl. = them f./ their, theirs</td>
<td>ח ...</td>
<td></td>
<td></td>
<td></td>
<td>3rd / f. / pl.</td>
<td>less often used</td>
</tr>
<tr>
<td>3 pl. = their, theirs (m.)</td>
<td>ח ...</td>
<td></td>
<td></td>
<td></td>
<td>possession of singular noun</td>
<td>+ mixed gender</td>
</tr>
<tr>
<td>2 sg. = your m. for pl. noun</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>possession of plural noun</td>
<td>silent</td>
</tr>
<tr>
<td>3 sg. = his for pl. noun</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>possession of plural noun</td>
<td>silent</td>
</tr>
<tr>
<td>3 sg. = her for pl. noun</td>
<td>ד' ...</td>
<td></td>
<td></td>
<td></td>
<td>possession of plural noun</td>
<td>silent</td>
</tr>
</tbody>
</table>
### Hebrew Suffixes show Plurals, Person/Gender/Number for Possessives of Nouns, Objects of Verbs & Prepositions, Subjects of Verbs, “Present” & “Past Tense” of Verbs.

<table>
<thead>
<tr>
<th>English meaning</th>
<th>Hebrew Suffix</th>
<th>י.root letter</th>
<th>ה.root letter</th>
<th>ד.root letter</th>
<th>Person / Gender / Number</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Past&quot; Verbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I ...</td>
<td>ניע</td>
<td></td>
<td></td>
<td></td>
<td>1st / c. / sg.</td>
<td>“common” gender</td>
</tr>
<tr>
<td>we ...</td>
<td>נו</td>
<td></td>
<td></td>
<td></td>
<td>1st / c. / pl.</td>
<td>“common” gender</td>
</tr>
<tr>
<td>you ...</td>
<td>נַח</td>
<td></td>
<td></td>
<td></td>
<td>2nd / m. / sg.</td>
<td></td>
</tr>
<tr>
<td>(m. sg.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(יָוֵם)</td>
<td></td>
</tr>
<tr>
<td>you ...</td>
<td>נַח</td>
<td></td>
<td></td>
<td></td>
<td>2nd / f. / sg.</td>
<td></td>
</tr>
<tr>
<td>(f. sg.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(יָוָה)</td>
<td></td>
</tr>
<tr>
<td>you ...</td>
<td>נַח</td>
<td></td>
<td></td>
<td></td>
<td>2nd / m. / pl.</td>
<td>+ mixed gender</td>
</tr>
<tr>
<td>(m. pl.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(יָנָה)</td>
<td></td>
</tr>
<tr>
<td>you ...</td>
<td>נַח</td>
<td></td>
<td></td>
<td></td>
<td>2nd / f. / pl.</td>
<td>less often used</td>
</tr>
<tr>
<td>(f. pl.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(יָנָה)</td>
<td></td>
</tr>
<tr>
<td>he ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>3rd / m. / sg.</td>
<td>(רוּחַ)</td>
</tr>
<tr>
<td>(m. sg.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(רוּחַ)</td>
<td></td>
</tr>
<tr>
<td>she ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>3rd / f. / sg.</td>
<td>(רוּחַ)</td>
</tr>
<tr>
<td>(f. sg.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(רוּחַ)</td>
<td></td>
</tr>
<tr>
<td>they ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>3rd / m. / pl.</td>
<td>+ mixed gender</td>
</tr>
<tr>
<td>(m. pl.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(רוּחַ)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Present Tense&quot; endings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I ..., you (m.), he ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>masc. sing.</td>
<td>1st, 2nd, and 3rd</td>
</tr>
<tr>
<td>I ..., you (f.), she ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>fem. sing.</td>
<td>1st, 2nd, and 3rd</td>
</tr>
<tr>
<td>we ..., you (pl.), they (m.) ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>masc. plural</td>
<td>1st, 2nd, and 3rd</td>
</tr>
<tr>
<td>we ..., you (pl.), they (f.) ...</td>
<td>נַחַר</td>
<td></td>
<td></td>
<td></td>
<td>fem. plural</td>
<td>less often used</td>
</tr>
</tbody>
</table>

Additional information:
- A less common form:
- = possession or plural in a word-pair

Copyright 2010 © Cantor Neil Schwartz
ברוך אתה יי אלהינו מלך העולם,
بورא פיר טהון.

ברוך אתה יי אלהינו מלך העולם,
אשר קדשנו במצוותיו ורצינו בנו,
uishat קדשא באמה ובכרジー הנחתילא,
ועורא ליעשה בריאשית.

כי הווה יום חכ-fashion למקראי קדשא,
וצר ליזאות מצרים,
כי בונה בווארת ארץנו קדשא ומלכי העמים,
uishat קדשא באמה ובכרジー הנחתילא.

ברוך אתה יי, קדשא נשבע.
"..." represents the Shoresh (Root letters), and " # " represents the " ב " Root letter

<table>
<thead>
<tr>
<th>Siddur source</th>
<th>Hebrew Suffix</th>
<th>י’ Root Letter</th>
<th>ל Root Letter</th>
<th>ד Root Letter</th>
<th>Hebrew Prefix</th>
<th>English meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiddush + K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td>holiness</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>and holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>the holy</td>
</tr>
<tr>
<td>K’dushah + Shacharit</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td>ג”ת</td>
<td>in the holiness</td>
</tr>
<tr>
<td>Shacharit Yotz’rot</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>holiness</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>Your holiness</td>
</tr>
<tr>
<td>Kiddush</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>Your holiness</td>
</tr>
<tr>
<td>Kiddush + other B’rachot</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>make us holy</td>
</tr>
<tr>
<td>Kiddush</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>You made holy</td>
</tr>
<tr>
<td>Kiddush</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>His holiness</td>
</tr>
<tr>
<td>Amidah + Kiddush</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>makes holy</td>
</tr>
<tr>
<td>Amidah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>make us holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>we make holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>we make holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>make holy</td>
</tr>
<tr>
<td>K’dushah</td>
<td>ס”ה</td>
<td>שׁ</td>
<td>ד</td>
<td>ק”ה</td>
<td></td>
<td>make holy</td>
</tr>
</tbody>
</table>

Copyright 2009 © Cantor Neil Schwartz
### English prepositions (opposites)

#### Relative time and place:
- before (conj.)
- after (conj.)
- until (conj.)
- since (conj.)
- for (conj.)
- during
- ahead of
- following
- around
- between
- up to
- past
- at
- by
- on
- close to
- in
- about

#### Hebrew prepositions

**“Bound” or Prefixed:**
- in, into, with, by, at, when, beside, among
- like, as, according to, about, of, when
- to, toward, for, into, in regard to, at, on, by
- from, because of, away from, out of, some

**“Linked” with מַסְרוּת:**
- from, because of, away from, out of, some
- to, toward, in, unto, into
- on, upon, concerning, over, above, beside
- until, as far as, during

**“Independent”:**
- after, behind, with, “west of”, against
- near to, beside, by the side of, with
- with, beside, near, by, for, against
- between, among
- on account of, in order that

**Relative place (position):**
- close to
- between
- far from
- near
- amid
- outside of
- behind
- opposite
- across from
- beyond
- by
- underneath
- beneath
- below
- off
- with

*Copyright 2012 © Cantor Neil Schwartz*
**English Conjunctions and Hebrew Conjunctions**

A **clause** is a group of words with a subject and a predicate (which usually includes a verb). An **independent clause** stands complete by itself; it may have **subordinate clauses/phrases**.

A **dependent / subordinate clause** does not stand on its own, but rather it functions as an object or a modifier of the main verb (or subject, or object) in the sentence or verse.

A **phrase** is a group of words used in place of a single word, which together function as a **noun** (usually an object of a verb) or a **modifier** (of the main verb, subject or object).

**Coordinating conjunctions** join words, phrases and clauses that are of equal status. They introduce **independent clauses** (that can stand alone as complete sentences). **Coordinating conjunctions** include the English words: *and, or, but, for, so, yet, nor.*

**Subordinating conjunctions** join dependent or subordinate clauses to main clauses. **Subordinating conjunctions** include: *if, because, since, while, though, before, after, as, when, whenever, although, unless, until, so that.*

**Correlative conjunctions** are used in **pairs**: either - or, neither - nor, both - and, if - then.

**Conjunctive Adverbs** in English include: *however, therefore, furthermore, nevertheless, indeed, unfortunately, meanwhile, finally, except.*

Some conjunctions also function as **prepositions**. When such a word introduces a **clause**, where there is both a **noun** and (usually) a **verb**, it functions as a **subordinate conjunction**. When that same word introduces a **phrase** (no verb) rather than a clause, it is a **preposition**.

Notice that several of the conjunctions below also appear on the list of Hebrew **prepositions**.

<table>
<thead>
<tr>
<th>Hebrew Conjunctions</th>
<th>English Conjunctions</th>
</tr>
</thead>
<tbody>
<tr>
<td>לְבָלָל</td>
<td>but, rather</td>
</tr>
<tr>
<td>עַזְזָא</td>
<td>then</td>
</tr>
<tr>
<td>אָזְר</td>
<td>after</td>
</tr>
<tr>
<td>שֶׁנֶּאֱשֶׁר</td>
<td>nevertheless, assuredly</td>
</tr>
<tr>
<td>כָּבעָר</td>
<td>so that, because</td>
</tr>
<tr>
<td>שֶׁלַּכ</td>
<td>that</td>
</tr>
<tr>
<td>כֹּפָרָה</td>
<td>indeed, behold</td>
</tr>
<tr>
<td>כָּעֹפָר</td>
<td>as, when</td>
</tr>
<tr>
<td>לָאָשֶׁר</td>
<td>if / if not</td>
</tr>
<tr>
<td>לָכָנ</td>
<td>therefore</td>
</tr>
<tr>
<td>לָכָמ</td>
<td>so that</td>
</tr>
<tr>
<td>לָמְבִּי</td>
<td>before</td>
</tr>
<tr>
<td>לָפַז</td>
<td>lest</td>
</tr>
<tr>
<td>לָעַר</td>
<td>until</td>
</tr>
<tr>
<td>לָעָזֶב</td>
<td>therefore</td>
</tr>
<tr>
<td>לָעַת</td>
<td>now</td>
</tr>
<tr>
<td>לָק</td>
<td>only</td>
</tr>
</tbody>
</table>

*Copyright 2012 © Cantor Neil Schwartz*
Hebrew Phrasing and Punctuation

Cantillation is the chanting of Hebrew Bible texts according to graphic Trope symbols that delineate punctuation, accentuation, time-bound musical motifs, and meanings.

Nusach HaT’fillah is the chanting of Jewish liturgical texts according to musical motifs within time-bound Modes to delineate the meanings and punctuation of the Hebrew text.

Given these definitions of Cantillation and Nusach, the phrasing and punctuation of liturgical and Biblical texts becomes very important. Here are some basic principles of Hebrew grammar that can help determine the phrasing of these Hebrew texts.

1. Hebrew word-order usually has a Verb before a Noun, thus "Verb - Subject"
2. Hebrew word-order usually has an Adjective after the Noun that it modifies
3. In Hebrew there is a "marker-word" for the Direct Object of a Verb: "Et" (אֶת)
4. A "S’michut" word-pair may occur, (בדה ירשא) showing "X of Y" but dropping "of"
5. Most Hebrew words have a three-consonant Root, with Prefixes and/or Suffixes
6. Prepositions may be Prefixes, and "the" (사회) and "and" (וְ) are always Prefixes
7. Possessives, Plurals, and 1st/2nd/3rd Person indicators are usually Suffixes

Therefore, here are some practical implications from these above basic principles.

When one encounters the Prefix "Vav" (ו), it usually signifies one of two possibilities: either there is a list of connected words, or this word marks the start of a new phrase.

The Prefixes "L’..." (לְ...) and "B’..." (בְ...) indicate the start of a Prepositional Phrase, and this phrase can also function as a Verb modifier or as the Object of a Verb.

Hebrew phrases may include: "Verb – Subject", "Verb – Object", "Noun – Adjective", "Verb – Adverb", "Preposition – Object", and "S’michut" word-pairs (see #4 above).

In Cantillation, the combination of a Conjunctive (Joiner) Trope and a Disjunctive (Separator) Trope indicates the close relationship between these pairs of words.

In Nusach, the choice of musical motifs and the shape of the melodic line are used to indicate logical phrasing and meaning of the liturgical texts, within an appropriate "palette" of musical motifs traditionally chanted on a particular liturgical occasion.

The combinations of these music motifs into "Nusach Systems" indicate Weekday vs. Shabbat vs. Festival occasions, the time of day for each service, the sections of each service, the moods of each liturgical occasion, and the meanings of the liturgical texts.

Each part of the Hebrew Bible has its own special Cantillation musical motifs for Trope, and each type of Jewish worship service has its own special Nusach musical motifs.

Copyright 2011 © Cantor Neil Schwartz
### Some basic details of TaNaKh and Siddur Hebrew

<table>
<thead>
<tr>
<th>grammar issue</th>
<th>Hebrew term</th>
<th>Hebrew symbol</th>
<th>Hebrew example</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>similar consonants</td>
<td>נפש \ שֶׁמֶן</td>
<td>ש \ ש</td>
<td>נשוח</td>
<td>o-seh</td>
</tr>
<tr>
<td>Vav as consonant</td>
<td>מְצַזְעָה</td>
<td>mitz-vot</td>
<td>מְצַזְעָה</td>
<td>mitz-vot</td>
</tr>
<tr>
<td>Yod as consonant</td>
<td>יְדִיד</td>
<td>ya-de-cha</td>
<td>יְדִיד</td>
<td></td>
</tr>
<tr>
<td>Yod as diphthong</td>
<td>two vowels combined</td>
<td>יְד</td>
<td>chai = “ah+ee”</td>
<td></td>
</tr>
</tbody>
</table>
| Yod as silent vowel           | plural possession    | יְדִיד | בָעָלַמֶּנָה | ba-nah-cha
| Meteg as accent               | לָבֶּה | l’-va-ve-cha  |     | 
| Kamatz Katan Chataf Kamatz    | קָדֹשִׁים | kod-sho       | קָדֹשִׁים |     |
| Furtive Patach                | פִּתְחָה | po-tei-ach    | פִּתְחָה |     |
| Pausal Form                   | at Etnachta and Silluk | שֶׁלֶךָ | שֶׁלֶךָ | she-kel
| Sh’va Na with Dagesh Chazak   | בֵּרָה | ba-r’-chu     | בֵּרָה |     |
| Sh’va Na after a long vowel   | שָׁרָא |    | שָׁרָא |     |
| Sh’va Na between two accents  | not all texts show both accents | נַעֲשֶׂה | נַעֲשֶׂה | v-sha-m’-ru |
| Dagesh Chazak to close a syllable | like the “n” in unnecessary | נַעֲשֶׂה | נַעֲשֶׂה | hin-nei |
| Makkeif                       | נֵעְשֶׂה |              | נֵעְשֶׂה | hyphen        |
| Dagesh Kal in “Kaf Sofit”     | מַעֲשֶׂה |             | מַעֲשֶׂה | vi-chu-ne-ka |
| Mappik Hei                    | נַעֲשֶׂה |             | נַעֲשֶׂה | sh’-meih |
| S’michut form for possession  | בֵּן יִשְׂרָאֵל | Children of Israel | בֵּן يִשְׂרָאֵל |     |
Steps for learning to read and chant a Hebrew text

Basic
1. Examine consonants that look like other consonants
2. Examine the vowels and any punctuation marks
3. Divide the longer words into individual syllables
4. Determine where the accents appear in the words

Intermediate
1. Identify where Yod and Vav function as consonants
2. Identify where Yod is a vowel, silent, and a diphthong
3. Identify Open and Closed Syllables in words
4. Identify Sounded and Silent Sh'va vowel symbols

Advanced
1. Identify use of Kamatz Katan and Chataf Kamatz
2. Identify use of Dagesh Kal and Dagesh Chazak
3. Identify Gutturals, Furtive Patach, and Mappik Hei
4. Use consonant separation and Accent Retraction

Meaning
1. Identify Prefixes, Root Consonants, and Suffixes
2. Find the logical phrases within the sentences
3. Look at the context of the surrounding texts
4. Try to get a sense of the meaning in translation

Chanting
1. Ascertain the appropriate Trope or Nusach HaT'fillah
2. Identify paragraphs, sentences, and clauses
3. Review phrasing of text for musical phrases
4. Identify important words which should be stressed

Copyright 2009 © Cantor Neil Schwartz
Deut. 6:4-9 = consonants as they appear in a Torah scroll

שם ישראל יהוה אלהינו יהוה אבשלום
לאחרת אלהינו יהוה אלהיך בך לבך
הכלי תשך בך מאי כור ויי הכהנים
האלה אשר אנכי מציון היום של
לבך נשננתך לבני יהודה הרוחב
בשרך כחייך והכליך בדם
ובשכם ובకומך ו.borderWidthים לאון
על ידיך ויות רבות עמי פנים
лежבבותם על מעוזות ביתך ובשערי
שם ישראל, יהוה אלהינו, יהוה צבאות.
ראבות את יהוה אלהיך, בכל לביך,
ובכל מצ汰ך ובכל מוסריך: יהי עם нарביים
והאלוהים, אשר אנכי מצוה היה, על-לביך:
רשנניך לבני, ורקפת בם, בשלום
בכירות ונלבשת בדה, ובしかないו
הכהונה: וchersחת לאוה באלוהי,
והיה לאuspת בים צנייך: עשתם
על-מותם בימה ובشعارך:

format Copyright 2012 © Cantor Neil Schwartz
שם ישראל, ייהוה אלהינו ייהוה אלהים

א懸ה גباس ייהוה אלהינו, ביכל ליבנה

וכל נפשך ובכל מאורה: יהי משבריך

האלה, אשר אנכי מצקו הנמו, על ליבנה:

רשונתם לבקיע, ודיברת ממ, בשקע

בכיתך ובכיתך כagher, ובשקע

ה-placeholder: והשתמש לאאת עלייתו,

והיה לעתים בים ע鳉יה: והתקת

על-מזרחה ענקי ובchersיך:

format Copyright 2012 © Cantor Neil Schwartz
Deut. 6:4-9  showing how Trope segments reflect the punctuation and meaning, showing the Verb - Subject - Object (VSO) approach to Hebrew syntax, and showing how the suffix pronoun נָבְא... refers back to the Subject דְּבָרָם.

[You] Listen, O Israel;
Adonai is your God, Adonai is One.

And you shall love Adonai your God, with all your heart and with all your soul, and with all your might (resources).

