Title:	**On the Hebrew vowel *HOLAM***
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Summary

The Hebrew point HOLAM combines in two different ways with the Hebrew letter VAV. In the first combination, known as *Holam Male*, the VAV is not pronounced as a consonant, and HOLAM and VAV together serve as the vowel associated with the preceding consonant. In the second combination, known as *Vav Haluma*, the HOLAM is the vowel of a consonantal VAV. In high quality typography *Holam Male* is distinguished from *Vav Haluma*: *Holam Male* is written with the HOLAM dot above the right side or above the centre of VAV; and *Vav Haluma* is written with HOLAM above the top left of VAV. The distinction is clear and significant in some texts, dating from the 10th century CE to the present day. But in less high quality typography *Holam Male* and *Vav Haluma* are not distinguished, and usually both rendered with the HOLAM dot above the centre of VAV. *Holam Male* is very common in pointed Hebrew texts; *Vav Haluma* is much less common but not extremely rare.

Note carefully that this is *not* a proposal to encode a *phonetic* distinction which is not made graphically. Rather, it is a proposal to encode a *graphical* distinction with a 1000 year history. This graphical distinction is often, although not always, made in modern texts, and it must be made when the phonetic distinction needs to be indicated unambiguously.

Unicode does not currently specify how to distinguish between *Holam Male*, *Vav Haluma*, and the undifferentiated combination. Several different ways have been used in existing texts, or recommended for use with Unicode Hebrew fonts. To avoid proliferation of *ad hoc* solutions, it is proposed here that the UTC specify encodings for the three cases.

Several options are outlined below. The preferred option is to encode *Holam Male*, when distinguished from *Vav Haluma*, as the sequence <VAV, ZWJ, HOLAM>. This option is proposed to the UTC.

Background

There are two ways of indicating vowels in Hebrew script, which may be used either separately or in combination. The ancient system, which does not fully distinguish the vowel sounds, is to insert the Hebrew letters ALEF, HE, VAV and YOD, which can therefore function as vowels as well as consonants. When "silent", i.e. used to indicate vowels, these letters are known *mothers of reading* (*imot qeri'a* or *ehevi* in Hebrew, *matres lectionis* in Latin). In the early mediaeval period several different systems of pointing were introduced to specify the vowel sounds more precisely. Only one of these systems, the Tiberian system, is in current use, and this is the only one currently encoded in Unicode. (Proposals for the other systems are currently being prepared.) This system is normally used for the biblical and other ancient texts (although not for synagogue scrolls, which are unpointed) and for some modern Hebrew texts. Most modern Hebrew is unpointed, but makes good use of *mothers of reading*.

One of the Tiberian vowel points, U+05B9 HEBREW POINT HOLAM, consists of a dot usually written

above the left side of a Hebrew base character. This represents a long O sound pronounced after the base character. When there is no associated *mother of reading*, this way of writing a long O sound is known as *Holam Haser*, i.e. *Defective Holam*. In old manuscripts, the dot is often positioned over the space between the preceding and following base characters, and sometimes above the right side of the following (to the left) base character. In printed texts, the regular position of the dot is above the left side of the preceding base character.

In pointed Hebrew text the same vowel is often represented both by a vowel point and by a *mother of reading*. The latter has no vowel point of its own, because the vowel is associated with the preceding consonant. The commonest *mother of reading* for a long O sound is VAV. Therefore the combination of HOLAM with a VAV *mother of reading* is common in pointed texts. This combination is known as *Holam Male* (*Male* is pronounced as two syllables, *mah-leh*), i.e. *Full Holam*. The HOLAM dot is logically associated with the preceding base character, the consonant for which it indicates the vowel sound; the VAV is redundant because the vowel is fully indicated by the HOLAM. Thus the VAV may be considered silent, corresponding to the general rule for pointed texts that a non-final base character with no point is silent; an alternative analysis is that the VAV and the HOLAM together indicate the vowel sound. In the oldest manuscripts which use this pointing scheme, dating from the 10th century CE, the dot was positioned above the space between the preceding base character and the VAV, but it has gradually shifted on to the redundant VAV. In modern high quality typography the dot is positioned above the VAV, usually above its right edge or its centre. However, the HOLAM dot is not shifted on to a following VAV when the VAV is not silent but consonantal, except sometimes in rendering the divine name.

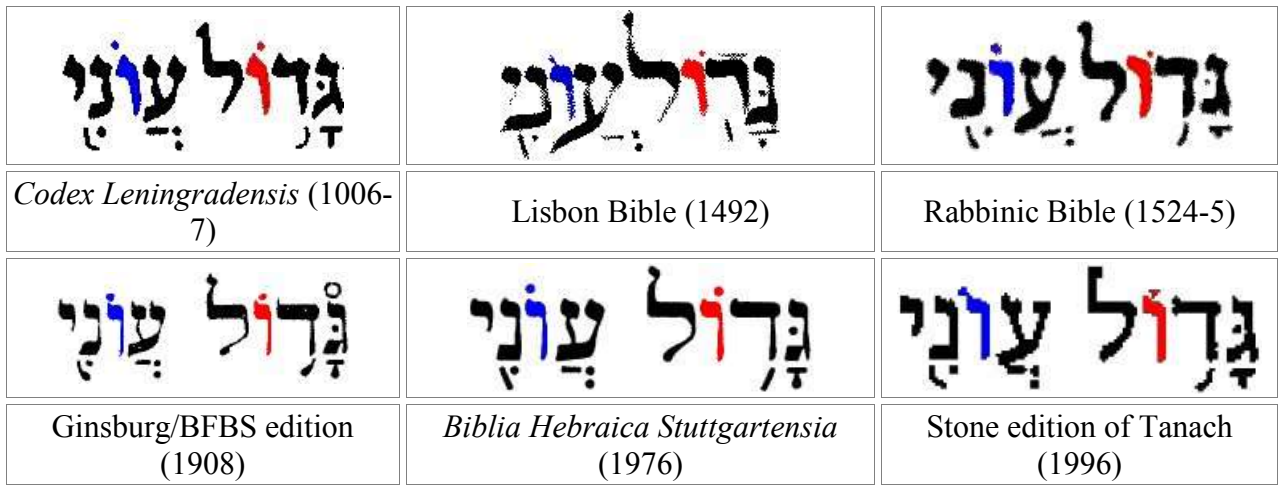
The difficulty arises because VAV can also be a consonant, and as such can be followed, like every other consonant, by *Holam Haser* (or by *Holam Male*, but this causes no special difficulty). Therefore the HOLAM dot can combine in two logically different ways with VAV. The combination of VAV with *Holam Haser* is known as *Vav Haluma*, and is pronounced VO (or in some traditions WO). A combination of VAV with HOLAM could be a *Holam Male*, where the VAV is silent and the letter VAV and the point HOLAM together represent the vowel; or it could be the letter VAV with a *Holam Haser*, where the VAV is a consonant and the HOLAM point is a vowel. There is no difference in pronunciation between *Holam Male* and *Holam Haser*.

In high quality typography, especially of the Hebrew Bible and other religious texts, of educational materials, and of poetry, a careful distinction is made between *Holam Male* and *Vav Haluma*: in *Holam Male*, the HOLAM dot is positioned above the right side of the VAV, or sometimes centred above the VAV; but in *Vav Haluma*, *Holam Haser* is rendered in its normal position above the left side of VAV. This seems to have been the original practice, as witnessed in manuscripts and printed editions from the 10th to 19th centuries CE. But, because VAV is a rather narrow letter, and because *Vav Haluma* is rare in modern Hebrew (in which long O is usually written as *Holam Male*), many modern typographers of general texts make no distinction, rendering both *Holam Male* and *Vav Haluma* by VAV with a HOLAM dot usually centred above it.

The distinction between *Holam Male* and *Vav Haluma* is an important and semantically significant one. This is especially true for religious texts; the distinction is made in most Hebrew Bible editions, and in texts quoting from the Bible. It is also important in educational materials and in poetry, wherever the exact pronunciation must be marked unambiguously. See the examples in Figures 1, 2 and 3 below, in which *Holam Male* and *Vav Haluma* are distinguished in six Hebrew Bible editions and in two other works.

This distinction is not a rare one. *Holam Male* is very common in the Hebrew Bible, occurring about 34,808 times or in about 13% of all words. *Vav Haluma* is much less common, occurring about 421 times.