And [shall be] these words, which I command you today, shall be upon your heart.

And you shall teach them [these words] diligently to your children, and you shall speak of them [these words];
when you sit in your house and when you walk in the path, and when you lie down and when you arise.

And you shall bind them [these words] for a sign upon your arm;*
and they [these words] shall be a symbol between your eyes.*

And you shall write them [these words] upon the doorposts of your house ** and upon your [city] gateways.

* Tefillin for arm and head  ** Mezuzah
And you shall love the Lord and love you shall Lord

And (you)* shall write them [these words]**

And (you)* shall write them [these words]**

* implied Subject ** Deut. 6:6a

Copyright 2012 © Cantor Neil Schwartz
Mikvah Prayers

Praised are You, Lord our God, Ruler of the universe, Who has made us holy through Your commandments, and commanded us concerning immersion.

Praised are You, Adonai our God, Ruler of the Universe, Who gives us life, sustains us, and helps us to reach this day.

format copyright 2012 © Cantor Neil Schwartz
### Appendix C – Chapter 3-b

The Hebrew Bible and Cantillation Systems

<table>
<thead>
<tr>
<th>Appendix C-1</th>
<th>TaNa&quot;Kh (Hebrew Bible) Structure</th>
<th>pg. 141</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix C-2</td>
<td>Why Chant Torah?</td>
<td>pg. 142</td>
</tr>
<tr>
<td>Appendix C-3</td>
<td>Torah scroll and Model Torah</td>
<td>pg. 143</td>
</tr>
<tr>
<td>Appendix C-4</td>
<td>Development of Masoretic Tradition</td>
<td>pp. 144-45</td>
</tr>
<tr>
<td>Appendix C-5</td>
<td>Handwritten scroll and Sofer tools</td>
<td>pg. 146</td>
</tr>
<tr>
<td>Appendix C-6</td>
<td>Aleppo Codex and Leningrad Codex</td>
<td>pg. 147</td>
</tr>
<tr>
<td>Appendix C-7</td>
<td>Biblical Cantillation Trope Families</td>
<td>pp. 148-49</td>
</tr>
<tr>
<td>Appendix C-8</td>
<td>Trope Families with &quot;Word Boxes&quot;</td>
<td>pp. 150-51</td>
</tr>
<tr>
<td>Appendix C-9</td>
<td>Cantillation Trope Families numbered</td>
<td>pp. 152-53</td>
</tr>
<tr>
<td>Appendix C-10</td>
<td>Trope Family Variations numbered</td>
<td>pp. 154-60</td>
</tr>
<tr>
<td>Appendix C-11</td>
<td>&quot;Carpet Page&quot; and printed Chumash</td>
<td>pg. 161</td>
</tr>
<tr>
<td>Appendix C-12</td>
<td>Notated Music for Torah Trope</td>
<td>pp. 162-63</td>
</tr>
<tr>
<td>Appendix C-13</td>
<td>Disjunctive Trope Hierarchy</td>
<td>pg. 164</td>
</tr>
<tr>
<td>Appendix C-14</td>
<td>Disjunctive Phrases Levels</td>
<td>pp. 165-67</td>
</tr>
<tr>
<td>Appendix C-15</td>
<td>Trope Order and &quot;Four-Steps&quot;</td>
<td>pg. 168</td>
</tr>
<tr>
<td>Appendix C-16</td>
<td>Munach Combinations</td>
<td>pg. 169</td>
</tr>
</tbody>
</table>
### Structure of the Hebrew Bible - the Tanakh

<table>
<thead>
<tr>
<th>Torah</th>
<th>תְנַנְּכָה</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genesis</td>
<td>בראשית</td>
</tr>
<tr>
<td>Exodus</td>
<td>שמות</td>
</tr>
<tr>
<td>Leviticus</td>
<td>קְרָא</td>
</tr>
<tr>
<td>Numbers</td>
<td>נָבֵים</td>
</tr>
<tr>
<td>Deuteronomy</td>
<td>בָּרָא</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writings</th>
<th>כֹּהֵנִים</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 “Poetic” Books</td>
<td>אָמַת</td>
</tr>
<tr>
<td>Psalms</td>
<td>תהילים</td>
</tr>
<tr>
<td>Proverbs</td>
<td>משלי</td>
</tr>
<tr>
<td>Job</td>
<td>איוב</td>
</tr>
<tr>
<td>Passover</td>
<td>פסח</td>
</tr>
<tr>
<td>Song of Songs</td>
<td>שָׂרָי וְשׁוֹרָי</td>
</tr>
<tr>
<td>Shavuot</td>
<td>שָׁבוע</td>
</tr>
<tr>
<td>Ruth</td>
<td>רות</td>
</tr>
<tr>
<td>Tisha B’Av</td>
<td>תִשָּׁה בֶּאְבּ</td>
</tr>
<tr>
<td>Lamentations</td>
<td>אָכַב</td>
</tr>
<tr>
<td>Sukkot</td>
<td>סְפָד</td>
</tr>
<tr>
<td>Ecclesiastes</td>
<td>קְהלָת</td>
</tr>
<tr>
<td>Purim</td>
<td>פּוֹרִים</td>
</tr>
<tr>
<td>Esther</td>
<td>אֶסְתֵּר</td>
</tr>
<tr>
<td>Daniel</td>
<td>דָּנֵי</td>
</tr>
<tr>
<td>Ezra</td>
<td>עֵרָא</td>
</tr>
<tr>
<td>Nehemiah</td>
<td>נְהֵמַי</td>
</tr>
<tr>
<td>1 &amp; 2 Chronicles</td>
<td>הָרָיָה הָנֵמֵס א–ב</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prophets</th>
<th>בֵּיתוֹם</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joshua</td>
<td>יְדוּשָׁא</td>
</tr>
<tr>
<td>Judges</td>
<td>שׁוֹפָטִים</td>
</tr>
<tr>
<td>Samuel 1 &amp; 2</td>
<td>שׁמֹלָה א–ב</td>
</tr>
<tr>
<td>Kings 1 &amp; 2</td>
<td>מלכּי א–ב</td>
</tr>
<tr>
<td>Isaiah</td>
<td>יִשְׁעָר</td>
</tr>
<tr>
<td>Jeremiah</td>
<td>יְרֵמָי</td>
</tr>
<tr>
<td>Ezekiel</td>
<td>יֵצֶק</td>
</tr>
<tr>
<td>Hosea</td>
<td>הוֹשֵׁע</td>
</tr>
<tr>
<td>Joel</td>
<td>יואל</td>
</tr>
<tr>
<td>Amos</td>
<td>אֵמוֹס</td>
</tr>
<tr>
<td>Obadiah</td>
<td>עוֹבָד</td>
</tr>
<tr>
<td>Jonah</td>
<td>יוֹנָא</td>
</tr>
<tr>
<td>Micah</td>
<td>מִיכָא</td>
</tr>
<tr>
<td>Nahum</td>
<td>נוֹחָמ</td>
</tr>
<tr>
<td>Habakkuk</td>
<td>חֲבֲקָק</td>
</tr>
<tr>
<td>Zephaniah</td>
<td>צֶפַּי</td>
</tr>
<tr>
<td>Haggai</td>
<td>חֲגָנ</td>
</tr>
<tr>
<td>Zechariah</td>
<td>צֶחָר</td>
</tr>
<tr>
<td>Malachi</td>
<td>מַלָּכָי</td>
</tr>
</tbody>
</table>

*the “12”*

---

*Copyright 2010 © Cantor Neil Schwartz*
Why should we chant aloud from the Torah scroll?
Why not just chant aloud directly from the Chumash?
Why not just read the text aloud rather than chanting?
Why not just read aloud the Torah portion in English?

Why should we chant an assigned weekly Torah portion?
Why not just chant whatever texts seem interesting?
Why not skip the parts that make us uncomfortable?
Why not chant however much text we want at a time?

Why chant Torah aloud with specific melodies for Trope?
Why not chant the Torah in a simple “sing-song”?
Why not chant the phrases where we think is best?
Why not use simple music for the elaborate Trope?

1. the Jewish People - community, history and Peoplehood
   community: we bind with fellow Jews everywhere – a horizontal connection to them.
   history: we bind to our ancestors – a vertical connection back through the millennia.
   Peoplehood: chanting Torah is a special Jewish ritual pursuit, ancient and sacred.

2. the Jewish Tradition - ritual, authority and responsibility
   tradition: we reflect the traditions of our communities within the larger Jewish world.
   Jewish ritual: specific actions accompany Torah chanting, which help make it special.
   authority: we may sense “being commanded” to do this, or the authority of tradition.
   responsibility: we fill a needed role in the Jewish community when we learn this skill.

3. Affective aspects - beauty, emotion and musical impact
   beauty: the concept “hidur mitzvah”, making a ritual beautiful, is increased by chant.
   emotion: chanting the musical motifs indicates and heightens the emotions in the text.
   power: chanting has built-in “vocal projection” which communicates this important text.
   music: it is more engaging to chant a text rather than read it – it heightens inflections.

4. Cognitive aspects - calendar cycle, integrity and discipline
   calendar cycle: the assigned Torah portions reflect the cycles of the Jewish calendar.
   integrity: chanting the Trope markings communicates traditional meanings of the text.
   discipline: by chanting set portions on regular occasions, we study the entire Torah.
   intentionality: by chanting from a Torah scroll in Hebrew, we show that this is special.

5. "Meta-issues" - the Sacred, memory and Jewish identity
   sense of the Sacred: we say that “study is worship”, so Torah chant is a form of prayer.
   memory: chanting helps memorize the text, and ties into subconscious group memory.
   personal challenge: this sacred responsibility is an investment in one’s Jewish identity.

Copyright © 2009 Cantor Neil Schwartz
Handwritten *Torah* scroll, open to Exodus 14 – 15

Model of a *Torah* scroll with its *Me'il*, *Rimonim*, *Yad*, and *Choshen* (Cover or Mantle, Finials, Pointer, and Breastplate respectively)
Development of the Tiberian Masoretic Tradition

Transmission of the Torah text

1. the Torah text was codified and handwritten in consonantal form on parchment scrolls; Nehemiah 8 tells of Ezra chanting for the Israelites around 440 BCE

2. the Torah was transmitted for centuries by oral chant from the consonantal text; Berachot 62a of the Babylonian Talmud mentions “Chironomy” (hand signs)

3. life became unsettled in the Middle East, and there was concern that the chain of oral tradition about how the TaNaKh was to be chanted could become broken

4. three different attempts were made to develop a system to codify vowels, accents and punctuation, but the Tiberian system was accepted as the most legible

5. Ta’amei HaMikra were added in the 800’s C.E. by the Ben Asher family in Tiberius to codify the received oral tradition of meaning and chanting the TaNaKh text

Tiberian problem-solving

1. the Torah text was sacred, and could not be modified to include vowels and accents

2. the STaM font for writing a Torah is “heavy” on the top horizontal bar of consonants

3. two of the attempted vowel and accent systems, the Babylonian and the Palestinian, put most of the markings above the “heavy” top horizontal bar of the consonants

4. the Tiberian system put most of the vowels below the consonants, and the Ta’amei HaMikra symbols were placed both above and below the Hebrew consonants

5. in the Tiberian Masoretic system, Ta’amei HaMikra function first as punctuation, then as accentuation (by where they are placed), and finally as intonation (chant)

Tiberian vowel symbols

1. there are three basic “vowel-classes” in Semitic languages:

   “ah” = formed by dropping the jaw — kamatz gadol, patach

   “i + e” = formed with “smiling” lips — chirik, tzeirei, segol

   “o + u” = formed with rounded lips — cholam, shuruk, kubutz

2. the Masoretic vowel symbols reflect the three ways in which vowels are formed:

   “ah” class vowels are shown by a horizontal line under a consonant

   “i + e” class vowels are shown by 1, 2, or 3 dots under a consonant, which reflect the tongue’s position for each vowel

   “o + u” class vowels are shown by dots above or beside consonants, except for the kubutz (which is not a common vowel)

Copyright 2012 © Cantor Neil Schwartz
Tiberian Ta’amei HaMikra symbols

1. The Ta’amei HaMikra reflect an oral tradition of chanting the ancient Biblical text:
   the Torah was originally a chanted oral tradition only, as sacred literature
   the handwritten consonantal Torah text was also chanted for many centuries
   Ta’amei HaMikra were added by the Tiberian Masoretes in the 800’s CE to codify the received oral tradition of Biblical meaning and chanting

2. Six versions of musical chant motifs use the same Trope signs and names for the 21 “Prose” books of the TaNaKh: Torah, Haftarah, Yamim Noraim (High Holy Days Torah), Esther, Eichah, and “RaKaSh” (Ruth, Kohelet, Shir HaShirim), but their musical values vary for each system and in each world Jewish community

3. the 3 “Poetic” Books in Ketuvim, namely Job, Proverbs and Psalms (“EMeT”) have a different system of Ta’amei HaMikra which is not chanted by Ashkenazim

Two ancient Tiberian manuscripts

1. the names and shapes of the Ta’amei HaMikra reflect their musical motif patterns and syntactic functions, and may also reflect ancient “Chironomy” hand signals

2. the “Aleppo Codex” was prepared about 930 CE by Aharon ben Moshe ben-Asher in Tiberius, Israel as a complete TaNaKh, parts of which are now destroyed

3. the “Leningrad Codex” was prepared about 1009 CE by Samuel ben Jacob in Fustat (Cairo), Egypt as a complete TaNaKh, and it is now the oldest complete text

4. this became the basis of the Biblia Hebraica Kittel (BHK) 1937, the Biblia Hebraica Stuttgartensia (BHS) 1968-1977, the Michigan-Claremont-Westminster (MCW) computer code of the Hebrew Bible text, and the 1985 New JPS TaNaKh.

Functions of the Masoretic Trope symbols

1. the system of Ta’amei HaMikra in the TaNaKh is logogenic, which means that the musical motifs in the chant are “driven” by the rhythms and accents of the text

2. the use of Disjunctive (separating) and Conjunctive (joining) Trope help parse the syntax of a verse to show the punctuation, beyond phrases to “word-pairs”

3. the term Ta’amei HaMikra means “accents of reading”; by placing Trope symbols above or below the accented syllables, the Trope show the accentuation

4. each Trope symbol represents a cluster of musical notes; the “main body” of each musical motif is chanted on the accented syllable, thus showing the intonation

5. the Tiberian Masoretic system also includes indications of K’ri (or K’rei) and K’tiv to show where the received oral tradition is different from the handwritten text

Copyright 2012 © Cantor Neil Schwartz
Handwritten consonantal text on a parchment scroll - no vowels or Trope

Quills, parchment, sinews, and alphabet written by a Sofer (Scribe)

Copyright 2012 © Cantor Neil Schwartz
### Trope Names

Based on the Trope Families sheet (N. Schwartz)

(These are read from **RIGHT to LEFT** across each line)

<table>
<thead>
<tr>
<th>מַרְכָּא</th>
<th>Etnachta</th>
<th>Munach</th>
</tr>
</thead>
<tbody>
<tr>
<td>מְרָכָּא</td>
<td>Meir’cha</td>
<td>Tip’cha</td>
</tr>
<tr>
<td>מְרָכָּא</td>
<td>Meir’cha</td>
<td>Tip’cha</td>
</tr>
<tr>
<td>קִלּוֹמָו</td>
<td>T’vir</td>
<td>Meir’cha</td>
</tr>
<tr>
<td>קִלּוֹמָו</td>
<td>T’vir</td>
<td>Darga</td>
</tr>
<tr>
<td>קִלּוֹמָו</td>
<td>T’vir</td>
<td>Meir’cha</td>
</tr>
<tr>
<td>קִלּוֹמָו</td>
<td>T’vir</td>
<td>Darga</td>
</tr>
<tr>
<td>קִלּוֹמָו</td>
<td>T’vir</td>
<td>Meir’cha</td>
</tr>
</tbody>
</table>

**Copyright © 1978, 2009 Cantor Neil Schwartz**
<table>
<thead>
<tr>
<th>Trope Families  (descending Pausal Power)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Disjunctives) / Separators</td>
</tr>
<tr>
<td>( Conjunctives) / Joiners</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>מִיְרְכָּה</th>
<th>מְדַבֵּרָה</th>
<th>סִילָע</th>
<th>מַעֲקִית</th>
<th>מְדַבֵּרָה</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meir'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
<td>Munach</td>
<td>Meir'cha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>אַתְנָחְתָּה</th>
<th>מְדַבֵּרָה</th>
<th>נִמְנָה</th>
<th>נִמְנָה</th>
<th>מְדַבֵּרָה</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Etnacha</td>
<td>Tip'cha</td>
<td>Munach</td>
<td>Meir'cha</td>
<td>Munach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>סִנֹל</th>
<th>מְדַבֵּרָה</th>
<th>מְדַבֵּרָה</th>
<th>זְרַקָה</th>
<th>מְדַבֵּרָה</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Segol</td>
<td>Munach</td>
<td>Zarka</td>
<td>Munach</td>
<td>Munach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>קַבּוֹתְנָה</th>
<th>מְדַבֵּרָה</th>
<th>פְּשֶׁתָּה</th>
<th>מָפַח</th>
<th>מְדַבֵּרָה</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zakeif Katon</td>
<td>Munach</td>
<td>Pashta</td>
<td>Mapach</td>
<td>Munach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>מְדַבֵּרָה</th>
<th>מְדַבֵּרָה</th>
<th>מְדַבֵּרָה</th>
<th>מְדַבֵּרָה</th>
<th>מְדַבֵּרָה</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R'yi-a</td>
<td>Munach</td>
<td>Munach L'Garmeih</td>
<td>Munach</td>
<td>Munach</td>
</tr>
</tbody>
</table>