Samples



Codex Leningradensis (1006-7)	Lisbon Bible (1492)	Rabbinic Bible (1524-5)
Ginsburg/BFBS edition (1908)	*Biblia Hebraica Stuttgartensia* (1976)	Stone edition of Tanach (1996)

Figure 1: *Holam Male* (marked in red) and *Vav Haluma* (marked in blue) distinguished in ancient and modern editions of the Hebrew Bible - these words are from Genesis 4:13.
(If the colours are not visible: In each image, the third base character from the right, with the dot above its right side or its centre, is *Holam Male*; the third base character from the left, with the dot above its left side, is *Vav Haluma*.)

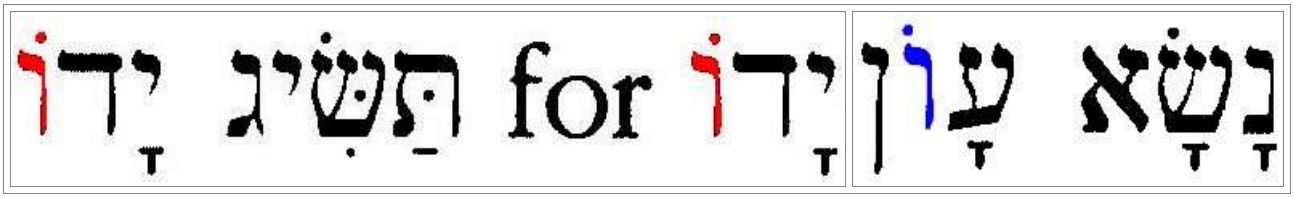


Figure 2: *Holam Male* (left, twice, red, from p.529) and *Vav Haluma* (right, blue, from p.528) contrasted in Keil & Delitzsch *Commentary on the Old Testament*, vol.1, reprint by Hendrickson, 1996 (Hebrew words quoted in English text).

Figure 3: *Holam Male* (right Hebrew word, red) and *Vav Haluma* (left word, blue) contrasted in *Langenscheidt's Pocket Hebrew Dictionary*, p.243.

Figure 4: Comparison of positions of HOLAM after HE and with VAV in *Biblia Hebraica Stuttgartensia*. Left: regular *Holam Male*, from Joshua 10:3. Centre: HOLAM dot not shifted on to consonantal VAV, as this is not *Holam Male*, from Ezekiel 7:26. Right: HOLAM dot shifted to *Holam Male* position on a consonantal VAV in the divine name, although this is not *Holam Male*, from Exodus 13:15.

Holam Male and Unicode

The Unicode Hebrew block is based on the Israeli national standard SI 1311. This standard was

originally designed for unpointed modern Hebrew texts, although later extended to cover points (SI 1311.1) and accents (SI 1311.2) (see http://qsm.co.il/Hebrew/stdisr.htm for further details), but was not designed for full support of biblical Hebrew. As a result there are some minor inadequacies in the Unicode support for biblical Hebrew.

The most significant of these inadequacies, because it is the only one which affects the vowel points rather than only the accents, is that there is no support for the distinction between *Holam Male* and *Vav Haluma*. There is a single VAV character and a single HOLAM character, and only one way of combining these two, the sequence <VAV, HOLAM>, which is apparently intended to be used for both *Holam Male* and *Vav Haluma*. There is thus no defined way of distinctively encoding either *Holam Male* or *Vav Haluma*.

The alphabetic presentation form U+FB4B HEBREW LETTER VAV WITH HOLAM cannot be used for *Holam Male* distinct from *Vav Haluma*, because it is canonically equivalent to the sequence <VAV, HOLAM>, i.e. it has a canonical decomposition (which cannot be changed) to 05D5 05B9. It is included in Unicode for compatibility purposes.

Because there is a real need to distinguish between *Holam Male* and *Vav Haluma*, but there is no standard way of doing so, various ad hoc solutions have been used by text providers and by font developers. The Hebrew Bible text from Mechon Mamre (at Genesis 4:13, http://www.mechon-mamre.org/c/ct/c0104.htm#13) uses <VAV, HOLAM> for *Holam Male* and <VAV, ZWJ, HOLAM> for *Vav Haluma*. The "alpha release" text at http://whi.wts.edu/WHI/Members/klowery/eL/leningradCodex-alpha.zip and the text at http://users.ntplx.net/~kimball/Tanach/Genesis.xml use (again at Genesis 4:13) <HOLAM, VAV> (actually <HOLAM, accent, VAV> according to canonical ordering) for *Holam Male* and <VAV, HOLAM> for *Vav Haluma*, and this is also the encoding recommended in the documentation for the fonts SBL Hebrew and Ezra SIL. There is however a larger body of existing data, including pointed modern Hebrew and some biblical texts (e.g. the one at http://www.anastesontai.com/b-cantilee/en-cant.asp?A=1&listeB=4), in which *Holam Male* and *Vav Haluma* are not distinguished but are both encoded as <VAV, HOLAM>.