Copyright 1978, 2012 © Cantor Neil Schwartz
### Trope Families

<table>
<thead>
<tr>
<th>Disjunctives / Separators</th>
<th>Conjunctives / Joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> מִלְכָּא סְפָּהָא</td>
<td>מִלְכָּא סְפָּהָא</td>
</tr>
<tr>
<td>Silluk</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td>Tip'cha</td>
</tr>
<tr>
<td></td>
<td>Meir'cha</td>
</tr>
<tr>
<td><strong>2</strong> מִלְכָּא סְפָּהָא</td>
<td>מִלְכָּא סְפָּהָא</td>
</tr>
<tr>
<td>אֵתְנָחְתָּא</td>
<td>מֻנָּה</td>
</tr>
<tr>
<td></td>
<td>Munach</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong> מֻנָּה דֶּקָּא</td>
<td>מֻנָּה דֶּקָּא</td>
</tr>
<tr>
<td>סָגוֹל</td>
<td>מֻנָּה</td>
</tr>
<tr>
<td></td>
<td>Munach</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4</strong> קֵלָּמָא מַחְפָּא פְּשָׁטָא</td>
<td>מַחְפָּא פְּשָׁטָא</td>
</tr>
<tr>
<td>זָקֵיָא קָטָן</td>
<td>Munach</td>
</tr>
<tr>
<td></td>
<td>Pashta</td>
</tr>
<tr>
<td></td>
<td>Mapach</td>
</tr>
<tr>
<td></td>
<td>Kadma</td>
</tr>
<tr>
<td><strong>5</strong> מַהֲטָה לָגְרֶמֶיה</td>
<td>מַהֲטָה לָגְרֶמֶיה</td>
</tr>
<tr>
<td>R'vi-a</td>
<td>Munach</td>
</tr>
<tr>
<td></td>
<td>Munach L'Garmeih</td>
</tr>
<tr>
<td><strong>6</strong> קֵלָּמָא דֶּרֶנָא חָבִיר</td>
<td>מִלְכָּא דֶּרֶנָא חָבִיר</td>
</tr>
<tr>
<td>T'vir</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td>T'vir</td>
</tr>
<tr>
<td></td>
<td>Darga</td>
</tr>
<tr>
<td></td>
<td>Kadma</td>
</tr>
</tbody>
</table>

Copyright © 1978, 2010 Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Trope Families</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disjunctives / Separators</strong></td>
</tr>
<tr>
<td>(7) קְפָּרָה</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*Copyright © 1978, 2010 Cantor Neil Schwartz*
<table>
<thead>
<tr>
<th>Trope Variations</th>
<th>(Disjunctives) / Separators</th>
<th>(Conjunctives) / Joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Silluk</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td>Tip'cha</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>(1.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silluk</td>
<td>Tip'cha</td>
</tr>
<tr>
<td></td>
<td>Meir'cha 1.2</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>(1.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silluk</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td>Tip'cha</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>(1.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silluk</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td>Tip'cha</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>(1.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silluk</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>(1.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(period)</td>
</tr>
<tr>
<td>Etnachta</td>
<td>Munach</td>
<td>Tip'cha</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meir'cha</td>
</tr>
<tr>
<td>(2.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etnachta</td>
<td>Tip'cha</td>
<td>Meir'cha</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2.2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Copyright © 2010 Cantor Neil Schwartz*
<table>
<thead>
<tr>
<th>Trope Variations</th>
<th>Page 3 of 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Disjunctives) / Separators</strong></td>
<td><strong>(Conjunctives) / Joiners</strong></td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Pashta</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Pashta</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Pashta</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Pashta</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
</tbody>
</table>

Copyright © 2010 Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Disjunctives / Separators</th>
<th>Conjunctives / Joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td>יֹקְחָה-קָסְחיּ</td>
<td>פַּשְׁנָה</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Pashta</td>
</tr>
<tr>
<td>יֹקְחָה-קָסְחיּ</td>
<td>מֹנָנָה</td>
</tr>
<tr>
<td>Zakeif Katon</td>
<td>Munach</td>
</tr>
<tr>
<td>,</td>
<td>יֹקְחָה-קָסְחיּ</td>
</tr>
<tr>
<td>(comma)</td>
<td>Zakeif Katon</td>
</tr>
<tr>
<td>,</td>
<td>יֹקְחָה-קָסְחיּ</td>
</tr>
<tr>
<td>(comma)</td>
<td>Zakeif Gadol</td>
</tr>
<tr>
<td>רִבִּי</td>
<td>מַנְחָה</td>
</tr>
<tr>
<td>R'yi-a</td>
<td>Munach</td>
</tr>
<tr>
<td>רִבִּי</td>
<td>אַזְלָא</td>
</tr>
<tr>
<td>R'yi-a</td>
<td>Azla</td>
</tr>
<tr>
<td>רִבִּי</td>
<td>מַנְחָה</td>
</tr>
<tr>
<td>R'yi-a</td>
<td>Munach</td>
</tr>
<tr>
<td>Trope Variations</td>
<td>Page 5 of 7</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>(Disjunctives) / Separators</td>
<td>(Conjunctives) / Joiners</td>
</tr>
<tr>
<td>רְבִּיתָה</td>
<td>מְטַנְה</td>
</tr>
<tr>
<td>R'vi-a</td>
<td>Munach</td>
</tr>
<tr>
<td>,</td>
<td>(comma)</td>
</tr>
<tr>
<td></td>
<td>R'vi-a</td>
</tr>
<tr>
<td>דְרֶגָּא</td>
<td>קָדָמָא</td>
</tr>
<tr>
<td>Tvir</td>
<td>Darga</td>
</tr>
<tr>
<td>מֵירְכָּא</td>
<td>קָדָמָא</td>
</tr>
<tr>
<td>Tvir</td>
<td>Meir’cha</td>
</tr>
<tr>
<td>דְרֶגָּא</td>
<td>מֵירְכָּא</td>
</tr>
<tr>
<td>Tvir</td>
<td>Darga</td>
</tr>
<tr>
<td>מֵירְכָּא</td>
<td>מֵירְכָּא</td>
</tr>
<tr>
<td>Tvir</td>
<td>Meir’cha</td>
</tr>
<tr>
<td>דְרֶגָּא</td>
<td>מֵירְכָּא</td>
</tr>
<tr>
<td>Tvir</td>
<td></td>
</tr>
</tbody>
</table>

Copyright © 2010 Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>(Disjunctives) / Separators</th>
<th>(Conjunctives) / Joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td>תבירה</td>
<td>Tvir</td>
</tr>
<tr>
<td>מָבוֹת</td>
<td>Munach</td>
</tr>
<tr>
<td>כָּרָנָה</td>
<td>Darga</td>
</tr>
<tr>
<td>גָּוֶרֶש</td>
<td>Geireish</td>
</tr>
<tr>
<td>מָבוֹת</td>
<td>Munach</td>
</tr>
<tr>
<td>קָדָמה</td>
<td>Kadma</td>
</tr>
<tr>
<td>גָּוֶרֶש</td>
<td>Geir'shayim</td>
</tr>
<tr>
<td>מָבוֹת</td>
<td>Munach</td>
</tr>
<tr>
<td>צָלִילֶשֶׁא-קִטָּנָה</td>
<td>T'lisha K'tanah</td>
</tr>
<tr>
<td>מָבוֹת</td>
<td>Munach</td>
</tr>
<tr>
<td>צָלִילֶשֶׁא-גָדוֹלָה</td>
<td>T'lisha G'dolah</td>
</tr>
<tr>
<td>מָבוֹת</td>
<td>Munach</td>
</tr>
<tr>
<td>פָּרָר</td>
<td>Pazeir</td>
</tr>
<tr>
<td>מַתִּיוֹנָה-זֶקֶף</td>
<td>M'tigah Zakeif</td>
</tr>
<tr>
<td>מִירְבָּא</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>סֹף-חַלֶּלֶכֶת</td>
<td>Sof HaChellek</td>
</tr>
<tr>
<td>מִירְבָּא</td>
<td>Meir'cha</td>
</tr>
<tr>
<td>עֵפָה</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>מִירְבָּא</td>
<td>Meir'cha</td>
</tr>
</tbody>
</table>

Copyright © 2010 Cantor Neil Schwartz
<table>
<thead>
<tr>
<th><strong>Trope Variations</strong></th>
<th><strong>Page 7 of 7</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>לְסַלָּמָא אֶלֶּה</td>
<td>(Conjunctives) / Joiners  בֵּין עֵנֵין</td>
</tr>
<tr>
<td>(Disjunctives) / Separators</td>
<td>מַאיֵלָא</td>
</tr>
</tbody>
</table>

10.3  מַאיֵלָא  on one word with Etnachta or Silluk

11.1  שלְּשֵׁלָת  (comma)  שַׁלְשֵׁלָת

11.2  דְּרָן  מַיְרְכַּא קַפְּלָלָה  T'vir

Meir'cha Ch'fulah  Darga

also called  Galgal  and  Pazeir Gadol

11.3  קָרֵנֶי פֶּרֶחֶת  Karnei Farah  Yerach ben-Yomo

Copyright © 2010 Cantor Neil Schwartz
"Carpet Page" of Leningrad Codex; Scribe's name "Shmuel ben Ya'akov"

Printed "Chumash" or Pentateuch with Hebrew, English, and commentary

Copyright 2012 © Cantor Neil Schwartz
Trope Hierarchies by “Levels”

. סילוק [1]
; אבותה [1]
, סנגל " [2]
, יוחנן קסן [2]
, יוחנן-גﺩר [2]
, תפיחה [2]
, רבי [3]
. גֶּחָה [3]
. שֶׁפֶתָא [3]
, אורָּא [3]
.Ｊטֶנִיר [3]
| מָוִית-לֹאָרָמִיז [4]
. פָּזָר [4]
. נַלִינַשא-ברוֹלָה [4]
. אַוֶּל [4]
. גַּרְשֶׁם [4]
. קַרְבִי-פָּרָה [4]
. סַוּם-חַמוֹלָה (1)

format Copyright © 2009 Cantor Neil Schwartz
This is one way to show the “hierarchy” of the Disjunctive segments, with the strongest “pausal power” in "Level 1" at the bottom of each sample "verse".

<table>
<thead>
<tr>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>L’Garneih</td>
<td>T’lisha</td>
<td>Pazeir (Azla)</td>
<td>Geireish / Ger’shayim</td>
</tr>
<tr>
<td>R’vi-a (= &quot;&quot;,&quot;)</td>
<td>Pashta / Y’tiv</td>
<td>Zarka</td>
<td>T’vir</td>
</tr>
<tr>
<td>Tip’cha</td>
<td>Zakeif Katon / Z. Gadol (= &quot;,&quot;)</td>
<td>Segol / Shalshelet (= &quot;,&quot;)</td>
<td></td>
</tr>
<tr>
<td>Silluk (= &quot;,&quot;)</td>
<td>Etnachta (= &quot;,&quot;)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dr. Jacobson uses the terms “nesting” and “stepping” segments to show many details about the relative “pausal power” of the Disjunctives. On the following pages is a simplified version of that technical presentation. For our purposes, it will suffice to say the following:

- **in Level 1**, Silluk (a "period") is a stronger Disjunctive than Etnachta (a "semi-colon").

- **in Level 2**, Tip’cha is a sub-segment of an Etnachta segment and a Silluk segment, Zakeif is a stronger Disjunctive than Tip’cha, Segol is a stronger Disjunctive than Zakeif, and a Shalshelet can substitute for a Segol (x4 in the Torah).

- **in Level 3**, Pashta usually appears as a sub-segment of a Zakeif Katon segment, and Zarka only appears as a subset of a Segol segment; R’vi-a is a stronger Disjunctive than T’vir, and T’vir appears within a Tip’cha sub-segment.

- **in Level 4**, L’Garneih only appears within a R’vi-a segment, but T’lisha G’dolah, Pazeir, Azla or Geireish, and Ger’shayim can all appear in R’vi-a, Pashta, Zarka and T’vir segments, to indicate further sub-divisions within those segments.

In order from strongest to weakest "pausal power", here are the Disjunctive Ta’amei HaMikra. Please note that various scholars disagree about many aspects of this Trope hierarchy.

<table>
<thead>
<tr>
<th>Level 1 (Emperor)</th>
<th>Level 2 (King)</th>
<th>Level 3 (Duke)</th>
<th>Level 4 (Officer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Segol / Shalshelet</td>
<td>R’vi-a</td>
<td>L’Garneih</td>
</tr>
<tr>
<td>Etnachta</td>
<td>Zakeif Katon / Zakeif Gadol</td>
<td>Pashta / Y’tiv</td>
<td>Pazeir</td>
</tr>
<tr>
<td>Tip’cha</td>
<td>Tip’cha</td>
<td>Zarka</td>
<td>T’lisha G’dolah</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T’vir</td>
<td>Geireish / Azla</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ger’shayim</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Karnei Farah</td>
</tr>
</tbody>
</table>

**Conjunctives**: Munach, Mei’r’cha, Kadma, Mahpach, T’lisha K’tanah, Darga, Mei’r’cha Ch’fulah, Yerach ben Yomo (Galgal)

Copyright 2012 © Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Tip'cha</td>
<td>Etnachta</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 4</td>
<td>Level 3</td>
<td>Level 2</td>
</tr>
<tr>
<td>T'lisha</td>
<td>T'vir</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Pazeir</td>
<td>T'vir</td>
<td>Silluk</td>
</tr>
</tbody>
</table>

**[adding T'vir]**

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Tip'cha</td>
<td>Etnachta</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 4</td>
<td>Level 3</td>
<td>Level 2</td>
</tr>
<tr>
<td>T'lisha</td>
<td>T'vir</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Pazeir</td>
<td>T'vir</td>
<td>Silluk</td>
</tr>
</tbody>
</table>

**[sub-dividing T'vir]**

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Tip'cha</td>
<td>Etnachta</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 4</td>
<td>Level 3</td>
<td>Level 2</td>
</tr>
<tr>
<td>T'lisha</td>
<td>T'vir</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Pazeir</td>
<td>T'vir</td>
<td>Silluk</td>
</tr>
</tbody>
</table>

**[adding Zakeif]**

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Tip'cha</td>
<td>Etnachta</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 4</td>
<td>Level 3</td>
<td>Level 2</td>
</tr>
<tr>
<td>T'lisha</td>
<td>T'vir</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Pazeir</td>
<td>T'vir</td>
<td>Silluk</td>
</tr>
</tbody>
</table>

**[sub-dividing Zakeif]**

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silluk</td>
<td>Tip'cha</td>
<td>Etnachta</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Tip'cha</td>
<td>Zakeif</td>
<td>Tip'cha</td>
</tr>
<tr>
<td>Zakeif</td>
<td>Tip'cha</td>
<td>Silluk</td>
</tr>
</tbody>
</table>

Copyright 2012 © Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Level</th>
<th>Silluk</th>
<th>Tip'cha</th>
<th>T'vir</th>
<th>Pashta</th>
<th>Etnachta</th>
<th>Zakeif</th>
<th>Pashta</th>
<th>Pazeir</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>T'lisha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>Pashta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silluk</td>
<td>Tip'cha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[ Zakeif and T'vir ]

<table>
<thead>
<tr>
<th>Level</th>
<th>Silluk</th>
<th>Tip'cha</th>
<th>T'vir</th>
<th>Pashta</th>
<th>Etnachta</th>
<th>Zakeif</th>
<th>Pashta</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>T'vir</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>Pashta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silluk</td>
<td>Tip'cha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[ adding R'vi-a ]

<table>
<thead>
<tr>
<th>Level</th>
<th>Silluk</th>
<th>Tip'cha</th>
<th>T'vir</th>
<th>R'vi-a</th>
<th>Pashta</th>
<th>Etnachta</th>
<th>Zakeif</th>
<th>Pashta</th>
<th>R'vi-a</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>T'vir</td>
<td>R'vi-a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pashta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silluk</td>
<td>Tip'cha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[ adding Segol ]

<table>
<thead>
<tr>
<th>Level</th>
<th>Silluk</th>
<th>Tip'cha</th>
<th>T'vir</th>
<th>Etnachta</th>
<th>Zakeif</th>
<th>Pashta</th>
<th>Segol</th>
<th>Zarka</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>T'vir</td>
<td></td>
<td></td>
<td>Pashta</td>
<td></td>
<td>Zarka</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>Tip'cha</td>
<td></td>
<td></td>
<td>Segol</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silluk</td>
<td>Tip'cha</td>
<td></td>
<td>Etnachta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[ sub-dividing Level 3 ]

<table>
<thead>
<tr>
<th>Level</th>
<th>Silluk</th>
<th>Tip'cha</th>
<th>T'vir</th>
<th>Geresh</th>
<th>Etnachta</th>
<th>R'via</th>
<th>L'Garme</th>
<th>Segol</th>
<th>Zarka</th>
<th>Pazer</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>T'lisha</td>
<td></td>
<td></td>
<td></td>
<td>L'Garme</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pashta</td>
<td>R'vi-a</td>
<td></td>
<td>Zarka</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Tip'cha</td>
<td></td>
<td>Zakeif</td>
<td>Tip'cha</td>
<td></td>
<td>Segol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Silluk</td>
<td>Tip'cha</td>
<td></td>
<td></td>
<td>Etnachta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Copyright 2012 © Cantor Neil Schwartz
The "Four-Step" Method of learning to chant any Biblical text

**Step 1** = read aloud the Hebrew text, with accurate accents, pronunciation and phrasing.

**Step 2** = read aloud the names of the Ta’amei HaMikra, in the order they are in the text.

**Step 3** = chant the names of the Ta’amei HaMikra, in the order they are found in the text.

**Step 4** = chant the Hebrew text, substituting the words of the text for the Trope names.

General Principles about the order of Trope in a Biblical text

1. While Silluk is usually the equivalent of a "period" in English grammar, and Etnachta is usually the equivalent of a "semi-colon", at times a complete sentence extends over two Bible verses, and sometimes there are two sentences within one verse.

2. If there is an Etnachta, there will be a Silluk at the end of the verse (one exception).

3. If there is a Segol, eventually there will be an Etnachta, and a Silluk at the verse end.

4. If there is a Segol, there are usually Zakeif Katon segments before the Etnachta; a Shalshelet (with no Conjunctives) replaces a Segol four times in the Torah.

5. If there is a Tip’cha, the very next Disjunctive will be either an Etnachta or a Silluk.

6. If there is a Zarka, the next Disjunctive will be either a Segol or another Zarka.

7. If there is a Mahpach, the next Trope is a Pashta, then eventually a Zakeif Katon.

8. If there is a Pashta, the next Disjunctive is usually a Zakeif Katon, but there can also be another Pashta or a Y’tiv, and Pashta can also (rarely) be in other segments.

9. If there is a Y’tiv replacing a Pashta, the next Disjunctive will usually be Zakeif Katon.

10. Zakeif Katon (or Zakeif Gadol, with no Conjunctives) is usually followed by a Tip’cha leading to an Etnachta or a Silluk, or by another Zakeif Katon (or a Zakeif Gadol).