To avoid this inconsistency and potential confusion, it is proposed here that the UTC should specify distinctive encodings for *Holam Male* and *Vav Haluma*, for use when these two need to be distinguished. Various options for these distinctive encodings are discussed below. It is noted that although Option B2 below can technically be chosen without UTC involvement, because it involves only a spelling rule, the other options do require UTC approval as they involve either sequences with ZWJ or ZWNJ or a new character.

Possible Encodings

There are various possible distinctive encodings for *Holam Male* and *Vav Haluma*. (Some of these are already summarised in http://qaya.org/academic/hebrew/Issues-Hebrew-Unicode.html, section 2.3 and appendix B.1.) All of these options are based on the assumption that <VAV, HOLAM> will continue to be a valid encoding for both *Holam Male* and *Vav Haluma* when there is no need to distinguish them, as commonly in modern Hebrew text. It is desirable that rendering and other processes will fall back to treating these two as identical when no deliberate distinction is being made, e.g. when a font is applied which does not have special features to support *Holam Male* and *Vav Haluma* distinctively, or for collation unless a tailoring is applied to distinguish the two. (It is noted that because in the current Default Unicode Collation Element Table (DUCET) VAV and HOLAM have weights at different levels, for practical purposes <VAV, HOLAM> and <HOLAM, VAV> collate together, and ZWJ and ZWNJ are ignored, except at the binary level. Therefore with all of these options *Holam Male* and *Vav Haluma* collate together except at the binary level.)

In most of the options (but not in Options A2, A3, C3 and C4) the recommended encoding for *Vav Haluma* is simply <VAV, HOLAM>. Although *Vav Haluma* is less common than *Holam Male*, this corresponds to the regular use of HOLAM with other Hebrew consonants; this is the reason for using the specially marked encoding for more common case.

Following this list of options and a summary of their advantages and disadvantages, the preferred encoding and proposal to the UTC is given.

A. Graphical Structure Solutions

These options are called "graphical structure solutions" because they represent the dot in *Holam Male* according to its graphical association with the VAV.

A1. *Holam Male* = <VAV, ZWJ, HOLAM>, *Vav Haluma* and undifferentiated VAV with HOLAM = <VAV, HOLAM>

This option effectively takes *Holam Male* as a variant of <VAV, HOLAM> with "a more connected rendering" (to quote from *The Unicode Standard*, version 4.0, section 15.3, p.390). This more connected rendering is indicated by inserting U+200D ZERO WIDTH JOINER (ZWJ) between VAV and HOLAM. This option was earlier rejected because ZWJ and ZWNJ were not permitted between a base character and a combining character. But this restriction was partially relaxed at the February 2004 UTC meeting. This option depends on a small further relaxation of this restriction.

This encoding has the advantage that the fallback behaviour should be automatically as required. One disadvantage is that as a layout control character ZWJ is intended for making rendering distinctions which have no other semantic significance. However, there are already several defined uses of ZWJ and ZWNJ with Arabic and Indic scripts which do have other semantic significance. There are similar objections to any possible variant of this option using Variation Selectors.

There are no known existing implementations of this option. However, it would be simple to support in fonts.

This option, as well as Options B1 and B2, implies that undifferentiated VAV with HOLAM will be rendered like *Vav Haluma*, not like *Holam Male*. In fact it seems that many typesetters who do not generally distinguish *Vav Haluma* from *Holam Male* render the HOLAM dot above VAV further to the right than the HOLAM dot indicating *Holam Haser* when used with other letters, for example with YOD whose upper part is usually the same as that of VAV. This suggests that if in a particular text these typesetters did need to distinguish *Vav Haluma* from *Holam Male*, the glyph they would use for *Vav Haluma* would not be the one which they used for undifferentiated VAV with HOLAM.

Another disadvantage of this option is that each *Holam Male* consists of three Unicode characters, including ZWJ which takes three bytes in UTF-8. This increases the size of the encoded Hebrew Bible, relative to Options A2 and B1 (in which *Holam Male* consists of two characters), by 34,000 characters and more than 100,000 UTF-8 bytes, i.e. around 2% of its total length.