11. If there is a T’vir, the next Disjunctive will be a Tip’cha (or occasionally another T’vir).

12. If there is a Darga, the next Disjunctive will be either a T’vir or occasionally a R’vi-a.

13. A R’vi-a might lead to a T’vir ... Tip’cha, a Pashta ... Zakeif Katon, or a Zarka ... Segol.

14. If there is a Munach L’Garmehi, the next Disjunctive is a R’vi-a (or another L’Garmehi).

15. T’lisha G’dolah or Pazeir is often followed by Azla // Geireish (or Ger’shayim) and then by Pashta ... Zakeif Katon, Zarka ... Segol, T’vir ... Tip’cha, or L’Garmehi ... R’vi-a.


17. T’lisha K’tanah is followed immediately by a Kadma (per Jacobson 2002, pg. 400).

18. There are occasional Trope differences among Chumash, Tikkun, & TaNaKh texts.

Copyright 2012 © Cantor Neil Schwartz
<table>
<thead>
<tr>
<th>Munach combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disjunctives / Separators</strong></td>
</tr>
<tr>
<td>אַתְנַחְתָּא</td>
</tr>
<tr>
<td>Etnachta</td>
</tr>
<tr>
<td>טְפֶחְא</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>סָגוֹל</td>
</tr>
<tr>
<td>Segol</td>
</tr>
<tr>
<td>זַרְקַא</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>זָקֵיָא</td>
</tr>
<tr>
<td>Zakeif Katon</td>
</tr>
<tr>
<td>פַּשְׁחֵא</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>רְבִּיעַ</td>
</tr>
<tr>
<td>R’vi-a</td>
</tr>
<tr>
<td>מַלְיָא</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>פֹּזֶר</td>
</tr>
<tr>
<td>Pazeir</td>
</tr>
</tbody>
</table>

*Copyright © 2009 Cantor Neil Schwartz*
Appendix D  –  Chapter 4-a

Structure and Development of Jewish Liturgy

Appendix D-1  –  Development of Jewish Liturgy  
pg. 171

Appendix D-2  –  Why Chant Prayers?  
pp. 172-73

Appendix D-3  –  Sections of Weekdays Services  
pg. 174

Appendix D-4  –  Structure of Weekday Shacharit  
pg. 175

Appendix D-5  –  Sections of Shabbat Services  
pg. 176

Appendix D-6  –  Structure of Shabbat Shacharit  
pg. 177

Appendix D-7  –  Sections of Rosh HaShanah Services  
pg. 178

Appendix D-8  –  Structure of Rosh HaShanah Evening  
pg. 179

Appendix D-9  –  Structure of Rosh HaShanah Morning  
pp. 180-81

Appendix D-10  –  Sections of Yom Kippur Services  
pg. 182

Appendix D-11  –  Structure of Kol Nidrei Evening  
pg. 183

Appendix D-12  –  Structure of Yom Kippur Morning  
pp. 184-85

Appendix D-13  –  Shabbat Services with Nusach  
pg. 186

Appendix D-14  –  Shabbat Shacharit with Nusach  
pg. 187

Appendix D-15  –  Shabbat Arvit and Minchah Nusach  
pg. 188

Appendix D-16  –  Weekday Services with Nusach  
pg. 189
Development of Jewish Liturgy

Biblical prayers

Praise to God for Creation and involvement in the lives of people - many of the Psalms. Thanks for Revelation and for specific interventions - "Mi Chamocha" in "Shirat HaYam". Petition for Redemption and for God's help - Hannah for a child, Jacob's fear of Esau. Early liturgy led by the Levites accompanied animal sacrifices in the ancient 1st Temple.

Establishment of synagogues

Some scholars believe synagogues began during the Babylonian Exile (586-538 B.C.E.). New worship rubrics developed which were not directly dependent on animal sacrifices. During the 2nd Temple period, the synagogue and Jewish liturgy continued to develop. This liturgy included Torah chanting, Psalms, the Ten Commandments, and the Sh'ma.

A Diaspora institution

After the Romans destroyed the 2nd Temple in 70 C.E., animal sacrifices were abolished. Worship services replaced the time-bound animal sacrifices, ensuring continuity in Exile. The outlines of Jewish liturgy were codified around 100 C.E. by Rabbi Gamliel II in Israel. Tropes symbols and vowel marks were added to the consonantal TaNaKh text in the 800's.

The first Siddurim

Spontaneous prayer led by Hazzanim was within the fixed outlines of the Jewish liturgy. Over time and distance, oral traditions of liturgy became weakened during the Dark Ages. Rav Amram Gaon's Responsa to Barcelona about 865 C.E. was the first written Siddur. Rav Saadia Gaon's Siddur (early 900's) was the first Siddur meant for use by worshipers.

Enriching the Liturgy

Religious poems (Piyutim) were added to the core Jewish liturgy during the Middles Ages. "Nusach Ha'Tfilah" or "musical prayer modes" developed to chant various types of liturgy. Medieval musical settings called "MiSinai Tunes" became associated with specific prayers. Nusach motifs and MiSinai Tunes from Central Europe later migrated to Eastern Europe.

Early attempts at Reform

The development of the printing press made Siddurim available at an economical price. In the 1800's some Siddurim in Germany, Britain and America now included translations. Choral music was introduced in European synagogues, along with sermons and the organ. Prayers were done in Hebrew and the vernacular, and congregational melodies developed.

Turn of the Century

New Siddurim and Machzorim are removing many Piyutim that had gradually been added. The ancient sacrifices and gender-neutral texts and translations are ongoing textual issues. There is a tension between the desire for innovation and for closer adherence to traditions. English prayers, transliteration, instruments, metric melodies, and lay leadership are issues.

Copyright 2012 © Cantor Neil Schwartz
Why Chant Prayers?

Why should we pray at all?

People may feel a need to talk to God: to ask for help dealing with problems, to express thanks when things go well, to express praise for natural beauty.

People may feel a need to gather together with other Jews in a shared common activity.

People may need respite from the rush of life, and they find comfort in worship services.

To Whom are we praying?

To the Creator of the Universe: a Force, a Power, a Spirit, considered by many to be Omnipotent, Omniscent, and Omnipresent.

To the Revealer of our Torah: the Source of morality and rules for upright living, Whose intervention in the World we see in our lives.

To the Redeemer of the World: Who oversees the linear direction of History, and from Whom we can ask for help and forgiveness.

We praise God for ongoing orderly Creation of the world;
we thank God for Revelation and involvement with our lives;
we petition God for peace and Redemption of the world.

Why do set prayer texts?

The basic things that people have wanted to say to God are all in our worship services. If left only to our own imagination, we would probably do mostly petitionary prayers.

The liturgy approaches prayer not from our world-view, but from a Jewish world-view.
A set text reinforces the communal nature of prayer and prevents chaos during worship.

Why pray at set times?

If we do not set aside regular times to pray, we may not be moved to worship regularly.
Set times facilitate the gathering of a Jewish community for worship on a regular basis.
The discipline of regular worship creates the possibility of true meaning and intention.
Regular worship frames the day, week, and year for individuals and for the community.

Copyright 2012 © Cantor Neil Schwartz
Why pray mostly in Hebrew?
Hebrew connects “vertically” back through time with our ancestors and ancient heritage. Hebrew connects “horizontally” now with world Jewish communities who pray similarly. Hebrew helps maintain a group identity as we pray together, because it is our tradition. The sounds of the Hebrew may bring comfort even if the literal meanings are unknown.

Why pray in a synagogue?
Gathering for synagogue prayer facilitates community and encourages regular worship. While Judaism sanctifies “sacred time”, “sacred space” is conducive to sincere prayer. Hebrew for “synagogue” (Beit K’nesset) [Greek “Synagoga”] is “House of Assembly”. Prayers may be said anywhere, but a synagogue ambience may increase their impact.

Why chant the prayers?
Music speaks to the soul better than speech, and may bring comfort to the worshipper. The music of the liturgy ties to the emotions of the text, and expresses the text’s moods. Chanting shows the phrasing of the Hebrew texts, reflecting their grammar and syntax. Music acts as a unifying force for the congregation and connects us with our traditions.

Why chant traditional music?
Nusach helps identify the occasion of the worship service: holiday, Shabbat, weekday. Nusach delineates the structure of the liturgy and enhances the meaning of the text. Traditional melodies differentiate and reflect the changing moods within each service. Using traditional melodies maintains the dignity of worship while forestalling boredom.

Beauty: the concept “hiddur mitzvah”, making a ritual beautiful, is increased by chant. Emotion: chanting the musical motifs indicates and heightens the emotions in the text. Power: chanting has built-in "vocal projection" which communicates the liturgical texts. Integrity: chanting the Nusach Ha’T’fillah shows the phrasing and meaning of the text. Music: it is more engaging to chant a text rather than read it – it heightens inflections.

Copyright 2012 © Cantor Neil Schwartz
Basic sections of the **Weekday** Services

<table>
<thead>
<tr>
<th>Arvit L’Chol</th>
<th>Weekday Evening Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary verse</td>
<td>&quot;Sh’mah and its Blessings&quot;</td>
</tr>
<tr>
<td><em>Sh’ma uVirchoteha</em></td>
<td>standing silent prayers</td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
</tr>
<tr>
<td><em>Arvit Amidah</em></td>
<td></td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td><em>Aleinu, Mourners’ Kaddish</em></td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shacharit L’Chol</th>
<th>Weekday Morning Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary sections</td>
<td>Verses of Song (Psalms)</td>
</tr>
<tr>
<td><em>Birchot HaShachar</em></td>
<td>(main body of the service)</td>
</tr>
<tr>
<td><em>P’sukei D’Zimra</em></td>
<td>&quot;Sh’mah and its Blessings&quot;</td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><em>Shacharit</em></td>
<td></td>
</tr>
<tr>
<td><em>Sh’ma uVirchoteha</em></td>
<td></td>
</tr>
<tr>
<td><em>Shacharit Amidah</em></td>
<td></td>
</tr>
<tr>
<td><em>Tachanun</em></td>
<td>Penitential verses</td>
</tr>
<tr>
<td><em>(Hallel)</em></td>
<td>[ <em>Rosh Chodesh, Chol HaMoed, Hanukkah</em> ]</td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
</tr>
<tr>
<td><em>Torah Service</em></td>
<td>Mondays and Thursdays</td>
</tr>
<tr>
<td><em>(Musaf)</em></td>
<td>[ <em>Rosh Chodesh, Chol HaMoed</em> ]</td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td><em>Aleinu, Mourners’ Kaddish</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minchah L’Chol</th>
<th>Weekday Afternoon Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Psalm</td>
<td></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
</tr>
<tr>
<td><em>Minchah Amidah</em></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><em>Tachanun</em></td>
<td>Penitential verses</td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td><em>Aleinu, Mourners’ Kaddish</em></td>
</tr>
</tbody>
</table>

Copyright © 2010 Cantor Neil Schwartz
Structure of the Weekday Morning Service

Preliminary sections

Birchat HaShachar
P’sukei D’Zimra
- Baruch She-Amar
- Psalms
- Yishabach
Chatzi Kaddish

Shacharit L’Chol

Sh’mu uV’irchotechha
- Bar’chu/Baruch
- Yotzeir Or/Or Chadash
- Ahavat Rabbah
- Sh’mu/V’ahavta ...
- Ga-al Yisrael

Shacharit Amidah
- Avot/Imahot
- G’vurot
- K’dushat HaSheom
- 13 petitionary prayers
- Avodah
- Hoda-ah
- (Birkat Kohanim)
- Birkat Shalom

Tahanun
(Hallel)
Chatzi Kaddish

Torah Service
- Hotza-at HaTorah
- K’ri-at HaTorah
- Hachnasat HaTorah
- Ashrei, K’dushah D’Sidra
(Musaf)
Kaddish Shaleim

Conclusion
- Aleinu
- Kaddish Yatom

Blessings of the Dawn
Verses of Song
"we will praise You"
including Ashrei (Ps. 145)
"we did praise You"

(main body of the service)

Sh’mu and its Blessings
Call to Worship
Creation
Revelation
3 paragraphs
Redemption

standing silent / aloud prayers
Ancestors
God’s Powers
God’s Holiness
(weekdays only)
Acceptance
Thanksgiving
(Repetition only)
Grant Peace

Penitential verses

[ Rosh Chodesh, Chol HaMoed, Hanukkah ]

Mondays and Thursdays
Remove Torah
Chant Torah
Return Torah

Extra verses of praise

[ Rosh Chodesh, Chol HaMoed ]

Copyright © 2010 Cantor Neil Schwartz
Basic sections of the **Shabbat** Services

**Arvit L'Shabbat**

<table>
<thead>
<tr>
<th>Kabbalat Shabbat</th>
<th>Shabbat Evening Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Psalms</td>
<td>Preliminary Psalms</td>
</tr>
<tr>
<td>Mourners' Kaddish</td>
<td>Sh'ma and its Blessings</td>
</tr>
<tr>
<td><strong>Sh'ma uVirchoteha</strong></td>
<td><strong>standing silent prayers</strong></td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td><strong>prayers from the Amidah</strong></td>
</tr>
<tr>
<td><strong>Arvit Amidah</strong></td>
<td><strong>Aleinu, Mourners' Kaddish, Yigdal</strong></td>
</tr>
<tr>
<td><strong>M'ein Sheva</strong></td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Shacharit L'Shabbat**

<table>
<thead>
<tr>
<th>Preliminary sections</th>
<th><strong>Shabbat Morning Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birchot HaShachar</strong></td>
<td><strong>[ expanded from Weekday Preliminary ]</strong></td>
</tr>
<tr>
<td><strong>P'sukei D'Zimra</strong></td>
<td><strong>Blessings of the Dawn</strong></td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td><strong>Verses of Song (Psalms)</strong></td>
</tr>
</tbody>
</table>

**Shacharit**

| **Sh'ma uVirchoteha** | **Sh'ma and its Blessings** |
| **Shacharit Amidah**  | **standing silent / aloud prayers** |

**(Hallel)**

| **Kaddish Shaleim** | **[ Rosh Chodesh, Chol HaMoed, Hanukkah ]** |

**Torah Service**

| **Chatzi Kaddish** | including **Haftarah** and English readings |

**Musaf Amidah**

| **Kaddish Shaleim** | **[ represents additional Temple sacrifice ]** |

**Conclusion**

| **Aleinu, Mourners' Kaddish, Adon Olam** |

**Minchah L'Shabbat**

<table>
<thead>
<tr>
<th><strong>Preliminary Psalm</strong></th>
<th><strong>Shabbat Afternoon Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td><strong>Ashrei (Psalm 145) + Uva L’Tziyon</strong></td>
</tr>
<tr>
<td><strong>Torah reading</strong></td>
<td><strong>3 Aliyot from upcoming Parashah</strong></td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td><strong>standing silent / aloud prayers</strong></td>
</tr>
<tr>
<td><strong>Minchah Amidah</strong></td>
<td><strong>Aleinu, Mourners' Kaddish</strong></td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion**

| **Aleinu, Mourners' Kaddish** |                             |

---

Copyright © 2011 Cantor Neil Schwartz
Structure of the Shabbat Morning Service

Preliminary sections
- Birchat HaShachar
- P’sukei D’Zimra
  - Baruch She-Amar
  - Psalms
  - Shoochein Ad / Yishtabach
  - Chatzi Kaddish

Blessings of the Dawn
- Mourners’ Kaddish

Verses of Song
- "we will praise You"
  including Ashrei (Ps. 145)
- "we did praise You"

Shacharit L’Shabbat
- Sh’mah u’Virchoteha
  - Bar’chu / Baruch
  - Yotzeir Or / Or Chadash
  - Ahavah Rabbah
  - Sh’mah / V’ahavta ...
  - Ga-al Yisrael

(main body of the service)
- Sh’mah and its Blessings

Shacharit Amidah
- Avot / Imahot
- G’vurot
- K’dushat HaShem
- K’dushat Hayom
- Avodah
- Hoda-ah
  - (Birkat Kohanim)
  - Birkat Shalom

(standing silent / aloud prayers)

(Hallel)
- [ Rosh Chodesh, Chol HaMoed, Hanukkah ]
  - Kaddish Shaleim

Torah Service
- Hotza-at HaTorah
- K’ri-at HaTorah / Haftarah
- Hachnasat HaTorah

Remove Torah scroll
- Chant Torah / Haftarah
- Ashrei, Return Torah scroll

Chatzi Kaddish

Musaf Amidah

Kaddish Shaleim

[ similar to Shacharit Amidah ]

Conclusion
- Ein Keiloheinu
- Aleinu

Kaddish Yatom

(Mourners’ Kaddish)

Adon Olam

Copyright © 2011 Cantor Neil Schwartz
### Basic sections of the **Rosh Hashanah** Services

<table>
<thead>
<tr>
<th><strong>Arvit L’Rosh Hashanah</strong></th>
<th><strong>Rosh Hashanah Evening Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Mah Tovu</em>, (Ps. 92 &amp; 93)</td>
<td>Preliminary, (2 Psalms if Shabbat)</td>
</tr>
<tr>
<td><em>Sh’mah uVirchoteha</em></td>
<td><em>Sh’mah</em> and its Blessings</td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td>standing silent prayers</td>
</tr>
<tr>
<td><strong>Arvit Amidah</strong></td>
<td>(from Amidah if Shabbat)</td>
</tr>
<tr>
<td><em>(Mein Sheva)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td><em>Kiddush, Aleinu</em>, Ps. 27, <em>Kaddish, Yigdal</em></td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Shacharit L’Rosh Hashanah</strong></th>
<th><strong>Rosh Hashanah Morning Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary sections</td>
<td>[ expanded from Weekday Preliminary ]</td>
</tr>
<tr>
<td><em>Birchot HaShachar</em></td>
<td><em>Blessings of the Dawn</em></td>
</tr>
<tr>
<td><em>P’sukei D’Zimra</em></td>
<td><em>Verses of Song (Psalms)</em></td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Shacharit</strong></td>
<td>(main body of the service)</td>
</tr>
<tr>
<td><em>Sh’mah uVirchoteha</em></td>
<td><em>Sh’mah</em> and its Blessings</td>
</tr>
<tr>
<td><em>Shacharit Amidah</em></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><em>Avinu Malkeinu</em></td>
<td>(except on Shabbat)</td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Torah / Shofar Service</strong></td>
<td>including <em>Haftarah</em> and <em>Shofar</em> blowing</td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Musaf Amidah</strong></td>
<td>[ 9 sections instead of usual 7 sections]</td>
</tr>
<tr>
<td><em>Malchuyot</em></td>
<td><em>Sovereignty verses</em></td>
</tr>
<tr>
<td><em>Zichronot</em></td>
<td><em>Remembrance verses</em></td>
</tr>
<tr>
<td><em>Shofrot</em></td>
<td><em>Shofar</em> verses</td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td><em>Aleinu, Kaddish Yatom, Adon Olam</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Minchah L’Rosh Hashanah</strong></th>
<th><strong>Rosh Hashanah Afternoon Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Psalm</td>
<td><em>Ashrei</em> (Psalm 145) + <em>Uva L’Tziyon</em></td>
</tr>
<tr>
<td><em>(Torah reading)</em></td>
<td><em>(Parashat HaAzinu</em> x3 if Shabbat)*</td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><em>(Minchah Amidah)</em></td>
<td>(except on Shabbat)</td>
</tr>
<tr>
<td><em>Avinu Malkeinu</em></td>
<td></td>
</tr>
<tr>
<td><strong>Kaddish Shaleim</strong></td>
<td><em>Aleinu, Mourners’ Kaddish</em></td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
</tbody>
</table>

**Copyright © 2012 Cantor Neil Schwartz**
Structure of *Rosh Hashanah* Evening & Afternoon Services

### Arvit L’Rosh Hashanah

**Preliminary Section**
- *Mah Tovu*  
  (Psalms, if Shabbat)

**Sh’mu uVirchoteha**
- *Bar’chu / Baruch*  
- *HaMa-ariv Aravim*  
- *Ahavat Olam*  
- *Sh’mu / V’ahavta ...*  
- *Ga-al Yisrael*  
- *Hashkiveinu*  
  *(V’sham’ru)*  
- *Tik’u vaChodesh*  

**Arvit Amidah**
- *(M’ein Sheva)*  

**Conclusion**
- *Aleinu*  
- *L’David ... Ori*  
- *Yigdal*

### Rosh Hashanah Evening Service

**Preliminary paragraph**
- (Psalms 92 & 93)

**Sh’mu and its Blessings**

**Call to Worship**
- *Creation*  
- *Revelation*  
- *Redemption*  
  (if *Shabbat*)  
  *"Sound the Shofar"*

**Chatzi Kaddish**

**Standing silent prayers**
- *(Rosh Hashanah themes)*

**Kaddish Shaleim**

**Standing silent / aloud prayers**
- *(except on Shabbat)*

### Minchah L’Rosh Hashanah

**Preliminary Psalm**
- *Chatzi Kaddish*

*(Torah reading if Shab.)*
- *(Chatzi Kaddish)*

### Rosh Hashanah Afternoon Service

**Ashrei (Psalm 145) + Uva L’Tziyon**

*(Parashat HaAzinu x3, if *Shabbat)*

**Standing silent / aloud prayers**

**Minchah Amidah**
- *Avinu Malkeinu*  

**Kaddish Shaleim**

**Conclusion**
- *Aleinu*  
- *Kaddish Yatom*  

*(Mourners’ Kaddish)*

Copyright © 2012 Cantor Neil Schwartz
Structure of **Rosh Hashanah Shacharit** and **Musaf** Services

**Preliminary**

**Birchot HaShachar**
L’David ... Ori

**Mourners’ Kaddish**

**Psukei D’Zimra**

Baruch She-Amar

Psalms

HaMelech / Yishtabach

**Blessings of the Dawn**

Psalm 27 (or at end of Musaf)

**Verses of Song**

"we will praise You"
including Ashrei (Ps. 145)
"we did praise You"

**Shacharit Chatzi Kaddish**

**Sh’ma uVirchoteha**

Bar’chu / Baruch

Yotzeir Or / Or Olam
(HaKol / Eil Adon)

[ Piyyutim ]

Or Chadash

Ahavah Rabbah

Sh’ma / V’ahavta ... 

Ga-al Yisrael

**Sh’ma and its Blessings**

Call to Worship

Creation
(if Shabbat)

[ in Orthodox Machzorim ]

( end of Creation prayer )

Revelation

3 paragraphs

Redemption

standing, silent, repeated aloud

**Shacharit Amidah** [ silent Amidah in BOLD ]

Avot / Imahot

Misod / Piyyutim

Zochreinu L’Chayim

G’vurot

Mi Chamocha Av ...

Piyyutim:

Yimloch ... Atah Hu

... Melech ... Malach

L’Eil Orec Din

K’dushat HaShem

UvChein ... x3

Kadosh Atah

K’dushat Hayom

Atah Bachartanu

... Ya-aleh v’Yavo

Elohehu ... M’loch

Avodah

Hoda-ah

uChтов I’Chayim
(Birkat Kohanim)

Birkat Shalom

b’Sefer Chayim

Kaddish Shaleim

**Copyright © 2012 Cantor Neil Schwartz**
Torah Service
Hotza-at HaTorah  (take out Torah)
K'ri-at HaTorah / Haftarah
Shofar Blowing
Hachnasat HaTorah  (return Torah)

Musaf Chatzi Kaddish

Hin'ni  (Leader's supplication)

Musaf Amidah  [ silent Amidah in BOLD ]
standing, silent, repeated aloud

Avot / Imahot
Misod / Piyutim
Zochreinu L'Chayim
G'vurot
Mi Chamocha Av ...
Untaneh Tokef
b'Rosh Hashanah
K'dushat HaShem
v'Chol Ma-aminim
UvChein ... x3
Kadosh Atah
... Melech Rachaman
Ochilah LaEil

Malchuyot  Aleinu L'Shabe-ach
Malchuyot verses x10
Eloheinu ... M'loch / Areshet
Zichronot  Atah Zocher
Zichronot verses x10
Eloheinu ...Zochreinu / Areshet
Shofrot  Atah Nigleita
Shofrot verses x10
Eloheinu ... M'loch / Areshet

Avodah
Hoda-ah
uCh'tov l'Chayim
(Birkat Kohanim)
Birkat Shalom
b'Sefer Chayim
HaYom T'am'tzeinu

Kaddish Shaleim

Conclusion
Ein Keiloheinu
Aleinu
Kaddish Yatom  (Mourners' Kaddish)
L'David ... Ori
Adon Olam

Psalm 27 (or in Preliminary Serv.)

Copyright © 2012  Cantor Neil Schwartz
Basic sections of the **Yom Kippur Services**

<table>
<thead>
<tr>
<th>Arvit L'Yom Kippur</th>
<th>Yom Kippur Evening Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kol Nidrei, (Ps. 92 &amp; 93)</td>
<td>Preliminary, (2 Psalms if Shabbat)</td>
</tr>
<tr>
<td>Sh'ma u'Virchoteha</td>
<td>Sh'ma and its Blessings</td>
</tr>
<tr>
<td>Chatzi Kaddish</td>
<td>standing silent prayers</td>
</tr>
<tr>
<td>Arvit Amidah</td>
<td>(from Amidah if Shabbat)</td>
</tr>
<tr>
<td>(M'ein Sheva)</td>
<td>prayers asking for forgiveness</td>
</tr>
<tr>
<td>S'lichot / Vidui</td>
<td>(except on Shabbat)</td>
</tr>
<tr>
<td>Avinu Malkeinu</td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td><strong>Aleinu, Ps. 27, Kaddish, Yigdal</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shacharit L'Yom Kippur</th>
<th>Yom Kippur Morning Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary sections</td>
<td>Blessings of the Dawn</td>
</tr>
<tr>
<td>Birchat HaShachar</td>
<td>Verses of Song (Psalms)</td>
</tr>
<tr>
<td>P'sukei D'Zimra</td>
<td><strong>Chatzi Kaddish</strong></td>
</tr>
<tr>
<td><strong>Shacharit</strong></td>
<td><strong>Sh'ma and its Blessings</strong></td>
</tr>
<tr>
<td>Sh'ma u'Virchoteha</td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td>Shchant Amidah</td>
<td>prayers asking for forgiveness</td>
</tr>
<tr>
<td>S'lichot / Vidui</td>
<td>(except on Shabbat)</td>
</tr>
<tr>
<td>Avinu Malkeinu</td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td><strong>Torah / Yizkor Service</strong></td>
<td>including Haftarah and Memorial Service</td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><strong>Musaf Amidah</strong></td>
<td>Service of the High Priest</td>
</tr>
<tr>
<td>Avodah Service</td>
<td>Ten Sages, Holocaust</td>
</tr>
<tr>
<td>Martyrology</td>
<td>prayers asking for forgiveness</td>
</tr>
<tr>
<td>S'lichot / Vidui</td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td>Avinu Malkeinu</td>
<td><strong>Yom Kippur Afternoon Service</strong></td>
</tr>
<tr>
<td><strong>Minchah L'Yom Kippur</strong></td>
<td><strong>(Haftarah is the Book of Jonah)</strong></td>
</tr>
<tr>
<td>Torah reading</td>
<td>Chatzi Kaddish</td>
</tr>
<tr>
<td><strong>Chatzi Kaddish</strong></td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td>Minchah Amidah</td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td><strong>N'ilah L'Yom Kippur</strong></td>
<td><strong>Yom Kippur Concluding Service</strong></td>
</tr>
<tr>
<td>Preliminary Psalm</td>
<td>Ashrei (Psalm 145) + Uva L'Tziyon</td>
</tr>
<tr>
<td>Chatzi Kaddish</td>
<td>standing silent / aloud prayers</td>
</tr>
<tr>
<td><strong>N'ilah Amidah</strong></td>
<td>prayers asking for forgiveness</td>
</tr>
<tr>
<td>S'lichot / Vidui</td>
<td>(including on Shabbat)</td>
</tr>
<tr>
<td>Avinu Malkeinu</td>
<td><strong>Kaddish Shaleim</strong></td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td><strong>Aleinu, Mourners' Kaddish, Havdalah</strong></td>
</tr>
</tbody>
</table>

Copyright © 2012 Cantor Neil Schwartz
Structure of Yom Kippur Evening Service

Arvit L’Yom Kippur

Preliminary Section

Tallit Brachah
Or Zarua LaTzaddik
Bishivah shel Ma-alah
Kol Nidrei
v’Nislah / Shehecheyanu
(2 Psalms, if Shabbat)

Sh’mah uVirchoteha

Bar’chu / Baruch
HaMa-ariv Aravim
Ahavat Olam
Sh’mah / V’ahavta ...
Ga-al Yisrael
Hashkiveinu
(V’sham’ru)
Ki vaYom haZeh

Chatzi Kaddish

Arvit Amidah

S’lichot / Vidui [ before R’zei in Amidah]
(M’ein Sheva)

Piyyutim:
Ya-aleh ... MeiErev
Shomei-a / L’chu / haN’shama
Ki Hinei kaChomer

S’lichot / Vidui:
El’i Melech Yosheiv
Sh’mah Koleinu
Ki Anu Amecha
... Tavo / Ashamnu
... S’ilach Umchal
Al Cheit / v’Al Kulam
Mi SheAnah ... Hu YaAneinu
Avinu Malkeinu

Kaddish Shaleim

Conclusion

Aleinu
Kaddish Yatom
(L’David ... Ori
Psalm 27
Yigdal

Copyright © 2012 Cantor Neil Schwartz
Structure of Yom Kippur Shacharit and Musaf Services

**Preliminary**

*Birchot HaShachar*
L'David ... Ori

*Mourners' Kaddish*

*P'sukei D'Zimra*
Baruch She-Amar
Psalms
HaMelech / Yishtabach

**Shacharit** Chatzi Kaddish

Sh'ma uVirchoteha
Bar'chu / Baruch
Yotzeir Or / Or Olam
(HaKol / Eli Adon)
[ Piyyutim ]
Or Chadash
Ahavat Rabbah
Sh'ma / V'ahavta ... Ga-al Yisrael

**Shacharit Amidah**  [ silent Amidah in BOLD ]

Avot / Imahat
Misod / Piyyutim
Zochreinu L'Chayim

G'vurot
Mi Chamocha Av ...
Piyyutim: Yimloch ... Atah Hu
L'Ell Orech Din

K'dushat HaShem
UvChein ... x3
Kadosh Atah
K'dushat Hayom

Atah Bacharatanu
... Ya-aleh v'Yavo

*S'ilchot / Vidui: [ at end of silent Amidah]*
Ell Melech Yosheiv
Sh'ma Koleinu
Ki Anu Amecha
... Tavo / Ashamnu
... S'lach Umchal
Al Cheit / v'Al Kulam

Eloheinu ... M'chal

Avodah
Hoda-ah
uchtov l'Chayim

Blessings of the Dawn
Psalm 27 (or at end of Musaf)

Verses of Song
"we will praise You"
including Ashrei (Ps. 145)
"we did praise You"

Sh'ma and its Blessings
Call to Worship
Creation
(if Shabbat)
[ in Orthodox Machzorim ]
(end of Creation prayer)

Revelation
(Baruch Shem aloud)
Redemption

standing, silent, repeated aloud

Ancestors
(Repetition only)
"Remember us for Life"

God's Powers
"Who is like You ... ?"
(antiphonal with Cong.)
Leader repeats Cong.

God's Holiness (K'dushah)
(extension of K'dushah)
(ends HaMelech HaKadosh)

(Yom Kippur themes)
"You chose us ..."
"... recall our Ancestors"
prayers asking for forgiveness
"God, our Sovereign"
"Hear our voices"
"We are Your People"
"We have sinned ..."
"... forgive and pardon"
(alphabetical acrostic)
"... pardon our iniquities"

Acceptance (R'tzei ... b'am'cha)
Thanksgiving (Modim anachnu)
"Inscribe us for Life"

Copyright © 2012 Cantor Neil Schwartz
(Birkat Kohanim)

Birkat Shalom
b'Sefer Chayim
Avinu Malkeinu

Kaddish Shaleim

Torah Service
Hotza-at HaTorah (take out Torah)
K'ri-at HaTorah / Haftarah

Yizkor Service
Hachnasat HaTorah (return Torah)

Musaf Chatzi Kaddish

Hin'ni (Leader's supplication)

Musaf Amidah [ silent Amidah in BOLD ]

Avot / Imahot
Misod / Piyutim
Zochreinu L'Chayim

G'vurot
Mi Chamocha Av ...
Untaneh Tokef
b'Rosh Hashanah

K'dushat HaShem
v'Chol Ma-aminnim
UvChein ... x3

Kadosh Atah
... Melech Rachaman
Aleinu L'Shabe-ach
Ochilah LaEil
Avodah Service
Martyrology

S'ilchot / Vidui: [ at end of silent Amidah]
Ki Anu Amecha
... Tavo / Ashamnu
Al Cheit / v'Al Kulam [ see Shacharit for complete list ]

Eloheinu ... M'chal

Avodah
Hoda-ah
uChtov l'Chayim
(Birkat Kohanim)

Birkat Shalom
b'Sefer Chayim
HaYom T'am'tzeinu

Kaddish Shaleim

(Repetition only) Num. 6:24-26
Grant Peace (Sim Shalom)
"In the Book of Life"
(except on Shabbat)
(... vaAni Chol, Bei Ana Shabbat)
Chant Torah / Haftarah
(individual Yizkors & Eil Malei)
(Ps. 24 Chol, Ps. 29 Shabbat)

Musaf Chatzi Kaddish

Ancestors
(Repetition only)
"Remember us for Life"

God's Powers
"Who is like You ... ?"
(includes UvShofar Gadol)
(includes Ki k'Shimcha)

God's Holiness (K'dushah)
(Piyut - Repetition only)
(extension of K'dushah)
(ends HaMelech HaKadosh)
"... Merciful Sovereign"

(Leader prostrate in Repetition)
(Repetition only)
Service of the High Priest
Ten Sages, Holocaust
prayers asking for forgiveness
"We are Your People"
"We have sinned ..."
(alphabetical acrostic)
"... pardon our iniquities"

Acceptance (R'tzei ... b'am'cha)
Thanksgiving (Modim anachnu)
"Inscribe us for Life"
(Repetition only) Num. 6:24-26
Grant Peace (Sim Shalom)
"In the Book of Life"
"Today strengthen us"

Copyright © 2012 Cantor Neil Schwartz
### Basic sections of the **Shabbat** Services

<table>
<thead>
<tr>
<th><strong>Arvit L’Shabbat</strong></th>
<th><strong>Shabbat Evening Service</strong></th>
<th><strong>Nusach HaT’fillah</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Kabbalat Shabbat</em></td>
<td><em>Preliminary Psalms</em></td>
<td><em>HaShem Malach</em></td>
</tr>
<tr>
<td><em>Mourners' Kaddish</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Sh’mu uVirchoteha</em></td>
<td><em>Sh’mu and its Blessings</em></td>
<td><em>Magein Avot Mode</em></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
<td>(<em>&quot;plagal&quot; version)</em></td>
</tr>
<tr>
<td><em>Arvit Amidah</em></td>
<td><em>standing silent prayers</em></td>
<td><em>Magein Avot Mode</em></td>
</tr>
<tr>
<td><em>M'ein Sheva</em></td>
<td><em>prayers from the Amidah</em></td>
<td>(<em>&quot;authentic&quot; version)</em></td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td><em>Aleinu, Kaddish Yatom, Yigdal</em></td>
<td><em>cong. melodies</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Shacharit L’Shabbat</strong></th>
<th><strong>Shabbat Morning Service</strong></th>
<th><strong>Nusach HaT’fillah</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preliminary sections</strong></td>
<td><em>[expanded from Weekday]</em></td>
<td><em>HaShem Malach</em></td>
</tr>
<tr>
<td><em>Birchot HaShachar</em></td>
<td><em>Blessings of the Dawn</em></td>
<td>(but usually in Minor)*</td>
</tr>
<tr>
<td><em>P'sukei D'Zimra</em></td>
<td><em>Verses of Song (Psalms)</em></td>
<td></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Shacharit</em></td>
<td><em>(main body of the service)</em></td>
<td><em>Yishtabach sub-mode]</em></td>
</tr>
<tr>
<td><em>Sh’mu uVirchoteha</em></td>
<td><em>Sh’mu and its Blessings</em></td>
<td><em>Minor, Ahava Rabba</em></td>
</tr>
<tr>
<td><em>Shacharit Amidah</em></td>
<td><em>standing silent / aloud prayers</em></td>
<td><em>Major, Ahava Rabba</em></td>
</tr>
<tr>
<td><em>(Hallel)</em></td>
<td><em>[ R.Chodesh, Chol HaMoed, Han. ]</em></td>
<td><em>Minor with melodies</em></td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Torah Service</strong></td>
<td><em>with Haftarah &amp; Eng. readings</em></td>
<td><em>Major with melodies</em></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Musaf Amidah</em></td>
<td><em>[additional Temple sacrifice]</em></td>
<td><em>Major, Ahava Rabba</em></td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td><em>Aleinu, Kaddish Yatom, Adon Olam</em></td>
<td><em>cong. melodies</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Minchah L’Shabbat</strong></th>
<th><strong>Shabbat Afternoon Service</strong></th>
<th><strong>Nusach HaT’fillah</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preliminary Psalm</strong></td>
<td><em>Ashrei (Ps.145)+Uva L’Tziyon</em></td>
<td><em>special Mincha Minor</em></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Torah Service</strong></td>
<td><em>3 Aliyot (upcoming Parashah)</em></td>
<td><em>Minor (or melodies)</em></td>
</tr>
<tr>
<td><em>Chatzi Kaddish</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minchah Amidah</strong></td>
<td><em>standing silent / aloud prayers</em></td>
<td><em>Pentatonic, Minor</em></td>
</tr>
<tr>
<td><em>Kaddish Shaleim</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td><em>Aleinu, Mourners’ Kaddish</em></td>
<td><em>Study Mode Minor</em></td>
</tr>
</tbody>
</table>