A2. *Holam Male* and undifferentiated VAV with HOLAM = <VAV, HOLAM>, *Vav Haluma* = <VAV, ZWNJ, HOLAM>

This option differs from Option A1 in that the simple sequence <VAV, HOLAM> is used for *Holam Male*, rather than for *Vav Haluma*. The proposed sequence for *Vav Haluma* uses U+200C ZERO WIDTH NON-JOINER (ZWNJ), because *Vav Haluma* is a *less* connected rendering than *Holam Male*. This option has the advantage that the longer and more complex sequence is used for the less common *Vav Haluma*, but the disadvantage that consonantal VAV is treated differently from all other Hebrew consonants in how it combines with *Holam Haser*. The fallback behaviour of this

option should be as required.

This sequence was rejected earlier for the same theoretical reasons as Option A1, but for the same reasons it can now be considered acceptable.

This option implies that undifferentiated VAV with HOLAM will be rendered like *Holam Male*, not like *Vav Haluma*. It may therefore represent more closely than Options A1, B1 or B2 the practice of typesetters who do not normally distinguish *Vav Haluma* from *Holam Male* but may have to for certain special texts.

The encoding already used by Mechon Mamre is similar to this option except that ZWNJ is replaced by ZWJ. This encoding is apparently supported by existing some fonts and rendering engines, but this support may be largely accidental, because the ZWJ unintentionally breaks a rule to position HOLAM centrally over VAV. The long term encoding of text should not be determined in this way by unintended features of current implementations.

A3. *Holam Male* = <VAV, ZWJ, HOLAM>, *Vav Haluma* = <VAV, ZWNJ, HOLAM>, undifferentiated VAV with HOLAM = <VAV, HOLAM>

This option differs from Options A1 and A2 in that explicit sequences with ZWJ or ZWNJ are used to distinguish both *Holam Male* and *Vav Haluma* from the undifferentiated VAV with HOLAM. This allows typesetters to make a three-way distinction, distinguishing undifferentiated VAV with HOLAM both from *Holam Male* and from *Vav Haluma*. It is uncertain whether this is ever necessary. Again, the fallback behaviour of this option should be as required. Otherwise, this option seems to have the disadvantages of both Options A1 and A2.

B. Logical Structure Solutions

These options are called "logical structure solutions" because they represent the dot in *Holam Male* according to its logical association with the preceding base character. In all of these solutions *Vav Haluma* and undifferentiated VAV with HOLAM are represented as <VAV, HOLAM>.

B1. *Holam Male* = <HOLAM, VAV>

In this option *Holam Male* is distinguished from *Vav Haluma* in that HOLAM is encoded before VAV. This appears to be a breach of the Unicode rule that combining characters must follow their associated base characters. But it is not really a breach of the rule, because the HOLAM in *Holam Male* can be understood as logically associated with the preceding base character, for which it is the associated vowel, and the VAV is a separate silent letter. On this analysis *Holam Male* is analogous to *Hiriq Male*, i.e. HIRIQ followed by silent YOD, in which the HIRIQ is written below the preceding base character; also to the sequence of HOLAM with silent ALEF, which is encoded unambiguously in this order although the HOLAM is often rendered above the top right side of the ALEF.

With this encoding, the HOLAM is for Unicode purposes linked with the preceding base character in a combining character sequence. The HOLAM will often become separated from the VAV by an accent character, because within a combining character sequence accents are sorted after vowel points in canonical ordering and also in the specific orderings recommended for certain fonts.

The fallback behaviour of this encoding, with a font which has not been set up to work with it, is not ideal but still legible: the *Holam Male* will be broken up, with the HOLAM being rendered above the left side of the preceding base character.

Some existing texts use this encoding, and it is supported in OpenType fonts such as SBL Hebrew and Ezra SIL, with Microsoft Windows only. However, this implementation proved to be very

complex, and may be beyond the capabilities of other rendering systems.

The complicating factor is the rule that *Holam Male* is not formed, and so HOLAM is not shifted on to a following VAV, if the VAV is consonantal and followed by a vowel, except in the divine name. This rule, which is illustrated in Figure 4 above, is complex and not entirely conditioned by the immediate glyph or character environment. In most cases it is possible in principle, although rather complex, to determine within the font which VAVs are silent and so may form *Holam Male*; the rule is that if VAV is followed by any Hebrew point or accent it is not silent. But there are two cases where this is not possible. Firstly, a VAV followed by *Holam Male* or by *Vav Shruqa* (i.e. VAV with DAGESH acting as a vowel; but this combination may also be consonantal) is consonantal and so cannot form *Holam Male*, but any attempt to distinguish these cases within a font is potentially recursive and well beyond the capabilities of existing rendering systems. (This situation does not occur in the Hebrew Bible, but it can do in modern Hebrew.) Secondly, in at least one major edition of the Hebrew Bible, when the divine name is written with HOLAM (which is in a small minority of cases) the HOLAM dot is positioned over the VAV as in *Holam Male* although the VAV is consonantal and carries another vowel point and usually an accent; this case can be distinguished from a similar word in which the HOLAM is not positioned as in *Holam Male* only from the remote context, in a way which is clearly outside the scope of any rendering system - see the centre and right hand images in Figure 4.

Since it is beyond the reasonable scope of a rendering system to determine in every case whether *Holam Male* should be formed or not, there is a need to define more specific encodings at least for certain marginal cases. Thus, for example, formation of *Holam Male* could be inhibited by the sequence <ZWJ, HOLAM, VAV>, which would indicate *Holam Haser* followed by consonantal VAV; but this formation could be promoted by the sequence <ZWNJ, HOLAM, VAV>, which would indicate the rendering of the divine name as in the right hand image in Figure 4. The implication of this is that Option B1 does not in fact have the simplicity which it appears to have at first sight.

B2. *Holam Male* = <ZWNJ, HOLAM, VAV>

This option differs from Option B1 in that HOLAM is preceded by ZWNJ to separate it from the preceding combining character sequence. Again, this is a sequence which was rejected earlier for the same theoretical reasons as Option A1, but for the same reasons it can now be considered acceptable. The HOLAM is technically and logically combined with the preceding base character as in Option B1, but the intervening ZWNJ can be understood as indicating that it should not be combined graphically.

With this proposal, any accents and other combining characters which are graphically as well as logically associated with the preceding base character should be encoded before the ZWNJ. The ZWNJ, which is in combining class 0, inhibits canonical reordering, and so these other combining characters will never be moved to between HOLAM and VAV. The ZWNJ also explicitly signals that the HOLAM is to be shifted to form *Holam Male* or as in the divine name, and so distinguishes this from the cases in which the HOLAM dot remains on the preceding base character before consonantal VAV. This implies that it is significantly simpler to implement Option B2 than Option B1.

This option has the same disadvantage as Options A1 and A3 that the length of a text is significantly increased. Its fallback behaviour should be the same as that of Option B1.

C. New Character Solutions

The common factor with these options is that a new Unicode character is proposed. They have the common disadvantage that they have very poor fallback behaviour when used with fonts which do not support the new character. Some experts have commented that any of these solutions have the

effect of making existing uses of HOLAM illegal. In fact the definitions could be carefully written so that existing uses are not made illegal but only deprecated. Nevertheless, this effect on existing texts is a significant argument against any of these new character solutions.

C1. New character HEBREW LETTER HOLAM MALE

In some ways the simplest option of all is to define a new Unicode character HEBREW LETTER HOLAM MALE, which might have a compatibility decomposition to <VAV, HOLAM>. This would certainly be simple to implement, and would reduce the size of the encoded text. But it would have no suitable fallback behaviour with fonts which do not support this new character. This solution also loses the essential identity of the HOLAM and the VAV in *Holam Male* with HOLAM and VAV in other contexts.

C2. New character HEBREW POINT RIGHT HOLAM

This is the first of three options based on defining a new second combining character for a variant of HOLAM. Thus one of the variants of HOLAM can be used for the dot in *Holam Male*, and the other variant can be used in *Vav Haluma*. These options are reasonably simple to implement. They have the small advantage over Option C1 that the identity of VAV, though not of HOLAM, is preserved.

In this option, the new combining character is HEBREW POINT RIGHT HOLAM, and is to be used only in combination with VAV to form *Holam Male*. The existing HOLAM character is to be used only for *Holam Haser*, when combined with any Hebrew consonant. The fallback behaviour is good for *Holam Haser* but not for *Holam Male*.