Copyright © 2012 Cantor Neil Schwartz
Structure of the Shabbat Morning Service

**Preliminary sections**

<table>
<thead>
<tr>
<th>Birchot HaShachar</th>
<th>Blessings of the Dawn</th>
<th>HaShem Malach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mourners' Kaddish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P'sukei D'Zimra</td>
<td>Verses of Song</td>
<td>HaShem Malach</td>
</tr>
<tr>
<td>Baruch She-Amar</td>
<td>&quot;we will praise You&quot;</td>
<td>(but usually in Minor)</td>
</tr>
<tr>
<td>Psalms</td>
<td>include Ashrei (Ps.145)</td>
<td></td>
</tr>
<tr>
<td>Shochein Ad / Yishtabach</td>
<td>&quot;we did praise You&quot;</td>
<td>&quot;Yishtabach&quot; Minor</td>
</tr>
<tr>
<td>Chatzi Kaddish</td>
<td></td>
<td>&quot;Yishtabach&quot; Minor</td>
</tr>
</tbody>
</table>

**Shacharit L'Shabbat** (main body of the service)

<table>
<thead>
<tr>
<th>Sh'ma uVirchoteha</th>
<th>Sh'ma and its Blessings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ba'erchu / Baruch</td>
<td>Call to Worship</td>
</tr>
<tr>
<td>Yotzeir Or / Or Chadash</td>
<td>Creation</td>
</tr>
<tr>
<td>Ahavah Rabbah</td>
<td></td>
</tr>
<tr>
<td>Sh'ma / V'ahavta ...</td>
<td>Revelation</td>
</tr>
<tr>
<td>Ga-al Yisrael</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Shacharit Amidah** standing silent / aloud prayers

<table>
<thead>
<tr>
<th>Avot / Imahot</th>
<th>Ancestors</th>
<th>Major, with melody</th>
</tr>
</thead>
<tbody>
<tr>
<td>G'veurot</td>
<td>God's Powers</td>
<td>HaShem Malach</td>
</tr>
<tr>
<td>K'dushat HaShem</td>
<td>God's Holiness</td>
<td>Ahavah Rabbah</td>
</tr>
<tr>
<td>K'dushat Hayom</td>
<td>(Revelation theme)</td>
<td>Ahavah Rabbah</td>
</tr>
<tr>
<td>Avodah</td>
<td>Acceptance</td>
<td>Ahavah Rabbah</td>
</tr>
<tr>
<td>Hoda-ah</td>
<td>Thanksgiving</td>
<td>Ahavah Rabbah</td>
</tr>
<tr>
<td>(Birkat Kohanim)</td>
<td>(Repetition only)</td>
<td>Ahavah Rabbah</td>
</tr>
<tr>
<td>Birket Shalom</td>
<td>Grant Peace</td>
<td>A.R. (or a melody)</td>
</tr>
</tbody>
</table>

*(Hallel)*

<table>
<thead>
<tr>
<th>Kaddish Shaleim</th>
<th>[ R.Chodesh, Chol HaMoed, Han. ] Magein Avot Minor</th>
</tr>
</thead>
</table>

**Torah Service**

<table>
<thead>
<tr>
<th>Hotza-at HaTorah</th>
<th>Remove Torah scroll</th>
<th>Major, with melodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>K'ri-at HaTorah / Haftarah</td>
<td>Chant Torah / Haftarah</td>
<td>Ta'amei HaMikra</td>
</tr>
<tr>
<td>Hachnasat HaTorah</td>
<td>Ashrei, Return Torah</td>
<td>Major, with melodies</td>
</tr>
<tr>
<td>Chatzi Kaddish</td>
<td></td>
<td>Major (NOT Minor)</td>
</tr>
</tbody>
</table>

**Musaf Amidah** [ similar to Shacharit Amidah ]

| Kaddish Shaleim | Maj.\HaShem Malach |

**Conclusion**

<table>
<thead>
<tr>
<th>Ein Keiloheinu</th>
<th>Major, with melodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aleinu</td>
<td></td>
</tr>
<tr>
<td>Kaddish Yatom</td>
<td>(Mourners' Kaddish)</td>
</tr>
<tr>
<td>Adon Olam</td>
<td>Cong. Melody</td>
</tr>
</tbody>
</table>

*Copyright © 2011 Cantor Neil Schwartz*
Structure of **Shabbat** Evening & Afternoon Services

<table>
<thead>
<tr>
<th><strong>Kabbalat Shabbat</strong></th>
<th><strong>Preliminary Service</strong></th>
<th><strong>Nusach HaT’fillah</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Psalms</td>
<td>Psalms 95 - 99, Psalm 29</td>
<td>HaShem Malach</td>
</tr>
<tr>
<td>L’cha Dodi</td>
<td>acrostic Kabbalist poem</td>
<td>cong. melody</td>
</tr>
<tr>
<td>Psalms</td>
<td>Psalms 92 - 93</td>
<td>H.Malach or Minor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Arvit L’Sabbath</strong></th>
<th><strong>Shabbat Evening Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sh’ma uVirchoteha</strong></td>
<td><strong>Sh’ma and its Blessings</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bar’chu / Baruch</th>
<th>Call to Worship</th>
</tr>
</thead>
<tbody>
<tr>
<td>HaMa-ariv Aravim</td>
<td><strong>Creation</strong></td>
</tr>
<tr>
<td>Ahavat Olam</td>
<td>Revelation</td>
</tr>
<tr>
<td>Sh’ma / V’ahavta ...</td>
<td>3 paragraphs</td>
</tr>
<tr>
<td>Ga-al Yisrael</td>
<td><strong>Redemption</strong></td>
</tr>
<tr>
<td>Hashkiveinu</td>
<td>Protection</td>
</tr>
<tr>
<td>V’sham’ru</td>
<td>“Observe Shabbat”</td>
</tr>
</tbody>
</table>

**Chatzi Kaddish**

| **Arvit Amidah** | standing silent prayers |

<table>
<thead>
<tr>
<th>M’ein Sheva</th>
<th>(Creation theme)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaddish Shaleim</td>
<td>prayers from the Amidah</td>
</tr>
</tbody>
</table>

**Conclusion**

<table>
<thead>
<tr>
<th>Aleinu</th>
<th>[Kiddush on Fri.eve.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaddish Yatom</td>
<td>(Mourners’ Kaddish)</td>
</tr>
</tbody>
</table>

| Yigdal             |                          |

<table>
<thead>
<tr>
<th><strong>Minchah L’Sabbath</strong></th>
<th><strong>Shabbat Afternoon Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preliminary Psalm</strong></td>
<td>Ashrei (Ps.145)+Uva L’Tziyon</td>
</tr>
<tr>
<td>Chatzi Kaddish</td>
<td>special Mincha Minor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Torah reading</strong></th>
<th>3 Aliyot (upcoming Parashah)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chatzi Kaddish</td>
<td></td>
</tr>
</tbody>
</table>

| **Minchah Amidah** | standing silent / aloud prayers |

<table>
<thead>
<tr>
<th>Tzidkat’cha Tzdeka</th>
<th>(Redemption theme)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaddish Shaleim</td>
<td>“righteousness” verses</td>
</tr>
</tbody>
</table>

**Conclusion**

<table>
<thead>
<tr>
<th>Aleinu</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaddish Yatom</td>
<td>(Mourners’ Kaddish)</td>
</tr>
</tbody>
</table>

Copyright © 2011 Cantor Neil Schwartz
Basic sections of the Weekday Services and their Nusach Ha'Tfillah

Arvit L'Chol

Preliminary verse
Sh'ma uVirchoteha
Chatzi Kaddish
Arvit Amidah
Kaddish Shaleim

Conclusion

Weekday Evening Service
Low Ahavah Rabbah
Low Ahavah Rabbah
Low Ahavah Rabbah
standing silent prayers

Aleinu, Mourners' Kaddish
Study Mode Minor

Shacharit L'Chol

Preliminary sections
Birchot HaShachar
P'sukei D'Zimra
Chatzi Kaddish

Shacharit
Sh'ma uVirchoteha
Shacharit Amidah

Tahanun
(Hallel)
Chatzi Kaddish

Torah Service
(Musaf)
Kaddish Shaleim

Conclusion

Weekday Morning Service
Blessings of the Dawn
Verses of Song (Psalms)

(main body of the service)
Sh'ma and its Blessings
standing silent / aloud prayers

Penitential verses

[ Rosh Chodesh, Chol HaMoed, Hanukkah ]

Aleinu, Mourners' Kaddish
Study Mode Minor

Weekday Afternoon Service
Preliminary Psalm
Chatzi Kaddish

Minchah Amidah
Tahanun
Kaddish Shaleim

Conclusion

Standing silent / aloud prayers
Penitential verses

Aleinu, Mourners' Kaddish
Study Mode Minor

Copyright © 2010 Cantor Neil Schwartz
Appendix E  –  Chapter 4-b

Structure of Jewish Musical Prayer-modes

<table>
<thead>
<tr>
<th>Appendix E-1</th>
<th>Nusach &quot;Problem-Solving&quot; Issues</th>
<th>pg. 191</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix E-2</td>
<td>Medieval Modes and Nusach Modes</td>
<td>pg. 192</td>
</tr>
<tr>
<td>Appendix E-3</td>
<td>Questions about Modes and Motifs</td>
<td>pp. 193-95</td>
</tr>
<tr>
<td>Appendix E-4</td>
<td>Music for Study Mode Minor</td>
<td>pg. 196</td>
</tr>
<tr>
<td>Appendix E-5</td>
<td>Music for Low A.R. and Pentatonic</td>
<td>pg. 197</td>
</tr>
<tr>
<td>Appendix E-6</td>
<td>Music for HaShem Malach Mode</td>
<td>pg. 198</td>
</tr>
<tr>
<td>Appendix E-7</td>
<td>Motifs for H.Malch. and Yishtabach</td>
<td>pg. 199</td>
</tr>
<tr>
<td>Appendix E-8</td>
<td>Music &amp; Motifs for Plagal Magein Avot</td>
<td>pg. 200</td>
</tr>
<tr>
<td>Appendix E-9</td>
<td>Music for Authentic Magein Avot</td>
<td>pg. 201</td>
</tr>
<tr>
<td>Appendix E-10</td>
<td>Music for Yishtabach Sub-Mode</td>
<td>pg. 202</td>
</tr>
<tr>
<td>Appendix E-11</td>
<td>Hatzi Kaddish symbols Yishtabach mode</td>
<td>pg. 203</td>
</tr>
<tr>
<td>Appendix E-12</td>
<td>Motifs for Low and High Ahavah Rabbah</td>
<td>pg. 204</td>
</tr>
<tr>
<td>Appendix E-13</td>
<td>Music for High Ahavah Rabbah</td>
<td>pg. 205</td>
</tr>
<tr>
<td>Appendix E-14</td>
<td>Motifs for Shabbat Minchah Minor</td>
<td>pg. 206</td>
</tr>
<tr>
<td>Appendix E-15</td>
<td>S’lichah Mode (or Ukrainian Dorian)</td>
<td>pg. 207</td>
</tr>
</tbody>
</table>
Problems to be solved in our liturgical texts:

1. What prayer-texts should be chanted on a given occasion?
2. Where are the sections within a particular worship service?
3. Where are the paragraph breaks within a section of prayers?
4. Where are the main clauses within each sentence of text?
5. Where are the phrases within each main clause in the text?
6. What are the word-pairs within each phrase of prayer-text?
7. How do we identify the syllables and their proper accents?
8. How do we identify the Hebrew roots, prefixes and suffixes?
9. What parts of speech can help determine the text phrases?
10. How can Nusach HaT'fillah motifs delineate text phrases?
11. How can modal musical motifs "paint" the text meanings?
12. How can translating the Hebrew text aid in chanting liturgy?

*Nusach HaT'fillah,* like Cantillation, can be an indicator of punctuation and accentuation, in addition to its roles in identifying the liturgical occasion, and showing the structure and moods of liturgical texts in the *Siddur* or *Machzor.*

*Nusach HaT'fillah* motifs can take punctuation beyond the separation of phrases, to the level of identifying *pairs* of Hebrew words that go together:

<table>
<thead>
<tr>
<th>Noun and adjective</th>
<th>Verb and adverb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject and verb</td>
<td>Verb and object</td>
</tr>
<tr>
<td>Preposition and object</td>
<td>&quot;two-word concept&quot;</td>
</tr>
<tr>
<td>Noun and &quot;apposition&quot;</td>
<td>noun and &quot;construct&quot;</td>
</tr>
<tr>
<td>coordinate nouns</td>
<td>intensified repetition</td>
</tr>
</tbody>
</table>

Copyright 2012 © Cantor Neil Schwartz
Musical Modes of Nusach HaT’fillah

Ashkenazic Tradition

arr. Cantor Neil Schwartz

Mixolydian Mode, HaShem Malach in G, HaShem Malach in F

Aeolian Mode, Magein Avot in A (min.), Magein Avot in F (min.)

Phrygian Mode, Ahavah Rabbah in E, Ahavah Rabbah in F

Dorian Mode, Selichot Mode in D, Selichot Mode in F

Ionian Mode, Pentatonic Mode in C, Pentatonic Mode in F

Study Mode Minor in E Study Mode Minor in G

additional notes below “Tonic”, Low Ahavah Rabbah in E

Pentatonic Mode in C, additional notes above “Tonic”
Some Basic Questions

1. Why do we chant certain prayers in certain Nusach Modes at certain times?
2. Why do we use certain musical motifs in Nusach Modes for certain prayers?
3. What are some of the sources of the Eastern European Ashkenazic tradition?
4. How should we integrate congregational melodies with other chanted prayers?
5. What are the functions of the Shaliach Tzibbur in starting and ending prayers?

The answers to these five questions are based on the chart excerpted below, with its identification of which Mode of Nusach HaT'fillah is chanted for each section of the services. This chart is just for the cycle of Shabbat services - a similar chart can be made for Weekday services, another for Festival services, and yet another for the High Holy Days services.

Sections and Nusach Modes of Shabbat Services

<table>
<thead>
<tr>
<th>Arvit L'Shabbat</th>
<th>Shabbat Evening Service</th>
<th>Nusach HaT'fillah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabbalat Shabbat</td>
<td>Preliminary Psalms</td>
<td>HaShem Malach</td>
</tr>
<tr>
<td>Sh'ma uVirchoteha</td>
<td>Sh'ma and its Blessings</td>
<td>Magein Avot Mode</td>
</tr>
<tr>
<td>Arvit Amidah</td>
<td>standing silent prayers</td>
<td>Magein Avot Mode</td>
</tr>
<tr>
<td>M'ein Sheva</td>
<td>prayers from the Amidah</td>
<td>cong. melodies</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Aleinu, Kaddish Yatom, Yigdal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shacharit L'Shabbat</th>
<th>Shabbat Morning Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary sections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birchat HaShachar</td>
<td>Blessings of the Dawn</td>
<td>HaShem Malach</td>
</tr>
<tr>
<td>P'sukei D'Zimra</td>
<td>Verses of Song (Psalms)</td>
<td>(but usually in Minor)</td>
</tr>
<tr>
<td>Shacharit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh'ma uVirchoteha</td>
<td>Sh'ma and its Blessings</td>
<td>Minor, Ahava Rabba</td>
</tr>
<tr>
<td>Shacharit Amidah</td>
<td>standing silent / aloud prayers</td>
<td>Major, Ahava Rabba</td>
</tr>
<tr>
<td>Torah Service</td>
<td>with Haftarah &amp; Eng. readings</td>
<td>Major with melodies</td>
</tr>
<tr>
<td>Musaf Amidah</td>
<td>standing silent / aloud prayers</td>
<td>Major, Ahava Rabba</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Aleinu, Kaddish Yatom, Adon Olam</td>
<td>cong. melodies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minchah L'Shabbat</th>
<th>Shabbat Afternoon Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Psalm</td>
<td>Ashrei (Ps.145)+Uva L’Tziyon</td>
<td>special Mincha Minor</td>
</tr>
<tr>
<td>Torah Service</td>
<td>3 Aliyot (upcoming Parshah)</td>
<td>Minor (or melodies)</td>
</tr>
<tr>
<td>Minchah Amidah</td>
<td>standing silent / aloud prayers</td>
<td>Pentatonic, Minor</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Aleinu, Mourners' Kaddish</td>
<td>Study Mode Minor</td>
</tr>
</tbody>
</table>

None of the above is arbitrary - there is an internal logic and consistency in the way that the oral tradition assigned each Nusach Mode to each of the liturgy sections listed above. These Modes reflect the structure and mood of each section in our services throughout the Shabbat.
1. **Why do we chant certain prayers in certain Nusach Modes at certain times?**

Each Nusach Mode and sub-mode carries with it an "affective" aspect of mood, as well as a "cognitive" aspect of identifying the liturgical occasion and the specific section of our liturgy.

The HaShem Malach Mode (similar to a "Major" key) has a happy, even jubilant sound.

The Magein Avot Mode (similar to a "Natural Minor" key) sets a quiet mood on Shabbat, and its sub-mode of Weekday Minor has a perfunctory, business-like sound.

The Ahavah Rabbah Mode as it is chanted on Shabbat brings a sense of Middle-Eastern mystique to our ancient liturgy, but on Weekdays this Mode is low-key and simple.

2. **Why do we use certain musical motifs in Nusach Modes for certain prayers?**

Within each Nusach Mode, and also among the several sub-modes, the available sets of musical motifs are used to delineate the punctuation of the phrases, the accents of the words, the mood of a particular prayer-section, and the meaning of the liturgical texts.

For any particular prayer, the traditional Nusach Mode used to chant it reflects the time of year, month, week, and day, and it identifies the surrounding section of the service. Thus, the traditional Nusach for ending the Hashkiveinu prayer in the evening service is very different on Weekday evening, Friday night, Festival eve, and the High Holy Days.

The Nusach Mode does not vary with the subject matter of a given prayer, but rather with the section of the service and the occasion when this prayer and service are taking place. Within the assigned Nusach Mode (from the oral tradition) for that section and occasion, the musical motifs can be varied to reflect the contents and mood of a particular prayer.

3. **What are some of the sources of the Eastern European Ashkenazic tradition?**

Scholars trace many traditional musical motifs in various Nusach Modes to Cantillation motifs found in the Trope of various Biblical books. Other scholars feel that some motifs of liturgical music may be derived from musical phrases in Yiddish folk songs and the folk music of the surrounding cultures in areas where Jews lived, including several Arabic "Maqam" modes.

Some patterns seem to occur in every type of Nusach HaT'fillah, the musical prayer-modes. There is usually some kind of standard Opening motif, often followed by a Re-Opening or Continuing motif. Then comes an Extension or an Elaboration, and in a longer sentence of the liturgy there may be Upward and Downward Extensions and Elaborations.

In some Modes and sub-modes of Nusach HaT'fillah, a Modulation may be briefly made to a new key (usually upwards), and there is a corresponding motif to Modulate back down. The ends of phrases and clauses are indicated with Shorter or Longer Pausal motifs, and most sentences have a mid-point that is marked by a Strong Pausal (like an Etnachta in Trope). There is usually a standard chant pattern for the final Brachah of a prayer, and often another standard musical motif for the very end of a liturgical paragraph (like a Sof Pasuk in Trope).
4. How should we integrate congregational melodies with other chanted prayers?

One long-standing difference between the music of worship services in the Conservative and Reform Movements has been the proportion of "davenning" and congregational melodies. As the Reform Movement has become more traditional in other ways during recent decades, and as pressure has increased in Conservative congregations for more group participation in the music of worship services, this difference of proportion in music styles is somewhat lessening.

There is a large degree of agreement among the institutions that train professional Hazzanim as to the musical traditions of Eastern European Ashkenazic worship. In most of the Cantorial Schools, the same Nusach Modes are taught with similar musical motifs for the same liturgical occasions and sections of the liturgy. An example would perhaps be the ends of Psalms 95 - 99 in Kabbalat Shabbat; if one of these Psalms is chanted on Friday evening (rather than sung as a congregational melody), it will likely be in the HaShem Malach Mode with similar musical motifs.

When choices are made about which congregational melodies to use in a given section of the liturgy on a particular occasion (Shabbat or Festival or High Holy Days), it is preferable that a consideration be given to the underlying Nusach Mode of the melody chosen. There are many congregational melodies for V'sham'ru, most of which are suitable for a Friday evening service; only a very few are in the Ahavah Rabbah Mode, and thus also suitable for V'sham'ru when it is chanted in the Repetition of the Shabbat Shacharit Amidah.

Does this really matter? If the agreed-upon goals of chanting Jewish liturgy are to mark sacred time and to differentiate that sacred time through the use of Nusach HaT'fillah, then this does in fact matter. There is a huge difference in the ambience of perfunctory Weekday services and leisurely Shabbat services, so identical prayer-texts should be chanted very differently. Thus in general, there are more congregational melodies on Shabbat than during Weekday services.

5. What are the functions of the Shaliach Tzibbur in starting and ending prayers?

Perhaps a useful description of traditional Jewish liturgy is to compare the music of a service with a baked layer-cake. Each section of a complete service is like another layer in the cake, and within each section there can be congregational melodies and perhaps English readings that correspond to pieces of fruit or candy within a particular layer of the cake. The Nusach Mode that binds the prayers of a given liturgical section is like one layer of this cake being in chocolate, while the different Nusach of the next section is like the next layer being in vanilla.

The Shaliach Tzibbur (prayer leader) starts and ends each paragraph within a given section of liturgy, partly to keep the congregation together, and partly to set the mood for each particular prayer in that section. One reason that there are many different melodies for the Kaddish is its dual function in the structure of traditional liturgy: a Kaddish simultaneously ends one section and introduces the musical motifs of the next section.

Hazzan Max Wohlberg used to urge students at the JTS Cantorial School to "Use the Nusach motifs to paint the meanings of the sacred words." Most ancient religious cultures seem to use sacred music this way - to interpret texts and liturgy through music so as to help bring a spark of the Holy into the world and into our lives.

Copyright © 2011 Cantor Neil Schwartz
Musical Motifs of Study Mode Minor

Ashkenazic Tradition

arr. Cantor Neil Schwartz

Primary Opening Reopening or Continuing

Short Extension Extension Upwards Elaboration Higher

Blessing near the end Shorter Medium Pausal

Longer Medium Pausal Medium Pausal (comma)

Strong Pausal (semicolon) Primary Closing (period)

Alternate Closing (period)
Musical Motifs of HaShem Malach Mode

Ashkenazic Tradition

arr. Cantor Neil Schwartz

Primary Opening  Reopening or Continuing

Short Extension  Extension Upwards  Extension Downwards

Elaboration Higher  Modulate Upwards  Modulate Downwards

Shorter Medium Pausal  Longer Medium Pausal  Medium Pausal (comma)

Strong Pausal (semicolon)  Primary Closing (period)

format copyright © 2010 Cantor Neil Schwartz
Motifs of Shabbat Arvit Magein Avot Mode

Primary Opening ______ Continuing ______ Short Extension

Extension Upwards Blessing ______ Near ______ End ______ Elaboration Higher

Elaboration Lower Shorter Medium Pausal Longer ______ Medium Pausal

Medium Pausal Strong Pausal (semicolon) Primary Closing (period)

Friday evening Magein Avot mode – Sh’ma and its Blessings section

Copyright 2012 © Cantor Neil Schwartz
Motifs of Mei’ein Sheva Magein Avot Mode

Ashkenazic Tradition

arr. Cantor Neil Schwartz

Primary Opening

Secondary Opening

Short Extension

Extension Upwards

Extension Downwards

Blessing Near End

Elaboration Higher

Elaboration Lower

Modulate Upwards

Modulate Downwards

Shorter Medium Pausal Longer Medium Pausal

Medium Pausal (comma) Strong Pausal (semicolon)

Primary Closing (period)
Hatzi Kaddish before Bar’chu on Shabbat morning

Cong

תנורא, ויתחבשה שמה רבא. אמרה: אמן.

פעלו亞 די ברא עכרתת.

נופלכו פלgmentה, פנימייהו פנימייהו.

נמניה פֶּך, בן ישראל.

בשכלה ובם להו בר

לאמרוה: אמן.

יהא שמה רבא וברך.

לשלם בilleryה שGeneratedValue

יתברך ונשמחת ויתאני ויתניימו ויתנשה.

יית/generatedpdf/gender unanimous.

שם בָּדךしま בָּדך הוה. ברהיה הוה.

לשלם שמ בָּל ברכתא ושרתה.

תשבחתא ונחתתא. אמריהו בָּלֶם.

לאמרוה: אמן.

Cong

format Copyright 2011 © Cantor Neil Schwartz & Kinnor Software
"High" Ahavah Rabbah mode
(chanted on Shabbat morning)

"Low" Ahavah Rabbah mode
(Weekday morning & evening)

Copyright 2012 © Cantor Neil Schwartz
Shabbat Minchah Mode-(Shabbat Minchah Minor)
Slichah Mode or Ukrainian Dorian Variant
Appendix F – Chapter 5

*Simanei Nusach* Development for Liturgical Chant

Appendix F-1 – *Simanei Nusach* revised chart 2012 pg. 209
Appendix F-3 – *Hanzi Kaddish* compare 1976 & 2007 pg. 212
Appendix F-4 – *Ahavah Rabbah* music 1976 & 2007 pg. 213
Appendix F-5 – *Simanei Nusach* with Linkages 2012 pg. 214
Appendix F-6 *Yismach Moshe* compare 1976 & 2007 pg. 215
Appendix F-7 *Yismach Moshe* text, music, screenshot pp. 216
Appendix F-8 – Psalm 92 text with *Simanei Nusach* pg. 218
Appendix F-9 – *Hashkiveinu* music, S.N. from software pg. 219
Appendix F-10 – *Simanei Nusach* with Linkages 2007 pp. 220
Appendix F-11 – *Simanei Nusach* revised 2012 pp. 222
Appendix F-12 – *Simanei Nusach* with Trope - 2012 pg. 224
"Simanei Nusach" – Graphic Symbols for Nusach HaT’fillah

Here are the new “Simanei Nusach” ("Symbols of Nusach") graphic symbols, with the general and punctuation functions of their musical motifs in each Nusach mode:

<table>
<thead>
<tr>
<th>Shapes</th>
<th>Symbol Names</th>
<th>General Functions</th>
<th>Punctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Dark Triangle</td>
<td>Primary Opening</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>△</td>
<td>Open Triangle</td>
<td>Secondary Opening</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>←</td>
<td>Left Arrow</td>
<td>Continuation or Re-opening</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>▼</td>
<td>Hook</td>
<td>Continuation Upward</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>~</td>
<td>Tilde</td>
<td>Extension Upward</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∞</td>
<td>Infinity</td>
<td>Extension Downward</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>U</td>
<td>Upward “U”</td>
<td>Elaboration Upward</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>D</td>
<td>Downward “U”</td>
<td>Elaboration Downward</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>↕</td>
<td>Up Arrow</td>
<td>Modulation Upward</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>↘</td>
<td>Down Arrow</td>
<td>Modulation Downward</td>
<td>Disjunctive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Double Lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>●</td>
<td>Dark Circle</td>
<td>Primary Strong Pausal</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>○</td>
<td>Open Circle</td>
<td>Secondary Strong Pausal</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>X</td>
<td>Letter “X”</td>
<td>Medium Pausal or Penultimate</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>*</td>
<td>Asterisk</td>
<td>End Blessing or Penultimate</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>■</td>
<td>Dark Square</td>
<td>Primary Closing</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>□</td>
<td>Open Square</td>
<td>Secondary Closing</td>
<td>Disjunctive</td>
</tr>
</tbody>
</table>

Continuations, Extensions and Elaborations can function as Conjunctives or Disjunctives

Copyright © 2012 Cantor Neil Schwartz
Tiberian Masoretic Vowels and Trope, mostly below words

Babylonian Vowels and Trope, above words
Cantor Reuven Frankel's "Nusah-Trope" 1976

**Notation for Nusan-Trope**

<table>
<thead>
<tr>
<th>לולודות</th>
<th>אבות</th>
</tr>
</thead>
<tbody>
<tr>
<td>ב - הו</td>
<td>7 - ש</td>
</tr>
<tr>
<td>ד - ב - בור</td>
<td>6 - ג</td>
</tr>
<tr>
<td>נ - ד - דגלו</td>
<td>5 - כ - כבש</td>
</tr>
<tr>
<td>מ - א - אטנה</td>
<td>4 - כ - כבש</td>
</tr>
</tbody>
</table>

Original Schema for "Simanei Nusach" 2007
Cantor Neil Schwartz and Tom Buchler

**Conjunctives / Joiners** *(from strongest to weaker)*

- Triangle
- Left Arrow
- Hook
- Tilde
- Infinity
- Asterisk
- Upward “U”
- Downward “U”
- Up Arrow
- Open Triangle

**Disjunctives / Separators** *(from strongest to weaker)*

- Square
- Circle
- Letter “X”
- Double Line
- Triple Lines
- Down Arrow
- Open Square
- Open Circle

Primary Opening motif
Re-opening or Continuing
Short Extension
Extension upward
Extension downward
Blessing near a paragraph end
Elaboration Higher
Elaboration Lower
Modulate upwards briefly
Opening in a different Nusach
Closing motif – Sof Pasuk
Strong Pausal – Einachta
Medium Pausal or Penultimate
Shorter Medium Pausal
Longer Medium Pausal
Return from Modulation
Closing in a different Nusach
Pausal in a different Nusach
Kaddish with "Nusah-Trope" (1976)

Reader

Cong.

Cong. and Reader

Kaddish with "Simanei Nusach" (2007)

Kaddish Shaleim (Full Kaddish)

Exalted and sanctified be God's great Name (Amen)

in the world that God has created according to His will.

And may God's sovereignty have dominion, in your lifetime and in your days;

and in the lifetime of the entire House of Israel,

speedily and at a near time;

and say, Amen. (Amen)

May God's great Name be praised forever and for all eternity.
*Simanei Nusach* – Graphic Symbols for *Nusach HaTfillah* (Prayer-Modes)

Here are the new *Simanei Nusach* ("Symbols of Nusach") graphic symbols, with the general function and punctuation function of their musical motifs in each *Nusach* mode. Types: *(basic)* = in simpler modes / *(extra)* = when needed / linkage = in elaborate modes

<table>
<thead>
<tr>
<th>Shape</th>
<th>Symbol Name</th>
<th>General Function</th>
<th>Type</th>
<th>Punctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Dark Triangle</td>
<td>Primary <em>Opening</em></td>
<td><em>(basic)</em></td>
<td>Conjunctive</td>
</tr>
<tr>
<td>△</td>
<td>Open Triangle</td>
<td>Secondary <em>Opening</em></td>
<td><em>(extra)</em></td>
<td>Conjunctive</td>
</tr>
<tr>
<td>↑</td>
<td>Left Arrow</td>
<td><em>Continuation</em> or Re-opening</td>
<td><em>(basic)</em></td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>◄</td>
<td>Hook</td>
<td><em>Continuation</em> Upward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>~</td>
<td>Tilde</td>
<td><em>Extension</em> Upward</td>
<td><em>(basic)</em></td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∞</td>
<td>Infinity</td>
<td><em>Extension</em> Downward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>U</td>
<td>Upward “U”</td>
<td><em>Elaboration</em> Upward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∪</td>
<td>Downward “U”</td>
<td><em>Elaboration</em> Downward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>↕</td>
<td>Up Arrow</td>
<td><em>Modulation</em> Upward</td>
<td>linkage</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>↘</td>
<td>Down Arrow</td>
<td><em>Modulation</em> Downward</td>
<td>linkage</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>Ⅱ</td>
<td>Double Lines</td>
<td>Shorter <em>Medium Pausal</em></td>
<td><em>(basic)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>Ⅲ</td>
<td>Triple Lines</td>
<td>Longer <em>Medium Pausal</em></td>
<td><em>(extra)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>⬤</td>
<td>Dark Circle</td>
<td>Primary <em>Strong Pausal</em></td>
<td><em>(basic)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>⭕</td>
<td>Open Circle</td>
<td>Secondary <em>Strong Pausal</em></td>
<td><em>(extra)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>✗</td>
<td>Letter “X”</td>
<td>Penultimate or Med. Pausal</td>
<td><em>(extra)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>*</td>
<td>Asterisk</td>
<td><em>End Blessing</em> or Penultimate</td>
<td><em>(basic)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>■</td>
<td>Dark Square</td>
<td>Primary <em>Closing</em></td>
<td><em>(basic)</em></td>
<td>Disjunctive</td>
</tr>
<tr>
<td>□</td>
<td>Open Square</td>
<td>Secondary <em>Closing</em></td>
<td><em>(extra)</em></td>
<td>Disjunctive</td>
</tr>
</tbody>
</table>

*Continuations, Extensions and Elaborations* can function as *Conjunctives* or as Disjunctives

*Copyright 2012 © Cantor Neil Schwartz*
ישמה מַשָּׁה בֶּנֶת הַלִּכְתָּה
cי עֵבוּד נָאֵמוּ כְּרָאת לָהּ
כַּלַּל הַמַּכְהֵרָה בֶּרֶאשָׁה בֶּתָּה
cָּעִידוּ לֵפִינוּךְ על נָר סִיִּינָא
וֹשֵׁנִי לַחוֹת אֶבֶנֶים הַזְּלֵית בְּרֵיח
cַּהוֹב בְּלַחַת
cָּלֵל הַשְּׁבִית עַל שֶׁמֶרְכָּז
וֹבִּים הַשְּׁבִית תִּשְׁבִּית
يشמח משה בֵּמַטְנַת חֵלֵּק
כפָּנַנ֖וּ נַמְטָנָֽו קְרָאת לָלּוּ
בָּלָל תְפָאְרָת בִּרְאָשָׁא בְּתַמָּח
בְּעֶמֶדּוּ לַפְּנֵיהּ על הָרָֽו סִּֽיּוֹנָא
וַשְּׁנַנָי לְדוֹתָה אֶבְנֵי חָוְרָה בְּנָֽו
וַקְנֵה בֵּהֶם שְּמִירָת שֵׁבָת
וַקְוֶֽץ בֵּהֶם בְּתוֹרָהֵךְ.

Yismach Moshe with "Simanei Nusach" (2007) and Music

Yismach Moshe b'matnat chelko, ki eved neeman karat lo. K'lili tiferet b'rosho nata ta, b'omdo l'fanecha al har sinai, lusheru luchot avanim horid b'yaado, y'chein katuvti b'toratcha: v'shamiru v'nei yisrael et hashe
Moshe was glad in the gift that was his portion,
for You named him a faithful servant.
You gave him a circle of splendor for his head,
when he stood in front of You on Mount Sinai,
and he brought down in his hand two tablets of stone.