C3. New character HEBREW POINT HOLAM HASER

In this option, the new combining character is HEBREW POINT HOLAM HASER, and is to be used for *Holam Haser* when combined with any Hebrew consonant. The existing HOLAM character is to be used only in combination with VAV to form *Holam Male*. The fallback behaviour is good for *Holam Male* but not for *Holam Haser*; this may be preferable to the fallback behaviour of Option C2 because *Holam Male* is commoner than *Holam Haser* in modern Hebrew.

C4. New character HEBREW LETTER LEFT HOLAM

In this option, the new combining character is HEBREW POINT LEFT HOLAM, and is to be used only in combination with VAV to form *Vav Haluma*. The existing HOLAM character is to be used in combination with VAV to form *Holam Male*, and for *Holam Haser* in combination with consonants other than VAV. The fallback behaviour is good except for the relatively rare *Vav Haluma*, i.e. *Holam Haser* with VAV. But this option introduces an entirely illogical distinction between *Holam Haser* with VAV and *Holam Haser* with other consonants, which is justified neither by character semantics nor by typography.

Summary of Advantages and Disadvantages

Option	***Summary***	***Fallback Behaviour***	***Advantages***	***Disadvantages***
A1	*Holam Male* = <VAV, ZWJ, HOLAM>	Excellent	Best fit to the graphical structure of Hebrew script; best fallback behaviour	ZWJ used within combining sequence and with semantic significance; long sequence for a common character

A2	*Vav Haluma* = <VAV, ZWNJ, HOLAM>	Excellent	Best fit to the graphical structure of Hebrew script; best fallback behaviour; long sequence only for a rare combination	ZWNJ used within combining sequence and with semantic significance; arbitrary use of different sequence for *Holam Haser* in the context of VAV
A3	*Holam Male* = <VAV, ZWJ, HOLAM> and *Vav Haluma* = <VAV, ZWNJ, HOLAM>	Excellent	Best fit to the graphical structure of Hebrew script; best fallback behaviour; support for possible three-way HOLAM positioning distinction	ZWJ and ZWNJ used within combining sequence and with semantic significance; long sequence for a common character; arbitrary use of different sequence for *Holam Haser* in the context of VAV
B1	*Holam Male* = <HOLAM, VAV>	Legible	Best fit to the logical structure of Hebrew script; existing implementations and texts	Most complex implementation; difficulties with unusual combinations e.g. the divine name
B2	*Holam Male* = <ZWNJ, HOLAM, VAV>	Legible	Best fit to the logical structure of Hebrew script; implementation much easier than Option B1	ZWNJ used within combining sequence, but with only graphical significance; long sequence for a common character
C1	New character HOLAM MALE	*Holam Male* illegible	Simplest implementation	Bad fallback behaviour; unity of VAV and HOLAM lost
C2	New character RIGHT HOLAM	*Holam Male* illegible		Bad fallback behaviour; unity of HOLAM lost
C3	New character HOLAM HASER	*Holam Haser* illegible		Bad fallback behaviour; unity of HOLAM lost
C4	New character LEFT HOLAM	*Vav Haluma* illegible	Few characters affected by bad fallback behaviour	Unity of HOLAM and of *Holam Haser* lost; arbitrary use of different character for *Holam Haser* in the context of VAV

Preferred Encoding

Assuming that the objections to sequences with ZWJ or ZWNJ between base characters and combining characters no longer apply, all of the options above can be considered. Theoretically the neatest of these is Option A1. It is also easy to implement in practice. The only significant objection to it is the 2% increase in the length of the text. But that objection should not be given too much weight, given that storage is cheap and compression can be used for transmission.

Options A2, A3 and B2 are considered to be acceptable alternatives to Option A1. Option B1 is rejected because its apparent simplicity masks serious complications. And all of the new character solutions are rejected because of their incompatibility with existing fonts and implementations.

But the preferred option is Option A1. So this proposal is that *Holam Male* should be encoded,

when it needs to be distinguished from *Vav Haluma*, as the sequence <VAV, ZWJ, HOLAM>; and that the sequence <VAV, HOLAM> should be used always for *Vav Haluma*, and for *Holam Male* when not distinguished from *Vav Haluma*. Furthermore, because this option involves a sequence with ZWJ, and also because it is desirable that the encoding be clearly standardised to avoid confusion, it is proposed that the UTC specify this as the correct encoding for *Holam Male* when distinguished from *Vav Haluma*, and that this specification should be added to Section 8.1 of *The Unicode Standard*, perhaps after the existing subsection *Shin and Sin*.