Yismach Moshe

© Copyright 2000-2012 Kinnor Software, Inc. All rights reserved.
"Tefillah Trainer" is a trademark of Kinnor Software, Inc.
"Simanei Nusach" is a trademark of Neil L. Schwartz and Thomas G. Buchler
The Simanei Nusach symbols are © Copyright 2007, Neil L. Schwartz and Thomas G. Buchler
Text-to-Speech engine: Fonix DECTalk®. © Copyright 2011 Fonix Corporation
New English translation © 2008-2009, Kinnor Software, Inc. All rights reserved.
Hebrew biblical texts are derived from the electronic Biblia Hebraica Stuttgartensia © 1969/77 German Bible Society,
and used with their kind permission.
Talmud Bavli and Talmud Yerushalmi texts are from Mechof Mamre (www.mechon-mamre.org),
and are used with their kind permission.
Beginning and end of Psalm 92 in *Kabbalat Shabbat*, with *Simanei Nusach* graphic symbols for music motifs.

```
218

הṃ кто מוער שיר ליהו נפשו.
 possui להיה בראות, יקול במלה ליש Maherִ CARTOON
להנהיג בשני מדים, לאומvented בכרמלו.

荘סיק בשעה יפרעה.
 camera בלבנה ישמנה.
שחולים ביבמה יתיהו.
 שונות אלהו יפריוו.
עד יב lokale בשכחה.
משניהם ורשימים יתיהו.
להנהיג כארך יתיהו.
וצריה Очא שלובה בו.

Copyright © 2011 Cantor Neil Schwartz and Kinnor Software
Friday evening Hashkiveinu – plagal Magein Avot mode

from Tefillah Trainer™, produced by Kinnor Software, with Simanei Nusach

Copyright 2012 © Cantor Neil Schwartz
Cantor Neil Schwartz and Kinnor Software developer Tom Buchler seek copyright protection and/or patent protection for “Simanei Nusach” or “Nusach Symbols” as described herein.

Definitions of Hebrew terms:

**Nusach**
“musical prayer modes” used during the chanting of Jewish liturgy, which indicate liturgical occasions and sections of the services.

**Simanim**
“symbols” in general, herein referring to a system of graphic symbols which indicate specific melodic motifs within each Nusach mode.

**Ta’amim**
“accents” in general, specifically a set of 28 symbols which are used to delineate the chanting of texts from the Hebrew Bible (O.T.).

**Simanei Nusach**
“Nusach Symbols” (literally “Symbols of Nusach”) used to indicate melodic motifs, phrasing, and word stress in liturgical chanting.

**Ta’amei HaMikra** “Accents of Reading” or “Trope” in the printed text of Hebrew Bibles, which indicate punctuation, accentuation, and chanting of words.

“Simanei Nusach” or “Nusach Symbols” are a new *system of graphic symbols* which are used to *indicate specific liturgical melody motifs* used for the chanting of Jewish liturgy. These graphic symbols also *delineate the punctuation of phrases* within the liturgical texts, and the *musical shaping of specific melodic motifs* indicates stress on important words within liturgical phrases.

While the specific graphic shapes of these “Simanei Nusach” are not unique, their *combination into a functional set of melodic markers for Jewish liturgy* is new and unique. There have been other attempts to create a set of such markers, but these particular graphic shapes have proven to be easy to include in educational software which teaches the chanting of Jewish liturgy.

There are 18 “Nusach Symbols” which are grouped according to function: eight “Simanim” are primarily *Disjunctives* or *Separators*, indicating that a phrase of text is coming to a pause, and ten “Simanim” are primarily *Conjunctives* or *Joiners*, indicating that a text phrase is beginning or continuing. In this manner, “Simanei Nusach” function for the chanting of Jewish liturgy as the “Ta’amei HaMikra” or “Trope” function for the cantillation or chanting of the Hebrew Bible.

Within a specific “Nusach” or “musical prayer mode”, each of these “Simanim” or “symbols” indicates a specific musical motif. In different types of “Nusach” which are used for various Jewish liturgical occasions, the functions of these 18 “Simanei Nusach” or “Nusach Symbols” remain essentially the same. “Simanim” which show the beginning or continuation of phrases, or those which show phrase endings, are similar in each type of “Nusach” musical prayer mode.

While the primary method of categorizing the 18 “Simanei Nusach” is as Joiners and Separators, there are really three categories of function for these “Nusach Symbols”. These are: “Openers”, “Linkages”, and “Pausals”. This is not an exact science, and occasionally the “Simanim” which are designated as “Linkages” function more like “Openers” or “Pausals”. However, this basic symbol system works well to indicate phrasing of Hebrew prayer texts within each paragraph.

“Simanei Nusach” are a graphical system which can indicate the melodic prayer motifs for learners who do not read music, and they may be included with printed music for those learners who do read music. These “Nusach Symbols” can be printed or handwritten over the Hebrew words of Jewish liturgical texts, and they help clearly indicate where phrases begin and end within sentences. This function serves as an aid to more accurate translation and understanding of the Hebrew prayer texts.
Below are charts which indicate two different ways of categorizing the 18 “Simanei Nusach”:

**Chart 1:**

**Conjunctives / Joiners**
- Triangle: Primary Opening motif
- Left Arrow: Re-opening or Continuing
- Hook: Short Extension
- Tilde: Extension upward
- Infinity: Extension downward
- Asterisk: Blessing near a paragraph end
- Upward “U”: Elaboration Higher
- Downward “U”: Elaboration Lower
- Up Arrow: Modulate upwards briefly
- Open Triangle: Opening in a different Nusach

**Disjunctives / Separators**
- Square: Closing motif – Sof Pasuk
- Circle: Strong Pausal – Etnachta
- Letter “X”: Medium Pausal or Penultimate
- Double Line: Shorter Medium Pausal
- Triple Lines: Longer Medium Pausal
- Down Arrow: Return from Modulation
- Open Square: Closing in a different Nusach
- Open Circle: Pausal in a different Nusach

**Chart 2:**

<table>
<thead>
<tr>
<th>Openers</th>
<th>Linkages</th>
<th>Pausals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>Hook</td>
<td>Square</td>
</tr>
<tr>
<td>Open Triangle</td>
<td>Tilde</td>
<td>Circle</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>Infinity</td>
<td>Open Square</td>
</tr>
<tr>
<td>Asterisk</td>
<td>Upward “U”</td>
<td>Open Circle</td>
</tr>
<tr>
<td></td>
<td>Downward “U”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up Arrow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Down Arrow</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Linkages</th>
<th>Pausals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hook</td>
<td>Short Extension</td>
</tr>
<tr>
<td>Tilde</td>
<td>Extension upward</td>
</tr>
<tr>
<td>Infinity</td>
<td>Extension downward</td>
</tr>
<tr>
<td>Upward “U”</td>
<td>Elaboration Higher</td>
</tr>
<tr>
<td>Downward “U”</td>
<td>Elaboration Lower</td>
</tr>
<tr>
<td>Up Arrow</td>
<td>Modulate upward briefly</td>
</tr>
<tr>
<td>Down Arrow</td>
<td>Return from Modulation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pausals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square</td>
</tr>
<tr>
<td>Circle</td>
</tr>
<tr>
<td>Open Square</td>
</tr>
<tr>
<td>Open Circle</td>
</tr>
<tr>
<td>Letter “X”</td>
</tr>
<tr>
<td>Double Line</td>
</tr>
<tr>
<td>Triple Lines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pausal in a different Nusach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Pausal – Etnachta</td>
</tr>
<tr>
<td>Closing in a different Nusach</td>
</tr>
<tr>
<td>Pausal in a different Nusach</td>
</tr>
<tr>
<td>Medium Pausal or Penultimate</td>
</tr>
<tr>
<td>Shorter Medium Pausal</td>
</tr>
<tr>
<td>Longer Medium Pausal</td>
</tr>
</tbody>
</table>
“Simanei Nusach” - New Graphic Symbols for Nusach HaT’fillah

Nusach HaT’fillah

“Musical prayer modes” used during the chanting of Jewish liturgy, consisting of melodic motifs based on modal scales, used to indicate liturgical occasions and specific sections of worship services.

Ta’amei HaMikra

“Accents of Reading” or Trope in the printed text of Hebrew Bibles, consisting of 28 ancient graphic symbols which delineate the punctuation, accentuation, and chanting of words and phrases in the Hebrew Bible.

Simanei Nusach

“Nusach Symbols” (literally “Symbols of Nusach”), a system of graphic symbols used to indicate melodic motifs, phrasing, and word stress in liturgical chanting. These have been developed by Cantor Neil Schwartz and Thomas Buchler for the teaching of Jewish liturgical chant in software and other teaching modalities.

“Simanei Nusach” or “Nusach Symbols” are a new system of graphic symbols which are used to indicate specific liturgical melody motifs in the chanting of Jewish liturgy. These graphic symbols also delineate the punctuation of phrases within the liturgical texts, and the musical shaping of specific melodic motifs indicates stress on important words within liturgical phrases.

While the individual graphic shapes of these “Simanei Nusach” may not be unique, their combination into a functional set of melodic markers for Jewish liturgy is new and unique. There have been previous attempts to create a set of such markers, but these particular graphic shapes have proven to be easy to use as symbols for the musical motifs used in the chanting of Jewish liturgy.

There are 18 “Simanei Nusach” or “Nusach Symbols” which are paired by function:

Nine “Simanim” are primarily Disjunctives or Separators, indicating that a phrase of liturgical text is coming to a pause.

Nine “Simanim” are primarily Conjunctives or Joiners, indicating that a liturgy phrase is beginning or continuing. Of these, six can also function as Disjunctives.

In this manner, “Simanei Nusach” function for the chanting of Jewish liturgy in a manner which is similar to the way “Ta’amei HaMikra” or “Trope” function for the Cantillation or chanting of the Hebrew Bible, reflecting the punctuation and meaning of the sacred text.

Within a specific “Nusach HaT’fillah” or “musical prayer mode”, each of these “Simanei Nusach” or “Nusach Symbols” indicates a specific musical motif. In different types of “Nusach HaT’fillah” that are chanted on various Jewish liturgical occasions, the functions of these 18 new “Simanei Nusach” or “Nusach Symbols” remain essentially the same. “Simanim” which show the beginning or continuation of phrases, or those which show phrase endings, are similar in each type of “Nusach HaT’fillah” musical prayer mode.

Copyright 2012 © Cantor Neil Schwartz
“Simanei Nusach” are a graphical system which can indicate the melodic prayer motifs for learners who do not read music, and they may be included with printed music for learners who do read music. These “Nusach Symbols” can be printed or drawn over the Hebrew words of Jewish liturgical texts, and they help indicate where phrases begin and end within sentences. This function serves as an aid to more accurate translation and understanding of Hebrew prayer texts, just as Cantillation symbols show phrasing in Hebrew Bible texts.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Symbol Name</th>
<th>General Function</th>
<th>Type</th>
<th>Punctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼</td>
<td>Dark Triangle</td>
<td>Primary Opening</td>
<td>(basic)</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>△</td>
<td>Open Triangle</td>
<td>Secondary Opening</td>
<td>(extra)</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>↑</td>
<td>Left Arrow</td>
<td>Continuation or Re-opening</td>
<td>(basic)</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td></td>
<td>Hook</td>
<td>Continuation Upward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>~</td>
<td>Tilde</td>
<td>Extension Upward</td>
<td>(basic)</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∞</td>
<td>Infinity</td>
<td>Extension Downward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>U</td>
<td>Upward “U”</td>
<td>Elaboration Upward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∪</td>
<td>Downward “U”</td>
<td>Elaboration Downward</td>
<td>linkage</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>↕</td>
<td>Up Arrow</td>
<td>Modulation Upward</td>
<td>linkage</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>↘</td>
<td>Down Arrow</td>
<td>Modulation Downward</td>
<td>linkage</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>II</td>
<td>Double Lines</td>
<td>Shorter Medium Pausal</td>
<td>(basic)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>III</td>
<td>Triple Lines</td>
<td>Longer Medium Pausal</td>
<td>(extra)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>●</td>
<td>Dark Circle</td>
<td>Primary Strong Pausal</td>
<td>(basic)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>○</td>
<td>Open Circle</td>
<td>Secondary Strong Pausal</td>
<td>(extra)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>×</td>
<td>Letter “X”</td>
<td>Penultimate or Med. Pausal</td>
<td>(extra)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>*</td>
<td>Asterisk</td>
<td>End Blessing or Penultimate</td>
<td>(basic)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>■</td>
<td>Dark Square</td>
<td>Primary Closing</td>
<td>(basic)</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>□</td>
<td>Open Square</td>
<td>Secondary Closing</td>
<td>(extra)</td>
<td>Disjunctive</td>
</tr>
</tbody>
</table>

Copyright 2012 © Cantor Neil Schwartz
"Simanei Nusach" – Graphic Symbols for Nusach HaT’fillah (Prayer-Modes)

Here are the new "Simanei Nusach" ("Symbols of Nusach") graphic symbols, with the general and punctuation functions of their musical motifs compared to Ta’amei HaMikra.

Types: (basic) = in simpler modes / (extra) = when needed / linkage = in elaborate modes

<table>
<thead>
<tr>
<th>Shape</th>
<th>Symbol Name</th>
<th>General Function</th>
<th>Trope</th>
<th>Punctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Dark Triangle</td>
<td>Primary Opening</td>
<td>Mapach</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>▼</td>
<td>Open Triangle</td>
<td>Secondary Opening</td>
<td>Kadma</td>
<td>Conjunctive</td>
</tr>
<tr>
<td>←</td>
<td>Left Arrow</td>
<td>Continuation / Re-opening</td>
<td>Munach</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>▼</td>
<td>Hook</td>
<td>Continuation Upward</td>
<td>Mer’cha</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>~</td>
<td>Tilde</td>
<td>Extension Upward</td>
<td>Pashta</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>=</td>
<td>Infinity</td>
<td>Extension Downward</td>
<td>L'Garmeih</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>U</td>
<td>Upward “U”</td>
<td>Elaboration Upward</td>
<td>Pazeir</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>∩</td>
<td>Downward “U”</td>
<td>Elaboration Downward</td>
<td>T. G’dolah</td>
<td>Conj. \ Disj.</td>
</tr>
<tr>
<td>⤠</td>
<td>Up Arrow</td>
<td>Modulation Upward</td>
<td>Zarka</td>
<td>(Conjunctive)</td>
</tr>
<tr>
<td>⤠</td>
<td>Down Arrow</td>
<td>Modulation Downward</td>
<td>Segol</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>Ⅱ</td>
<td>Double Lines</td>
<td>Shorter Medium Pausal</td>
<td>Zkf. Katon</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>Ⅲ</td>
<td>Triple Lines</td>
<td>Longer Medium Pausal</td>
<td>Zkf. Gadol</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>●</td>
<td>Dark Circle</td>
<td>Primary Strong Pausal</td>
<td>Etnachta</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>○</td>
<td>Open Circle</td>
<td>Secondary Strong Pausal</td>
<td>Etnachta</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>✗</td>
<td>Letter “X”</td>
<td>Penultimate / Med. Pausal</td>
<td>R’vi-a</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>✧</td>
<td>Asterisk</td>
<td>End Blessing / Penultimate</td>
<td>T’vir</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>□</td>
<td>Dark Square</td>
<td>Primary Closing</td>
<td>Silluk</td>
<td>Disjunctive</td>
</tr>
<tr>
<td>☐</td>
<td>Open Square</td>
<td>Secondary Closing</td>
<td>Silluk</td>
<td>Disjunctive</td>
</tr>
</tbody>
</table>

Continuations, Extensions and Elaborations can function as Conjunctives or as Disjunctives

Copyright 2012 © Cantor Neil Schwartz
Bibliography of Sources Consulted
(by Author within Subject Headings)

Historic migrations of Eurasian Peoples


**Resources on World Religions**


**Bible Lands and Jewish History**


227


**Arab / Muslim Resources**


**Indic / Hindu Resources**


Borooah, Anundoram. *Ancient Geography of India*. Assam: Publication Board, 1971


Gupta, Sankar Sen & Krishnaswamy, K.  *Fire Festival of India.*  Calcutta: Indian Pub., 1984


**Resources on World Music**


**Resources on General Jewish Music**


**Resources on Classical Hebrew Grammar**


Kittel, Bonnie, Hoffer, Victoria, & Wright, Rebecca. *Biblical Hebrew*, Second Edition


van der Merwe, Christo, Naudé, Jackie, & Kroeze, Jan. *A Biblical Hebrew Reference Grammar*.

NY: Center for Medieval ... Studies, State university of New York, 1524 / 1989.

Waltke, Bruce & O'Connor, Michael. *An Introduction to Biblical Hebrew Syntax*. Winona Lake,


Resources on Biblical Cantillation


------------ *Qera Beta'am* (Vol. 1 - Torah). Jerusalem: Israel Inst. for Sacred Music, 1966 (Heb.).


Hebrew, English, and Hebrew/English Bibles


--------- *Hebrew Bible & the King James Bible*. London: British Foreign Bible Society, 1872.


Hebrew/English Torah, Other Bible Books


Onkylos and Rashi. Hamisha Humshei Torah (Mikra'ot G'dolot). Jerusalem: HaMe'ir L'Yisrael, no date.


**Resources on Jewish Liturgy Structure**


Selected Hebrew/English Prayerbooks


Reisner, Avram, ed. *Siddur Sim Shalom for Weekdays*. New York: Rabbinical Assembly &


United Synagogue, 1946.


Tal, Shlomo, ed. *Siddur Rinat Yisrael: Nusach Askenaz Livnei Chutz-LaAretz* (Ashkenazi Text,

Teutsch, David, ed. *Kol Haneshamah (Shabbat Vehagim)*. Wyncote, PA: Reconstructionist

-------- *Kol Haneshamah: Mahzor Leyamim Nora'im (Prayerbook for the Days of Awe)*.

Tyler, Michael, & Kane, Leslie, eds. *Siddur Sha'ar Zahav* (LGBTQ). San Francisco:


Resources on Jewish Liturgical Chant


244


**Arabic and Islamic Music**


**Indic Religious and Cultural Music**


**Byzantine, Mediterranean and Gypsy Music**


**Catholic Sacred Music and Plainchant**


**Linguistics, Semiotics, and Modern Music**


**Articles on Biblical and Liturgical Chant**


**Recorded Sources, Software, and Internet**


Sharfman, Josh. *Virtual Cantor*. VirtualCantor.com (mp3s and CDs)

Torah Educational Software. *My Siddur Quiz*. www.jewishsoftware.com


Zimmerman, Mark. *Siddur Audio*. SiddurAudio.com (mp3s and CDs)

250
Biography

Cantor Neil Schwartz was raised in Northern Minnesota, and he received his B.A. in Religion from Carleton College in 1975. He received Investiture and the Diploma of Hazzan from the Jewish Theological Seminary in New York City in 1980, and the Commission of Hazzan from the Cantors Assembly. He is now also a member of the American Conference of Cantors and the Guild of Temple Musicians, and he received an Honorary Doctorate of Music from JTS.

Neil Schwartz served as Cantor for synagogues in Ohio, New Jersey, Pennsylvania, Tennessee, and Saskatchewan, where he was the sole clergy of a small congregation. He also earned five Units of Clinical Pastoral Education Chaplaincy Training, and he served as the Jewish Chaplain at the University of Saskatchewan. Neil has been a Life Member of CAJE, the Coalition for the Advancement of Jewish Education, and now is active in its successor organization, NewCAJE.

Since 2007, Neil has been the Sacred Music Consultant on the staff of Kinnor Software, makers of Tefillah Trainer™ teaching software. He developed the graphic symbols for the chanting of Jewish liturgy as a teaching tool for the IMUN Program of United Synagogue, and he has used them in the music of Tefillah Trainer. Neil is also on the Faculty of Hebrew College in Boston since Fall Term 2009, using these new Simanei Nusach graphic symbols in his online courses.